Royal Bank of Canada is offering the principal protected notes whose return is linked to the negative performance of the Reference Assets described below, which may be described in greater detail in the reference asset supplement attached to the product prospectus supplement as Annex A (the “reference asset supplement”). The prospectus dated January 5, 2007, the prospectus supplement dated February 28, 2007 and the product prospectus supplement dated January 7, 2008 describe terms that will apply generally to the principal protected notes, including any notes you purchase. Capitalized terms used but not defined in this pricing supplement shall have the meanings given to them in the product prospectus supplement. In the event of any conflict, this pricing supplement will control.

Issuer: Royal Bank of Canada (“Royal Bank”).
Issue: Senior Global Medium-Term Notes, Series C
Underwriter: RBC Capital Markets Corporation
Interest rate (coupon): We will not pay you interest during the term of the notes.
Principal Protection: 100%
Reference Assets: The payment at maturity on the Notes are linked to the value of a weighted basket (the “Basket”) consisting of five currencies (each a “Basket Currency,” and together, the “Basket Currencies”). Such weightings will be achieved by providing a Component Weight for each Basket Currency. The Initial Reference Rates are expressed in CCY/USD.

<table>
<thead>
<tr>
<th>Basket Currency</th>
<th>Component Weight</th>
<th>Initial Reference Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese yen/JPY</td>
<td>20%</td>
<td>105.72</td>
</tr>
<tr>
<td>European Union euro/EUR</td>
<td>20%</td>
<td>0.68348</td>
</tr>
<tr>
<td>British Pound Sterling/GBP</td>
<td>20%</td>
<td>0.54271</td>
</tr>
<tr>
<td>Swiss franc/CHF</td>
<td>20%</td>
<td>1.0855</td>
</tr>
<tr>
<td>Canadian dollar/CAD</td>
<td>20%</td>
<td>1.0344</td>
</tr>
</tbody>
</table>

Incorporated risk factors: The notes are subject to the risks set forth under the heading “General Risks” in the product prospectus supplement. In addition to those General Risks, the notes are also subject to the risks described in the product prospectus supplement on PS-9 in the section entitled “Risks Specific To Notes Linked To The Performance Of A Currency, A Currency Index Or A Basket Of Currencies Or Currency Indices.”

Initial Valuation Date: September 26, 2008
<table>
<thead>
<tr>
<th>Issue Date:</th>
<th>September 30, 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maturity Date:</td>
<td>September 30, 2011</td>
</tr>
<tr>
<td>Term:</td>
<td>The term of your notes is approximately three (3) years.</td>
</tr>
<tr>
<td>Participation Rate:</td>
<td>130%</td>
</tr>
<tr>
<td>Payment at Maturity:</td>
<td>At maturity, the investor receives the principal amount invested (the “Principal Amount”) plus an amount equal to the greater of:</td>
</tr>
<tr>
<td></td>
<td>1. Zero (0%); and</td>
</tr>
<tr>
<td></td>
<td>2. The Principal Amount multiplied by the Basket Performance multiplied by the Participation Rate</td>
</tr>
<tr>
<td>Basket Performance:</td>
<td>The Basket Performance is equal to the weighted return of the Basket Currencies. The Basket Performance is calculated using the following formula:</td>
</tr>
<tr>
<td></td>
<td>[ 20% \times \left( \frac{J_{FY} - J_{FI}}{J_{FY}} \right) + 20% \times \left( \frac{EUR_{F} - EUR_{I}}{EUR_{F}} \right) + 20% \times \left( \frac{GBP_{F} - GBP_{I}}{GBP_{F}} \right) + 20% \times \left( \frac{CHF_{F} - CHF_{I}}{CHF_{F}} \right) + 20% \times \left( \frac{CAD_{F} - CAD_{I}}{CAD_{F}} \right) ]</td>
</tr>
<tr>
<td>Special features of the notes:</td>
<td>The notes are “bearish” principal protected currency linked notes offering participation in the depreciation of the Reference Assets relative to the U.S. dollar at maturity. If the Basket Performance is zero or negative, the return on the notes will be limited to the principal amount. The Basket Performance will be positive and you will receive a higher payment at maturity if the value of the Basket Currencies depreciates relative to the U.S. dollar. See the section “Certain Features of the Notes” beginning on Page PS-25 in the product prospectus supplement.</td>
</tr>
<tr>
<td>U.S. tax treatment</td>
<td>We intend to treat the notes as subject to the special rules applicable to contingent payment debt obligations for U.S. federal income tax purposes. In accordance with these rules, you will be required to accrue interest income in accordance with the comparable yield and projected payment schedule for your notes. You should call RBC Capital Markets toll free at (866) 609-6009 to obtain this information. For a detailed discussion of the tax consequences of owning and disposing of your notes, please see the discussion under &quot;Supplemental Discussion of Federal Income Taxes&quot; in the accompanying product supplement, “Certain Income Tax Consequences” in the accompanying prospectus supplement, and “Tax Consequences” in the accompanying prospectus. You should consult your tax advisor about your own tax situation.</td>
</tr>
<tr>
<td>Minimum Investment:</td>
<td>$1,000 (except for certain non-U.S. investors for whom the minimum investment will be higher)</td>
</tr>
<tr>
<td>Denomination:</td>
<td>$1,000 (except for certain non-U.S. investors for whom the denomination will be higher)</td>
</tr>
<tr>
<td>Final Valuation Date:</td>
<td>September 28, 2011, subject to extension for market and other disruptions.</td>
</tr>
<tr>
<td>Determination of Final Reference Rates:</td>
<td>The Reference Rate for each Basket Currency will be determined by reference to the exchange rates for spot settlement for the Basket Currencies, as defined in the reference asset supplement to the product prospectus supplement in the section “Currency Exchange Rates” on page R-28. In certain circumstances, the Final Reference Rate for the Reference Assets will be based on an alternate calculation for each Currency as described under “Unavailability of the Reference Price on a Valuation Date — Reference Asset Consisting of Individual Foreign Currencies” in the product prospectus supplement.</td>
</tr>
<tr>
<td>Clearance and Settlement:</td>
<td>DTC global (including through its indirect participants Euroclear and Clearstream, Luxembourg as described under “Description of Debt Securities — Ownership and Book-Entry Issuance” in the accompanying prospectus).</td>
</tr>
</tbody>
</table>
Currency:  U.S. dollars.
Listing:  The notes will not be listed on any securities exchange or quotation system.
CUSIP:  78008GPD8

Terms Incorporated In the Master Note:  All of the terms appearing above the item captioned “Listing” on the cover page of this pricing supplement and the terms appearing under the caption “Additional Terms of the Principal Protected Notes” in the product prospectus supplement with respect to principal protected notes dated January 7, 2008.

Your investment in the notes involves certain risks. See “Additional Risk Factors Specific to Your Notes” beginning on page PS-1 of the product supplement to read about investment risks relating to the principal protected notes.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these notes or passed upon the accuracy of this pricing supplement or the accompanying prospectus, prospectus supplement and product prospectus supplement. Any representation to the contrary is a criminal offense.

<table>
<thead>
<tr>
<th>Per note</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price to public</td>
<td>100%</td>
</tr>
<tr>
<td>Underwriting discounts and commission</td>
<td>2.625%</td>
</tr>
<tr>
<td>Proceeds to Royal Bank</td>
<td>97.375%</td>
</tr>
</tbody>
</table>

The price to purchasers who maintain accounts with participating dealers in which only asset-based fees are charged is 98% and the concession paid to such dealers is 0.625%. The price at which you purchase the notes includes hedging costs and profits that Royal Bank or its affiliates expect to incur or realize. These costs and profits will reduce the secondary market price, if any secondary market develops, for the notes. As a result, you may experience an immediate and substantial decline in the value of your notes on the issue date.

RBC Capital Markets Corporation, which we refer to as RBCCM, acting as agent for Royal Bank of Canada, received a commission of $26.25 per $1,000 principal amount note and would use a portion of that commission to allow selling concessions to other dealers of $26.25 per $1,000 principal amount note. The price of the notes also included a profit of $30.80 earned by Royal Bank of Canada in hedging its exposure under the notes. The total of the commission received by RBCCM, which includes concessions to be allowed to other dealers, and the hedging profits of Royal Bank Canada was $57.05 per $1,000 principal amount note.

We may use this pricing supplement in the initial sale of principal protected notes. In addition, RBC Capital Markets Corporation or another of our affiliates may use this pricing supplement in a market-making transaction in principal protected notes after its initial sale. Unless we or our agent informs the purchaser otherwise in the confirmation of sale, this pricing supplement is being used in a market-making transaction.

The notes will not constitute deposits insured under the Canada Deposit Insurance Corporation or by the U.S. Federal Deposit Insurance Corporation or any other Canadian or U.S. governmental agency or instrumentality.

ADDITIONAL TERMS OF YOUR NOTES

You may access these documents on the SEC website at www.sec.gov as follows (or if such address has changed, by reviewing our filings for the relevant date on the SEC website):
Prospectus dated January 5, 2007:
http://www.sec.gov/Archives/edgar/data/1000275/000090956707000025/o34295e424b3.htm

Prospectus Supplement dated February 28, 2007:
http://www.sec.gov/Archives/edgar/data/1000275/000090956707000285/o35030e424b3.htm

Product Prospectus Supplement dated January 7, 2008:
http://www.sec.gov/Archives/edgar/data/1000275/000121465908000021/f1383424b3.txt

Our SEC file number is 333-139359. As used in this pricing supplement, the “Company,” “we,” “us,” or “our” refers to Royal Bank of Canada.

Hypothetical Returns

Sample Calculations of the Payment at Maturity

The examples set forth below are included for illustration purposes only. The reference rates of the Basket Currencies used to illustrate the calculation of Basket Performance are neither estimates nor forecasts of the references rates of the Basket Currencies on the initial valuation date or the final valuation date on which the calculation of the Basket Performance, and in turn the payment at maturity, will depend. The Basket Performance will be positive and you will receive a higher payment at maturity if the value of the Basket Currencies depreciates relative to the U.S. dollar. All examples assume that a holder has purchased Notes with an aggregate principal amount of $10,000, with a participation rate of 125% and that no extraordinary event has occurred.

Example 1— Calculation of the payment at maturity where the Basket Performance is greater than or equal to 0%.
Basket Performance: 55% (the Basket Currencies have depreciated versus the US dollar)
Payment at Maturity: $10,000 + ($10,000 x 55% x 125%) = $10,000 + $6,875 = $16,875
On a $10,000 investment, a 55% basket performance results in a payment at maturity of $16,875, a 68.75% return on the Notes.

Example 2— Calculation of the payment at maturity where the Basket Performance is less than 0%.
Basket Performance: -25% (the Basket Currencies have appreciated versus the US dollar)
Payment at Maturity: The Payment at Maturity cannot be less than zero; therefore, the Payment at Maturity will be limited to the Principal Amount.
On a $10,000 investment, a -25% Basket Performance results in a payment at maturity of $10,000, a 0% return on the Notes.
Historical Information

The graphs below set forth the historical performance of each Reference Asset. In addition, below each graph is a table setting forth the intra-day high, intra-day low and period-end closing rates of each Reference Asset. The information provided in each table is for the four quarters of 2005, 2006 and 2007, the first and second quarter of 2008, as well as from July 1, 2008 to September 25, 2008.

We obtained the information regarding the historical performance of the Reference Assets in the charts below from Bloomberg Financial Markets and Factset Research Systems Inc.

We make no representation or warranty as to the accuracy or completeness of the information obtained from Bloomberg Financial Markets and Factset Research Systems Inc. The historical performance of the Reference Assets should not be taken as an indication of future performance, and no assurance can be given as to the market rates of the Reference Assets on the final valuation date. We cannot give you assurance that the performance of the Reference Assets will result in any return in addition to your initial investment.
<table>
<thead>
<tr>
<th>Period-Start Date</th>
<th>Period-End Date</th>
<th>High Intra-Day Rate of the Reference Asset</th>
<th>Low Intra-Day Rate of the Reference Asset</th>
<th>Period-End Closing Rate of the Reference Asset</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/1/2004</td>
<td>6/30/2004</td>
<td>114.88</td>
<td>103.49</td>
<td>108.77</td>
</tr>
<tr>
<td>7/1/2004</td>
<td>9/30/2004</td>
<td>112.49</td>
<td>107.58</td>
<td>110.05</td>
</tr>
<tr>
<td>10/1/2004</td>
<td>12/31/2004</td>
<td>111.46</td>
<td>101.84</td>
<td>102.63</td>
</tr>
<tr>
<td>1/1/2005</td>
<td>3/31/2005</td>
<td>107.7</td>
<td>101.68</td>
<td>107.15</td>
</tr>
<tr>
<td>4/1/2005</td>
<td>6/30/2005</td>
<td>110.99</td>
<td>104.2</td>
<td>110.92</td>
</tr>
<tr>
<td>7/1/2005</td>
<td>9/30/2005</td>
<td>113.72</td>
<td>108.77</td>
<td>113.51</td>
</tr>
<tr>
<td>10/1/2005</td>
<td>12/30/2005</td>
<td>121.4</td>
<td>113.02</td>
<td>117.75</td>
</tr>
<tr>
<td>1/1/2006</td>
<td>3/31/2006</td>
<td>119.4</td>
<td>113.43</td>
<td>117.78</td>
</tr>
<tr>
<td>4/1/2006</td>
<td>6/30/2006</td>
<td>118.9</td>
<td>109</td>
<td>114.42</td>
</tr>
<tr>
<td>7/1/2006</td>
<td>9/29/2006</td>
<td>118.28</td>
<td>113.46</td>
<td>118.18</td>
</tr>
<tr>
<td>10/1/2006</td>
<td>12/29/2006</td>
<td>119.88</td>
<td>114.44</td>
<td>119.07</td>
</tr>
<tr>
<td>1/1/2007</td>
<td>3/31/2007</td>
<td>122.19</td>
<td>115.16</td>
<td>117.83</td>
</tr>
<tr>
<td>4/1/2007</td>
<td>6/30/2007</td>
<td>124.14</td>
<td>117.46</td>
<td>123.18</td>
</tr>
<tr>
<td>7/1/2007</td>
<td>9/30/2007</td>
<td>123.68</td>
<td>111.62</td>
<td>114.8</td>
</tr>
<tr>
<td>10/1/2007</td>
<td>12/31/2007</td>
<td>117.94</td>
<td>107.23</td>
<td>111.71</td>
</tr>
<tr>
<td>1/1/2008</td>
<td>3/31/2008</td>
<td>112.05</td>
<td>95.78</td>
<td>99.69</td>
</tr>
<tr>
<td>4/1/2008</td>
<td>6/30/2008</td>
<td>108.58</td>
<td>99.60</td>
<td>106.21</td>
</tr>
<tr>
<td>7/1/2008</td>
<td>9/25/2008</td>
<td>110.66</td>
<td>103.54</td>
<td>106.56</td>
</tr>
</tbody>
</table>

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.
### Value in USD of one (1) European Union Euro

<table>
<thead>
<tr>
<th>Period-Start Date</th>
<th>Period-End Date</th>
<th>High Intra-Day Rate of the Reference Asset</th>
<th>Low Intra-Day Rate of the Reference Asset</th>
<th>Period-End Closing Rate of the Reference Asset</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/1/2004</td>
<td>12/31/2004</td>
<td>1.3666</td>
<td>1.2225</td>
<td>1.3554</td>
</tr>
<tr>
<td>7/1/2005</td>
<td>9/30/2005</td>
<td>1.2589</td>
<td>1.1868</td>
<td>1.2026</td>
</tr>
<tr>
<td>10/1/2005</td>
<td>12/30/2005</td>
<td>1.2205</td>
<td>1.164</td>
<td>1.1849</td>
</tr>
<tr>
<td>1/1/2006</td>
<td>3/31/2006</td>
<td>1.2323</td>
<td>1.1802</td>
<td>1.2118</td>
</tr>
<tr>
<td>4/1/2006</td>
<td>6/30/2006</td>
<td>1.2979</td>
<td>1.2034</td>
<td>1.279</td>
</tr>
<tr>
<td>1/1/2007</td>
<td>3/31/2007</td>
<td>1.3411</td>
<td>1.2868</td>
<td>1.3354</td>
</tr>
<tr>
<td>4/1/2007</td>
<td>6/30/2007</td>
<td>1.368</td>
<td>1.3264</td>
<td>1.3542</td>
</tr>
<tr>
<td>7/1/2007</td>
<td>9/30/2007</td>
<td>1.4278</td>
<td>1.3361</td>
<td>1.4267</td>
</tr>
<tr>
<td>1/1/2008</td>
<td>3/31/2008</td>
<td>1.5904</td>
<td>1.4365</td>
<td>1.5788</td>
</tr>
<tr>
<td>4/1/2008</td>
<td>6/30/2008</td>
<td>1.6018</td>
<td>1.5286</td>
<td>1.5755</td>
</tr>
<tr>
<td>7/1/2008</td>
<td>9/25/2008</td>
<td>1.6038</td>
<td>1.3882</td>
<td>1.4609</td>
</tr>
</tbody>
</table>

__PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.__
<table>
<thead>
<tr>
<th>Period-Start Date</th>
<th>Period-End Date</th>
<th>High Intra-Day Rate of the Reference Asset</th>
<th>Low Intra-Day Rate of the Reference Asset</th>
<th>Period-End Closing Rate of the Reference Asset</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/1/2004</td>
<td>9/30/2004</td>
<td>1.8771</td>
<td>1.7709</td>
<td>1.812</td>
</tr>
<tr>
<td>10/1/2004</td>
<td>12/31/2004</td>
<td>1.955</td>
<td>1.7747</td>
<td>1.9181</td>
</tr>
<tr>
<td>1/1/2005</td>
<td>3/31/2005</td>
<td>1.9325</td>
<td>1.851</td>
<td>1.8905</td>
</tr>
<tr>
<td>4/1/2005</td>
<td>6/30/2005</td>
<td>1.9217</td>
<td>1.7873</td>
<td>1.7915</td>
</tr>
<tr>
<td>7/1/2005</td>
<td>9/30/2005</td>
<td>1.85</td>
<td>1.7273</td>
<td>1.7643</td>
</tr>
<tr>
<td>10/1/2005</td>
<td>12/30/2005</td>
<td>1.7904</td>
<td>1.7049</td>
<td>1.723</td>
</tr>
<tr>
<td>1/1/2006</td>
<td>3/31/2006</td>
<td>1.7935</td>
<td>1.7188</td>
<td>1.7372</td>
</tr>
<tr>
<td>4/1/2006</td>
<td>6/30/2006</td>
<td>1.9026</td>
<td>1.7251</td>
<td>1.8484</td>
</tr>
<tr>
<td>7/1/2006</td>
<td>9/29/2006</td>
<td>1.9143</td>
<td>1.8177</td>
<td>1.8723</td>
</tr>
<tr>
<td>7/1/2007</td>
<td>9/30/2007</td>
<td>2.0654</td>
<td>1.9654</td>
<td>2.0473</td>
</tr>
<tr>
<td>10/1/2007</td>
<td>12/31/2007</td>
<td>2.1162</td>
<td>1.9697</td>
<td>1.9849</td>
</tr>
<tr>
<td>1/1/2008</td>
<td>3/31/2008</td>
<td>2.0393</td>
<td>1.9338</td>
<td>1.9837</td>
</tr>
<tr>
<td>4/1/2008</td>
<td>6/30/2008</td>
<td>2.0045</td>
<td>1.9365</td>
<td>1.9923</td>
</tr>
<tr>
<td>7/1/2008</td>
<td>9/25/2008</td>
<td>2.0157</td>
<td>1.7447</td>
<td>1.8372</td>
</tr>
</tbody>
</table>

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.
<table>
<thead>
<tr>
<th>Period-Start Date</th>
<th>Period-End Date</th>
<th>High Intra-Day Rate of the Reference Asset</th>
<th>Low Intra-Day Rate of the Reference Asset</th>
<th>Period-End Closing Rate of the Reference Asset</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/1/2004</td>
<td>9/30/2004</td>
<td>1.2859</td>
<td>1.2206</td>
<td>1.2461</td>
</tr>
<tr>
<td>10/1/2004</td>
<td>12/31/2004</td>
<td>1.2685</td>
<td>1.1284</td>
<td>1.1403</td>
</tr>
<tr>
<td>7/1/2005</td>
<td>9/30/2005</td>
<td>1.3082</td>
<td>1.2241</td>
<td>1.2939</td>
</tr>
<tr>
<td>10/1/2005</td>
<td>12/30/2005</td>
<td>1.3286</td>
<td>1.2673</td>
<td>1.3134</td>
</tr>
<tr>
<td>1/1/2006</td>
<td>3/31/2006</td>
<td>1.324</td>
<td>1.2559</td>
<td>1.3042</td>
</tr>
<tr>
<td>1/1/2007</td>
<td>3/31/2007</td>
<td>1.2572</td>
<td>1.2032</td>
<td>1.2156</td>
</tr>
<tr>
<td>7/1/2007</td>
<td>9/30/2007</td>
<td>1.2233</td>
<td>1.1626</td>
<td>1.164</td>
</tr>
<tr>
<td>1/1/2008</td>
<td>3/31/2008</td>
<td>1.1349</td>
<td>0.9645</td>
<td>0.9931</td>
</tr>
<tr>
<td>4/1/2008</td>
<td>6/30/2008</td>
<td>1.0622</td>
<td>0.9890</td>
<td>1.0211</td>
</tr>
<tr>
<td>7/1/2008</td>
<td>9/25/2008</td>
<td>1.1418</td>
<td>1.0012</td>
<td>1.0906</td>
</tr>
</tbody>
</table>

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.
Value in USD of one (1) Canadian dollar
<table>
<thead>
<tr>
<th>Period-Start Date</th>
<th>Period-End Date</th>
<th>High Intra-Day Rate of the Reference Asset</th>
<th>Low Intra-Day Rate of the Reference Asset</th>
<th>Period-End Closing Rate of the Reference Asset</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/1/2004</td>
<td>9/30/2004</td>
<td>1.3384</td>
<td>1.2592</td>
<td>1.2613</td>
</tr>
<tr>
<td>4/1/2005</td>
<td>6/30/2005</td>
<td>1.2734</td>
<td>1.2068</td>
<td>1.2251</td>
</tr>
<tr>
<td>7/1/2005</td>
<td>9/30/2005</td>
<td>1.2479</td>
<td>1.1588</td>
<td>1.163</td>
</tr>
<tr>
<td>1/1/2006</td>
<td>3/31/2006</td>
<td>1.1797</td>
<td>1.13</td>
<td>1.1686</td>
</tr>
<tr>
<td>10/1/2006</td>
<td>12/29/2006</td>
<td>1.1669</td>
<td>1.1147</td>
<td>1.1659</td>
</tr>
<tr>
<td>4/1/2007</td>
<td>6/30/2007</td>
<td>1.16</td>
<td>1.047</td>
<td>1.0654</td>
</tr>
<tr>
<td>7/1/2007</td>
<td>9/30/2007</td>
<td>1.0866</td>
<td>0.9915</td>
<td>0.9923</td>
</tr>
<tr>
<td>10/1/2007</td>
<td>12/31/2007</td>
<td>1.0249</td>
<td>0.9059</td>
<td>0.9984</td>
</tr>
<tr>
<td>1/1/2008</td>
<td>3/31/2008</td>
<td>1.0379</td>
<td>0.9712</td>
<td>1.0254</td>
</tr>
<tr>
<td>4/1/2008</td>
<td>6/30/2008</td>
<td>1.0326</td>
<td>0.982</td>
<td>1.0215</td>
</tr>
<tr>
<td>7/1/2008</td>
<td>9/25/2008</td>
<td>1.0821</td>
<td>0.9976</td>
<td>1.0348</td>
</tr>
</tbody>
</table>

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.
Specific Investment Considerations

The notes are intended to be held to maturity. Your principal is only protected (to the extent specified on the front cover of this pricing supplement) if you hold the notes until maturity. If you sell your notes in the secondary market prior to maturity, you will not receive principal protection on the portion of your notes sold and may incur a substantial loss. There may be little or no secondary market for the notes. In addition, the price at which you purchase the notes includes hedging costs and profits that Royal Bank or its affiliates expect to incur or realize. These costs and profits will reduce the secondary market price, if any secondary market develops, for the notes. As a result, you may experience an immediate and substantial decline in the value of your notes on the issue date.

You may not realize a gain on the note. The notes are principal protected currency linked notes offering participation in the negative performance of the Reference Assets relative to the U.S. dollar at maturity. The Basket Performance will be positive and you will receive a higher payment at maturity if the value of the Basket Currencies depreciates relative to the U.S. dollar. If the Basket Performance is zero or negative on the final valuation date, the payment at maturity with respect to each note will be limited to the principal amount. This will be true, even where the Basket Performance was positive as of some date or dates prior to the final valuation date, because the payment at maturity will be calculated solely on the basis of the Basket Performance (or otherwise determined by the calculation agent, in the case of a market disruption event) as of the final valuation date. The notes are intended to be held to maturity.

The notes are unsecured. The notes are solely the unsecured obligations of Royal Bank. An investment in the notes does not constitute a deposit and neither the notes nor your investment in the notes are insured by the Canada Deposit Insurance Corporation, the Federal Deposit Insurance Corporation or any other private or governmental agency. The business and affairs of Royal Bank may affect the market value of your Notes.

The values of the Basket Currencies and the U.S. Dollar are affected by many complex factors. The Basket Currency exchange rates are a result of the supply of and demand for each currency, and changes in foreign exchange rates may result from the interactions of many factors including economic, financial, social and political conditions in the United States, the countries of Japan, the European Union, Britain, Switzerland and Canada. These conditions include, for example, the overall growth and performance of the economies of the United States and the Basket Currencies; the trade and current account balances between the U.S. on the one hand and the Basket Currencies on the other; the financing and capital account balances between the U.S. on the one hand and the Basket Currencies on the other; market interventions by the Federal Reserve Board or the respective governmental and banking authorities responsible for setting foreign exchange policies in Japan, the European Union, Britain, Switzerland and Canada; inflation, interest rate levels, the performance of stock markets, and the stability of the governments and banking systems in the United States and Japan, the European Union, Britain, Switzerland and Canada; wars that any of the United States, the countries of Japan, the European Union, Britain, Switzerland and Canada are directly or indirectly involved in or wars that occur anywhere in the world; major natural disasters in the United States, the countries of Japan, the European Union, Britain, Switzerland and Canada; and other foreseeable and unforeseeable events.

Certain relevant information relating to the Basket Currencies may not be as well known or as rapidly or thoroughly reported in the United States as comparable United States developments. Prospective purchasers of the notes should be aware of the possible lack of availability of important information that can affect the value of the Basket Currencies relative to the U.S. Dollar and must be prepared to make special efforts to obtain that information on a timely basis.

The liquidity, market value and maturity payment amount of the notes could be affected by the actions of the governments of the Basket Currencies. Exchange rates of the currencies of most economically developed nations and of many other nations, including Japan, the European Union, Britain, Switzerland and Canada, are “floating,” meaning they are permitted to fluctuate in value relative to the U.S. Dollar. However, governments of many nations, from time to time, do not allow their currencies to float freely in response to economic forces. Governments, including the governments of the Basket Currencies use a variety of techniques, such as intervention by their central banks or imposition of regulatory controls or taxes, to affect the exchange rates of their respective currencies. Governments may also issue a new currency to replace an existing currency or alter its exchange rate or relative exchange characteristics by devaluing or revaluing the currency. Thus, a special risk in purchasing the notes is that
their liquidity, trading value and amounts payable could be affected by the actions of the governments of the Basket Currencies that could change or interfere with currency valuations that are currently determined primarily by the markets, by fluctuations in response to other market forces, and the movement of currencies across borders. There will be no adjustment or change in the terms of the notes if exchange rates become fixed, if there is any devaluation or revaluation or imposition of exchange or other regulatory controls or taxes, if there is an issuance of a replacement currency, or if other developments affect any or all of the Basket Currencies, the U.S. Dollar, or any other currency.

**Potential conflicts of interest.** We and our affiliates expect to engage in trading activities related to the Reference Assets that may present a conflict between the holders’ interest in the notes and the interests we and our affiliates will have in their proprietary accounts, in facilitating transactions, including options and other derivatives transactions, for their customers and in accounts under their management. These trading activities could influence the rates of the Reference Assets and, therefore, the market value of the notes.

**Insurance companies, employee benefit plans and non-U.S. holders.** Any insurance company or fiduciary of a pension plan or other employee benefit plan or any non-U.S. holder of the notes should consult with its own advisors to determine whether an investment in the notes is suitable for you. Non-U.S. holders are subject to particular risks that are not described in the product supplement.

**Supplemental Plan of Distribution**

We expect that delivery of the Notes will be made against payment for the Notes on or about September 30, 2008 which is the second business day following the Initial Valuation Date (this settlement cycle being referred to as “T+2”). See “Supplemental Plan of Distribution” in the prospectus supplement dated February 28, 2007.
Royal Bank of Canada
Senior Global Medium-Term Notes, Series C
Principal Protected Notes

January 7, 2008

GENERAL TERMS

Royal Bank of Canada may offer and sell principal protected notes whose return is linked to the performance of individual equity securities, commodities, foreign currencies (relative to the value of the U.S. dollar), interest rates or consumer prices, an index of any of the above-referenced asset classes, exchange-traded funds (“ETFs”) linked to any such indices or a weighted basket comprised of indices or asset classes (each, a “Reference Asset”). Some of the potential Reference Assets that may be specified in the relevant pricing supplement are described in a reference asset supplement attached to this product supplement as Annex A (the “reference asset supplement”). The prospectus dated January 5, 2007, the prospectus supplement dated February 28, 2007 and this product prospectus supplement describe terms that will apply generally to the principal protected notes, including any notes you purchase. A separate pricing supplement will describe terms that apply specifically to your notes, including any changes to the terms specified below.

The principal protected notes are medium-term notes issued by Royal Bank of Canada. The relevant pricing supplement will specify the extent to which your notes will participate in any change in the value of the Reference Assets at maturity.

Issuer: Royal Bank of Canada (“Royal Bank”).

Interest rate (coupon): Unless specified in the relevant pricing supplement, we will not pay you interest during the term of the notes.

Reference Assets: The Reference Assets may consist of individual equity securities, commodities, foreign currencies, or an index of any of these asset classes or a weighted basket comprised of indices or asset classes, as specified in the relevant pricing supplement.

Payment at maturity: Unless the relevant pricing supplement specifies otherwise, at maturity, you will receive a cash payment determined as follows:

• if the Reference Asset Performance (as set forth below) is greater than 0%, you will receive an amount equal to the product of (a) your principal investment in the notes, (b) the Reference Asset Performance and (c) the participation rate specified in the relevant pricing supplement; and

• if the Reference Asset Performance is less than or equal to 0%, you will receive an amount equal to your principal investment in the notes.

Reference Asset Performance: Unless the relevant pricing supplement specifies otherwise, for notes that offer a coupon based on an increase in the value of a Reference Asset, which we refer to as “bullish notes,” where the Reference Asset is not a currency or a basket of currencies, the Reference Asset Performance is the positive amount (expressed as a percentage and rounded to four decimal places), if any, determined as follows:

...
Unless the relevant pricing supplement specifies otherwise, for notes that offer a coupon based on the highest increase (subject to certain lock-in levels) in the value of a Reference Asset during the term of the notes, which we refer to as “peak return notes,” where the Reference Asset is not a currency or a basket of currencies, the Reference Asset Performance is the positive amount (expressed as a percentage and rounded to four decimal places), if any, determined as follows:

\[
\frac{C(p) - C(i)}{C(i)}
\]

Unless the relevant pricing supplement specifies otherwise, for notes that offer a coupon based on an increase or decrease in the value of a Reference Asset, which we refer to as “absolute return notes,” where the Reference Asset is not a currency or a basket of currencies, the Reference Asset Performance is the absolute value of the amount, whether positive or negative (expressed as a percentage and rounded to four decimal places), determined as follows:

\[
\frac{C(f) - C(i)}{C(i)}
\]

provided, that if the price of the Reference Asset exceeds the upper barrier or is below the lower barrier specified in the pricing supplement at any time during the term of your absolute return note, your return will be zero (although you will receive your principal at maturity).

Unless the relevant pricing supplement specifies otherwise, for notes that offer a coupon based on a decrease in the value of a Reference Asset, which we refer to as “bearish notes,” where the Reference Asset is not a currency or a basket of currencies, the Reference Asset Performance is the positive amount (expressed as a percentage and rounded to four decimal places), if any, determined as follows:

\[
\frac{C(i) - C(f)}{C(i)}
\]

For any notes where the Reference Asset is a currency or a basket of currencies (but not a currency index), the Reference Asset Performance is an amount (expressed as a percentage and rounded to four decimal places) set forth in the relevant pricing supplement.

With respect to bullish notes, peak return notes, bearish notes or absolute return notes:

C(f) is the Final Reference Price of the Reference Asset, “C”, on the valuation date;
C(p) is the Highest Lock-In Level that the Reference Asset, “C”, has equaled or exceeded during the term of the notes; and
C(i) is the Initial Reference Price of the Reference Asset, “C”, on the pricing date.

With respect to notes linked to the performance of equity securities, currencies, commodities, or indices or ETFs relating to equities or commodities, the Final Reference Price or the Highest Lock-In Level equaled or exceeded and the Initial Reference Price will be determined using the applicable closing or trading price of the underlying reference asset on the relevant dates. With respect to peak return notes, the applicable pricing supplement will specify the relevant lock-in levels applicable to your note, and the return will be equal to the highest lock-in level that the Reference Asset has equaled or exceeded during the term of the notes. For example, if the pricing supplement specifies the applicable lock-in levels as 10% and 20% above the Initial Reference Price, and the highest price achieved for the Reference Asset during the measurement period equaled a price 15% above the Initial Reference Price, your return will be based on the
10% increase level, because that is the only lock-in level equaled or exceeded in the example.

With respect to baskets of equity securities, ETFs, currencies, commodities, or indices thereof, the Final Reference Price or the Highest Lock-In Level and the Initial Reference Price will be calculated using a basket that is equally weighted for all components unless the relevant pricing supplements otherwise specifies.

The relevant pricing supplement may specify, from time to time, that the Final Reference Price or the Highest Lock-In Level and the Initial Reference Price will be determined using the average closing or trading prices of the underlying reference asset on certain trading days during the relevant valuation period.

The participation rate for each Reference Asset will be specified in the relevant pricing supplement.

**Minimum Investment:** $1,000 (except for certain non-U.S. investors for whom the minimum investment will be higher).
**Denomination:** $1,000 (except for certain non-U.S. investors for whom the denomination will be higher).
**Valuation date:** Unless otherwise specified in the relevant pricing supplement, the valuation date will be the third trading day prior to the maturity date, subject to extension for up to five business days.
**Maturity date:** As specified in the relevant pricing supplement.
**Clearance and Settlement:** DTC global (including through its indirect participants Euroclear and Clearstream, Luxembourg as described under “Description of Debt Securities — Ownership and Book-Entry Issuance” in the accompanying prospectus).
**Listing:** The notes will not be listed on any securities exchange or quotation system.
**Calculation agent:** The Bank of New York.

*Your investment in the notes involves certain risks. See “Additional Risk Factors Specific to Your Notes” beginning on page PS-1 to read about investment risks relating to the principal protected notes.*

*The price at which you purchase the notes includes hedging costs and profits that Royal Bank or its affiliates expect to incur or realize. These costs and profits will reduce the secondary market price, if any secondary market develops, for the notes. As a result, you may experience an immediate and substantial decline in the value of your notes on the issue date.*

*Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these notes or passed upon the accuracy of this product prospectus supplement or the accompanying prospectus and prospectus supplement. Any representation to the contrary is a criminal offense.*

We may use this product prospectus supplement in the initial sale of a principal protected note. In addition, RBC Capital Markets Corporation or another of our affiliates may use this product prospectus supplement in a market-making transaction in a principal protected note after its initial sale. *Unless we or our agent informs the purchaser otherwise in the confirmation of sale, this product prospectus supplement is being used in a market-making transaction.*

The notes will not constitute deposits insured under the Canada Deposit Insurance Corporation or by the U.S. Federal Deposit Insurance Corporation or any other Canadian or U.S. governmental agency or instrumentality.

**RBC Capital Markets Corporation**

The Notes Are Part of a Series

The principal protected notes, including your notes, are part of a series of senior debt securities entitled “Senior Global Medium-Term Notes, Series C”, that we may issue under our senior indenture, dated October 23, 2003, between Royal Bank of Canada and The Bank of New York, as successor to the corporate trust business of JPMorgan Chase Bank, N.A., as trustee, as amended, from time to time (the “Indenture”). The principal protected notes, including your notes, are “indexed notes”, as defined in the accompanying prospectus supplement. This product prospectus supplement summarizes financial and other terms that apply generally to the principal protected notes, including your notes. We describe terms that apply generally to all Series C medium-term notes in “Description of the Notes We May Offer” in the accompanying prospectus supplement. The terms described here supplement those described in the accompanying prospectus and prospectus supplement and, if the terms described here are inconsistent with those described there, the terms described here are controlling.

Specific Terms Will Be Described in Pricing Supplements

The specific terms of your notes will be described in the relevant pricing supplement accompanying this product prospectus supplement. The terms described there supplement those described here and in the accompanying prospectus or prospectus supplement. If the terms described in the relevant pricing supplement are inconsistent with those described here or in the accompanying prospectus or prospectus supplement, the terms described in the relevant pricing supplement are controlling.
TABLE OF CONTENTS

Product Prospectus Supplement

Additional Risk Factors Specific to Your Notes...................................................................................................... PS-1
General Terms of the Principal Protected Notes..................................................................................................... PS-13
Certain Features of the Notes .................................................................................................................................. PS-25
Hypothetical Returns on Your Notes....................................................................................................................... PS-28
Use of Proceeds and Hedging.................................................................................................................................... PS-29
Supplemental Discussion of Canadian Tax Consequences....................................................................................... PS-30
Supplemental Discussion of Federal Income Tax Consequences................................................................................ PS-31
Employee Retirement Income Security Act ................................................................................................................ PS-34
Supplemental Plan of Distribution.......................................................................................................................... PS-35
Reference Asset Supplement .................................................................................................................................. Annex A

Prospectus Supplement dated February 28, 2007

About This Prospectus Supplement ......................................................................................................................... S-1
Risk Factors................................................................................................................................................................. S-1
Use of Proceeds ............................................................................................................................................................ S-4
Description of the Notes We May Offer ...................................................................................................................... S-5
Certain Income Tax Consequences.......................................................................................................................... S-23
Supplemental Plan of Distribution ........................................................................................................................... S-24
Documents Filed As Part of the Registration Statement ........................................................................................ S-29

Prospectus dated January 5, 2007

Documents Incorporated by Reference ....................................................................................................................... 2
Where You Can Find More Information .................................................................................................................. 3
Further Information ...................................................................................................................................................... 3
About This Prospectus ................................................................................................................................................ 4
Presentation of Financial Information ....................................................................................................................... 5
Caution Regarding Forward-Looking Information .................................................................................................... 5
Royal Bank of Canada ............................................................................................................................................... 6
Risk Factors ................................................................................................................................................................. 6
Use of Proceeds .......................................................................................................................................................... 6
Consolidated Ratios of Earnings to Fixed Charges ................................................................................................... 7
Consolidated Capitalization and Indebtedness .......................................................................................................... 8
Description of Debt Securities ................................................................................................................................... 9
Tax Consequences ....................................................................................................................................................... 26
Plan of Distribution ................................................................................................................................................... 38
Limitations on Enforcement of U.S. Laws Against the Bank, Our Management and Others .................................. 40
Validity of Securities ................................................................................................................................................ 41
Experts .......................................................................................................................................................................... 41
Supplemental Financial Statement Schedule ........................................................................................................... 42
Other Expenses of Issuance and Distribution ......................................................................................................... 45
ADDITIONAL RISK FACTORS SPECIFIC TO YOUR NOTES

An investment in your notes is subject to the risks described below, as well as the risks described under “Risk Factors” in the accompanying prospectus, dated January 5, 2007, and the accompanying prospectus supplement, dated February 28, 2007. Your notes are not secured debt and are riskier than ordinary unsecured debt securities. Also, investing in your notes is not equivalent to investing directly in the Reference Assets to which your notes are indexed. You should carefully consider whether the principal protected notes are suited to your particular circumstances. This product prospectus supplement should be read together with the accompanying prospectus, dated January 5, 2007, the accompanying prospectus supplement, dated February 28, 2007, and any relevant pricing supplement. The information in the accompanying prospectus and prospectus supplement is supplemented by, and to the extent inconsistent therewith replaced and superseded by, the information in this product prospectus supplement and any relevant pricing supplement. This section describes the most significant risks relating to an investment in the notes. We urge you to read the following information about these risks, together with the other information in this product prospectus supplement and the accompanying prospectus and prospectus supplement, before investing in the notes.

The notes are not secured debt and are riskier than ordinary unsecured debt securities. The return on the notes is linked to the performance of an underlying asset, which may consist of individual equity securities, commodities, foreign currencies (relative to the value of the U.S. dollar), interest rates or consumer prices, or an index of any of these asset classes, or a weighted basket comprised of several indices or asset classes. Investing in the notes is not equivalent to investing directly in the Reference Assets themselves or futures and forward contracts related to the Reference Assets.

This section describes the most significant risks relating to an investment in the notes. We urge you to read the following information about these risks, together with other information in the relevant pricing supplement and the accompanying prospectus and prospectus supplement, before investing in the notes.

GENERAL RISKS

The notes are intended to be held to maturity.

Your principal is only protected, as specified in the relevant pricing supplement, if you hold the note until maturity. If you sell your notes in the secondary market prior to maturity, you will not receive principal protection on the portion of your notes sold and may incur a loss. Therefore, you should be willing to hold your notes to maturity.

There may not be a secondary market for the notes – sales in the secondary market, if any, may result in significant losses.

There may be little or no secondary market for the notes. The notes will not be listed or displayed on any securities exchange, the NASDAQ Global Market or any electronic communications network. Although they are not required to do so, RBC Capital Markets Corporation and other affiliates of Royal Bank currently intend to make a market for the notes, however RBC Capital Markets Corporation or any other affiliate of Royal Bank may stop any such market-making activities at any time. Even if a secondary market for the notes develops, it may not provide significant liquidity or trade at prices advantageous to you. We expect that transaction costs in any secondary market will be high. As a result, the difference between bid and asked prices for your notes in a secondary market could be substantial.

If you sell your notes before maturity, you may have to do so at a substantial discount from the issue price and as a result you may suffer substantial losses. Therefore, you should be willing to hold the notes to maturity.

The notes have not been designated for trading in the PORTAL system for the National Association of Securities Dealers, Inc.
You may not realize a gain on the note.

If the Reference Asset Performance is zero or negative on the valuation date, the payment at maturity with respect to each note will be limited to the principal amount. This will be true, even where the Reference Asset Performance was positive as of some date or dates prior to the valuation date, because the payment at maturity will be calculated solely on the basis of the Reference Asset Performance (or otherwise determined by the calculation agent, in the case of a market disruption event) as of the valuation date. You should therefore be prepared to realize no return on the principal amount of your notes during the term of the notes.

The market value of the notes may be influenced by many unpredictable factors.

The performance of Reference Assets is unpredictable and volatile and the market value of the notes may fluctuate between the date of purchase and the valuation date when the calculation agent will determine the payment at maturity. Several factors, many of which are beyond our control, will influence the market value of the notes, including but not limited to: the trading value of the Reference Assets; the volatility of the Reference Assets (including the frequency and magnitude of price increases and decreases in the Reference Assets); the time remaining to the maturity of the notes; supply and demand for the notes (including inventory positions with RBC Capital Markets Corporation or any other market maker); the general interest rate environment; economic, financial, political, regulatory, geographical, biological or legal events that affect the exchange rate or the market price of the Reference Assets; and the creditworthiness of Royal Bank.

All of these factors interrelate in complex ways, and the effect of one factor on the market value of the notes may offset or magnify the effect of another factor. Therefore, if you sell your notes in the secondary market prior to maturity, you may have to sell them at a substantial loss.

The historical performance of the Reference Asset is not an indication of the future performance of the Reference Asset.

The historical performance of each of the Reference Assets, which we may supply in the relevant pricing supplement, should not be taken as an indication of any likely future performance of the relevant Reference Assets during the term of the notes. It is impossible to predict whether the value of any of the Reference Assets will rise or fall and past trends with regard to activity are not necessarily indicative of what may occur in the future.

Positive performance of one Reference Asset in a basket may be offset by negative performance of another Reference Asset in that basket.

In the case of notes linked to the performance of a basket of Reference Assets, your payment at maturity will be calculated based solely on the performance of the entire basket as provided in the relevant pricing supplement and as a result, the positive performance of one or more Reference Assets in the basket may be partially or completely offset by the negative performance of one or more Reference Assets also in the basket.

You must independently evaluate the merits of an investment in the notes.

You should evaluate the financial, legal and tax risks associated with an investment in the notes on your own. You should not rely on the views of Royal Bank or its affiliates in any respect.

The notes are not insured by any third parties.

The notes are solely the obligation of Royal Bank. An investment in the notes does not constitute a deposit and neither the notes nor your investment in the notes are insured by the Canada Deposit Insurance Corporation, the Federal Deposit Insurance Corporation or any other private or governmental agency or instrumentality.
The notes are general, unsecured obligations of Royal Bank.

The notes are unconditional, unsecured and unsubordinated obligations of Royal Bank, ranking pari passu, without any preference among themselves, with all of our other outstanding unsecured and unsubordinated obligations, present and future. Consequently, in the event of a bankruptcy, insolvency or liquidation by Royal Bank, any of the securities or other instruments owned by us will be subject to the claims of our creditors generally and will not be available specifically for you. As a result, our general credit rating, outlook and financial condition will affect the market value of your notes.

Hedging activities may affect the value of your notes.

Hedging activities related to the notes by one or more of our affiliates will likely involve trading one or more of the Reference Assets or the underlying assets or in other instruments, such as options, swaps or futures. This hedging activity could affect the market value of the notes. It is possible that we or our affiliates may profit from our hedging activity, even if the market value of the notes declines. Profit or loss from this hedging activity could affect the price at which RBC Capital Markets may be willing to purchase our notes in the secondary market.

The inclusion in the purchase price of the notes of a selling concession and of Royal Bank’s cost of hedging its market risk under the notes is likely to adversely affect the value of the notes prior to maturity.

The price at which you purchase the notes includes a selling concession (including a broker’s commission), as well as the costs that Royal Bank (or one of its affiliates) expects to incur in the hedging of its market risk in respect of the notes. Such hedging costs include the expected cost of undertaking this hedge, as well as the profit that Royal Bank (or its affiliates) expects to realize in consideration for assuming the risks inherent in providing such hedge. As a result, assuming no change in market conditions or any other relevant factors, the price, if any, at which you may be able to sell your notes prior to maturity may be less than your original purchase price.

The business activities of Royal Bank or its affiliates may create conflicts of interest.

We and our affiliates expect to engage in trading activities related to the Reference Assets that are not for the account of holders of the notes or on their behalf. These trading activities may present a conflict between the holders’ interest in the notes and the interests we and our affiliates will have in our proprietary accounts, in facilitating transactions, including options and other derivatives transactions, for our customers and in accounts under our management. These trading activities, if they influence the price of the Reference Assets, could be adverse to the interests of the holders of the notes. Moreover, we and our affiliates have published, and in the future expect to publish, research reports with respect to the Reference Assets. This research is modified from time to time without notice and may express opinions or provide recommendations that are inconsistent with purchasing or holding the notes. Any of these activities by us or one or more of our affiliates may affect the market price of the Reference Assets and, therefore, the market value of the notes.

Non-U.S. investors may be subject to additional risks.

The notes are denominated in U.S. dollars. If you are a non-U.S. investor who purchased the notes with a currency other than U.S. dollars, changes in rates of exchange may have an adverse effect on the value, price or income of your investment.

This product prospectus supplement contains a general description of certain U.S. and Canadian tax considerations relating to the notes. If you are a non-U.S. investor, you should consult your tax advisors as to the consequences, under the tax laws of the country where you are resident for tax purposes, of acquiring, holding and disposing of the notes and receiving payments of principal or other amounts under the notes.
The calculation agent can postpone the calculation of the value of the Reference Assets if a market disruption event occurs on a valuation date.

The determination of the value of the Reference Assets may be postponed if the calculation agent determines that a market disruption event (as described herein) has occurred or is continuing on a valuation date with respect to the Reference Assets. If such a postponement occurs, the calculation agent will use the closing price of the Reference Assets on the first business day on which no market disruption event occurs or is continuing. In no event, however, will the valuation date be postponed by more than five business days. As a result, the maturity date for the notes could also be postponed, although not by more than five business days.

If the determination of the value of the Reference Assets is postponed to the last possible day, but a market disruption event occurs or is continuing on that day, that day will nevertheless be the date on which the value of the Reference Assets will be determined by the calculation agent. In such an event, the calculation agent will make a good faith estimate in its sole discretion of the value of the Reference Assets that would have prevailed in the absence of the market disruption event. See “General Terms of the Principal Protected Notes—Unavailability of the Reference Price on a Valuation Date” beginning on page PS-16.

The calculation agent can modify the determination of the Reference Price of a Reference Asset.

The method of calculating the Reference Price of the Reference Assets may be adjusted by the calculation agent from time to time upon the occurrence of certain extraordinary events. For example, if a Reference Price is not available for a Reference Asset for any reason, then the calculation agent may take such action, including adjustments to the method of calculating the Reference Price of that Reference Asset, as it deems appropriate. Such changes could adversely affect the Reference Asset Performance and, consequently, the payment at maturity on the notes.

There are potential conflicts of interest between you and the calculation agent.

The calculation agent will, among other things, decide the amount of your payment at maturity on the notes. We may change the calculation agent after the original issue date without notice to you. The calculation agent will exercise its judgment when performing its functions. For example, the calculation agent may have to determine whether a market disruption event affecting the Reference Assets has occurred. This determination may, in turn, depend on the calculation agent’s judgment whether the event has materially interfered with our ability or the ability of one of our affiliates to unwind our hedge positions. Since this determination by the calculation agent will affect the payment at maturity on the notes, the calculation agent may have a conflict of interest if it needs to make any such decision.

For notes with a term that exceeds one year, U.S. taxpayers will be required to pay taxes on the notes each year.

Notes with a term that exceeds one year will likely be treated as debt instruments subject to special rules governing contingent payment debt obligations for United States federal income tax purposes. If you are a U.S. individual or taxable entity, you generally will be required to pay taxes on ordinary income over the term of such notes based on the comparable yield for the notes, even though you will not receive any payments from us until maturity. This comparable yield is determined solely to calculate the amounts you will be taxed on prior to maturity and is neither a prediction nor a guarantee of what the actual yield will be. Any gain you may recognize on the sale or maturity of the notes will be ordinary income in the case of notes with a term of more than one year. Any loss you may recognize upon the sale of notes with a term of more than one year will generally be ordinary loss to the extent of the interest you included as income in the current or previous taxable years in respect of the notes and thereafter will be capital loss.

For further discussion, see “Supplemental Discussion of Federal Income Tax Consequences” beginning on page PS-31.
Significant aspects of the tax treatment of the notes may be uncertain.

The tax treatment of the notes may be uncertain. Specifically, for U.S. federal income tax purposes, the tax treatment of notes with a term of one year or less is particularly unclear because there are no rules that specifically govern short-term contingent debt. We do not plan to request a ruling from the Internal Revenue Service or from any Canadian authorities regarding the tax treatment of the notes, and the Internal Revenue Service or a court may not agree with the tax treatment described in this product prospectus supplement. Please read carefully the sections entitled “Supplemental Discussion of Federal Income Tax Consequences” in this product prospectus supplement, the section “Tax Consequences” in the accompanying prospectus and the section entitled “Certain Income Tax Consequences” in the accompanying prospectus supplement. You should consult your tax advisor about your own tax situation.

Certain considerations for Insurance Companies and Employee Benefit Plans.

Any insurance company or fiduciary of a pension plan or other employee benefit plan that is subject to the prohibited transaction rules of the Employee Retirement Income Security Act of 1974, as amended, which we call “ERISA”, or the Internal Revenue Code of 1986, as amended, including an IRA or a Keogh plan (or a governmental plan to which similar prohibitions apply), and that is considering purchasing the principal protected notes with the assets of the insurance company or the assets of such a plan, should consult with its counsel regarding whether the purchase or holding of the principal protected notes could become a “prohibited transaction” under ERISA, the Internal Revenue Code or any substantially similar prohibition in light of the representations a purchaser or holder in any of the above categories is deemed to make by purchasing and holding the principal protected notes. This is discussed in more detail under “Employee Retirement Income Security Act” below.

RISKS SPECIFIC TO NOTES LINKED TO THE PERFORMANCE OF AN EQUITY SECURITY, AN ETF, AN EQUITY INDEX OR A BASKET OF EQUITY SECURITIES, EQUITY INDICES OR ETFs

The relevant pricing supplement will specify if the Reference Assets for your notes include equity securities or indices. If so specified, your notes may be subject to the additional following risks:

You do not own the underlying securities and thus have no ownership rights in such securities.

Investing in a note linked to the performance of one or more equity securities is not the same as owning the underlying equity security or securities. As a note holder, you have no ownership rights in the underlying equity securities and consequently you will have no voting rights, rights to dividends or other distributions, or any other rights incident to equity ownership in the issuer of that security.

Your return on the notes will not reflect any distributions or dividends paid on any underlying equity security or securities.

Your payment at maturity will be calculated based solely on the performance of the underlying equity security, securities or equity index or indices and the participation rate of your notes as provided in the relevant pricing supplement. Your payment at maturity will not take into account any dividends paid out by the issuer of such securities. As a result, your return on the notes may not be the same return you would realize if you purchased the underlying equity security or securities directly and held them for a similar period.

The correlation between the performance of an ETF and its underlying index may be imperfect.

The ETFs that may comprise the Reference Assets of your notes attempt to track the performance of the equity security indices that underlie those ETFs. Owning shares in an ETF is thus not the same as owning the underlying index, and there may be a discrepancy between the performance of the underlying index and the performance of the ETF linked to that index. Moreover, because the shares of the ETF are traded on stock exchanges and are subject to market supply and investor demand, the market value of one share of an ETF may differ from the net asset value per share of the ETF. Because of these potential discrepancies, the ETF return may not correlate perfectly with the return on the index to which the ETF is linked over the same period.
Royal Bank and its affiliates are not affiliated with the issuers of the underlying equity security, ETF or other securities or the sponsor of any equity index or ETF and have no control over any issuer or sponsor.

Unless otherwise specified in the relevant pricing supplement, we are not affiliated with any issuer of a security or sponsor of an index and have no control over such parties. As a result, any such issuer or sponsor may take actions with respect to the underlying equity securities or index that may adversely affect the market value of the notes.

Royal Bank and its affiliates derive all information concerning underlying equity securities or ETFs from publicly available sources and assume no responsibility for the adequacy or accuracy of such information.

Unless otherwise specified in the relevant pricing supplement, we are not affiliated with any issuer of a security or ETF or sponsor of an index or ETF and all information concerning underlying securities, ETFs or indices is derived from publicly available sources, without independent verification by us. We assume no responsibility for the adequacy or accuracy of the information about the equity securities, indices, ETFs, issuers or sponsors contained in this or any other supplement. You, as an investor in the notes, should make your own investigation into the applicable securities, indices, ETFs, issuers or sponsors before purchasing the notes.

The equity markets are volatile.

Equity securities and ETFs are susceptible to general market fluctuations and increases and decreases in value based on many unpredictable factors including: market confidence, the perception of the equity market generally and the perceptions of a specific issuer or issuers of securities. Such perceptions themselves are based on unpredictable factors including past performance, expectations with regard to domestic, economic, monetary and regulatory policies, inflation and interest rates, economic expansion or contraction and the domestic and international political, economic, financial and social policies.

Equity securities issued by foreign issuers, baskets containing such securities and indices based in part such securities may be subject to additional market risks.

Generally, foreign securities and securities markets may be more volatile than U.S. securities and securities markets. Direct or indirect government intervention to stabilize foreign markets, as well as cross shareholding in foreign companies may affect trading prices and volumes in those markets. There is generally less publicly available information about foreign companies than there is about U.S. companies subject to the reporting requirements of the SEC, and foreign companies are subject to accounting, auditing and financial reporting standards and requirements different from those applicable to U.S. reporting companies.

RISKS SPECIFIC TO NOTES LINKED TO THE PERFORMANCE OF A COMMODITY, A COMMODITIES INDEX OR A BASKET OF COMMODITIES OR COMMODITIES INDICES

The relevant pricing supplement will specify if the Reference Assets for your notes include commodities or commodities indices. If so specified, your notes may be subject to the additional following risks:

You do not own the underlying commodities.

Investing in a note linked to the performance of one or more commodities is not the same as owning the underlying commodities or futures contracts relating to the underlying commodities. The notes will be paid as specified in the relevant pricing supplement and you will not have a right to receive delivery of any of the underlying commodities or futures contracts relating to such commodities.

In addition, unlike a direct investment in the underlying commodities, your investment in the notes does not afford you the benefits of the regulatory protections of the Commodity Futures Trading Commission (the “CFTC”). Although RBC Capital Markets Corporation is registered with the CFTC as a futures merchant, you will not benefit from the CFTC’s, or any other non-U.S. regulators’ regulatory protections that are afforded to persons who trade in futures contracts through a registered futures merchant or operator.
Commodities prices are highly volatile due to unpredictable factors which affect supply and demand.

Several factors, many of which are beyond our control, may influence the market value of the notes. Factors that may affect supply and demand of the underlying commodities and thus the market value of the notes include (but are not limited to):

- political events;
- weather;
- labor activity;
- direct government activity (such as embargoes); and
- other supply disruptions in major producing or consuming regions of the commodity.

These factors may adversely affect the performance of the underlying commodity or commodities and, as a result, the market value of the notes. The market value of the notes will also be affected by, among other things:

- the trading prices of the underlying commodities;
- the trading prices of the relevant commodities futures; and
- the volatility of the underlying commodities and commodities futures (including the frequency and magnitude of price increases and decreases in such commodities or futures).

Suspension or disruptions of market trading in the commodity and related futures markets may adversely affect the value of your notes.

The commodity markets are subject to temporary distortions or other disruptions due to various factors, including the lack of liquidity in the markets, the participation of speculators and government regulation and intervention.

Certain exchanges have regulations which limit the amount of fluctuations in futures contracts that may occur during a single business day. These limits are generally referred to as “daily price fluctuation limits”, and the maximum or minimum price of a futures contract on any given day as a result of these limits is referred to as a “limit price.” Once the limit price has been reached in a particular futures contract, no trades may be made at a different price. Limit prices may have the effect of precluding trading in a particular contract or forcing the liquidation of futures contracts at disadvantageous times or prices. These circumstances could adversely affect the price of the underlying commodities and could therefore adversely affect the market value of the notes.

Commodities that trade on foreign exchanges, and baskets containing such commodities and indices based in part on such commodities may be subject to additional market risks.

The regulations of the CFTC do not apply to trading on foreign exchanges, and trading on foreign exchanges may involve different and greater risks than trading on United States exchanges. Certain foreign markets may be more susceptible to disruption than United States exchanges due to the lack of a government-regulated clearinghouse system. Trading on foreign exchanges also involves certain other risks that are not applicable to trading on United State exchanges. Those risks include (but are not limited to):

- varying exchange rates;
- varying quoting conventions or contract specifications on different exchanges;
• exchange controls;
• expropriation;
• burdensome or confiscatory taxation;
• moratoriums; and
• political or diplomatic events.

Positive performance by one commodities basket constituent may be offset by negative performance by another commodities basket constituent.

In the case of notes linked to the performance of a basket of commodities or commodities indices, your payment at maturity will be calculated based solely on the performance of the entire basket as provided in the relevant pricing supplement and as a result, the positive performance of one or more commodities or commodities indices in the basket may be partially or completely offset by the negative performance of one or more other commodities or commodities indices in the basket.

An investment in the notes may be subject to risks associated with the London Bullion Market Association.

Some of the commodities are traded on the LBMA. Investments in securities indexed to the value of commodities that are traded on non-U.S. exchanges involve risks associated with the markets in those countries, including risks of volatility in those markets and governmental intervention in those markets.

The closing prices of some of the commodities (gold and silver) will be determined by reference to fixing prices reported by the LBMA. The LBMA is a self regulatory association of bullion market participants. Although all market-making members of the LBMA are supervised by the Bank of England and are required to satisfy a capital adequacy test, the LBMA itself is not a regulated entity. If the LBMA should cease operations, or if bullion trading should become subject to a value added tax or other tax or any other form of regulation currently not in place, the role of the LBMA price fixings as a global benchmark for the value of gold and silver may be adversely affected. The LBMA is a principals' market which operates in a manner more closely analogous to an over-the-counter physical commodity market than regulated futures markets, and certain features of U.S. futures contracts are not present in the context of LBMA trading. For example, there are no daily price limits on the LBMA which would otherwise restrict fluctuations in the prices of LBMA contracts. In a declining market, it is possible that prices would continue to decline without limitation within a trading day or over a period of trading days.

Risks you should consider relating to trading of commodities on the London Metals Exchange.

The market prices of some commodities will be determined by reference to the settlement prices of contracts traded on the LME. The LME is a principals' market which operates in a manner more closely analogous to the over-the-counter physical commodity markets than the futures markets, and certain features of U.S. futures markets are not present in the context of LME trading. For example, there are no daily price limits on the LME, which would otherwise restrict the extent of daily fluctuations in the prices of LME contracts. In a declining market, therefore, it is possible that prices would continue to decline without limitation within a trading day or over a period of trading days. In addition, a contract may be entered into on the LME calling for delivery on any day from one day to three months following the date of such contract and for monthly delivery in any of the next 16 to 24 months (depending on the commodity) following such third month, in contrast to trading on futures exchanges, which call for delivery in stated delivery months. As a result, there may be a greater risk of a concentration of positions in LME contracts on particular delivery dates, which in turn could cause temporary aberrations in the prices of LME contracts for certain delivery dates. If such aberrations are occurring on the valuation date, the prices of the contracts used to determine the prices of the underlying commodities and consequently the payment at maturity, could be adversely affected.
RISKS SPECIFIC TO NOTES LINKED TO THE PERFORMANCE OF A CURRENCY, A CURRENCY INDEX OR A BASKET OF CURRENCIES OR CURRENCY INDICES

The relevant pricing supplement will specify if the Reference Assets for your notes include currencies or currency indices. If so specified, your notes may be subject to the additional following risks:

You do not own the underlying currencies.

Investing in a note linked to the performance of one or more currencies is not the same as actually owning the underlying currency. The notes will be paid as specified in the relevant pricing supplement and you will not have a right to receive delivery of the underlying currency or currencies.

Your return on the notes may not reflect the return you would realize if you actually purchased the underlying currency or currencies, held them for a similar time period and thereafter converted them into U.S. dollars.

The value of the underlying currency or currencies relative to the U.S. dollar is affected by many complex and unpredictable factors.

The value of the underlying currency or currencies, relative to the U.S. dollar, may be affected by many complex and unpredictable factors, including the economic, financial, political and social conditions in the United States and in the foreign country issuing the underlying currency or currencies. These conditions include, but are not limited to, the relative strength of, and confidence in, the U.S. dollar, the relative fiscal positions of the U.S. and the foreign country issuer, the relative rates of inflation, the interest rate levels, and the fiscal and trade policies pursued by government bodies and banks in the U.S. and the foreign country issuer.

The value of the notes may be adversely affected by the actions of the government of the United States and/or the government of the foreign currency issuer.

Foreign exchange rates can either be fixed by sovereign governments or floating. Exchange rates of most economically developed nations, including the United States, are permitted to fluctuate in value relative to other currencies. However, governments sometimes do not allow their currencies to float freely in response to economic forces. For example, until 2005, the Chinese yuan was pegged to the U.S. dollar. On July 21, 2005, it was revalued and the peg to the U.S. dollar was removed. The People’s Bank of China announced that henceforth the yuan would be pegged to a basket of foreign currencies, rather than being strictly tied to the U.S. dollar, and would trade within a narrow band against this basket of currencies. China has stated that the basket is dominated by a group of international currencies including the U.S. dollar, euro, Japanese yen and South Korean won, with a smaller proportion made up of the British pound, Thai baht and Russian ruble. Thus, notes linked to the Yuan are subject to foreign exchange risk with respect to the entire basket of currencies to which the yuan is now linked.

Governments, including those of the United States and the countries issuing the currencies that may be included as Reference Assets, use a variety of techniques, such as intervention by their central bank or imposition of regulatory controls or taxes, to affect the exchange rates of their respective currencies. They may also issue a new currency to replace an existing currency or alter the exchange rate or relative exchange characteristics by devaluation or revaluation of a currency. Thus, a special risk in purchasing the notes is that their liquidity, trading value and amounts payable could be affected by the actions of sovereign governments which could change or interfere with theretofore freely determined currency valuations, fluctuations in response to other market forces and the movement of currencies across borders. There will be no adjustment or change in the terms of the notes in the event that exchange rates should become fixed, or in the event of any devaluation or revaluation or imposition of exchange or other regulatory controls or taxes, or in the event of the issuance of a replacement currency or in the event of other developments affecting the Reference Assets or the U.S. dollar specifically, or any other currency.
Risks associated with a basket of currencies or currency indices may adversely affect the market price of the notes.

We believe that the value of the notes in the secondary market will be affected by the supply of and demand for the notes, the value of each of the currencies included in the Reference Assets relative to the U.S. dollar, as measured by the relevant exchange rate, and a number of other factors. Some of these factors are interrelated in complex ways. As a result, the effect of any one factor may be offset or magnified by the effect of another factor. The following paragraphs describe what we expect to be the impact on the market value of the notes of a change in a specific factor, assuming all other conditions remain constant.

The Basket Currency Exchange Rates. We expect that the market value of the notes at any given time will likely depend substantially on the changes, if any, in the value of each of the currencies included in the Reference Assets relative to the U.S. dollar from their respective starting values. Unless the relevant pricing supplement specifies otherwise, each exchange rate is expressed as an amount of the relevant Basket Currency that can be exchanged for one U.S. dollar for the purposes of calculating the weighted component change for each of the currencies. To that end, for certain currencies, increases in the value of one or more of such currencies relative to the U.S. dollar may cause an increase in the market value of bullish notes because of the expectation that the maturity payment on the notes will increase. Conversely, for certain currencies, decreases in the value of one or more of the currencies included in the Reference Assets relative to the U.S. dollar may cause a decrease in the market value of bullish notes because of the expectation that the maturity payment on the notes will decrease. If you choose to sell bullish notes when the value of one or more of the currencies included in the Reference Assets relative to the U.S. dollar has declined, as measured by one or more of the respective exchange rates being above its respective value, you may receive less than the amount you originally invested.

The values of the currencies included in the Reference Assets relative to the U.S. dollar will be influenced by complex and interrelated political, economic, financial and other factors that can affect the currency markets on which the currencies included in the Reference Assets and the U.S. dollar are traded. These factors are described in more detail in “— The value of the underlying currency or currencies relative to the U.S. dollar is affected by many complex and unpredictable factors” above.

Volatility of the Basket Currencies. Volatility is the term used to describe the size and frequency of market fluctuations. If the expected volatility of the value of each of the currencies included in the Reference Assets relative to the U.S. dollar changes, as measured by the relevant exchange rate, the market value of the notes may change.

Interest Rates. The interactions of interest rates and spot currency rates are notoriously unpredictable and investors in the notes must make their own determinations as to how the possible future effects of changes in interest rates in the countries issuing the currencies included in the Reference Assets will affect such currencies and the notes. Similarly, we expect that the market value of the notes will be affected by changes in U.S. interest rates. In general, if U.S. interest rates increase, the market value of bullish notes may decrease, and if U.S. interest rates decrease, the market value of bullish notes may increase. In addition, increases in United States interest rates relative to interest rates in the countries issuing the currencies included in the Reference Assets may decrease the future value of the currencies included in the Reference Assets relative to the U.S. dollar, as implied by currency futures contracts, which would generally tend to decrease the value of the notes. Conversely, decreases in United States interest rates relative to interest rates in the countries issuing the currencies included in the Reference Assets may increase the future value of the currencies included in the Reference Assets relative to the U.S. dollar, as implied by currency futures contracts, which would generally tend to increase the value of the notes. However, to reiterate, these are general tendencies only and there have been instances where these tendencies have not held and the effect of interest rate movements has been the opposite. Finally, interest rates may also affect the economies of the countries issuing the currencies included in the Reference Assets or of the United States and, in turn, the value of each of the currencies included in the Reference Assets relative to the U.S. dollar, as measured by the relevant exchange rate.

Time Premium or Discount. As a result of a “time premium or discount,” the notes may trade at a value above or below that which would be expected based on the level of interest rates and the value of the currencies included in the Reference Assets relative to the U.S. dollar the longer the time remaining to maturity. A “time premium or
discount” results from expectations concerning the value of each of the currencies included in the Reference Assets relative to the U.S. dollar during the period prior to the maturity of the notes. However, as the time remaining to maturity decreases, this time premium or discount may diminish, thereby increasing or decreasing the market value of the notes.

You should understand that the impact of one of the factors specified above, such as an increase in interest rates, may offset some or all of any change in the market value of the notes attributable to another factor, such as an increase in the value of the currencies included in the Reference Assets relative to the U.S. dollar.

Even though currencies trade around the clock, your notes will not.

The interbank market in foreign currencies is a global, around-the-clock market. Therefore, the hours of trading for the notes will not conform to the hours during which the currencies included in the Reference Assets and the U.S. dollar are traded. Significant price and rate movements may take place in the underlying foreign exchange markets that will not be reflected immediately in the market price of the notes. The possibility of these movements should be taken in to account in relating the value of the notes to those in the underlying foreign exchange markets.

There is no systematic reporting of last-sale information for foreign currencies. Reasonably current bid and offer information is available in certain brokers’ offices, in bank foreign currency trading offices and to others who wish to subscribe to this information, but this information will not necessarily be reflected in the value of the currencies included in the Reference Assets relative to the U.S. dollar used to calculate the maturity payment on your notes. There is no regulatory requirement that those quotations be firm or revised on a timely basis. The absence of last-sale information and the limited availability of quotations to individual investors may make it difficult for many investors to obtain timely, accurate data about the state of the underlying foreign exchange markets.

RISKS SPECIFIC TO NOTES WHICH CONTAIN A MULTIPLIER

Changes in the performance of the Reference Assets will be magnified and may adversely affect the value of the notes.

If your payout at maturity is determined by reference to a multiplier (e.g., a participation rate in excess of 100%), changes in the performance of the Reference Asset will be magnified. As a result, small changes in the performance of a Reference Asset will have a greater effect on your gain realized than such changes would otherwise have in a note without a multiplier.

RISKS SPECIFIC TO NOTES WHICH ARE CAPPED, CALLABLE OR REDEEMABLE

The appreciation potential of your notes may be limited.

If notes are redeemed prior to their maturity date the amount that you will realize will be limited to the amount specified in the relevant pricing supplement. As a result, it is possible that while the Reference Assets may be performing very well, your payout may not take into account such appreciation and the gain that you realize may be less than the appreciation of the Reference Assets. In addition, for notes where the return is subject to an upper limit, or “cap”, your return may be less than if you had owned the Reference Asset directly.

Your return on the notes may be zero.

If your note is an absolute return note, although your return is dependent on absolute price movements rather than solely an increase (bullish notes) or decrease (bearish notes) in price in the Reference Asset, your return is capped by virtue of the upper and lower barrier specified in the relevant pricing supplement. In addition, if at any time during the term of the notes the price of the Reference Asset exceeds the upper barrier or decreases below the lower barrier, the return on your notes will be zero (although your principal will be repaid at maturity). As a result, your return is both capped and subject to the risk that it could be zero.
RISKS SPECIFIC TO NOTES LINKED TO THE PERFORMANCE OF AN INDEX OR INDICES

The relevant pricing supplement will specify if the Reference Assets for your notes include an index or indices. If so specified, your notes may be subject to the additional following risks:

Your notes may be linked to a volatile index, which could hurt your investment.

Some indices are highly volatile, which means that their value may change significantly, up or down, over a short period of time. The amount of principal or interest that can be expected to become payable on a noted linked to an index or indices may vary substantially from time to time. Because the amounts payable with respect to your notes are generally calculated based on the value or level of the relevant index or indices on a specified date, volatility in the index or indices increases the risk that the return on your note may be adversely affected by a fluctuation in the level of the relevant index or indices.

The volatility of an index or indices may be affected by political or economic events, including governmental actions, or by the activities of participants in the relevant markets. Any of these events or activities could adversely affect the value of your note.

An index to which a note is linked could be changed or become unavailable.

Some indices compiled by us or our affiliates or third parties may consist of or refer to several or many different equity securities, commodities or currencies or other instruments or measures. The compiler of such an index typically reserves the right to alter the composition of the index and the manner in which the value or level of the index is calculated. An alteration may result in a decrease in the value of, or return on, a note that is linked to the index. The indices for our notes may include published indices of this kind or customized indices developed by us or our affiliates in connection with particular issues of notes.

A published index may become unavailable, or a customized index may become impossible to calculate in the normal manner, due to events such as war, natural disasters, cessation of publication of the index or a suspension or disruption of trading in one or more commodities or currencies or other instruments or measures on which the index is based. If an index becomes unavailable or impossible to calculate in the normal manner, the terms of a particular note may allow us to delay determining the amount payable as principal or interest on that note, or we may use an alternative method to determine the value of the unavailable index, as specified in the relevant pricing supplement. Alternative methods of valuation are generally intended to produce a value similar to the value resulting from reference to the relevant index. However, it is unlikely that any alternative method of valuation we use will produce a value identical to the value that the actual index would produce. If we use an alternative method of valuation for a note linked to an index of this kind, the value of the note, or the rate of return on it, may be lower than it otherwise would be.

Some notes may be linked to indices that are not commonly used or that have been developed only recently. The lack of a trading history may make it difficult to anticipate the volatility or other risks associated with an indexed note of this kind. In addition, trading in these indices or their underlying commodities or currencies or other instruments or measures, or options or futures contracts on these commodities or currencies or other instruments or measures, may be limited, which could increase their volatility and decrease the value of the related notes or their rates of return.

An index to which a note is linked could have special features, algorithms, or calculation conventions that may not directly correspond with the market price of the underlying component parts that make up the index. Investors should thoroughly investigate the methodology used to determine the value of an index before making an investment in a note linked to an index.
GENERAL TERMS OF THE PRINCIPAL PROTECTED NOTES

Please note that in this section entitled “General Terms of the Principal Protected Notes”, references to “holders” mean those who own notes registered in their own names, on the books that we or the trustee maintain for this purpose, and not those who own beneficial interests in notes registered in street name or in notes issued in book-entry form through The Depository Trust Company (“DTC”) or another depositary. Owners of beneficial interests in the notes should read the section entitled “Description of the Notes We May Offer—Legal Ownership” in the accompanying prospectus supplement and “Description of Debt Securities—Ownership and Book-Entry Issuance” in the accompanying prospectus.

In addition to the terms described on the front and inside cover of this product prospectus supplement, the following general terms will apply to the principal protected notes, including your notes:

Specified Currency

Unless otherwise specified in the relevant pricing supplement, all payments will be made in U.S. dollars (“$”).

No Listing

Your notes will not be listed or displayed on any securities exchange or included in any interdealer market quotation system.

Interest

Unless specified in the relevant pricing supplement, we will not pay you interest during the term of the notes.

Minimum Investments

Unless otherwise specified in the relevant pricing supplement, the minimum investment in the notes will be $1,000 (except for certain non-U.S. investors for whom the minimum investment may be higher).

Form and Denomination

The notes will be issued only in global form through DTC. Unless otherwise specified in the relevant pricing supplement, the denomination of each note will be $1,000 and integral multiples of $1,000 thereafter (except for certain non-U.S. investors from whom the minimum investment may be higher).

Defeasance, Default Amount, Other Terms

Neither full defeasance nor covenant defeasance will apply to your notes. The following will apply to your notes: the default amount will be payable on any acceleration of the maturity of your notes as described under “—Default Amount on Acceleration” below; a business day for your notes will have the meaning described under “—Special Calculation Provisions” below; and a trading day for your notes will have the meaning described under “—Special Calculation Provisions” below.

Please note that the information about the settlement or pricing date, issue price discounts or commissions and net proceeds to Royal Bank in the relevant pricing supplement relates only to the initial issuance and sale of your notes. If you have purchased your notes in a market-making transaction after the initial issuance and sale, any such relevant information about the sale to you will be provided in a separate confirmation of sale.
Payment at Maturity

You will receive a cash payment at maturity that is based on the Reference Asset Performance, which may be positive or negative. Unless the relevant pricing supplement specifies otherwise, at maturity, you will receive a cash payment determined as follows:

- if the Reference Asset Performance (as set forth below) is greater than 0%, you will receive an amount equal to the product of (a) your principal investment in the notes, (b) the Reference Asset Performance and (c) the participation rate specified in the relevant pricing supplement; and

- if the Reference Asset Performance is less than or equal to 0%, you will receive an amount equal to your principal investment in the notes.

Unless the relevant pricing supplement specifies otherwise, for notes that offer a coupon based on an increase in the value of a Reference Asset, which we refer to as “bullish notes,” where the Reference Asset is not a currency or a basket of currencies, the Reference Asset Performance is the positive amount (expressed as a percentage and rounded to four decimal places), if any, determined as follows:

\[
\frac{C(f) - C(i)}{C(i)}
\]

Unless the relevant pricing supplement specifies otherwise, for notes that offer a coupon based on the highest increase (subject to certain lock-in levels) in the value of a Reference Asset during the term of the notes, which we refer to as “peak return notes,” where the Reference Asset is not a currency or a basket of currencies, the Reference Asset Performance is the positive amount (expressed as a percentage and rounded to four decimal places), if any, determined as follows:

\[
\frac{C(p) - C(i)}{C(i)}
\]

Unless the relevant pricing supplement specifies otherwise, for notes that offer a coupon based on an increase or decrease in the value of a Reference Asset, which we refer to as “absolute return notes,” where the Reference Asset is not a currency or a basket of currencies, the Reference Asset Performance is the absolute value of the amount, whether positive or negative (expressed as a percentage and rounded to four decimal places), determined as follows:

\[
\frac{|C(f) - C(i)|}{C(i)}
\]

provided, that if the price of the Reference Asset exceeds the upper barrier or is below the lower barrier specified in the pricing supplement at any time during the term of your absolute return note, your return will be zero (although you will receive your principal at maturity).

Unless the relevant pricing supplement specifies otherwise, for notes that offer a coupon based on a decrease in the value of a Reference Asset, which we refer to as “bearish notes,” where the Reference Asset is not a currency or a basket of currencies, the Reference Asset Performance is the positive amount (expressed as a percentage and rounded to four decimal places), if any, determined as follows:

\[
\frac{C(i) - C(f)}{C(i)}
\]

With respect to either bullish notes, bearish notes or absolute return notes:

- \( C(f) \) is the Final Reference Price of the Reference Asset, “C”, on the valuation date;
- \( C(p) \) is the Highest Lock-In Level the Reference Asset, “C”, equaled or exceeded during the term of the notes; and
- \( C(i) \) is the Initial Reference Price of the Reference Asset, “C”, on the pricing date.
With respect to notes linked to the performance of equity securities, ETFs, currencies, commodities, or indices relating to equities or commodities, the Final Reference Price or the Highest Lock-In Level equaled or exceeded and the Initial Reference Price will be determined using the applicable closing or trading price of the underlying reference asset on the relevant dates. With respect to peak return notes, the applicable pricing supplement will specify the relevant lock-in levels applicable to your note, and the return will be equal to the highest lock-in level that the Reference Asset has equaled or exceeded during the term of the notes. For example, if the pricing supplement specifies the applicable lock-in levels as 10% and 20% above the Initial Reference Price, and the highest price achieved for the Reference Asset during the measurement period equaled a price 15% above the Initial Reference Price, your return will be based on the 10% increase level, because that is the only lock-in level equaled or exceeded in the example.

With respect to baskets of equity securities, ETFs, currencies, commodities, or indices thereof, the Final Reference Price or the Highest Lock-In Level and the Initial Reference Price will be calculated using a basket that is equally weighted for all components unless the relevant pricing supplement otherwise specifies.

The relevant pricing supplement may specify, from time to time, that the Final Reference Price or the Highest Lock-In Level and the Initial Reference Price will be determined using the average closing or trading prices of the underlying reference asset on certain trading days during the relevant valuation period.

**Participation Rate**

The participation rate indicates the extent to which your notes will participate in any change in the value of the Reference Assets. If the participation rate is less than 100%, your notes will participate in less than the full change in value. If the participation rate is greater than 100%, your notes will participate in the change in value of the underlying index on a leveraged basis.

The method of determination of the Reference Price for each component of a basket is specified under “—Reference Prices” below. The method may be adjusted by the calculation agent upon the occurrence of certain market disruption events as set forth below.

**Maturity Date**

The maturity date will be the date specified in the relevant pricing supplement, unless that date is not a business day, in which case the maturity date will be the next following business day. The calculation agent may postpone the valuation date — and therefore the maturity date — if a market disruption event occurs or is continuing on a day that would otherwise be the valuation date. If the valuation date is postponed by the calculation agent by one or more days, then the maturity date will be postponed by the same number of days. We describe market disruption events below.

**Valuation Date**

The valuation date will be the date specified in the relevant pricing supplement, unless the calculation agent determines that a market disruption event occurs or is continuing on that day. In that event, the valuation date will be the first trading day following the scheduled valuation date on which the calculation agent determines that a market disruption event does not occur and is not continuing. In no event, however, will the valuation date be postponed by more than five business days.

**Reference Prices**

The initial reference price and either the highest lock-in level or the final reference price (together, the “Reference Prices”) for each Reference Asset will be determined as specified in the relevant pricing supplement.
Unavailability of the Reference Price on a Valuation Date

Reference Assets Consisting of Individual Equity Securities or ETFs

With respect to Reference Assets consisting of individual equity securities or ETFs, if a security’s listing is withdrawn from the principal national securities exchange on which that security is listed for trading and that security is not listed on any national exchange, or trading on that security is terminated on a valuation date, then the closing price for that security on that day will be determined by the calculation agent. In determining the closing price for that security on that day, the calculation agent may consider any relevant information, including, without limitation, information consisting of relevant market data in the relevant market supplied by one or more third parties or internal sources including, without limitation, relevant rates, prices, yields, yield curves, volatilities, spreads, correlations or other relevant market data in the relevant market.

Reference Assets Consisting of Individual Commodities

With respect to Reference Assets consisting of individual commodities, if the relevant exchange discontinues trading in any commodity, the calculation agent may replace the commodity with another commodity, whose settlement price is quoted on that exchange or any other exchange, that the calculation agent determines to be comparable to the discontinued commodity (a “successor commodity”).

If the relevant exchange discontinues trading in the commodity comprising part of the Reference Assets prior to, and the discontinuance is continuing on, any valuation date and the calculation agent determines that no successor commodity is available at that time, then the calculation agent will determine the settlement price for that date.

Notwithstanding these alternative arrangements, discontinuance of trading on the applicable exchange in any commodity may adversely affect the market value of the notes. If at any time (i) the method of calculating the official U.S. dollar cash buyer settlement price of a commodity is changed in a material respect by the applicable exchange or any other relevant exchange, (ii) there is a material change in the composition or constitution of a commodity or (iii) if the reporting thereof is in any other way modified so that the settlement price does not, in the opinion of the calculation agent, fairly represent the settlement price of the commodity, the calculation agent shall, at the close of business in New York City on each business day on which the settlement price is to be determined, make those calculations and adjustments as, in the judgment of the calculation agent, may be necessary in order to arrive at a settlement price for the commodity comparable to such commodity or such successor commodity, as the case may be, as if those changes or modifications had not been made, and calculate the amount of interest, payment at maturity and other amounts payable on the note (including the individual inputs thereof) with reference to such commodity or such successor commodity, as adjusted. In that event, the calculation agent will provide written notice to the trustee of these calculations and adjustments, and the trustee will furnish written notice thereof, to the extent the trustee is required to under the senior debt indenture, to each noteholder, or in the case of global notes, the depositary, as holder of the global notes.

Reference Assets Consisting of Individual Foreign Currencies

With respect to Reference Assets consisting of individual currencies (except for the following currencies, for which the alternative calculation mechanism is described in the reference asset supplement: the Australian dollar (AUD), Canadian dollar (CAD), Swiss Franc (CHF), Danish Krone (DKK), Euro (EUR), British pound (GBP), Japanese Yen (JPY), Norwegian Krone (NOK), New Zealand dollar (NZD), Swedish Krona (SEK)), if any of the Reuters pages used as sources for the Reference Prices on a valuation date, or the successor page thereto, are not available on that valuation date, then the applicable exchange rate will be calculated by the calculation agent as the arithmetic mean of the applicable offer-side spot quotations received by the calculation agent from two leading commercial banks (selected in the sole discretion of the calculation agent), for the relevant currencies. If these spot quotations are available from fewer than two banks, then the calculation agent, in its sole discretion, shall determine which quotation is available and reasonable to be used. If no such spot quotation is available, the calculation agent shall determine the applicable exchange rate for such date in a commercially reasonable manner.
Reference Assets Consisting of an Equity Securities Index

With respect to Reference Assets consisting of an equity securities index, if the index publisher discontinues publication of an index comprising part of the Reference Assets and the index publisher or another entity publishes a successor or substitute index that the calculation agent determines, in its sole discretion, to be comparable to the discontinued underlying index (such successor or substitute index being referred to herein as a “successor index”), then any subsequent index closing value will be determined by reference to the published value of such successor index at the regular weekday close of trading on the business day that any index closing value is to be determined.

Upon any selection by the calculation agent of a successor index, the calculation agent will provide written notice to the trustee thereof, and the trustee will furnish written notice thereof, to the extent the trustee is required to under the senior debt indenture, to each noteholder, or in the case of global notes, the depositary, as holder of the global notes.

If a successor index is selected by the calculation agent, the successor index will be used as a substitute for the applicable Reference Asset for all purposes, including for purposes of determining whether a market disruption event exists with respect to that index.

If any index publisher discontinues publication of an index comprising part of the Reference Assets prior to, and such discontinuance is continuing on, a valuation date and the calculation agent determines, in its sole discretion, that no successor index is available at such time, then the calculation agent will determine such Final Reference Price or Highest Lock-In Level for the relevant dates in accordance with the formula for and method of calculating the underlying index last in effect prior to such discontinuance, without rebalancing or substitution, using the closing price (or, if trading in the relevant securities has been materially suspended or materially limited, its good faith estimate of the closing price that would have prevailed but for such suspension or limitation) at the close of the principal trading session of the relevant exchange on such date of each security most recently comprising such underlying index. Notwithstanding these alternative arrangements, discontinuance of the publication of an index comprising part of the Reference Assets may adversely affect the value of your notes.

If at any time the method of calculating an index closing value for an index comprising part of the Reference Assets or a successor index is changed in a material respect, or if the relevant index is in any other way modified so that such index does not, in the opinion of the calculation agent, fairly represent the value of such index had such changes or modifications not been made, then, from and after such time, the calculation agent will, at the close of business in New York City on the date that any index closing value is to be determined, make such calculations and adjustments as, in the good faith judgment of the calculation agent, may be necessary in order to arrive at a value of a stock index comparable to such relevant index as if such changes or modifications had not been made. Accordingly, if the method of calculating such relevant index is modified so that the value of such index is a fraction of what it would have been if it had not been modified (e.g., due to a split in the index), then the calculation agent will adjust such index in order to arrive at a value of such index as if it had not been modified (e.g., as if such split had not occurred).

Reference Assets Consisting of a Currency or Commodities Index

With respect to Reference Assets consisting of a currency or commodities index, if any sponsor discontinues publication of or otherwise fails to publish any index comprising part of the Reference Assets and that sponsor or another entity publishes a successor or substitute index that the calculation agent determines to be comparable to the discontinued index (that index being referred to herein as a “successor index”), then the index level will be determined by reference to the level of that successor index on the date as of which that level is to be determined.

Upon any selection by the calculation agent of a successor index, the calculation agent will provide written notice to the trustee thereof, and the trustee will furnish written notice thereof, to the extent the trustee is required to under the senior debt indenture, to each noteholder, or in the case of global notes, the depositary, as holder of the global notes.
If a successor index is selected by the calculation agent, the successor index will be used as a substitute for the applicable Reference Asset for all purposes, including for purposes of determining whether a market disruption event exists with respect to that index.

If (i) the index is discontinued or (ii) a sponsor fails to publish the index, in either case, prior to, and such discontinuance is continuing on, a valuation date and the calculation agent determines in its sole discretion that a successor index is available at the time, then the calculation agent will determine the value to be used for the level. The value to be used for the level will be computed by the calculation agent in the same general manner previously used by the related sponsor and will reflect the performance of that index through the business day on which that index was last in effect preceding such date of discontinuance. In that case, the calculation agent will treat any business day on which the primary exchange for futures or options contracts relating to that index is open for trading as a business day for that index for purposes of the determination of the final level. In that event, the calculation agent will provide written notice to the trustee thereof, and the trustee will furnish written notice thereof, to the extent the trustee is required to under the senior debt indenture, to each noteholder, or in the case of global notes, the depositary, as holder of the global notes.

Notwithstanding these alternative arrangements, discontinuance of the publication of any index comprising part of the Reference Assets may adversely affect the value of, and trading in, the notes.

Adjustments Relating to the Notes with the Reference Assets Comprised of a Basket

If the calculation agent substitutes a successor index, successor currency or successor commodity, as the case may be, or otherwise affects or modifies a Reference Asset that is part of a basket, then the calculation agent will make those calculations and adjustments as, in judgment of the calculation agent, may be necessary in order to arrive at a basket comparable to the original basket (including without limitation changing the percentage weights of the basket components), as if those changes or modifications had not been made, and shall calculate the amount of interest, payment at maturity and other amounts payable on the note with reference to that basket or the successor basket (as described below), as adjusted.

In this event, the calculation agent will provide written notice to the trustee thereof, and the trustee will furnish written notice thereof, to the extent the trustee is required to under the senior debt indenture, to each noteholder, or in the case of global notes, the depositary, as holder of the global notes.

In the event of the adjustment described above, the newly composed basket is referred to herein as the “successor basket” and will be used as a substitute for the original basket for all purposes.

If the calculation agent determines that the available successors as described above do not fairly represent the value of the original basket component or basket, as the case may be, then the calculation agent will determine the level, value or price of the basket component or the basket level for any basket valuation date as described under “—Unavailability of the Reference Price on a Valuation Date—Reference Assets Consisting of Individual Equity Securities” with respect to equity securities comprising the basket component, “—Unavailability of the Reference Price on a Valuation Date—Reference Assets Consisting of Individual Commodities” with respect to commodities comprising the basket component, “—Unavailability of the Reference Price on a Valuation Date—Reference Assets Consisting of Individual Foreign Currencies” with respect to foreign currencies comprising the basket component, “—Unavailability of the Reference Price on a Valuation Date—Reference Assets Consisting of an Equity Securities Index” with respect to an equity securities index comprising the basket component, “—Unavailability of the Reference Price on a Valuation Date—Reference Assets Consisting of Currency or Commodities Index” with respect to a currency or commodity index comprising the basket component.

Notwithstanding these alternative arrangements, discontinuance of trading on the applicable exchanges or markets in any basket component may adversely affect the market value of the notes.
Market Disruption Event

As set forth under “—Payment at Maturity” above, the calculation agent will determine the Final Reference Price or the Highest Lock-In Level on one or more valuation dates. As described above, a valuation date may be postponed and thus the determination of the Reference Asset Performance may be postponed if the calculation agent confirms that, on a valuation date, a market disruption event has occurred or is continuing. If such a postponement occurs, the calculation agent will use the Reference Prices of the Reference Assets on the first business day after a valuation date on which no market disruption event occurs or is continuing to determine the Reference Asset Performance. In no event, however, will a valuation date be postponed by more than five business days.

If the determination of the Reference Asset Performance is postponed to the last possible day, but a market disruption event occurs or is continuing on that day, that day will nevertheless be the date on which the Reference Asset Performance will be determined by the calculation agent. In such an event, the calculation agent will make a good faith estimate in its sole discretion of the Reference Prices that would have prevailed in the absence of the market disruption event and calculate the Reference Asset Performance.

A market disruption event means any event, circumstance or cause which Royal Bank determines, and the calculation agent confirms, has or will have a material adverse effect on the ability of Royal Bank to perform its obligations under the notes or to hedge its position in respect of its obligations to make payment of amounts owing thereunder and more specifically includes the following events to the extent that they have such effect:

a) with respect to individual equity securities:

- a suspension, absence or limitation of trading in (i) that equity security in its primary market, as determined by the calculation agent, or (ii) futures or options contracts relating to that equity security in the primary market for those contracts, as determined by the calculation agent;

- any event that disrupts or impairs, as determined by the calculation agent, the ability of market participants to (i) effect transactions in, or obtain market values for, the equity security in its primary market, or (ii) effect transactions in, or obtain market values for, futures or options contracts relating the equity security in its primary market;

- the closure on any day of the primary market for that equity security on a scheduled trading day prior to the scheduled weekday closing time of that market (without regard to after hours or any other trading outside of the regular trading session hours) unless such earlier closing time is announced by the primary market at least one hour prior to the earlier of (i) the actual closing time for the regular trading session on such primary market on such scheduled trading day for such primary market and (ii) the submission deadline for orders to be entered into the relevant exchange system for execution at the close of trading on such scheduled trading day for such primary market;

- any scheduled trading day on which (i) the primary market for that equity security or (ii) the exchanges or quotation systems, if any, on which futures or options contracts on that commodity are traded, fails to open for trading during its regular trading session; or

- any other event, if the calculation agent determines that the event interferes with our ability or the ability of any of our affiliates to unwind all or a portion of a hedge with respect to the notes that we or our affiliates have effected or may effect as described below under “Use of Proceeds and Hedging” in this product prospectus supplement.

b) with respect to individual commodities:

- a suspension, absence or limitation of trading in (i) that commodity in its primary market, as determined by the calculation agent, or (ii) futures or options contracts relating to that commodity in the primary market for those contracts, as determined by the calculation agent;
• any event that disrupts or impairs, as determined by the calculation agent, the ability of market participants to (i) effect transactions in, or obtain market values for, the commodity in its primary market, or (ii) effect transactions in, or obtain market values for, futures or options contracts relating the commodity in its primary market;

• the closure on any day of the primary market for that commodity on a scheduled trading day prior to the scheduled weekday closing time of that market (without regard to after hours or any other trading outside of the regular trading session hours) unless such earlier closing time is announced by the primary market at least one hour prior to the earlier of (i) the actual closing time for the regular trading session on such primary market on such scheduled trading day for such primary market and (ii) the submission deadline for orders to be entered into the relevant exchange system for execution at the close of trading on such scheduled trading day for such primary market;

• any scheduled trading day on which (i) the primary market for that commodity or (ii) the exchanges or quotation systems, if any, on which futures or options contracts on that commodity are traded, fails to open for trading during its regular trading session; or

• any other event, if the calculation agent determines that the event interferes with our ability or the ability of any of our affiliates to unwind all or a portion of a hedge with respect to the notes that we or our affiliates have effected or may effect as described below under “Use of Proceeds and Hedging” in this product prospectus supplement.

c) with respect to individual foreign currencies:

• a suspension, absence or material limitation of trading in the spot, futures contracts, forward contracts or options contracts related to one or more of the currencies that comprise the Reference Assets on any relevant exchange or in the over-the-counter currency markets or a limitation on trading in the spot, futures, forward or options contracts on any relevant exchange on any one day by reason of movements in prices that exceed the price permitted by such exchanges;

• the enactment, publication, decree or other promulgation of any statute, regulation, rule or order of any court or other governmental authority which would make it unlawful or impracticable for Royal Bank to perform its obligations under the notes or for dealers to execute, maintain or modify a hedge in a position in respect of one or more of the currencies that comprise the Reference Assets;

• the taking of any action by any governmental, administrative, legislative or judicial authority or power of Canada, the United States of America, Japan or the European Union or any political subdivision thereof which has a material adverse effect on the financial markets thereof; or

• any outbreak or escalation of hostilities or other national or international calamity or crisis (including, without limitation, natural calamities) which has or would have a material adverse effect on the ability of Royal Bank to perform its obligations under the notes or of a dealer to execute, maintain or modify a hedge of a position with respect to one or more of the currencies that comprise the Reference Assets or a material and adverse effect on the economy of Canada, the United States of America, Japan or the European Union or the trading of currencies.

d) with respect to an equity securities index:

• a suspension, absence or limitation of trading in index components constituting 20% or more, by weight, of that index;

• a suspension, absence or limitation of trading in futures or options contracts relating to that index on their respective markets;
any event that disrupts or impairs, as determined by the calculation agent, the ability of market participants to (i) effect transactions in, or obtain market values for, index components constituting 20% or more, by weight, of that index, or (ii) effect transactions in, or obtain market values for, futures or options contracts relating to that index on their respective markets;

the closure on any day of the primary market for futures or options contracts relating to that index or index components constituting 20% or more, by weight, of that index on a scheduled trading day prior to the scheduled weekday closing time of that market (without regard to after hours or any other trading outside of the regular trading session hours) unless such earlier closing time is announced by the primary market at least one hour prior to the earlier of (i) the actual closing time for the regular trading session on such primary market on such scheduled trading day for such primary market and (ii) the submission deadline for orders to be entered into the relevant exchange system for execution at the close of trading on such scheduled trading day for such primary market;

any scheduled trading day on which (i) the primary markets for index components constituting 20% or more, by weight, of that index or (ii) the exchanges or quotation systems, if any, on which futures or options contracts on that index are traded, fails to open for trading during its regular trading session; or

any other event, if the calculation agent determines that the event interferes with our ability or the ability of any of our affiliates to unwind all or a portion of a hedge with respect to the notes that we or our affiliates have effected or may effect as described below under “Use of Proceeds and Hedging” in this product prospectus supplement.

e) with respect to a currency or commodities index:

a suspension, absence or material limitation of trading in a material number of the currencies or commodities comprising such index for more than two hours or during the one-half hour before the close of trading in that market, as determined by the calculation agent in its sole discretion;

a suspension, absence or material limitation of trading in option or futures contracts relating to the commodities that comprise the Reference Assets, or a material number of the currencies or commodities comprising such index, in the primary market for those contracts for more than two hours of trading or during the one-half hour before the close of trading in that market, as determined by the calculation agent in its sole discretion;

one or more of the commodities indices that comprise the Reference Assets is not published, as determined by the calculation agent in its sole discretion; or

in any other event, if the calculation agent determines in its sole discretion that the event materially interferes with our ability or the ability of any of our affiliates to unwind all or a material portion of a hedge with respect to the notes that we or our affiliates have effected or may effect as described below under “Use of Proceeds and Hedging”.

Payment of Additional Amounts

We will pay any amounts to be paid by us on the notes without deduction or withholding for, or on account of, any and all present or future income, stamp and other taxes, levies, imposts, duties, charges, fees, deductions or withholdings (“taxes”) now or hereafter imposed, levied, collected, withheld or assessed by or on behalf of Canada or any Canadian political subdivision or authority that has the power to tax, unless the deduction or withholding is required by law or by the interpretation or administration thereof by the relevant governmental authority. At any time a Canadian taxing jurisdiction requires us to deduct or withhold for or on account of taxes from any payment made under or in respect of the notes, we will pay such additional amounts (“Additional Amounts”) as may be necessary so that the net amounts received by each holder (including Additional Amounts), after such deduction or withholding, shall not be less than the amount the holder would have received had no such deduction or withholding been required.
However, no Additional Amounts will be payable with respect to a payment made to a holder of a note, which we refer to as an “Excluded Holder”, in respect of a beneficial owner:

(i) with which we do not deal at arm’s length (within the meaning of the Income Tax Act (Canada)) at the time of making such payment;

(ii) which is subject to such taxes by reason of its being connected presently or formerly with Canada or any province or territory thereof otherwise than by reason of the holder’s activity in connection with purchasing the notes, the holding of notes or the receipt of payments thereunder;

(iii) which presents such note for payment (where presentation is required) more than 30 days after the relevant date (except to the extent that the holder thereof would have been entitled to such Additional Amounts on presenting a note for payment on the last day of such 30 day period); for this purpose, the “relevant date” in relation to any payments on any note means:
   (a) the due date for payment thereof, or
   (b) if the full amount of the monies payable on such date has not been received by the trustee on or prior to such due date, the date on which the full amount of such monies having been so received, notice to that effect is duly given to holders of the notes in accordance with the senior indenture; or

(iv) who could lawfully avoid (but has not so avoided) such withholding or deduction by complying, or procuring that any third party comply with, any statutory requirements or by making, or procuring that any third party make, a declaration of non-residence or other similar claim for exemption to any relevant tax authority.

For the avoidance of doubt, we will not have any obligation to pay any holders Additional Amounts on any tax which is payable otherwise than by deduction or withholding from payments made under or in respect of the notes at maturity.

We will also make such withholding or deduction and remit the full amount deducted or withheld to the relevant authority in accordance with applicable law. We will furnish to the trustee, within 30 days after the date the payment of any taxes is due pursuant to applicable law, certified copies of tax receipts evidencing that such payment has been made or other evidence of such payment satisfactory to the trustee. We will indemnify and hold harmless each holder of notes (other than an Excluded Holder) and upon written request reimburse each such holder for the amount of (x) any taxes so levied or imposed and paid by such holder as a result of payments made under or with respect to the notes, and (y) any taxes levied or imposed and paid by such holder with respect to any reimbursement under (x) above, but excluding any such taxes on such holder’s net income or capital.

For additional information, see the section entitled “Supplemental Discussion of Canadian Tax Consequences”.

Default Amount on Acceleration

If an event of default occurs and the maturity of the notes is accelerated, we will pay the default amount in respect of the principal of the notes at maturity. We describe the default amount below under “—Default Amount”.

For the purpose of determining whether the holders of our medium-term notes are entitled to take any action under the senior debt indenture, we will treat the stated principal amount of each note outstanding as the principal amount of that note. Although the terms of the notes may differ from those of the other medium-term notes, holders of specified percentages in principal amount of all medium-term notes, together in some cases with other series of our debt securities, will be able to take action affecting all the medium-term notes. This action may involve changing some of the terms that apply to the medium-term notes, accelerating the maturity of the medium-term notes after a default or waiving some of our obligations under the indenture. We discuss these matters in the
attached prospectus under “Description of Debt Securities—Modification and Waiver of the Debt Securities” and “—Events of Default”.

**Default Amount**

The default amount for the notes on any day will be an amount, in U.S. dollars for the principal of the notes, equal to the cost of having a qualified financial institution, of the kind and selected as described below, expressly assume all our payment and other obligations with respect to the notes as of that day and as if no default or acceleration had occurred, or to undertake other obligations providing substantially equivalent economic value to you with respect to the notes. That cost will equal the lowest amount that a qualified financial institution would charge to effect this assumption or undertaking, plus the reasonable expenses, including reasonable attorneys’ fees, incurred by the holders of the notes in preparing any documentation necessary for this assumption or undertaking.

During the default quotation period for the notes, which we describe below, the holders of the notes and/or we may request a qualified financial institution to provide a quotation of the amount it would charge to effect this assumption or undertaking. If either party obtains a quotation, it must notify the other party in writing of the quotation. The amount referred to in the preceding paragraph will equal the lowest—or, if there is only one, the only—quotation obtained, and as to which notice is so given, during the default quotation period. With respect to any quotation, however, the party not obtaining the quotation may object, on reasonable and significant grounds, to the assumption or undertaking by the qualified financial institution providing the quotation and notify the other party in writing of those grounds within two business days after the last day of the default quotation period, in which case that quotation will be disregarded in determining the default amount.

**Default Quotation Period**

The default quotation period is the period beginning on the day the default amount first becomes due and ending on the third business day after that day, unless: no quotation of the kind referred to above is obtained, or every quotation of that kind obtained is objected to within five business days after the due date as described above.

If either of these two events occurs, the default quotation period will continue until the third business day after the first business day on which prompt notice of a quotation is given as described above. If that quotation is objected to as described above within five business days after that first business day, however, the default quotation period will continue as described in the prior sentence and this sentence.

In any event, if the default quotation period and the subsequent two business day objection period have not ended before the valuation date, then the default amount will equal the principal amount of the notes.

**Qualified Financial Institutions**

For the purpose of determining the default amount at any time, a qualified financial institution must be a financial institution organized under the laws of any jurisdiction in the United States of America or Europe, which at that time has outstanding debt obligations with a stated maturity of one year or less from the date of issue and rated either A-1 or higher by Standard & Poor’s Ratings Group or any successor, or any other comparable rating then used by that rating agency, or P-1 or higher by Moody’s Investors Service, Inc. or any successor, or any other comparable rating then used by that rating agency.

**Manner of Payment and Delivery**

Any payment on or delivery of the notes at maturity will be made to accounts designated by you and approved by us, or at the office of the trustee in New York City, but only when the notes are surrendered to the trustee at that office. We also may make any payment or delivery in accordance with the applicable procedures of the depositary.


**Modified Business Day**

As described in the accompanying prospectus, any payment on your note that would otherwise be due on a day that is not a business day may instead be paid on the next day that is a business day, with the same effect as if paid on the original due date. The term business day may have a different meaning than it does for other Series C medium-term notes. We discuss this term under “Special Calculation Provisions—Business Day” below.

**Role of Calculation Agent**

The calculation agent will make all determinations regarding the Reference Prices of the Reference Assets, modified business days, market disruption events, the default amount, the Reference Asset Performance, and the amount payable on your notes. Absent manifest error, all determinations of the calculation agent will be final and binding on you and us, without any liability on the part of the calculation agent. You will not be entitled to any compensation from us for any loss suffered as a result of any of the above determinations or confirmations by the calculation agent.

Please note that The Bank of New York, as successor to the corporate trust business of JPMorgan Chase Bank, N.A., is currently serving as the calculation agent for the principal protected notes. We may change the calculation agent for your notes at any time without notice and The Bank of New York may resign as calculation agent at any time upon 60 days’ written notice to Royal Bank.

**Special Calculation Provisions**

*Business Day*

When we refer to a business day with respect to your notes, we mean a day that is a business day of the kind described in the accompanying prospectus supplement, unless otherwise specified in the relevant pricing supplement. If the relevant pricing supplement specifies a different meaning for the term business day, we will use that modified definition in determining each interest payment date as well as the maturity date for your notes, all as described in this product prospectus supplement.

*Trading Day*

When we refer to a trading day with respect to your notes, we mean a day on which the principal trading market for the Reference Assets is open for trading, unless otherwise specified in the relevant pricing supplement.

*Closing Price*

The closing price for any Reference Asset on any day will be determined in the manner specified in the relevant pricing supplement.
CERTAIN FEATURES OF THE NOTES

To the extent the amounts payable on the notes are based on a rate or formula other than the rates or formulas described in this product prospectus supplement, the terms of this product prospectus supplement will be amended in the relevant pricing supplement to account for such Reference Asset or formula.

Your notes may incorporate several or none of these features or additional features which will be specified in the relevant pricing supplement.

Bullish Notes

“Bullish notes” are notes with a coupon payment that is based on an increase in the value of a Reference Asset. Unless otherwise specified in the relevant pricing supplement, the notes will be bullish notes.

Bearish Notes

“Bearish notes” are notes with a coupon payment that is based on a decrease in the value of a Reference Asset.

Absolute Return Notes

“Absolute return notes” are notes with a coupon payment that is based on the absolute movement (positive or negative) in the value of a Reference Asset. The relevant pricing supplement will specify an upper barrier and a lower barrier for the price of the Reference Asset. If the price of the Reference Asset exceeds the upper barrier or is below the lower barrier at any time during the term of the absolute return note, the return will be zero (although principal will be repaid at maturity).

Digital or Binary Notes

Whether interest is payable on “digital notes” or “binary notes” depends on whether the Reference Asset has achieved certain levels, values or prices set forth in the relevant pricing supplement. However, the amount of the interest payment, if any, may or may not be highly correlated to the Reference Asset. For example, if the final price of the Reference Asset is greater than the initial price of the Reference Asset, the interest payment you receive with respect to the notes will be a fixed amount and not reflect the exact performance of the Reference Asset. Under no circumstances, regardless of the extent to which the value of the Reference Asset appreciates (unless otherwise specified in the relevant pricing supplement) will your return exceed or be less than the applicable interest rate. You may earn significantly less by investing in digital notes than you would have earned by investing directly in the Reference Asset.

Ceiling or Cap

The interest payable on the notes may be subject to a “maximum return”, “maximum rate”, “ceiling” or a “cap” limiting the rate of return or interest, which may accrue during the term of the notes or during any interest payment period.

Floor

The interest payable on the notes may be subject to a “minimum rate” or “floor” guaranteeing a minimum rate of return or interest, which may accrue during the term of the notes or during any interest payment period.
Spread

The “spread” is the number of basis points (where one basis point equals one one-hundredth of a percentage point) which may be specified in the relevant pricing supplement to be added to or subtracted from the Reference Asset value or other formula. The spread may also be expressed as a percentage where one percentage point is 100 basis points.

Multiplier

The “multiplier” is the number of basis points or percentage points which may be specified in the relevant pricing supplement to be multiplied by the Reference Asset value or formula.

Ranges or Range Accruals

“Range accrual notes” are notes where the interest payable on the notes accrues only if the level, value or price of a Reference Asset is within a specified “range” or above and/or below certain threshold values for a specified period of time.

Barrier Percentage or Barrier Level

The interest payable on the notes may be subject to a “barrier percentage”. Payment at maturity will be contingent upon whether the closing price of the Reference Asset declines and falls below, or increases and passes above, a level equal to the product of the Initial Reference Price and barrier percentage (the “barrier level”) at any time from but excluding the pricing date to and including the final valuation date. The amount you receive may depend on whether the closing price ever declined below or increased above the barrier level during the term of the notes. For absolute return notes, the return will depend on the magnitude of movement, either positive or negative, in relation to the barrier level; provided that, if the price of the Reference Asset exceeds the upper barrier or is below the lower barrier specified in the pricing supplement at any time during the term of your absolute return note, your return will be zero (although you will receive your principal at maturity). The upper barrier and lower barrier may be specified in the relevant pricing supplement as a percentage of the barrier level or as a fixed amount.

Strike Level

The “strike level” is a level other than the Initial Reference Price used to calculate the performance of the Reference Asset.

Basket Return

Unless otherwise specified in the relevant pricing supplement, the “basket return” is the performance of a basket of Reference Assets, calculated as the sum of the weighted percentage changes in the Final Reference Price or Highest Lock-In Level of all the components of the basket as compared to the Initial Reference Price of all the components of the basket. If “basket return” applies, the “basket level” is a function of the levels, values or prices of each component in the basket and will be determined by a formula set forth in the relevant pricing supplement, together with the “initial basket level”. The “final basket level” is the basket level on the basket final valuation date or the arithmetic average of the basket levels on each of the basket valuation dates or any other date or dates as specified in the pricing supplement. The “highest basket lock-in level” is the basket lock-in level equaled or exceeded during the term of the notes or as specified in the pricing supplement.

Multiple Valuation Dates

We may issue notes that have multiple valuation dates. For notes that have multiple valuation dates, which will be specified in the relevant pricing supplement, the mechanics described above under “General Terms of the
Principal Protected Notes—Payment at Maturity” will apply, except that, in lieu of the Final Reference Price, we will use the average Final Reference Price, which will equal:

- for a single Reference Asset, the arithmetic average of the closing values of the Reference Asset on the relevant valuation dates, as calculated by the calculation agent on the final valuation date, or
- for a basket of Reference Assets, the arithmetic average of the closing values of the basket of Reference Assets on the relevant valuation dates as calculated by the calculation agent on the final valuation date.

Callable Notes

If so specified in the relevant pricing supplement, we will have the right to call all or part of the notes, beginning on the initial call date specified in the relevant pricing supplement. If we decide to call the notes, we will:

- send a notice announcing that we have decided to call the notes;
- specify in the notice the call price that we will pay you in exchange for each note; and
- specify in the notice a call date when you will receive the call price; the call date will be at least 10 days and no more than 30 calendar days after the date of the notice, or within the redemption notice period specified in the relevant pricing supplement.

The call price or call prices will be specified in the relevant pricing supplement. In the case of notes issued with original issue discount, the call price on any call date will include the yield that will have accrued on the note since the most recent date for which a call price is specified.
HYPOTHETICAL RETURNS ON YOUR NOTES

The relevant pricing supplement may include a table or chart showing a hypothetical cash delivery amount that could be delivered for your notes at maturity, based on a range of hypothetical Reference Prices of the Reference Assets and on various key assumptions shown in the relevant pricing supplement.

Any table or chart showing hypothetical cash delivery amounts will be provided for purposes of illustration only. It should not be viewed as an indication or prediction of future investment results. Rather, it is intended merely to illustrate the impact that various hypothetical Reference Prices of the Reference Assets on a valuation date could have on the cash delivery amount, as calculated in the manner described in the relevant pricing supplement and assuming all other variables remained constant. The hypothetical cash delivery amounts listed in the relevant pricing supplement will be entirely hypothetical. They will be based on Reference Prices of the Reference Assets that may not be achieved on the relevant valuation date and on assumptions that may prove to be erroneous.

As calculated in the relevant pricing supplement, the hypothetical cash delivery amounts on your notes at maturity may bear little or no relationship to the actual market value of your notes on that date or at any other time, including any time you might wish to sell your notes. In addition, you should not view the hypothetical cash delivery amounts as an indication of the possible financial return on an investment in your notes, since the financial return will be affected by various factors, including taxes, that the hypothetical information does not take into account. Moreover, whatever the financial return on your notes might be, it may bear little relation to — and may be much less than — the financial return that you might achieve were you to invest in the Reference Assets directly. Among other things, the financial return on the Reference Assets would not be limited by the face amount of your notes and could include substantial dividend payments, which you will not receive as an investor in your notes, and an investment in the Reference Assets is likely to have tax consequences that are different from an investment in your notes.

We describe various risk factors that may affect the market value of your notes, and the unpredictable nature of that market value, under “Additional Risk Factors Specific to Your Notes” above.

We cannot predict the market price of the Reference Assets or, therefore, the Reference Prices of the Reference Assets or the cash delivery amount for your notes. Moreover, the assumptions we make in connection with any hypothetical information in the relevant pricing supplement may not reflect actual events. Consequently, that information may give little or no indication of the cash delivery amount that will be delivered in respect of your notes at maturity, nor should it be viewed as an indication of the financial return on your notes or of how that return might compare to the financial return on an investment directly in the Reference Assets.
USE OF PROCEEDS AND HEDGING

We will use the net proceeds we receive from the sale of the notes for the purposes we describe in the attached prospectus supplement under “Use of Proceeds.” We or our affiliates (or an unaffiliated party or parties with whom we contract) may also use those proceeds in transactions intended to hedge our obligations under the notes as described below.

In anticipation of the sale of the notes, we or our affiliates (or such unaffiliated party or parties) expect to enter into hedging transactions involving purchases of equity securities, commodities, foreign currencies, indices or baskets of any of these asset classes or indices linked to the notes and/or listed and/or over-the-counter derivative instruments on the Reference Assets prior to or on the pricing date. From time to time, we or our affiliates (or such unaffiliated party or parties) may enter into additional hedging transactions or unwind those we have entered into. In this regard, we or our affiliates (or such unaffiliated party or parties) may acquire or dispose of long or short positions in listed or over-the-counter options, futures, forwards, or other instruments based on the values of the Reference Assets.

We or our affiliates (or such unaffiliated party or parties) may acquire a long or short position in securities similar to the notes from time to time and may, in our or their sole discretion, hold or resell those securities.

We or our affiliates (or such unaffiliated party or parties) may close out our or their hedge on or before the valuation date. That step may involve sales or purchases of Reference Assets, listed or over-the-counter options or futures or forwards on Reference Assets or listed or over-the-counter options, futures, forwards, or other instruments based on the performance of the Reference Assets.

The hedging activity discussed above may adversely affect the market value of the notes from time to time. See “General Risk Factors – Hedging activities may affect the value of your notes” in this product prospectus supplement for a discussion of these adverse effects.
SUPPLEMENTAL DISCUSSION OF CANADIAN TAX CONSEQUENCES

Investors should read carefully the description of material Canadian federal income tax considerations relevant to owning debt securities under “Canadian Taxation” in the accompanying prospectus. In the opinion of Ogilvy Renault LLP, Canadian tax counsel to Royal Bank, interest paid or credited, or deemed for purposes of the Income Tax Act (the “Act”) to be paid or credited, on the debt securities will not generally be subject to Canadian non-resident withholding tax in the circumstances set out therein. In the event that a pricing supplement further describes the Canadian federal income tax considerations relevant to owning particular debt securities, the description of the Canadian federal income tax considerations under “Canadian Taxation” in the prospectus will be superseded by the description in the pricing supplement to the extent indicated therein.
SUPPLEMENTAL DISCUSSION OF FEDERAL INCOME TAX CONSEQUENCES

The following disclosure—including the opinion of Sullivan & Cromwell LLP—has been prepared without regard to any particular note that you may purchase in the future and, therefore, is provided solely as a matter of general information. You should not rely upon the following disclosure, or the disclosure under “Tax Consequences – United States Taxation” in the Prospectus or “Certain Income Tax Consequences – United States Taxation” in the Prospectus Supplement, with regard to an investment in any particular note because it does not take into account the terms of any particular note or the tax consequences of investing in or holding any particular note unless the pricing supplement applicable to your notes indicates that you may so rely. Any note that you purchase may have terms that would result in a tax treatment that is significantly different from the treatment described below. Consequently, any tax disclosure relevant to any note you may purchase will be set forth only in the pricing supplement relating to your note, and, unless the pricing supplement indicates otherwise, you should not rely on the tax disclosure below or in the prospectus supplement or prospectus in deciding whether to invest in any note. Moreover, in all cases, you should consult with your own tax advisor concerning the consequences of investing in and holding any particular note you propose to purchase.

The following section supplements the discussion of U.S. federal income taxation in the accompanying prospectus and prospectus supplement with respect to United States holders (as defined in the accompanying prospectus). It applies only to those United States holders who are not excluded from the discussion of U.S. federal income taxation in the accompanying prospectus. In addition, this section will only apply to a note that references one or more foreign currencies if the “predominant” currency of such note is the U.S. dollar.

The following section is the opinion of Sullivan & Cromwell LLP, counsel to Royal Bank. The United States federal income tax treatment of your notes will depend on whether (i) the term of your notes exceeds one year, or (ii) the term of your notes will not exceed one year without regard to the effect of an extension in the event of a market disruption event. Accordingly, we set forth a separate subsection for each of the situations described in the previous sentence. In addition, the following discussion assumes your notes are denominated in U.S. dollars. The relevant pricing supplement will discuss the tax consequences if your notes are not denominated in U.S. dollars.

If the timing and amount of all possible payments under the notes are known as of the issue date (e.g., “peak return notes”) and, based on all the facts and circumstances as of the issue date, there is one payment schedule that is significantly more likely than not to occur, the yield and maturity for such notes should be based on such payment schedule. In such case, if the term of your notes exceeds one year, then your notes would generally be subject to the rules described under “Tax Consequences—Taxation of Debt Securities—Original Issue Discount—General” in the accompanying prospectus and if the term of your notes will not exceed one year, although it is not entirely clear, your notes would likely be subject to the rules described under “Tax Consequences—Taxation of Debt Securities—Original Issue Discount—Short-Term Debt Securities” in the accompanying prospectus. The relevant pricing supplement will state whether a particular payment schedule is significantly more likely than not to occur.

Where the term of your notes exceeds one year

The notes will be treated as debt instruments subject to the special tax rules governing contingent payment debt obligations for United States federal income tax purposes. In addition, your notes will be subject to those rules even if your notes reference one or more foreign currencies since the “predominant” currency of the Notes will be the U.S. dollar. Under those rules, the amount of interest you are required to take into account for each accrual period will be determined by constructing a projected payment schedule for the notes, and applying the rules similar to those for accruing original issue discount on a hypothetical noncontingent debt instrument with that projected payment schedule. This method is applied by first determining the yield at which we would issue a noncontingent fixed rate debt instrument with terms and conditions similar to the notes (the “comparable yield”) and then determining a payment schedule as of the issue date that would produce the comparable yield. These rules will generally have the effect of requiring you to include amounts as income in respect of the notes prior to your receipt of cash attributable to that income.
To obtain the comparable yield and projected payment schedule for your particular note, you should call RBC Capital Markets Corporation toll free at (866) 609-6009. You are required to use such comparable yield and projected payment schedule in determining your interest accruals in respect of your notes, unless you timely disclose and justify on your federal income tax return the use of a different comparable yield and projected payment schedule.

The comparable yield and projected payment schedule are not provided to you for any purpose other than the determination of your interest accruals in respect of the notes, and we make no representations regarding the amount of contingent payments with respect to the notes.

If you purchase the notes for an amount that differs from the notes’ adjusted issue price at the time of the purchase, you must determine the extent to which the difference between the price you paid for your notes and their adjusted price is attributable to a change in expectations as to the projected payment schedule, a change in interest rates, or both, and allocate the difference accordingly. The adjusted issue price of the notes will equal the notes’ original offering price plus any interest deemed to be accrued on the notes (under the rules governing contingent payment obligations) as of the time you purchased the notes.

If you purchase the notes for an amount that is less than the adjusted issue price of the notes, you must (a) make positive adjustments increasing the amount of interest that you would otherwise accrue and include in income each year to the extent of amounts allocated to a change in interest rates under the preceding paragraph and (b) make positive adjustments increasing the amount of ordinary income (or decreasing the amount of ordinary loss) that you would otherwise recognize on the maturity of the notes to the extent of amounts allocated to a change in expectations as to the projected payment schedule under the preceding paragraph. If you purchase the notes for an amount that is greater than the adjusted issue price of the notes, you must (a) make negative adjustments decreasing the amount of interest that you would otherwise accrue and include in income each year to the extent of amounts allocated to a change in interest rates under the preceding paragraph and (b) make negative adjustments decreasing the amount of ordinary income (or increasing the amount of ordinary loss) that you would otherwise recognize on the maturity of the notes to the extent of amounts allocated to a change in expectations as to the projected payment schedule under the preceding paragraph. Adjustments allocated to the interest amount are not made until the date the daily portion of interest accrues.

Because any Form 1099-OID that you receive will not reflect the effects of positive or negative adjustments resulting from your purchase of the notes at a price other than the adjusted issue price determined for tax purposes, you are urged to consult with your tax advisor as to whether and how adjustments should be made to the amounts reported on any Form 1099-OID.

If all contingent payments on the notes become fixed on a day that is more than 6 months before the maturity date, applicable Treasury regulations provide that you should make adjustments to the prior and future interest inclusions in respect of your notes over the remaining term for the notes in a reasonable manner. You should consult your tax advisor as to what would be a “reasonable manner” in your particular situation.

You will recognize gain or loss on the sale or maturity of the notes in an amount equal to the difference, if any, between the amount of cash you receive at such time and your adjusted basis in the notes. In general, your adjusted basis in the notes will equal the amount you paid for the notes, increased by the amount of interest you previously accrued with respect to the notes (in accordance with the comparable yield for the notes) and increased or decreased by the amount of any positive or negative adjustment that you are required to make with respect to your notes under the rules set forth above.

Any gain you recognize on the sale or maturity of the notes will be ordinary interest income. Any loss you recognize at such time will be ordinary loss to the extent of interest you included as income in the current or previous taxable years in respect of the notes, and thereafter, capital loss. The deductibility of capital losses is limited.

Where the term of the notes will not exceed one year without regard to the effect of an extension in the event of a market disruption event

PS-32
The notes should be treated as a contingent debt instrument with a term of one year or less. There are no specific rules that govern contingent short-term debt. However, it is likely that the notes should be subject to the general rules that are applicable to short-term debt as described under the heading “Tax Consequences—Taxation of Debt Securities—Original Issue Discount—Short-Term Debt Securities” in the accompanying prospectus. For purposes of applying such rules, amounts should not be treated as having accrued on the notes until a holder is entitled to a fixed minimum positive return.

If your notes reference currencies, it is possible that the Internal Revenue Service could assert that your notes should be subject to the special rules under Section 988 of the Code governing dispositions of debt instruments the payments on which are determined by reference to the value of a foreign currency, in which case any loss you recognize upon the maturity of your notes would be treated as ordinary loss.

If the term of your notes may exceed one year in the event of a market disruption event, your notes may be treated as notes with a term in excess of one year. In such case, your notes would be subject to the rules described under “Where the term of your notes exceeds one year” above.
Employee Retirement Income Security Act

This section is only relevant to you if you are an insurance company or the fiduciary of a pension plan or an employee benefit plan (including a governmental plan, an IRA or a Keogh Plan) proposing to invest in the notes.

The Employee Retirement Income Security Act of 1974, as amended, which we call “ERISA” and the Internal Revenue Code of 1986, as amended, prohibit certain transactions involving the assets of an employee benefit plan and certain persons who are “parties in interest” (within the meaning of ERISA) or “disqualified persons” (within the meaning of the Internal Revenue Code) with respect to the plan; governmental plans may be subject to similar prohibitions. Therefore, a plan fiduciary considering purchasing notes should consider whether the purchase or holding of such instruments might constitute a “prohibited transaction”.

Royal Bank and certain of its affiliates each may be considered a “party in interest” or a “disqualified person” with respect to many employee benefit plans by reason of, for example, Royal Bank (or its affiliate) providing services to such plans. Prohibited transactions within the meaning of ERISA or the Internal Revenue Code may arise, for example, if notes are acquired by or with the assets of a pension or other employee benefit plan that is subject to the fiduciary responsibility provisions of ERISA or Section 4975 of the Internal Revenue Code (including individual retirement accounts and other plans described in Section 4975(e)(1) of the Internal Revenue Code), which we call collectively “Plans”, and with respect to which Royal Bank or any of its affiliates is a “party in interest” or a “disqualified person”, unless those notes are acquired under an exemption for transactions effected on behalf of that Plan by a “qualified professional asset manager” or an “in-house asset manager”, for transactions involving insurance company general accounts, for transactions involving insurance company pooled separate accounts, for transactions involving bank collective investment funds, or under another available exemption. Section 408(b)(17) provides an additional exemption for the purchase and sale of securities and related lending transactions where neither the issuer of the securities nor any of its affiliates have or exercise any discretionary authority or control or render any investment advice with respect to the assets of any Plan involved in the transaction and the Plan pays no more than “adequate” consideration in connection with the transaction. The assets of a Plan may include assets held in the general account of an insurance company that are deemed to be “plan assets” under ERISA. The person making the decision on behalf of a Plan or a governmental plan shall be deemed, on behalf of itself and the Plan, by purchasing and holding the notes, or exercising any rights related thereto, to represent that (a) such purchase, holding and exercise of the notes will not result in a non-exempt prohibited transaction under ERISA or the Internal Revenue Code (or, with respect to a governmental plan, under any similar applicable law or regulation) and (b) neither Royal Bank nor any of its affiliates is a “fiduciary” (within the meaning of Section 3(21) of ERISA) with respect to the purchaser or holder in connection with such person’s acquisition, disposition or holding of the notes, or any exercise related thereto or as a result of any exercise by Royal Bank or any of its affiliates of any rights in connection with the principal protected notes, and no advice provided by Royal Bank or any of its affiliates has formed a primary basis for any investment decision by or on behalf of such purchaser or holder in connection with the notes and the transactions contemplated with respect to the notes.

If you are an insurance company or the fiduciary of a pension plan or an employee benefit plan, and propose to invest in the notes, you should consult your legal counsel.
SUPPLEMENTAL PLAN OF DISTRIBUTION

With respect to each note to be issued, Royal Bank will agree to sell to RBC Capital Markets Corporation, and RBC Capital Markets Corporation will agree to purchase from Royal Bank, the face amount of the note specified, at the price specified under “Proceeds to Royal Bank”, in the relevant pricing supplement. RBC Capital Markets Corporation intends to resell each note it purchases at the original issue price specified in the relevant pricing supplement. In the future, RBC Capital Markets Corporation, RBC Dain Rauscher Inc. or another of our affiliates may repurchase and resell the notes in market-making transactions, with resales being made at prices related to prevailing market prices at the time of resale or at negotiated prices. For more information about the plan of distribution, the distribution agreement and possible market-making activities, see “Supplemental Plan of Distribution” in the accompanying prospectus supplement.

To the extent the underwriter resells notes to a broker or dealer less a concession equal to the entire underwriting discount, such broker or dealer may be deemed to be an “underwriter” of the notes as such term is defined in the Securities Act of 1933, as amended.
Royal Bank of Canada
Senior Global Medium-Term Notes, Series C
Principal Protected Notes

Royal Bank of Canada (“Royal Bank”) from time to time may offer and sell principal protected notes, whose return is linked to the performance of individual equity securities, commodities, foreign currencies (relative to the value of the U.S. dollar), interest rates or consumer prices, or an index of any of the above referenced asset classes or a weighted basket comprised of several indices or asset classes (each, a “Reference Asset”). The product prospectus supplement for the principal protected notes dated January 7, 2008, describes some of the general terms that apply to the principal protected notes and the general manner in which they may be offered. This reference asset supplement describes some of the asset classes to which the principal protected notes may be linked, as well as related matters concerning the relationship, if any, between Royal Bank and the sponsors or publishers of each index. The specific terms for each series of principal protected notes will be described in a separate pricing supplement, including any additions or changes to the terms specified in the product prospectus supplement or the description of the Reference Assets set forth in this reference asset supplement. If there is any inconsistency between the terms described in a relevant pricing supplement and those described in this reference asset supplement, the terms described in the relevant pricing supplement will be controlling.

This reference asset supplement describes only select Reference Assets to which the principal protected notes may be linked. We do not guarantee that we will offer principal protected notes linked to any of the reference assets described herein. In addition, we may in the future offer principal protected notes linked to a Reference Asset that is not described herein. In such an event, we will describe any such additional reference asset in the relevant pricing supplement.

See “Risk Factors” in the relevant pricing supplement, if applicable, and in the product prospectus supplement for risks related to an investment in the principal protected notes.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these notes or passed upon the accuracy of this reference asset supplement or the accompanying product prospectus supplement, prospectus, prospectus supplement and any relevant pricing supplement. Any representation to the contrary is a criminal offense.

The notes are not deposit liabilities of Royal Bank and are not FDIC insured.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rates and Consumer Prices</td>
<td>1</td>
</tr>
<tr>
<td>Equity Securities</td>
<td>14</td>
</tr>
<tr>
<td>Commodities</td>
<td>21</td>
</tr>
<tr>
<td>Currency Exchange Rates</td>
<td>28</td>
</tr>
<tr>
<td>Index And Indices</td>
<td>32</td>
</tr>
</tbody>
</table>
INTEREST RATES AND CONSUMER PRICES

Fixed Interest Rate

If your notes have a fixed interest rate, the notes for that particular offering will bear interest from and including the original issue date or any other date specified in the relevant pricing supplement at the annual rate stated in the relevant pricing supplement until the principal is paid or made available for payment.

Floating Interest Rate

If your notes have a floating interest rate, the notes for that particular offering will bear interest at a floating rate determined by reference to an interest rate or interest rate formula, which we refer to as the Reference Asset. The Reference Asset may be one or more of the following:

- the CD rate,
- the CMS rate,
- the CMT rate,
- the commercial paper rate,
- the Consumer Price Index,
- the eleventh district cost of funds rate,
- EURIBOR,
- the federal funds (effective) rate,
- the federal funds (open) rate,
- LIBOR,
- the prime rate,
- the Treasury rate,
- a combination of any of the foregoing, or
- any other rate or interest rate formula specified in the relevant pricing supplement and in the floating rate note.

CD Rate

The “CD rate” means, for any interest determination date, the rate on that date for negotiable U.S. dollar certificates of deposit having the index maturity specified in the relevant pricing supplement as published by the Board of Governors of the Federal Reserve System in “Statistical Release H.15(519), Selected Interest Rates”, or any successor publication of the Board of Governors of the Federal Reserve System (“H.15(519)”) under the heading “CDs (Secondary Market)".
The following procedures will be followed if the CD rate cannot be determined as described above:

- If the CD rate is not published in H.15(519) by 3:00 p.m., New York City time, on the interest determination date, the CD rate will be the rate on that interest determination date set forth in the daily update of H.15(519), available through the world wide website of the Board of Governors of the Federal Reserve System, or any successor site or publication, which is commonly referred to as the “H.15 Daily Update”, for the interest determination date for certificates of deposit having the index maturity specified in the relevant pricing supplement, under the heading “CDs (Secondary Market)”.

- If the CD rate is not yet published in either H.15(519) or the H.15 Daily Update by 3:00 p.m., New York City time, on the interest determination date, the calculation agent will determine the CD rate to be the arithmetic mean of the secondary market offered rates as of 10:00 a.m., New York City time, on that interest determination date, of three leading nonbank dealers in negotiable U.S. dollar certificates of deposit in The City of New York, which may include the agent and its affiliates, selected by the calculation agent, after consultation with us, for negotiable U.S. dollar certificates of deposit of major U.S. money center banks of the highest credit standing in the market for negotiable certificates of deposit with a remaining maturity closest to the index maturity specified in the relevant pricing supplement in an amount that is representative for a single transaction in that market at that time.

- If the dealers selected by the calculation agent are not quoting as set forth above, the CD rate for that interest determination date will remain the CD rate for the immediately preceding interest reset period, or, if there was no interest reset period, the rate of interest payable will be the initial interest rate.

CMS Rate

The “CMS rate” means, on any day during an interest payment period, the rate for U.S. dollar swaps with a maturity for a specified number of years, expressed as a percentage in the relevant pricing supplement, which appears on Reuters screen “ISDAFIX1” page as of 11:00 a.m., New York City time, on the related interest determination date.

The following procedures will be used if the CMS rate cannot be determined as described above:

- If the CMS rate is no longer displayed on the relevant page, or if not displayed by 11:00 a.m., New York City time, on the interest determination date, then the CMS rate will be the rate for U.S. dollar swaps with a maturity of the notes designated in the relevant pricing supplement, expressed as a percentage, which appears on the Reuters screen “ISDAFIX1” page as of 11:00 a.m., New York City time, on the interest determination date.

- If that information is no longer displayed by 11:00 a.m., New York City time, on the interest determination date, then the CMS rate will be a percentage determined on the basis of the mid-market, semi-annual swap rate quotations provided by five leading swap dealers in the New York City interbank market at approximately 11:00 a.m., New York City time, on the interest determination date. For this purpose, the semi-annual swap rate means the mean of the bid and offered rates for the semi-annual fixed leg, calculated on a 30/360 day count basis, of a fixed-for-floating U.S. dollar interest rate swap transaction with a term equal to the maturity of the notes designated in the relevant pricing supplement commencing on that interest determination date with an acknowledged dealer of good credit in the swap market, where the floating leg, calculated on an Actual/360 day count basis, is equivalent to “LIBOR Reuters” with a maturity of three months. The calculation agent will select the five swap
dealers after consultation with us and will request the principal New York City office of each of those dealers to provide a quotation of its rate. If at least three quotations are provided, the CMS rate for that interest determination date will be the arithmetic mean of the quotations, eliminating the highest and lowest quotations or, in the event of equality, one of the highest and one of the lowest quotations.

- If fewer than three leading swap dealers selected by the calculation agent are quoting as described above, the CMS rate will remain the CMS rate in effect on that interest determination date or, if that interest determination date is the first interest determination date, the initial interest rate.

### CMT Rate

The “CMT rate” means, for any interest determination date, the rate as set forth in H.15(519) as defined below, under the caption “Treasury constant maturities”, for:

- the rate on that interest determination date, if the Designated CMT Reuters page, as defined below, is “FRBCMT”; and
- the week or the month, as applicable, ended immediately preceding the week in which the related interest determination date occurs, if the Designated CMT Reuters page is “FEDCMT”.

CMT rates are yields interpolated by the United State Department of the Treasury from its daily yield curve. That yield curve, which relates to the yield on a U.S. Treasury security to its time to maturity, is based on the closing market bid yields on actively traded U.S. Treasury securities in the over-the-counter market. These market yields are calculated from composites of quotations obtained by the Federal Reserve Bank of New York. The yield values are read from the yield curve at fixed maturities. This method provides yields for a 2-year maturity, for example, even if no outstanding U.S. Treasury security has exactly 2 years remaining to maturity.

“FRBCMT” means that the rate for the interest determination date will be a percentage equal to the yield for U.S. Treasury securities at “constant maturity” for a period of “designated maturity”, as specified in the relevant pricing supplement, and for that interest determination date as set forth in H.15(519) under the caption “Treasury constant maturities”, as that yield is displayed on the Reuters screen “FRBCMT” for the interest determination date on the day that is two U.S. government securities business days prior to that interest determination date. If that rate does not appear on the Reuters screen “FRBCMT”, the rate for that interest determination date will be a percentage equal to the yield for U.S. Treasury securities at “constant maturity” for a period of the designated maturity and for that interest determination date as set forth in H.15(519) under the caption “Treasury constant maturities”. If that rate does not appear in H.15(519), the rate for that interest determination date will be the rate for a period of the designated maturity as may then be published by either the Federal Reserve System Board of Governors or the U.S. Department of the Treasury that the calculation agent determines to be comparable to the rate which would otherwise have been published in H.15(519).

“1-year CMT rate” means the FRBCMT rate with a designated maturity of 1 year.

“2-year CMT rate” means the FRBCMT rate with a designated maturity of 2 years.

“3-year CMT rate” means the FRBCMT rate with a designated maturity of 3 years.

“5-year CMT rate” means the FRBCMT rate with a designated maturity of 5 years.
“7-year CMT rate” means the FRBCMT rate with a designated maturity of 7 years.

“10-year CMT rate” means the FRBCMT rate with a designated maturity of 10 years.

“20-year CMT rate” means the FRBCMT rate with a designated maturity of 20 years.

“30-year CMT rate” means the FRBCMT rate with a designated maturity of 30 years.

The following procedures will be followed if the CMT rate cannot be determined as described above:

- If the CMT rate is not displayed on the relevant page by 3:30 p.m., New York City time on the related interest determination date, then the CMT rate will be a percentage equal to the yield for U.S. Treasury securities at “constant maturity” for the Designated CMT Maturity Index on the related interest determination date as set forth in H.15(519) under the caption “Treasury constant maturities”.

- If the applicable rate described above does not appear in H.15(519) then the CMT rate on the related interest determination date will be the rate for the Designated CMT Maturity Index as may then be published by either the Board of Governors of the Federal Reserve System or the U.S. Department of the Treasury that the calculation agent determines to be comparable to the rate formerly displayed on the Designated CMT Reuters screen and published in the relevant H.15(519).

- If on the related interest determination date, neither the Board of Governors of the Federal Reserve System nor the U.S. Department of the Treasury publishes a yield on U.S. Treasury securities at a “constant maturity” for the Designated CMT Maturity Index, the CMT rate on the related interest determination date will be calculated by the calculation agent and will be a yield-to-maturity based on the arithmetic mean of the secondary market bid prices at approximately 3:30 p.m., New York City time, on the related interest determination date, of three leading primary U.S. government securities dealers in New York City. The calculation agent will select five such securities dealers, and will eliminate the highest quotation (or, in the event of equality, one of the highest) and the lowest quotation (or, in the event of equality, one of the lowest), for U.S. Treasury securities with an original maturity equal to the Designated CMT Maturity Index, a remaining term to maturity of no more than one year shorter than that Designated CMT Maturity Index and in a principal amount equal to the Representative Amount. If two bid prices with an original maturity as described above have remaining terms to maturity equally close to the Designated CMT Maturity Index, the quotes for the U.S. Treasury security with the shorter remaining term to maturity will be used. The “Representative Amount” means an amount equal to the outstanding principal amount of the notes.

- If fewer than five but more than two such prices are provided as requested, the CMT rate for the related interest determination date will be based on the arithmetic mean of the bid prices obtained and neither the highest nor the lowest of those quotations will be eliminated.

- If the calculation agent cannot obtain at least three U.S. Treasury securities quotations of the kind requested in the prior two paragraphs, the calculation agent will determine the CMT rate to be the yield to maturity based on the arithmetic mean of the secondary market bid prices for U.S. Treasury securities, at approximately 3:30 p.m., New York City time, on the related interest determination date of three leading primary U.S. government securities dealers in New York City. In selecting these bid prices, the calculation agent will request quotations from at least five of those securities dealers and will disregard the highest quotation (or if
there is equality, one of the highest) and the lowest quotation (or if there is equality, one of
the lowest) for U.S. Treasury securities with an original maturity greater than the Designated
CMT Maturity Index, a remaining term to maturity closest to the Designated CMT Maturity
Index and in a Representative Amount. If two U.S. Treasury securities with an original
maturity longer than the Designated CMT Maturity Index have remaining terms to maturity
that are equally close to the Designated CMT Maturity Index, the calculation agent will obtain
quotations for the U.S. Treasury security with the shorter remaining term to maturity.

- If fewer than five but more than two of the leading primary U.S. government securities
dealers provide quotes as described in the prior paragraph, then the CMT rate will be based on
the arithmetic mean of the bid prices obtained, and neither the highest nor the lowest of those
quotations will be eliminated.

- If fewer than three leading primary U.S. government securities reference dealers selected by
the calculation agent provide quotes as described above, the CMT rate will be determined by
the calculation agent.

“Designated CMT Reuters page” means the display on Reuters, or any successor service, on the
page designated in the relevant pricing supplement or any other page as may replace that page on that
service for the purpose of displaying Treasury Constant Maturities as reported in H.15(519). If no page is
specified in the relevant pricing supplement the Designated CMT Reuters page will be FEDCMT, for the
most recent week.

“H.15(519)” means the weekly statistical release designated as such, or any successor publication,
published by the Board of Governors of the Federal Reserve System, available through the world wide web
site of the Board of Governors of the Federal Reserve System at
http://www.federalreserve.gov/releases/H15/ or any successor site or publication. We make no
representation or warranty as to the accuracy or completeness of the information displayed on that website,
and that information is not incorporated by reference herein and should not be considered a part of this
reference asset supplement.

“Designated CMT Maturity Index” means the original period to maturity of the U.S. Treasury
securities, which is either 1, 2, 3, 5, 7, 10, 20 or 30 years, specified in the relevant pricing supplement for
which the CMT rate will be calculated. If no maturity is specified in the relevant pricing supplement the
Designated CMT Maturity Index will be two years.

**Commercial Paper Rate**

The “commercial paper rate” means, for any interest determination date, the money market yield,
calculated as described below, of the rate on that date for commercial paper having the index maturity
specified in the relevant pricing supplement, as that rate is published in H.15(519), under the heading
“Commercial Paper—Nonfinancial”.

The following procedures will be followed if the commercial paper rate cannot be determined as
described above:

- If the above rate is not published by 3:00 p.m., New York City time, on the interest
determination date, then the commercial paper rate will be the money market yield of the rate
on that interest determination date for commercial paper of the index maturity specified in the
relevant pricing supplement as published in the H.15 Daily Update, or other recognized
electronic source used for the purpose of displaying the applicable rate, under the heading
“Commercial Paper—Nonfinancial”.

R-5
• If by 3:00 p.m., New York City time, on that interest determination date the rate is not yet published in either H.15(519) or the H.15 Daily Update, then the calculation agent will determine the commercial paper rate to be the money market yield of the arithmetic mean of the offered rates as of 11:00 a.m., New York City time, on that interest determination date of three leading dealers of U.S. dollar commercial paper in The City of New York, which may include the agent and its affiliates, selected by the calculation agent, after consultation with us, for commercial paper of the index maturity specified in the relevant pricing supplement, placed for an industrial issuer whose bond rating is “AA”, or the equivalent, from a nationally recognized statistical rating agency.

• If the dealers selected by the calculation agent are not quoting as set forth above, the commercial paper rate for that interest determination date will remain the commercial paper rate for the immediately preceding interest reset period, or, if there was no interest reset period, the rate of interest payable will be the initial interest rate.

The “money market yield” will be a yield calculated in accordance with the following formula:

\[
\text{Money market yield} = \frac{(D \times 360)}{360 - (D \times M)} \times 100
\]

where, “D” refers to the applicable per year rate for commercial paper quoted on a bank discount basis and expressed as a decimal and “M” refers to the actual number of days in the interest payment period for which interest is being calculated.

**Consumer Price Index**

The “Consumer Price Index” or “CPI” means, for any interest determination date, the non-seasonally adjusted U.S. City Average All Items Consumer Price Index for All Urban Consumers, published monthly by the Bureau of Labor Statistics of the U.S. Department of Labor (the “Bureau of Labor Statistics”) and reported on Bloomberg ticker “CPURNSA” or any successor service. The Bureau of Labor Statistics makes the majority of its consumer price index data and press releases publicly available immediately at the time of release. This material may be accessed electronically by means of the Bureau of Labor Statistics’ home page on the Internet at http://www.bls.gov. The Consumer Price Index for a particular month is published during the following month. The Consumer Price Index is a measure of the average change in consumer prices over time for a fixed market basket of goods and services, including food, clothing, shelter, fuels, transportation, charges for doctors and dentists services, and drugs. User fees (such as water and sewer service) and sales and excise taxes paid by the consumer are included in determining consumer prices. Income taxes and investment items such as stocks, bonds and life insurance are not included. The Consumer Price Index includes expenditures by urban wage earners and clerical workers, professional, managerial and technical workers, the self-employed, short-term workers, the unemployed, retirees and others not in the labor force. In calculating the Consumer Price Index, price changes for the various items are averaged together with weights that represent their importance in the spending of urban households in the United States. The contents of the market basket of goods and services and the weights assigned to the various items are updated periodically by the Bureau of Labor Statistics to take into account changes in consumer expenditure patterns.

The Consumer Price Index is expressed in relative terms in relation to a time base reference period for which the level is set at 100.0. The time base reference period is the 1982–1984 average. Because the Consumer Price Index for the period from 1982–1984 is 100, an increase in the price of the fixed market basket of goods and services of 16.5% from that period would be shown as 116.5%. If the Bureau of Labor Statistics rebases the Consumer Price Index when the notes are outstanding, the calculation agent will continue to calculate inflation using 1982–1984 as the base reference period for so long as the current Consumer Price Index continues to be published. Any conversion by the Bureau of Labor Statistics to a
new reference base will not affect the measurement of the percent changes in a given index series from one
time period to another, except for rounding differences. Rebasing might affect the published “headline”
number often quoted in the financial press, but the inflation calculation for the notes should not be
adversely affected by any rebasing because the Consumer Price Index based on 1982–1984 will be
calculated using the percentage changes of the rebased Consumer Price Index.

The Bureau of Labor Statistics has made technical and methodological changes to the Consumer
Price Index, and is likely to continue to do so. Examples of recent methodological changes include:

• the use of regression models to adjust for improvements in the quality of various goods
  (televisions, personal computers, etc.);

• the introduction of geometric averages to account for consumer substitution within the
  consumer price index categories; and

• changing the housing/shelter formula to increase rental equivalence estimation.

Similar changes in the future could affect the level of the Consumer Price Index and alter the
interest payable on the notes.

“CPI Performance” means the annual percentage change for a month, as specified in the relevant
pricing supplement, prior to the month of the relevant interest payment date (the “reference month”).

For example, if the performance of the Consumer Price Index is the annual percentage change in
the Consumer Price Index for the third calendar month prior to the reference month, then the interest rate
payable on June 30, 2007 will reflect the percentage change in the Consumer Price Index from March 2006
to March 2007 plus the applicable spread, if any. The performance of the Consumer Price Index will be
calculated as follows:

\[
\text{Interest Rate} = \frac{(\text{CPI F} - \text{CPI I})}{\text{CPI}}
\]

where,

CPI F = CPI for the applicable reference month, as published on Bloomberg CPURNSA;

CPI I = CPI for the twelfth month, or otherwise as specified in the relevant pricing supplement, prior to the
applicable reference month, as published on Bloomberg CPURNSA.

Using the example above, if CPI Performance for the second calendar month prior to the reference
month was used, then the interest rate payable on June 30, 2007 will reflect the percentage change in the
Consumer Price Index from April 2006 to April 2007 plus the applicable spread, if any.

If the performance of the Consumer Price Index for a particular reference month is equal to or less
than the spread, you will not receive an interest payment on the corresponding interest payment date. The
interest payment on any interest payment date will not be less than 0.00% per annum, unless specified in
the relevant pricing supplement.

The following procedures will be followed if the Consumer Price Index cannot be determined as
described above:

• If the Consumer Price Index is not reported on Bloomberg CPURNSA for a particular month
  by 3:00 PM on the interest determination date, but has otherwise been published by the
  Bureau of Labor Statistics, the calculation agent will determine the Consumer Price Index as
published by the Bureau of Labor Statistics for that month using any other source as the calculation agent deems appropriate.

- If the Consumer Price Index is rebased to a different year or period, the base reference period will continue to be the 1982-1984 reference period as long as the 1982-1984 Consumer Price Index continues to be published.

- If the Consumer Price Index for the reference month is subsequently revised by the Bureau of Labor Statistics, the calculation agent will continue to use the Consumer Price Index initially published by the Bureau of Labor Statistics on the interest reset date.

- If, while the notes are outstanding, the Consumer Price Index is discontinued or substantially altered, as determined by the calculation agent, the applicable substitute index for the notes will be that chosen by the Secretary of the Treasury for the Department of Treasury’s Inflation-Linked Treasuries as described at 62 Federal Register 846-874 (January 6, 1997). If none of those securities are outstanding, the calculation agent will determine a substitute index for the notes in accordance with general market practice at the time.

Eleventh District Cost of Funds

The “eleventh district cost of funds rate” or “COFT” means, for any interest determination date, the rate on the applicable interest determination date equal to the monthly weighted average cost of funds for the calendar month preceding the interest determination date as displayed under the caption “Eleventh District” on Reuters screen “COFI/ARMS”. Reuters screen “COFI/ARMS” means the display screen designated as screen “COFI/ARMS” on Reuters, or any successor service or page, for the purpose of displaying the monthly weighted average cost of funds paid by member institutions of the Eleventh Federal Home Loan Bank District.

The following procedures will be followed if the eleventh district cost of funds rate cannot be determined as described above:

- If the above rate is not displayed by 3:00 p.m., New York City time, on the interest determination date for the applicable interest determination date, the eleventh district cost of funds rate will be the eleventh district cost of funds rate index on the applicable interest determination date.

- If the Federal Home Loan Bank of San Francisco fails to announce the rate for the calendar month next preceding the applicable interest determination date, then the eleventh district cost of funds rate for the new interest reset period will be the same as for the immediately preceding period. If there was no such interest reset period, the eleventh district cost of funds rate index will be the initial interest rate.

The “eleventh district cost of funds rate index” means the monthly weighted average cost of funds paid by member institutions of the Eleventh Federal Home Loan Bank District that the Federal Home Loan Bank of San Francisco most recently announced as the cost of funds for the calendar month preceding the date of the announcement.

EURIBOR

“EURIBOR” means, for any interest determination date, the rate for deposits in euros as sponsored, calculated and published jointly by the European Banking Federation and ACI—The Financial Market Association, or any company established by the joint sponsors for purposes of compiling and publishing those rates, for the index maturity specified in the relevant pricing supplement as that rate
appears on the display on Reuter, on screen “EURIBOR01” or any other screen as may replace screen “EURIBOR01” on that service, which is commonly referred to as Reuters screen “EURIBOR01”, as of 11:00 a.m., Brussels time.

The following procedures will be followed if the rate cannot be determined as described above:

- If the above rate does not appear, the calculation agent will request the principal Euro-zone office of each of four major banks in the Euro-zone interbank market, as selected by the calculation agent, after consultation with us, to provide the calculation agent with its offered rate for deposits in euros, at approximately 11:00 a.m., Brussels time, on the interest determination date, to prime banks in the Euro-zone interbank market for the index maturity specified in the relevant pricing supplement commencing on the applicable interest reset date, and in a principal amount not less than the equivalent of US$1 million in euro that is representative of a single transaction in euro, in that market at that time. If at least two quotations are provided, EURIBOR will be the arithmetic mean of those quotations.

- If fewer than two quotations are provided, EURIBOR will be the arithmetic mean of the rates quoted by four major banks in the Euro-zone interbank market, as selected by the calculation agent, after consultation with us, at approximately 11:00 a.m., Brussels time, on the applicable interest reset date for loans in euro to leading European banks for a period of time equivalent to the index maturity specified in the relevant pricing supplement commencing on that interest reset date in a principal amount not less than the equivalent of US$1 million in euro that is representative of a single transaction in euro, in that market at that time.

- If the banks so selected by the calculation agent are not quoting as set forth above, EURIBOR for that interest determination date will remain EURIBOR for the immediately preceding interest reset period, or, if there was no interest reset period, the rate of interest payable will be the initial interest rate.

“Euro-zone” means the region comprising member states of the European Union that have adopted the single currency in accordance with the relevant treaty of the European Union, as amended.

Federal Funds (Effective) Rate

The “federal funds (effective) rate” means, for any interest determination date, the rate on that date for federal funds as published in H.15(519) under the heading “Federal Funds (Effective)” as displayed on Reuters Page USONFFE or any other page as may replace the applicable page on that service, which is commonly referred to as “Reuters page USONFFE”.

The following procedures will be followed if the federal funds (effective) rate cannot be determined as described above:

- If the above rate is not published by 3:00 p.m., New York City time, on the interest determination date, the federal funds (effective) rate will be the rate on that interest determination date as published in the H.15 Daily Update, or other recognized electronic source used for the purpose of displaying the applicable rate, under the heading “Federal Funds/Effective Rate”.

- If the above rate is not yet published in either H.15(519) or the H.15 Daily Update by 3:00 p.m., New York City time, on the interest determination date, the calculation agent will determine the federal funds (effective) rate to be the arithmetic mean of the rates for the last transaction in overnight U.S. dollar federal funds by each of three leading brokers of U.S. dollar federal funds transactions in The City of New York, which may include the agent and
its affiliates, selected by the calculation agent, after consultation with us, prior to 9:00 a.m., New York City time, on that interest determination date.

- If the brokers selected by the calculation agent are not quoting as set forth above, the federal funds rate for that interest determination date will remain the federal funds (effective) rate for the immediately preceding interest reset period, or, if there was no interest reset period, the rate of interest payable will be the initial interest rate.

**Federal Funds (Open) Rate**

The “federal funds (open) rate” means, for any interest determination date, the rate on that date for federal funds as published in H.15(519) under the heading “Federal Funds” and opposite the caption “Open”, as displayed on Reuters Page USFFTARGET or any other page as may replace the applicable page on that service, which is commonly referred to as “Reuter’s page USFFTARGET”.

The following procedures will be followed if the federal funds (open) rate cannot be determined as described above:

- If the above rate is not published by 3:00 p.m., New York City time, on the interest determination date, the federal funds (open) rate will be the rate on that interest determination date as published on Bloomberg, or other recognized electronic source used for the purpose of displaying the applicable rate, on FEDSPREB Index.

- If the above rate is not yet published on either Telerate page 5 or FEDSPREB Index on Bloomberg by 3:00 p.m., New York City time, on the interest determination date, the calculation agent will determine the federal funds (open) rate to be the arithmetic mean of the rates for the last transaction in overnight U.S. dollar federal funds by each of three leading brokers of U.S. dollar federal funds transactions in The City of New York, which may include the agent and its affiliates, selected by the calculation agent, after consultation with us, prior to 9:00 a.m., New York City time, on that interest determination date.

- If the brokers selected by the calculation agent are not quoting as set forth above, the federal funds rate for that interest determination date will remain the federal funds (open) rate for the immediately preceding interest reset period, or, if there was no interest reset period, the rate of interest payable will be the initial interest rate.

**LIBOR**

Notes having a coupon based on “LIBOR” or the London Interbank Offered Rate will bear interest at the interest rates specified in the relevant pricing supplement. The calculation agent will determine “LIBOR” for each interest determination date as follows:

- As of the interest determination date, LIBOR will be the arithmetic mean of the offered rates for deposits in the index currency having the index maturity designated in the relevant pricing supplement, commencing on the second London banking day immediately following that interest determination date, that appear on the Designated LIBOR page, as defined below, as of 11:00 a.m., London time, on that interest determination date, if at least two offered rates appear on the Designated LIBOR page; except that if the specified Designated LIBOR page, by its terms provides only for a single rate, that single rate will be used.

- If (i) fewer than two offered rates appear and “LIBOR Reuters” is specified in the relevant pricing supplement, or (ii) no rate appears and the relevant pricing supplement specifies “LIBOR Reuters” and the Designated LIBOR page by its terms provides only for a single
rate, then the calculation agent will request the principal London offices of each of four major reference banks in the London interbank market, as selected by the calculation agent after consultation with us, to provide the calculation agent with its offered quotation for deposits in the index currency for the period of the index maturity specified in the relevant pricing supplement commencing on the second London banking day immediately following the interest determination date or, if pounds sterling is the index currency, commencing on that interest determination date, to prime banks in the London interbank market at approximately 11:00 a.m., London time, on that interest determination date and in a principal amount that is representative of a single transaction in that index currency in that market at that time.

- If at least two quotations are provided, LIBOR determined on that interest determination date will be the arithmetic mean of those quotations. If fewer than two quotations are provided, LIBOR will be determined for the applicable interest reset date as the arithmetic mean of the rates quoted at approximately 11:00 a.m., London time, or some other time specified in the relevant pricing supplement, in the applicable principal financial center for the country of the index currency on that interest reset date, by three major banks in that principal financial center selected by the calculation agent, after consultation with us, for loans in the index currency to leading European banks, having the index maturity specified in the relevant pricing supplement and in a principal amount that is representative of a single transaction in that index currency in that market at that time.

- If the banks so selected by the calculation agent are not quoting as set forth above, LIBOR for that interest determination date will remain LIBOR for the immediately preceding interest reset period, or, if there was no interest reset period, the rate of interest payable will be the initial interest rate.

The “index currency” means the currency specified in the relevant pricing supplement as the currency for which LIBOR will be calculated, or, if the euro is substituted for that currency, the index currency will be the euro. If that currency is not specified in the relevant pricing supplement, the index currency will be U.S. dollars.

“Designated LIBOR page” means the display on the Reuters Monitor Money Rates Service for the purpose of displaying the London interbank rates of major banks for the applicable index currency or its designated successor.

“USD-LIBOR-BBA” means that the rate for an interest determination date will be the rate for deposits in U.S. dollars for a period of the “designated maturity”, specified in the relevant pricing supplement, which appears on the Reuters screen “LIBOR01” as of 11:00 a.m., London time, on the day that is two London banking days preceding that interest determination date. If that rate does not appear on the Reuters screen “LIBOR01”, the rate for that interest determination date will be determined as if the parties had specified “USD-LIBOR-Reference Banks” as the applicable floating rate option.

“USD-LIBOR-Reference Banks” means that the rate for an interest determination date will be determined on the basis of the rates at which deposits in U.S. dollars are offered by four major banks in the London interbank market (“reference banks”) at approximately 11:00 a.m., London time, on the day that is two London banking days preceding that interest determination date to prime banks in the London interbank market for a designated period commencing on that interest determination date and in a designated amount. The calculation agent will request the principal London office of each of the reference banks to provide a quotation of its rate. If at least two of those quotations are provided, the rate for that interest determination date will be the arithmetic mean of the quotations. If fewer than two quotations are provided as requested, the rate for that interest determination date will be the arithmetic mean of the rates quoted by major banks in New York City, selected by the calculation agent, at approximately 11:00 a.m.,
New York City time, on that interest reset date for loans in U.S. dollars to leading European banks for a designated period commencing on that interest determination date and in a designated amount.

“One-month LIBOR” means the USD-LIBOR-BBA rate with a designated maturity of one month commencing on the interest reset date.

“Three-month LIBOR” means the USD-LIBOR-BBA rate with a designated maturity of three months commencing on the interest reset date.

“Six-month LIBOR” means the USD-LIBOR-BBA rate with a designated maturity of six months commencing on the interest reset date.

“Nine-month LIBOR” means the USD-LIBOR-BBA rate with a designated maturity of nine months commencing on the interest reset date.

“One-year LIBOR” means the USD-LIBOR-BBA rate with a designated maturity of one year commencing on the interest reset date.

“Twenty-month LIBOR” means the USD-LIBOR-BBA rate with a designated maturity of twenty months commencing on the interest reset date.

If LIBOR Reuters is not specified in the relevant pricing supplement, LIBOR for the applicable index currency will be determined as if LIBOR Reuters were specified, and, if the U.S. dollar is the index currency, as if Reuters screen “LIBOR01” had been specified.

Prime Rate

The “prime rate” means, for any interest determination date, the rate on that date as published in H.15(519) under the heading “Bank Prime Loan”.

The following procedures will be followed if the prime rate cannot be determined as described above:

- If the above rate is not published prior to 3:00 p.m., New York City time, on the interest determination date, then the prime rate will be the rate on that interest determination date as published in H.15 Daily Update under the heading “Bank Prime Loan”.

- If the rate is not published in either H.15(519) or the H.15 Daily Update by 3:00 p.m., New York City time, on the interest determination date, then the calculation agent will determine the prime rate to be the arithmetic mean of the rates of interest publicly announced by each bank that appears on the Reuters screen USPRIME 1 page, as defined below, as that bank’s prime rate or base lending rate as in effect for that interest determination date.

- If fewer than four rates appear on the Reuters screen USPRIME 1 page by 3:00 p.m., New York City time, for that interest determination date, the calculation agent will determine the prime rate to be the arithmetic mean of the prime rates quoted on the basis of the actual number of days in the year divided by 360 as of the close of business on that interest determination date by at least three major banks in The City of New York, which may include affiliates of the agent, selected by the calculation agent, after consultation with us.

- If the banks selected by the calculation agent are not quoting as set forth above, the prime rate for that interest determination date will remain the prime rate for the immediately preceding
interest reset period, or, if there was no interest reset period, the rate of interest payable will be the initial interest rate.

“Reuters screen USPRIME 1 page” means the display designated as page “USPRIME 1” on the Reuters Monitor Money Rates Service, or any successor service, or any other page as may replace the USPRIME 1 page on that service for the purpose of displaying prime rates or base lending rates of major U.S. banks.

**Treasury Rate**

The “Treasury rate” means:

- the rate from the auction held on the applicable interest determination date, which we refer to as the “auction”, of direct obligations of the United States, which are commonly referred to as “Treasury Bills”, having the index maturity specified in the relevant pricing supplement as that rate appears under the caption “INVESTMENT RATE” on the display on Reuters, or any successor service, on screen “USAUCTION 10” or any other page as may replace “USAUCTION 10” on that service, which we refer to as Reuters screen “USAUCTION 10”, or “USAUCTION 11” or any other page as may replace “USAUCTION 11” on that service, which we refer to as Reuters screen “USAUCTION 11”; or

- if the rate described in the first bullet point is not published by 3:00 p.m., New York City time, on the interest determination date, the bond equivalent yield of the rate for the applicable Treasury Bills as published in the H.15 Daily Update, or other recognized electronic source used for the purpose of displaying the applicable rate, under the caption “U.S. Government notes/Treasury Bills/Auction High”; or

- if the rate described in the second bullet point is not published by 3:00 p.m., New York City time, on the related interest determination date, the bond equivalent yield of the auction rate of the applicable Treasury Bills, announced by the U.S. Department of the Treasury; or

- if the rate referred to in the third bullet point is not announced by the U.S. Department of the Treasury, or if the auction is not held, the bond equivalent yield of the rate on the applicable interest determination date of Treasury Bills having the index maturity specified in the relevant pricing supplement published in the H.15(519) under the caption “U.S. Government notes/Treasury Bills/Secondary Market”; or

- if the rate referred to in the fourth bullet point is not so published by 3:00 p.m., New York City time, on the related interest determination date, the rate on the applicable interest determination date of the applicable Treasury Bills as published in H.15 Daily Update, or other recognized electronic source used for the purpose of displaying the applicable rate, under the caption “U.S. Government notes/Treasury Bills/Secondary Market”; or

- if the rate referred to in the fifth bullet point is not so published by 3:00 p.m., New York City time, on the related interest determination date, the rate on the applicable interest determination date calculated by the calculation agent as the bond equivalent yield of the arithmetic mean of the secondary market bid rates, as of approximately 3:30 p.m., New York City time, on the applicable interest determination date, of three primary U.S. government securities dealers, which may include the agent and its affiliates, selected by the calculation agent, for the issue of Treasury Bills with a remaining maturity closest to the index maturity specified in the relevant pricing supplement; or
• if the dealers selected by the calculation agent are not quoting as set forth above, the Treasury rate for that interest determination date will remain the Treasury rate for the immediately preceding interest reset period, or, if there was no interest reset period, the rate of interest payable will be the initial interest rate.

The “bond equivalent yield” means a yield calculated in accordance with the following formula and expressed as a percentage:

\[
\text{bond equivalent yield} = \frac{(D \times N)}{360 - (D \times M)} \times 100
\]

where, “D” refers to the applicable per annum rate for Treasury Bills quoted on a bank discount basis, “N” refers to 365 or 366, as the case may be, and “M” refers to the actual number of days in the interest payment period for which interest is being calculated.

“Treasury spot rate” means the mid-market spot Treasury rate with a designated index maturity specified in the relevant pricing supplement, as determined by the calculation agent, at the time the notes are priced for initial sale to the public, rounded to two decimal places. The continuously reported mid-market spot Treasury rate with a designated index maturity is publicly available on Bloomberg screen “BBT”.

“10-year Treasury spot rate” means the USD-Treasury Rate-T500 with a designated maturity of 10 years.

“USD-Treasury Rate-T500” means that the rate for an interest reset date will be a percentage equal to the mid-market yield-to-maturity of the current “on-the-run” U.S. Treasury with a “designated maturity”, specified in the relevant pricing supplement, which is available in the Reuters Integrated Data Network (IDN) as 500 as of 11:00 a.m., New York City time, on that interest reset date. If that rate does not appear on the IDN, the rate for that interest reset date will be determined by the calculation agent and will be a percentage equal to the yield-to-maturity based on the secondary market mid-market prices as of 11:00 a.m., New York City time, on that interest reset date of three leading primary U.S. government securities dealers in New York City, selected by the calculation agent (from five of those dealers and eliminating the highest quotation (or, in the event of equality, one of the highest) and the lowest quotation (or, in the event of equality, one of the lowest)) for U.S. Treasury securities with a maturity equal to the designated maturity and taking a simple average of the remaining three values.

“USD-Treasury Rate-T19901” means that the rate for an interest reset date will be a percentage equal to the mid-market yield-to-maturity of the current “on-the-run” U.S. Treasury with a “designated maturity”, specified in the relevant pricing supplement, which is available in the IDN as 19901 as of 11:00 a.m., New York City time, on that interest reset date. If that rate does not appear on the IDN, the rate for that interest reset date will be determined by the calculation agent and will be a percentage equal to the yield-to-maturity based on the secondary market mid-market prices as of 11:00 a.m., New York City time, on that interest reset date of three leading primary U.S. government securities dealers in New York City, selected by the calculation agent (from five of those dealers and eliminating the highest quotation (or, in the event of equality, one of the highest) and the lowest quotation (or, in the event of equality, one of the lowest)) for U.S. Treasury securities with a maturity equal to the designated maturity and taking a simple average of the remaining three values.

EQUITY SECURITIES

The interest payable on the notes may be based on one or more equity securities, including price movements in or other events relating to those equity securities. The equity securities may consist of American depositary shares (“ADS”), which are described under “—American Depositary Shares and
Deposit Agreements”. If a Reference Asset is comprised of more than one equity security or an equity security and at least one other type of Reference Asset, the equity security is a “basket component”.

Reference Asset Issuer and Reference Asset Information

The notes have not been passed on by the issuer of the equity securities or the issuer of any corresponding ADS underlying shares (as described below) as to their legality or suitability. The notes are not issued, endorsed, sponsored or promoted by and are not financial or legal obligations of the issuer of the equity securities or the issuer of any corresponding ADS underlying shares. The trademarks, service marks or registered trademarks of the issuer of the equity securities or the issuer of any corresponding ADS underlying shares are the property of their owner. The issuer of the Reference Asset makes no warranties and bears no liabilities with respect to the notes or to the administration or operation of the notes. This reference asset supplement relates only to the notes offered by the relevant pricing supplement and does not relate to any security of an underlying issuer.

If the Reference Asset is an equity security that is registered under the Securities Exchange Act of 1934, as amended, which is commonly referred to as the “Exchange Act”, issuers of those equity securities are required to file periodically financial and other information specified by the SEC. Information provided to or filed with the SEC can be inspected and copied at the public reference facilities maintained by the SEC at 100 F Street, N.E., Washington, D.C. 20549, and copies of that material can be obtained from the Public Reference Section of the SEC, 100 F Street, N.E., Washington, D.C. 20549, at prescribed rates. You may obtain information on the operation of the public reference room by calling the SEC at 1-800-SEC-0330. In addition, information provided to or filed with the SEC electronically can be accessed through a website maintained by the SEC. The address of the SEC’s website is http://www.sec.gov. Information provided to or filed with the SEC pursuant to the Exchange Act by a company issuing an equity security can be located by reference to the SEC file number provided in the relevant pricing supplement. In addition, information regarding a company issuing an equity security may be obtained from other sources including, but not limited to, press releases, newspaper articles and other publicly disseminated documents. We make no representation or warranty as to the accuracy or completeness of the information referred to above relating to equity securities or any other publicly available information regarding the issuer of the Reference Asset. Neither we nor the agent has participated in the preparation of the above-described documents or made any due diligence inquiry with respect to the issuer of the Reference Asset. Furthermore, we cannot give any assurance that all events occurring prior to the date of the relevant pricing supplement (including events that would affect the accuracy or completeness of the publicly available documents described herein) that would affect the closing prices of the Reference Asset (and therefore the closing price of that Reference Asset at the time we price the notes) have been publicly disclosed. Subsequent disclosure of any of those events or the disclosure of or failure to disclose material future events concerning the issuer of the Reference Asset could affect the value received at maturity with respect to the notes and therefore the price of the notes in the secondary market, if any.

American Depositary Shares and Deposit Agreements

Any equity security in the form of an American depositary share or ADS is issued pursuant to a deposit agreement, as amended from time to time (the “deposit agreement”). An event that has a diluting or concentrative effect on the corresponding ADS underlying shares may affect the theoretical value of those equity securities unless (and to the extent that) the issuer of the ADS underlying shares or the depository for the equity securities, pursuant to their authority (if any) under the deposit agreement, elects to adjust the number of ADS underlying shares that are represented by each equity security such that the price and other terms of the equity security will not be affected by any such event. If the issuer of the ADS underlying shares or the depository for the equity security does not adjust the number of ADS underlying shares that are represented by each equity security, or makes an adjustment that the calculation agent deems inappropriate to account for such an event, then the calculation agent may make any adjustments that the calculation agent determines to be appropriate to account for that event. The depository of the equity securities may also have the ability pursuant to the deposit agreement to make adjustments in respect of the
equity securities for share distributions, rights distributions, cash distributions and distributions other than
shares, rights and cash. Upon any such adjustment by the depository, the calculation agent may adjust such
terms and conditions of the notes as the calculation agent determines appropriate to account for that event.

“ADS underlying shares” means with respect to a Reference Asset that is an American depositary
share, the securities of the issuer underlying that Reference Asset.

Share Adjustments Relating to Notes with an Equity Security as the Reference Asset

For purposes of this subsection “Share Adjustments Relating to Notes with an Equity Security as
the Reference Asset”, all references to “equity securities” include any corresponding ADS underlying
shares unless otherwise specified.

Antidilution Adjustments

The calculation agent may adjust any variable described in the relevant pricing supplement,
including but not limited to, if applicable, any price, barrier percentage, cash settlement amount, any
combination thereof or any other variable described in the relevant pricing supplement (each, an “affected
level”) if an event described below occurs on or before the final valuation date (or final observation or final
averaging date) and the calculation agent determines that the event has a diluting or concentrative effect on
the theoretical value of the equity security or securities comprising the Reference Assets (the “linked
securities”).

The adjustments described below do not cover all events that could affect the market value of the
notes.

If more than one dilutive or concentrative event requiring adjustment occurs with respect to the
linked securities, the calculation agent will adjust an affected level for each event, sequentially, in the order
in which the events occur, and on a cumulative basis. Thus, having adjusted an affected level for the first
event, the calculation agent will adjust an affected level for the second event, applying the required
adjustment to the affected levels as they may have already been adjusted for the first event, and so on for
each event. If an event requiring an anti-dilution adjustment occurs, the calculation agent will make the
adjustment with a view to offsetting, to the extent practical, any change in the value of your note that
results solely from that event. The calculation agent may, in its sole discretion, modify the anti-dilution
adjustments as necessary to ensure an equitable result.

Stock Splits and Stock Dividends

A stock split is an increase in the number of a corporation’s outstanding shares of stock
without any change in its stockholders’ equity. When a corporation pays a stock dividend, it issues
additional shares of its stock to all holders of its outstanding stock in proportion to the shares they currently
own. Each outstanding share will be worth less as a result of a stock split or stock dividend.

If a linked security is subject to a stock split or receives a stock dividend, then the
calculation agent will adjust the initial price by dividing its prior level—that is, the initial price before the
stock split or stock dividend—by the number equal to: (1) the number of shares of the linked security
outstanding immediately after the stock split or stock dividend becomes effective; divided by (2) the
number of shares of the linked security outstanding immediately before the stock split or stock dividend
becomes effective. The affected level will not be adjusted, however, unless:

• in the case of a stock split, the first day on which the linked security trades without the right to
receive the stock split occurs after the pricing date and on or before the valuation date on
which the linked security’s individual stock return is calculated; or
in the case of a stock dividend, the ex-dividend date occurs after the pricing date and on or before the valuation date on which the linked security’s individual stock return is calculated.

The “ex-dividend date” for any dividend or other distribution with respect to the linked security is the first day on which the linked security trades without the right to receive that dividend or other distribution.

Reverse Stock Splits

A reverse stock split is a decrease in the number of a corporation’s outstanding shares of stock without any change in its stockholders’ equity. Each outstanding share will be worth more as a result of a reverse stock split.

If the linked security is subject to a reverse stock split, then the calculation agent will adjust the initial price by multiplying its prior level by a number equal to: (1) the number of outstanding shares of the linked security outstanding immediately before the reverse stock split becomes effective; divided by (2) the number of shares of the linked security outstanding immediately after the reverse stock split becomes effective. The affected level will not be adjusted, however, unless the reverse stock split becomes effective after the pricing date and on or before the valuation date on which the linked security’s return is calculated.

Extraordinary Dividends

Any distribution or dividend on the linked security determined by the calculation agent to be a distribution or dividend that is not in the ordinary course of the issuer’s historical dividend practices will be deemed to be an extraordinary dividend. The calculation agent will determine if the dividend is an extraordinary dividend and, if so, the amount of the extraordinary dividend. Each outstanding share will be worth less as a result of an extraordinary dividend.

If any extraordinary dividend occurs with respect to a linked security, the calculation agent will adjust the initial price to equal the product of: (1) its prior level, multiplied by (2) a fraction, the numerator of which is the amount by which the closing price of the linked security on the business day before the ex-dividend date exceeds the extraordinary dividend amount and the denominator of which is the closing price of the linked security on the business day before the ex-dividend date. The affected level will not be adjusted, however, unless the ex-dividend date occurs after the pricing date and on or before the valuation date on which the linked security’s return is calculated.

The extraordinary dividend amount with respect to an extraordinary dividend for the linked securities equals:

- for an extraordinary dividend that is paid in lieu of a regular quarterly dividend, the amount of the extraordinary dividend per share of the linked security minus the amount per share of the immediately preceding dividend, if any, that was not an extraordinary dividend for the linked security; or
- for an extraordinary dividend that is not paid in lieu of a regular quarterly dividend, the amount per share of the extraordinary dividend.

To the extent an extraordinary dividend is not paid in cash, the value of the non-cash component will be determined by the calculation agent. A distribution on the linked security that is a stock dividend, an issuance of transferable rights or warrants or a spin-off event and also an extraordinary dividend will result in an adjustment to one or more affected levels only as described under “—Stock Splits
and Stock Dividends” above, “—Transferable Rights and Warrants” below or “—Reorganization Events” below, as the case may be, and not as described here.

**Transferable Rights and Warrants**

If the issuer of the linked security issues transferable rights or warrants to all holders of the linked security to subscribe for or purchase the linked security at an exercise price per share that is less than the closing price of the linked security on the business day before the ex-dividend date for the issuance, then the initial price will be adjusted by multiplying the prior level by the following fraction:

- the numerator will be the number of shares of the linked security outstanding at the close of business on the day before that ex-dividend date plus the number of additional shares of the linked security offered for subscription or purchase under those transferable rights or warrants, with that number of additional shares being determined by multiplying the total number of shares so offered by the exercise price of those transferable rights or warrants and dividing the resulting product by the closing price on the business day before that ex-dividend date.

- the denominator will be the number of shares of the linked security outstanding at the close of business on the day before that ex-dividend date plus the number of additional shares of the linked security offered for subscription or purchase under those transferable rights or warrants.

The initial price will not be adjusted, however, unless the ex-dividend date described above occurs after the pricing date of the relevant offering of notes and on or before the valuation date on which the linked security’s return is calculated.

**Reorganization Events**

If the linked security issuer undergoes a reorganization event in which property other than the linked securities—e.g., cash and securities of another issuer—is distributed in respect of the linked security, then, for purposes of calculating the performance rate or other applicable level of the linked security, the calculation agent will determine the closing price of the linked security on the valuation date to include the value of the cash, securities and other property distributed in respect of one share of the linked security.

If the calculation agent determines that, by valuing such cash, securities and other property, a commercially reasonable result is not achieved, then the calculation agent will, in its sole discretion, substitute another stock for that linked security.

Each of the following is a reorganization event with respect to a linked security:

- the linked security is reclassified or changed;

- the linked security issuer has been subject to a merger, consolidation or other combination and either is not the surviving entity or is the surviving entity but all the outstanding stock is exchanged for or converted into other property;

- a statutory share exchange involving the outstanding stock and the securities of another entity occurs, other than as part of an event described in the two bullet points above;

- the linked security issuer sells or otherwise transfers its property and assets as an entirety or substantially as an entirety to another entity;
• the linked security issuer effects a spin-off—that is, issues to all holders of the linked security equity securities of another issuer, other than as part of an event described in the four bullet points above;

• the linked security issuer is liquidated, dissolved or wound up or is subject to a proceeding under any applicable bankruptcy, insolvency or other similar law; or

• another entity completes a tender or exchange offer for all of the outstanding stock of the linked security issuer.

**Valuation of Distribution Property**

If a reorganization event occurs with respect to the linked security, and the calculation agent does not substitute another stock for the linked security as described in “—Substitution” below, then the calculation agent will determine the applicable closing price or other applicable level on each valuation date so as to equal the value of the property—whether it be cash, securities or other property—distributed in the reorganization event in respect of one share of the linked security, as the linked security existed before the date of the reorganization. We refer to the property distributed in a reorganization event as distribution property, a term we describe in more detail below. The calculation agent will not make any determination for a reorganization event, however, unless the event becomes effective (or, if the event is a spin-off, unless the ex-dividend date for the spin-off occurs) after the issue date named in the applicable pricing supplement and on or before the valuation date on which the linked security’s return is calculated.

For the purpose of making a determination required by a reorganization event, the calculation agent will determine the value of each type of distribution property, in its sole discretion. For any distribution property consisting of a security, the calculation agent will use the closing price for the security on the relevant date. The calculation agent may value other types of property in any manner it determines, in its sole discretion, to be appropriate. If a holder of the linked security may elect to receive different types or combinations of types of distribution property in the reorganization event, the distribution property will consist of the types and amounts of each type distributed to a holder that makes no election, as determined by the calculation agent in its sole discretion.

If a reorganization event occurs and the calculation agent adjusts the closing price or other applicable level of the linked security on a valuation date to equal the value of the distribution property distributed in the event, as described above, the calculation agent will make further determinations for later events that affect the distribution property considered in determining the closing price. The calculation agent will do so to the same extent that it would make determinations if the linked security were outstanding and were affected by the same kinds of events.

For example, if the linked security issuer merges into another company and each share of the linked security is converted into the right to receive two common shares of the surviving company and a specified amount of cash, then on each valuation date the closing price of a share of the linked security will be determined to equal the value of the two common shares of the surviving company plus the specified amount of cash. The calculation agent will further determine the common share component of such closing price to reflect any later stock split or other event, including any later reorganization event, that affects the common shares of the surviving company, to the extent described above in “—Anti-Dilution Adjustments” or as described above in “—Reorganization Events” as if the common shares were the linked security. In that event, the cash component will not be redetermined but will continue to be a component of the closing price.

When we refer to distribution property, we mean the cash, securities and other property distributed in a reorganization event in respect of the linked security or in respect of any securities whose value determines the closing price on a valuation date if any adjustment resulting from a reorganization
event has been made in respect of a prior event. In the case of a spin-off, the distribution property also includes the linked security in respect of which the distribution is made.

If a reorganization event occurs, the distribution property distributed in the event will be substituted for the linked security as described above. Consequently, in this reference asset supplement, when we refer to the linked security, we mean to include any distribution property that is distributed in a reorganization event in respect of the linked security. Similarly, when we refer to the linked security issuer, we mean to include any successor entity in a reorganization event.

**Substitution**

If the calculation agent determines that a commercially reasonable result is not achieved by valuing distribution property with respect to the linked security upon becoming subject to a reorganization event, then the calculation agent will, in its sole discretion, substitute another stock for the linked security. In such case, the adjustments described above in “—Valuation of Distribution Property” will not apply.

If the calculation agent so determines, it may choose, in its sole discretion, the stock of a different company listed on a national securities exchange or quotation system as a substitute for the linked security.

The calculation agent will determine, in its sole discretion, the affected level and/or the manner of valuation of the substitute stock. The calculation agent will have the right to make such adjustments to the calculation of the individual stock performance or other relevant affected levels as it determines in its sole discretion are necessary to preserve as nearly as possible our and your relative economic positions prior to the reorganization event.

**Additional Adjustment Events**

For purposes of this subsection “Additional Adjustment Events”, references to equity securities do not include the corresponding ADS underlying shares.

Each of the following is an additional adjustment event in respect of the equity securities, or any corresponding ADS underlying shares provided that, in each case, the event occurs on or before the final valuation date (or final observation or final averaging date):

- All the assets or substantially all the assets of the issuer of the equity securities or any corresponding ADS underlying shares are nationalized, expropriated or are otherwise required to be transferred to any governmental agency, authority or entity.

- By reason of the voluntary or involuntary liquidation, bankruptcy or insolvency of, or any analogous proceeding involving the issuer of the equity securities, or any corresponding ADS underlying shares (i) all of the shares of the issuer of the equity securities or the issuer of any corresponding ADS underlying shares are required to be transferred to a trustee, liquidator or other similar official or (ii) holders of the equity securities or any corresponding ADS underlying shares become legally prohibited from transferring those shares.

- The exchange on which the equity securities are traded announces that pursuant to the rules of that exchange, the equity securities cease (or will cease) to be listed, traded or publicly quoted on that exchange for any reason (other than a reorganization event as described above) and those equity securities are not immediately re-listed, re-traded or re-quoted on any of the New York Stock Exchange, the American Stock Exchange or the NASDAQ (or their respective successors).
If an additional adjustment event relating to the equity securities or any corresponding ADS underlying shares occurs on or before the final valuation date (or final observation or final averaging date), the calculation agent may accelerate the maturity date to the day which is four business days after the announcement date (as described below). In the event of such an acceleration, on the maturity date, we shall pay to you the amount payable at maturity and for the purposes of that calculation, the final price will be determined by the calculation agent and the final valuation date will be deemed to be the price on the business day immediately prior to the announcement date. The “announcement date” means, for purposes of this paragraph, (i) in the case of the additional adjustment event first described above, the day of the first public announcement by the relevant government authority that all or substantially all of the assets of the issuer of the equity securities or the issuer of any corresponding ADS underlying shares are to be nationalized, expropriated or otherwise transferred to any governmental agency, authority or entity, (ii) in the case of the second additional adjustment event described above, the day of the first public announcement of the institution of a proceeding or presentation of a petition or passing of a resolution (or other analogous procedure in any jurisdiction) that leads to a liquidation, bankruptcy or insolvency with respect to the issuer of the equity securities or any corresponding ADS underlying shares, or (iii) in the case of the third additional adjustment event described above, the day of the first public announcement by the relevant exchange that the shares of the equity securities will cease to be listed, traded or publicly quoted on that exchange. The calculation agent shall then calculate the market value of the notes (inclusive of the value of the imbedded options) that would preserve for you the economic equivalent of any remaining payment obligations with respect to the notes hereunder.

In the case of an acceleration of the maturity date, any interest payable under the notes will be paid through and excluding the related date of the accelerated payment. In the case where an additional adjustment event relating to the equity securities or any corresponding ADS underlying shares occurs on or before the final valuation date (or final observation or final averaging date) and the calculation agent does not accelerate the maturity date, the calculation agent may adjust any variable the calculation agent determines appropriate to account for that additional adjustment event.

**COMMODITIES**

The principal, interest or any other amounts payable on the notes may be based on a commodity, including price or level movements in or other events relating to those commodities. If a Reference Asset is comprised of more than one commodity or a commodity and at least one other type of asset, the commodity is a “basket component”.

**Commodities Futures Markets**

Futures exchanges and clearing houses in the United States are subject to regulation by the Commodities Futures Trading Commission. Exchanges may adopt rules and take other actions that affect trading, including imposing speculative position limits, maximum price fluctuations, trading halts and suspensions and requiring liquidation of contracts in some circumstances. Futures markets outside the United States are generally subject to regulation by comparable regulatory authorities. The structure and nature of trading on non-U.S. exchanges, however, may differ from this description and the description below.

Futures contracts on physical commodities and commodity indices are traded on regulated futures exchanges, and physical commodities and other derivatives on physical commodities and commodity indices are traded in the over-the-counter market and on various types of physical and electronic trading facilities and markets. An exchange-traded futures contract provides for the purchase and sale of a specified type and quantity of a commodity or financial instrument during a stated delivery month for a fixed price. A futures contract on an index of commodities provides for the payment and receipt of cash based on the level of the index at settlement or liquidation of the contract. A futures contract provides for a specified settlement month in which the cash settlement is made or in which the commodity or financial
instrument is to be delivered by the seller (whose position is therefore described as “short”) and acquired by
the purchaser (whose position is therefore described as “long”).

There is no purchase price paid or received on the purchase or sale of a futures contract. Instead,
an amount of cash or cash equivalents must be deposited with the broker as “initial margin”. This amount
varies based on the requirements imposed by the exchange clearing houses. This margin deposit provides
collateral for the obligations of the parties to the futures contract.

By depositing margin, which may vary in form depending on the exchange, with the clearing
house or broker involved, a market participant may be able to earn interest on its margin funds, thereby
increasing the total return that it may realize from an investment in futures contracts. The market
participant normally makes to, and receives from, the broker subsequent daily payments as the price of the
futures contract fluctuates. These payments are called “variation margin” and are made as the existing
positions in the futures contract become more or less valuable, a process known as “marking to the
market”.

Futures contracts are traded on organized exchanges, known as “contract markets” in the United
States. At any time prior to the expiration of a futures contract, subject to the availability of a liquid
secondary market, a trader may elect to close out its position by taking an opposite position on the
exchange on which the trader obtained the position. This operates to terminate the position and fix the
trader’s profit or loss. Futures contracts are cleared through the facilities of a centralized clearing house
and a brokerage firm, referred to as a “futures commission merchant”, which is a member of the clearing
house. The clearing house guarantees the performance of each clearing member that is a party to a futures
contract by, in effect, taking the opposite side of the transaction. Clearing houses do not guarantee the
performance by clearing members of their obligations to their customers.

Unlike equity securities, futures contracts, by their terms, have stated expirations and, at a
specified point in time prior to expiration, trading in a futures contract for the current delivery month will
cease. As a result, a market participant wishing to maintain its exposure to a futures contract on a particular
commodity with the nearest expiration must close out its position in the expiring contract and establish a
new position in the contract for the next delivery month, a process referred to as “rolling”. For example, a
market participant with a long position in November crude oil futures that wishes to maintain a position in
the nearest delivery month will, as the November contract nears expiration, sell November futures, which
serves to close out the existing long position, and buy December futures. This will “roll” the November
position into a December position, and, when the November contract expires, the market participant will
still have a long position in the nearest delivery month.

The following discussion of the operation of certain aspects of the commodities markets is based on
publicly available information and is provided for informational purposes only. You should make
your own investigation into the commodities markets to determine whether the notes are a suitable
investment for you.

The New York Board of Trade®

The New York Board of Trade (the “NYBOT”) provides the world’s premiere futures and options
markets for several internationally traded agricultural commodities: cocoa, coffee, cotton, frozen
concentrated orange juice and sugar.

For well over a century, representatives of these primary commodity industries have joined traders
and investors in the NYBOT markets to engage in price discovery, price risk transfer and price
dissemination for these products. The NYBOT, New York’s original futures exchange, also provides
futures and options markets for currency cross rates, as well as for the Russell Equity Indices, NYSE
Composite® Index®, Reuters Jefferies CRB Index, Continuous Commodity Index and the U.S. Dollar Index®, along with new markets for ethanol and pulp.

- This history began with the founding of the New York Cotton Exchange (NYCE®) in 1870 (cotton futures), followed by the Coffee Exchange of the City of New York in 1882 (coffee futures).

- The Coffee Exchange added sugar futures in 1914 and became the Coffee and Sugar Exchange in 1916.


- The New York Cotton Exchange (NYCE) began trading frozen concentrated orange juice futures in 1966.

- Options on agricultural futures were added in 1982 (on sugar futures).

- In 1985 the NYCE began trading U.S. Dollar Index® futures on its FINEX® division.

- In 1994, NYCE opened a trading floor in Dublin for FINEX® and added a number of currency cross rate futures contracts. Stock and commodity index futures also began trading the same year.

- The CSCE and NYCE formed the Board of Trade of the City of New York, Inc. as a parent company in 1998, a merger process completed in June 2004 when the two exchanges became the NYBOT.

September 11, 2001, was a difficult and defining moment for the NYBOT exchanges when the destruction of the World Trade Center in the City of New York forced the NYBOT to re-locate to its back up facility in Long Island City and remain there for two years. In 2003, the NYBOT moved into a new state-of-the-art facility in the World Financial Center in the City of New York. With that return, the NYBOT continued its long history in Lower Manhattan of providing effective risk management tools for major international industries and opportunities for well-informed investors.

**ICE Futures**

According to publicly available information, the predecessor of ICE Futures (the International Petroleum Exchange (the “IPE”)), a large energy futures contract exchange, was established in London in 1980 as a traditional open-outcry auction market by a group of energy and trading companies. The IPE launched the gas oil futures contract in 1981, followed by the brent crude oil futures contract in 1988 and the natural gas futures contract in 1997.

In June 2001, IPE was acquired by IntercontinentalExchange, Inc., (“ICE”) and in October of 2005, ICE announced that the IPE would operate under the name of ICE Futures. ICE Futures is a Recognized Investment Exchange and is regulated by the U.K. Financial Services Authority. ICE Futures is a regulated marketplace in which industry participants use futures and options to minimize their price exposure in the physical energy market. Trading in futures and options is offered exclusively electronically.

* “NYSE Composite Index” is a service mark belonging to the New York Stock Exchange. The NYBOT licenses the use of the NYSE Composite Index® in futures and options trading.
and access to the trading platform is offered directly via the Internet, through private telecommunication lines, through an independent software vendor or through an ICE Futures exchange member’s own conformed front-end system.

**The LBMA**

According to publicly available information, the London gold bullion market and silver market are the principal global clearing centers for over-the-counter gold bullion and silver transactions, including transactions in spot, forward and options contracts, together with exchange-traded futures and options and other derivatives. The principal representative body of the London gold bullion market and silver market is the LBMA. The LBMA is currently comprised of 60 members, of which nine are market-making members, plus a number of associate members around the world.

Twice daily during London trading hours there is a “fixing” which provides reference gold prices for the day’s trading. Formal participation in the London fixing is traditionally limited to five market-making members of the LBMA. The fixing is conducted twice each business day by telephone at 10:30 a.m., to determine the London morning fixing price, and at 3:00 p.m., to determine the London afternoon fixing price. The five members of the gold fixing are Barclays Bank PLC, the Bank of Nova Scotia — ScotiaMocatta, Deutsche Bank AG, HSBC Bank USA, NA and Société Générale. The chairmanship of the gold fixing rotates annually amongst its members.

Included within the LBMA is the London Silver Fix, established in the 1890s, which consists of three market-making members of the LBMA, currently the Bank of Nova Scotia-ScotiaMocatta, Deutsche Bank AG and HSBC Bank USA, NA. The London Silver Fix conducts a Silver Fixing meeting, under the current chairmanship of the Bank of Nova Scotia-ScotiaMocatta, at 12:00 p.m. each London business day to determine the London Silver Fix Price for that day’s trading.

For gold transactions, clients place orders with the dealing rooms of fixing members, who net all orders before communicating their interest to their representative at the fixing. For silver transactions, clients place orders with the dealing rooms of three market-making members, who net all orders before communicating their interest to their representative at the Silver Fixing meeting. Orders may be changed at any time during these proceedings. The price is adjusted to reflect whether there are more buyers or sellers at a given price until supply and demand are balanced. If the prices do not match, the same procedure is followed against at higher or lower prices, at which time the price is declared fixed. All fixing orders are then fulfilled at this price, which is communicated to the market through various media.

**The LME**

The London Metal Exchange (“LME”) was established in 1877 and is the principal metal exchange in the world on which contracts for delivery of copper, lead, zinc, tin, aluminum, aluminum alloy and nickel are traded. In contrast to U.S. futures exchanges, the LME operates as a principals’ market for the trading of forward contracts, and is therefore more closely analogous to over-the-counter physical commodity markets than futures markets. As a result, members of the LME trade with each other as principals and not as agents for customers, although such members may enter into offsetting “back-to-back” contracts with their customers. In addition, while futures exchanges permit trading to be conducted in contracts for monthly delivery in stated delivery months, historically LME contracts used to be established for delivery on any day (referred to as a “prompt date”) from one day to three months following the date of contract, the average amount of time it took a ship to sail from certain Commonwealth countries to London. Currently, LME contracts may be established for monthly delivery up to 63, 27 and 15 months forward (depending on the commodity). Further, because it is a principals’ forward market, there are no price limits applicable to LME contracts, and prices could decline without limitation over a period of time. Trading is conducted on the basis of warrants that cover physical material held in listed warehouses.
The LME is not a cash cleared market. Both interoffice and floor trading are cleared and guaranteed by a system run by the London Clearing House, whose role is to act as a central counterparty to trades executed between clearing members and thereby reduce risk and settlement costs. The LME is subject to regulation by the SIB. The bulk of trading on the LME is transacted through interoffice dealing which allows the LME to operate as a 24-hour market. Trading on the floor takes place in two sessions daily, from 11:40 a.m. to 1:15 p.m. and from 3:10 p.m. to 4:35 p.m., London time. The two sessions are each broken down into two rings made up of five minutes’ trading in each contract. After the second ring of the first session the official prices for the day are announced. Contracts may be settled by offset or delivery and can be cleared in U.S. Dollars, pounds sterling, Japanese yen and euros.

Copper and tin have traded on the LME since its establishment. The Copper Contract was upgraded to High Grade Copper in November 1981 and again to today’s Grade-A Contract which began trading in June 1986. Primary Aluminum was introduced as a 99.5% contract in December 1978 and today’s High Grade Primary Aluminum Contract began trading in August 1987. Nickel joined the exchange the year after aluminum, in April 1979. The LME share (by weight) of world terminal market trading is over 90% of all copper and virtually all aluminum, lead, nickel, tin and zinc.

The LPPM

London has historically been an important center for trading in platinum and palladium. In 1979, a group of leading London- and Zurich-based platinum and palladium traders decided to standardize the specifications for the quality and origins of platinum and palladium that they would trade. In 1987, this informal organization of traders founded the London Platinum and Palladium Market (“LPPM”). At present, the LPPM has 38 members.

Twice daily during London trading hours, at 9:45 a.m. and 2:00 p.m., there is a “fixing” which provides reference platinum and palladium prices for that day’s trading. Formal participation in the gold fixing is currently limited to four members of the LPPM. At the start of each fixing, the chairman of the LPPM fix announces an opening price which is relayed to the members’ dealing rooms. This price is relayed to the members’ customers and, on the basis of orders received, each member declares itself as a buyer or seller. After members have declared their buying and selling interests, they are asked to state the volume of the metals that they wish to trade. If the amounts of buying and selling do not balance, the procedure is repeated, at a higher or lower price, until a balance is achieved. The fixing price is the price at which all of the buying and selling orders declared by members are matched. There are no price limits applicable to LPPM contracts and, consequently, prices could decline without limitation over a period of time.

The NYMEX

The New York Mercantile Exchange (“NYMEX”), located in New York City, is the world’s largest physical commodities futures exchange and the preeminent trading forum for energy and precious metals. NYMEX began commodities trading in 1872, organized as the Butter and Cheese Exchange of New York, and has since traded a variety of commodity products. The establishment of energy futures on the NYMEX occurred in 1978, with the introduction of heating oil futures contracts. The array of trading markets currently provided by the NYMEX includes futures and options contracts for crude oil, gasoline, heating oil, natural gas, electricity, gold, silver, copper, aluminum, and platinum; futures contracts for coal, propane, and palladium; and options contracts on the price differentials between crude oil and gasoline, crude oil and heating oil, Brent and West Texas Intermediate crude oil, and various futures contract months (calendar spreads) for light, sweet crude; Brent crude; gasoline; heating oil; and natural gas.
Settlement Price

The official U.S. dollar cash buyer settlement price for each commodity will be determined as described below.

(a) where the commodity is gold, the PM Gold fixing price in USD per troy ounce of Loco London good delivery Gold as determined by the London Gold Market Fixing Limited, and displayed on Reuters page “GOFO”;

(b) where the commodity is silver, the Silver fixing price in USD per troy ounce of Loco London good delivery Silver as determined by the London Silver Fixing, and displayed on Reuters page “XAGFIX=”;

(c) where the commodity is platinum, the PM Platinum fixing price in USD per troy ounce of unallocated Platinum bullion for delivery in Zurich through a member of the LPPM authorized to effect such delivery, stated in U.S dollars, as calculated by the LPPM on the relevant valuation date and displayed on Reuters page “XPTFIX=”;

(d) where the commodity is palladium, the afternoon Palladium fixing price per troy ounce of unallocated Palladium bullion for delivery in Zurich through a member of the LPPM authorized to effect such delivery, stated in U.S. dollars, as calculated by the LPPM on the relevant valuation date and displayed on Reuters page “XPDFIX=”;

(e) where the commodity is aluminum, the official “cash offer” settlement price at 13:00 (London time) quoted in U.S. dollars per tonne of Primary Aluminum on the LME or its successor, as determined and made public by the LME and displayed on the exchange’s web site www.lme.co.uk or Reuters page “MTLE”;

(f) where the commodity is copper, the official “cash offer” settlement price at 12:35 (London time) quoted in U.S. dollars per tonne of copper-Grade A on the LME or its successor, as determined and made public by the LME and displayed on the exchange’s web site www.lme.co.uk or Reuters page “MTLE”;

(g) where the commodity is lead, the official “cash offer” settlement price at 12:50 (London time) quoted in U.S. dollars per tonne of Lead on the LME or its successor, as determined and made public by the LME and displayed on the exchange’s web site www.lme.co.uk or Reuters page “MTLE”;

(h) where the commodity is nickel, the official “cash offer” settlement price at 13:05 (London time) quoted in U.S. dollars per tonne of Primary Nickel on the LME or its successor, as determined and made public by the LME and displayed on the exchange’s web site www.lme.co.uk or Reuters page “MTLE”;

(i) where the commodity is tin, the official “cash offer” settlement price at 12:45 (London time) quoted in U.S. dollars per tonne of Tin on the LME or its successor, as determined and made public by the LME and displayed on the exchange’s web site www.lme.co.uk or Reuters page “MTLE”;

(j) where the commodity is zinc, the official “cash offer” settlement price at 12:55 (London time) quoted in U.S. dollars per tonne of Special High Grade Zinc on the LME or its successor, as determined and made public by the LME and displayed on the exchange’s web site www.lme.co.uk or Reuters page “MTLE”;
(k) where the commodity is WTI Crude, the official settlement price per barrel of WTI light sweet
  crude oil on the NYMEX of the first futures contract to expire following that Pricing Day, stated in U.S.
  dollars, and displayed on the exchange’s web site www.nymex.com or on the Reuters page “SETT”;

(l) where the commodity is Brent Crude, the official settlement price per barrel of Brent Crude Oil
  on the ICE of the first futures contract to expire following that Pricing Day, stated in U.S. dollars, and
  displayed on the exchange’s web site www.theice.com or Reuters page “SETT”;

(m) where the commodity is heating oil, the official settlement price per gallon of Heating Oil on
  the NYMEX of the first futures contract to expire following that Pricing Day, stated in U.S. dollars, and
  displayed on the exchange’s web site www.nymex.com or Reuters page “SETT”;

(n) where the commodity is gas oil, the official settlement price per metric tonne of Gas Oil on the
  ICE of the first futures contract to expire following that Pricing Day, stated in U.S. dollars, and displayed
  on the exchange’s web site www.theice.com or Reuters page “SETT”;

(o) where the commodity is RBOB unleaded gasoline, the official settlement price per gallon of
  RBOB Unleaded Gasoline on the NYMEX of the first futures contract to expire following that Pricing Day,
  stated in U.S. dollars, and displayed on the exchange’s web site www.nymex.com or Reuters page “SETT”;

(q) where the commodity is natural gas, the official settlement price per one million British
  thermal units (“MMBTU”) of natural gas on the NYMEX of the first futures contract to expire following
  that Pricing Day, stated in U.S. dollars, and displayed on the exchange’s web site www.nymex.com or on
  the Reuters page “SETNGS”;

(r) where the commodity is Corn, the official settlement price per bushel of #2 Yellow Corn as
  traded on the CBOT or its successor, of the first futures contract to expire following that Pricing Day,
  specified in U.S. dollars, and displayed on the exchange’s web site www.cbot.com;

(s) where the commodity is Wheat, the official settlement price per bushel of Wheat as traded on
  the CBOT or its successor, of the first futures contract to expire following that Pricing Day, specified in
  U.S. dollars, and displayed on the exchange’s web site www.cbot.com;

(t) where the commodity is Soybeans, the settlement price per bushel of No.2 Yellow Soybeans as
  traded on the CBOT or its successor, of the first futures contract to expire following that Pricing Day,
  stated in U.S. dollars, and displayed on the exchange’s web site www.cbot.com;

(u) where the commodity is Ethanol, the settlement price per gallon of Denatured Fuel Ethanol as
  traded on the CBOT or its successor, of the first futures contract to expire following that Pricing Day,
  specified in U.S. dollars, and displayed on the exchange’s web site www.cbot.com;

(v) where the commodity is Red Wheat, the settlement price per bushel of Red Wheat as traded on
  the KBT or its successor, of the first futures contract to expire following that Pricing Day, specified in U.S.
  dollars, and displayed on the exchange’s web site www.kcbt.com;

(w) where the commodity is Sugar, the settlement price per pound of #11 World Sugar as traded
  on the NYBOT or its successor, of the first futures contract to expire following that Pricing Day, specified in U.S.
  dollars, and displayed by the exchange and available on the exchange’s web site www.nybot.com;

(x) where the commodity is Coffee, the settlement price per pound of Coffee as traded on the
  NYBOT or its successor, of the first futures contract to expire following that Pricing Day, specified in U.S.
  dollars, and displayed on the exchange’s web site www.nybot.com;
(y) where the commodity is Cotton, the settlement price per pound of Cotton # 2 as traded on NYBOT or its successor, of the first futures contract to expire following that Pricing Day, specified in U.S. dollars, and displayed on the exchange’s web site www.nybot.com;

(z) where the commodity is Lean Hogs, the settlement price pound of Lean Hogs as traded on the Chicago Mercantile Exchange (“CME”) or its successor, of the first futures contract to expire following that Pricing Day, specified in U.S. dollars, and displayed on the exchange’s web site www.cme.com;

(aa) where the commodity is Live Cattle, the settlement price per pound Live Cattle as traded on the CME or its successor, of the first futures contract to expire following that Pricing Day, specified in U.S. dollars, and displayed on the exchange’s web site www.cme.com; and

(bb) The screen or time of observation indicated in relation to any commodity settlement rate above shall be deemed to refer to that screen or time of observation as modified or amended from time to time, or to any substitute screen thereto.

CURRENCY EXCHANGE RATES

The principal, interest or any other amounts payable on your notes may be based on a currency exchange rate, including level movements in or other events relating to the currency exchange rates. If a Reference Asset is comprised of more than one currency exchange rate or a currency exchange rate and at least one other type of asset, the currency exchange rate is a “basket component”.

To the extent that amounts payable on the notes are based on a Reference Asset comprised of one or more of the currency exchange rates below, the level with respect to that exchange rate on any day will equal the currency exchange rate as determined by the calculation agent by reference to the mechanics specified below:

(a) where the currency exchange rate is ARS, the Argentine Peso/U.S. Dollar Specified Rate for U.S. Dollars, expressed as the amount of Argentine Pesos per one U.S. Dollar, for spot settlement, as published on EMTA’s web site (www.emta.org) at approximately 1:00 p.m. (Buenos Aires time), or as soon thereafter as practicable, for the relevant valuation date;

(b) where the currency exchange rate is any of AUD, CAD, CHF, DKK, EUR, GBP, JPY, NZD, NOK or SEK (each, a “G10 Currency”), the rate based on the value of the final spot rate for that G10 Currency/USD in the interbank markets as observed through trades through the Electronic Broking System, Reuters Dealing 3000 and various voice brokers at approximately 10:00 a.m., New York City time, on the relevant valuation date. However, if that G10 Currency/USD spot rate is not so observed through trades through Electronic Broking System, Reuters Dealing 3000 and various voice brokers then such exchange rate will be calculated on the basis of the arithmetic mean of the applicable spot quotations received by the calculation agent at approximately 10:00 a.m., New York City time, on such date for the purchase or sale by three reference dealers selected by the calculation agent of the relevant G10 Currency in an amount equal to $1,000,000 USD for settlement two Business Days later. If fewer than two such reference dealers provide such spot quotations, then such exchange rates will be calculated on the basis of the arithmetic mean of the applicable spot quotations received by the calculation agent at approximately 10:00 a.m. New York City time, on such date from three leading commercial banks in New York (selected in the sole discretion of the calculation agent), for the sale by such banks of the relevant G10 Currency in an amount equal to $1,000,000 USD for settlement two Business Days later. If these spot quotations are available from fewer than three banks, then the calculation agent, in its sole discretion, shall determine which spot rate is available and reasonable to be used. If no spot quotation is available, then such exchange rate will be the rate the calculation agent, in its sole discretion, determines to be fair and reasonable under circumstances at approximately 10:00 a.m., New York City time, on such date;
(c) where the currency exchange rate is BRL, the Brazilian Real/U.S. Dollar offered rate for U.S. Dollars, expressed as the amount of Brazilian Reals per one U.S. Dollar, for spot settlement, as reported by the Banco Central do Brasil and published on Reuters Page BRFR at approximately 18:00 Sao Paolo Time, or as soon thereafter as practicable, for the relevant valuation date;

(d) where the currency exchange rate is CLP, the Chilean Peso/U.S. Dollar official fixing rate, expressed as the amount of Chilean Pesos per one U.S. Dollar, for spot settlement as reported by the Banco Central de Chile, which appears on Reuters screen BCCHILX to the right of the caption “CLP” at approximately 10:30 a.m. Santiago time, or as soon thereafter as practicable, for the relevant valuation date;

(e) where the currency exchange rate is CNY, the Chinese Renminbi/U.S. Dollar official fixing rate, expressed as the amount of Chinese Renminbi per one U.S. Dollar, for spot settlement reported by the People’s Bank of China, Beijing, People’s Republic of China, which appears on the Reuters Screen SAEC opposite the symbol “USDCNY=” at approximately 9:15 a.m., Beijing time, or as soon thereafter as practicable, for the relevant valuation date;

(f) where the currency exchange rate is COP, the Colombian Peso/U.S. Dollar fixing rate, expressed as the amount of Colombian Pesos per one U.S. Dollar, for spot settlement, reported by the Colombian Banking Superintendency (www.bankrep.gov.co) which appears on the Reuters screen CO/COL03 opposite the symbol “T.C.R.M”, at approximately 10:30 a.m. Bogota time, or as soon thereafter as practicable, for the relevant valuation date;

(g) where the currency exchange rate is CZK, the Czech Koruna/Euro fixing rate, expressed as the amount of Czech Koruna per one Euro, for spot settlement, which appears on Reuters screen ECB37 to the right of the caption “CZK” at approximately 2:15 p.m., Central European time, or as soon thereafter as practicable, for the relevant valuation date, converted into U.S. Dollar using the uniformly accepted industry standard cross-currency calculations;

(h) where the currency exchange rate is ECS, the Ecuadorian Sucre/U.S. Dollar official fixing rate, expressed as the amount of Ecuadorian Sucres per one U.S. Dollar, for spot settlement, which appears on the Reuters screen DNRP to the right of the caption “ECS” at 12:00 p.m., Guayaquil time, or as soon thereafter as practicable, for the relevant valuation date;

(i) where the currency exchange rate is HKD, the Hong Kong Dollar/U.S. Dollar official fixing rate, expressed as the amount of Hong Kong Dollars per one U.S. Dollar, for spot settlement as reported by the Federal Reserve Bank of New York, which appears on Reuters screen 1FEE to the right of the caption “HKD” at approximately 10:00 p.m., New York time, on the relevant valuation date;

(j) where the currency exchange rate is HUF, the Hungarian Forint/Euro fixing rate, expressed as the amount of Hungarian Forints per one Euro, which appears on Reuters screen ECB37 to the right of the caption “HUF” at approximately 2:15 p.m., Central European time, or as soon thereafter as practicable, for the relevant valuation date, converted into U.S. Dollar using the uniformly accepted industry standard cross-currency calculations;

(k) where the currency exchange rate is IDR, the Indonesian Rupiah/U.S. Dollar spot, expressed as the amount of Indonesian Rupiah per one U.S. Dollar, for spot settlement as reported by the Association of Banks in Singapore, which appears on the Reuters Page ABSIRFIX01 to the right of the caption “IDR” at approximately 11:00 a.m., Singapore time, or as soon thereafter as practicable, for the relevant valuation date;

(l) where the currency exchange rate is INR, the Indian Rupee/U.S. Dollar reference rate, expressed as the amount of Indian Rupee per one U.S. Dollar, for spot settlement as reported by the
(m) where the currency exchange rate is KRW, the Korean Won/U.S. Dollar market average rate, expressed as the amount of Korean Won per one U.S. Dollar, for spot settlement as reported by the Korea Financial Telecommunications and Clearing Corporation, which appears on the Reuters Screen KFTC18 to the right of the caption “USD Today” at approximately 3:30 p.m., Seoul time, or as soon thereafter as practicable, for the relevant valuation date;

(n) where the currency exchange rate is MXP, the Mexican Pesos/U.S. Dollar official fixing rate, expressed as the amount of Mexican Pesos per one U.S. Dollar, for spot settlement as reported by Banco de Mexico, which appears on the Reuters screen BNMX opposite the caption “Fix” at the close of business in Mexico City, or as soon thereafter as practicable, for the relevant valuation date;

(o) where the currency exchange rate is MYR, the Malaysian Ringgit/U.S. Dollar market average rate, expressed as the amount of Malaysian Ringgit per one U.S. Dollar, for spot settlement, as reported by the Association of Banks in Singapore, which appears on the Reuters Page ABSIRFIX01 to the right of the caption “MYR” at approximately 11:30 a.m., Singapore time, or as soon thereafter as practicable, for the relevant valuation date;

(p) where the currency exchange rate is PEN, expressed as the amount of Peruvian New Sols per one U.S. Dollar, for spot settlement, as published on EMTA’s web site (www.emta.org) at approximately 11:00 a.m., Lima time, or as soon thereafter as practicable, for the relevant valuation date;

(q) where the currency exchange rate is PHP, expressed as the amount of Philippine Pesos per one U.S. Dollar, for spot settlement as reported by the Philippine Dealing System PDEX, which appears on the Reuters Screen “PDSPESO” page to the right of the caption “AM WT AVE” at approximately 11:30 a.m., Manila time, or as soon thereafter as practicable, for the relevant valuation date;

(r) where the currency exchange rate is PLN, the Polish Zloty/Euro fixing rate, expressed as the amount of Polish Zloty per one Euro, for spot settlement, which appears on Reuters screen ECB37 to the right of the caption “PLN” at approximately 2:15 p.m., Central European time, or as soon thereafter as practicable, for the relevant valuation date, converted into U.S. Dollar using the uniformly accepted industry standard cross-currency calculations;

(s) where the currency exchange rate is RUB, the Russian Rouble/Euro fixing rate, expressed as the amount of Russian Rubles per one Euro, for spot settlement, which appears on Reuters screen ECB37 to the right of the caption “RUB” at approximately 2:15 p.m., Central European time, or as soon thereafter as practicable, for the relevant valuation date, converted into U.S. Dollar using the uniformly accepted industry standard cross-currency calculations;

(t) where the currency exchange rate is SGD, the Singapore Dollar/U.S. Dollar spot rate at 11:00 a.m., Singapore time, expressed as the amount of Singapore Dollar per one U.S. Dollar, for spot settlement, as reported by the Association of Banks in Singapore, which appears on the Reuters page ABSIRFIX01 to the right of the caption “Spot” under the column “SGD” at approximately 11:30 a.m., Singapore time, or as soon thereafter as practicable, for the relevant valuation date;

(u) where the currency exchange rate is SKK, the Slovak Koruna/Euro fixing rate, expressed as the amount of Slovak Koruna per one Euro, for spot settlement, which appears on Reuters screen ECB37 to the right of the caption “SKK” at approximately 2:15 p.m., Central European time, or as soon thereafter as practicable, for the relevant valuation date, converted into U.S. Dollar using the uniformly accepted industry standard cross-currency calculations;
(v) where the currency exchange rate is THB, the Thai Baht/U.S. Dollar spot rate at 11:00 a.m., Singapore time, expressed as the amount of Thai Baht per one U.S. Dollar, for spot settlement, as reported by the Association of Banks in Singapore which appears on the Reuters screen ABSIRFIX01 to the right of the caption “Spot” under the column “THB” at approximately 11:30 a.m., Singapore time, or as soon thereafter as practicable, for the relevant valuation date;

(w) where the currency exchange rate is TRY, the Turkish Lira/Euro fixing rate, expressed as the amount of Turkish Lira per one Euro, for spot settlement, which appears on Reuters screen ECB37 to the right of the caption “TRY” at approximately 2:15 p.m., Central European time, or as soon thereafter as practicable, for the relevant valuation date, converted into U.S. Dollar using the uniformly accepted industry standard cross-currency calculations;

(x) where the currency exchange rate is TWD, the Taiwanese Dollar/U.S. Dollar spot rate, expressed as the amount of Taiwanese Dollars per one U.S. Dollar, for spot settlement, as reported by the Taipei Forex Inc., which appears the Reuters screen TAIFX1 under the heading “Spot” as of 11:00 a.m., Taipei time, or as soon thereafter as practicable, for the relevant valuation date;

(y) where the currency exchange rate is ZAR, the South African Rand/Euro fixing rate, expressed as the amount of South African Rand per one Euro, for spot settlement, which appears on Reuters screen “ECB37” to the right of the caption “ZAR” at approximately 2:15 p.m., Central European time, or as soon thereafter as practicable, for the relevant valuation date, converted into U.S. Dollar using the uniformly accepted industry standard cross-currency calculations.

The screen or time of observation indicated in relation to any currency exchange rate above shall be deemed to refer to that screen or time of observation as modified or amended from time to time, or to any substitute screen thereto.

To the extent that amounts payable on the notes are based on a Reference Asset comprised of one or more currency exchange rates not described above, the closing level of that currency exchange rate on any day will equal the currency exchange rate as determined by the calculation agent by reference to the mechanics, the Reuters screen, Bloomberg page or other pricing source and the time specified in the relevant pricing supplement.

Adjustments Relating to Notes with the Reference Asset Comprised of a Basket

If the calculation agent substitutes a successor index, successor currency or successor commodity, as the case may be, or otherwise affects or modifies the Reference Asset, the calculation agent will make those calculations and adjustments as, in the judgment of the calculation agent, may be necessary in order to arrive at a basket comparable to the original basket (including without limitation changing the percentage weights of the basket components), as if those changes or modifications had not been made, and shall calculate the amount of interest, payment at maturity and other amounts payable on the note (including the individual inputs thereof) with reference to that basket or the successor basket (as described below), as adjusted. In this event, the calculation agent will provide written notice to the trustee thereof, and the trustee will furnish written notice thereof, to the extent the trustee is required to under the senior debt indenture, to each noteholder, or in the case of global notes, the depositary, as holder of the global notes.

In the event of the adjustment described above, the newly composed basket is referred to herein as the “successor basket” and will be used as a substitute for the original basket for all purposes.

If the calculation agent determines that the available successors as described above do not fairly represent the value of the original basket component or basket, as the case may be, then the calculation agent will determine the level, value or price of the basket component or the basket level for any basket
valuation date in its sole discretion as described in the product supplement or any relevant pricing supplement.

Notwithstanding these alternative arrangements, discontinuance of trading on the applicable exchanges or markets in any basket component may adversely affect the market value of the notes.

**Reference Asset Information Provider**

The notes have not been passed on by the information provider of the reference asset as to their legality or suitability. The notes are not issued, endorsed, sponsored or promoted by and are not financial or legal obligations of the information provider of the Reference Asset. The trademarks, service marks or registered trademarks of the information provider of the Reference Asset are the property of their respective owners. The information provider of the Reference Asset makes no warranties and bears no liabilities with respect to the notes or to the administration or operation of the notes.

Applicable historical data on the Reference Asset will be provided in the relevant pricing supplement.

The possible “information providers” of the Reference Assets are Bloomberg screen, Reuters screen or any other information provider as specified in the relevant pricing supplement.

**Bloomberg screen**

“Bloomberg screen” means, when used in connection with any designated pages, the display page so designated on the Bloomberg service (or any other page as may replace that page on that service, or any other service as may be nominated as the information vendor).

**Reuters screen**

“Reuters screen” means, when used in connection with any designated page, the display page so designated on the Reuters Money 3000 Service (or any other page as may replace that page on that service for the purpose of displaying rates or prices).

**INDEX AND INDICES**

If the Reference Asset Sponsor discontinues publication of an Index and the Reference Asset Sponsor or another entity publishes a successor or substitute Index that the calculation agent determines, in its sole discretion, to be comparable to the Index (a “successor index”), then, upon the calculation agent’s notification of any determination to the trustee and Royal Bank, the calculation agent will substitute the successor index as calculated by the Reference Asset Sponsor or any other entity for the Index and calculate the final Index level. Upon any selection by the calculation agent of a successor index, Royal Bank will cause notice to be given to holders of the securities.

If the Reference Asset Sponsor discontinues publication of the Index and:

- the calculation agent does not select a successor index, or
- the successor index is no longer published on any of the relevant trading days,

the calculation agent will compute a substitute level for the Index in accordance with the procedures last used to calculate the level of the Index before any discontinuation but using only those securities that composed the Index prior to such discontinuation. If a successor index is selected or the calculation agent calculates a level as a substitute for the Index as described below, the successor index or level will be used
as a substitute for the Index for all purposes going forward, including for purposes of determining whether a market disruption event (as defined below) exists, even if the Reference Asset Sponsor elects to begin republishing the Index, unless the calculation agent in its sole discretion decides to use the republished Index.

If the Reference Asset Sponsor discontinues publication of the Index before the valuation date and the calculation agent determines that no successor index is available at that time, then on each trading day until the earlier to occur of:

- the determination of the final Index level, or
- a determination by the calculation agent that a successor index is available,

the calculation agent will determine the level that would be used in computing the maturity payment amount as described in the preceding paragraph as if that day were a trading day.

Notwithstanding these alternative arrangements, discontinuation of the publication of the Index would be expected to adversely affect the value of, liquidity of and trading in the securities.

If at any time the method of calculating the level of the Index or the level of the successor index, changes in any material respect, or if the Index or successor index is in any other way modified so that the Index or successor index does not, in the opinion of the calculation agent, fairly represent the level of the Index had those changes or modifications not been made, then, from and after that time, the calculation agent will, at the close of business in New York City, New York, on each date that the closing level of the Index is to be calculated, make any adjustments as, in the good faith judgment of the calculation agent, may be necessary in order to arrive at a calculation of a level of a stock index comparable to the Index or such successor index, as the case may be, as if those changes or modifications had not been made, and calculate the closing level with reference to the Index or such successor index, as so adjusted. Accordingly, if the method of calculating the Index or a successor index is modified and has a dilutive or concentrative effect on the level of such index e.g., due to a split, then the calculation agent will adjust such index in order to arrive at a level of such index as if it had not been modified, e.g., as if a split had not occurred.

Neither the calculation agent nor Royal Bank will have any responsibility for good faith errors or omissions in calculating or disseminating information regarding the Index or any successor index or as to modifications, adjustments or calculations by the Reference Asset Sponsor or any successor index sponsor in order to arrive at the level of the Index or any successor index.

**Market Disruption Event**

A market disruption event, as determined by the calculation agent in its sole discretion, means a relevant exchange or any related exchange fails to open for trading during its regular trading session or the occurrence or existence of any of the following events:

- a trading disruption, if the calculation agent determines it is material, at any time during the one hour period that ends at the close of trading for a relevant exchange or related exchange; or
- an exchange disruption, if the calculation agent determines it is material, at any time during the one hour period that ends at the close of trading for a relevant exchange or related exchange; or
- an early closure.
For the purposes of determining whether a market disruption event exists at any time, if a market
disruption event occurs in respect of a security included in the Index at any time, then the relevant
percentage contribution of that security to the level of the Index will be based on a comparison of (i) the
portion of the level of the Index attributable to that security and (ii) the overall level of the Index, in each
case immediately before the occurrence of such market disruption event.

A “trading disruption” means any suspension of or limitation imposed on trading by the relevant
exchange or related exchange or otherwise, whether by reason of movements in price exceeding limits
permitted by the relevant exchange or related exchange or otherwise, (i) relating to securities that compose
20 percent or more of the level of the Index or (ii) in options contracts or futures contracts relating to the
Index on any relevant related exchange.

An “exchange disruption” means any event (other than a scheduled early closure) that disrupts or
impairs (as determined by the calculation agent in its sole discretion) the ability of market participants in
general to (i) effect transactions in or obtain market values on any relevant exchange or related exchange in
securities that compose 20 percent or more of the level of the Index or (ii) effect transactions in options
contracts or futures contracts relating to the Index on any relevant related exchange.

An “early closure” means the closure on any exchange business day of any relevant exchange
relating to securities that compose 20 percent or more of the level of the Index or any related exchange
prior to its normally scheduled closing time unless such earlier closing time is announced by such exchange
or related exchange at least one hour prior to the earlier of (i) the actual closing time for the regular trading
session on such exchange or related exchange on such exchange business day and (ii) the submission
deadline for orders to be entered into the relevant exchange system for execution at the close of trading on
such exchange business day.

An “exchange” means the primary organized exchange or quotation system for trading any
securities included in the Index and any successor to any such exchange or quotation system or any
substitute exchange or quotation system to which trading in any securities underlying the Index has
temporarily relocated (provided that the calculation agent has determined that there is comparable liquidity
relative to the securities underlying the Index on such substitute exchange or quotation system as on the
original exchange).

An “exchange business day” means any trading day on which each exchange and related exchange
is open for business during its regular trading session, notwithstanding any such exchange or related
exchange closing prior to its scheduled weekday closing time, without regard to after hours or other trading
outside its regular trading session hours.

A “related exchange” means each exchange or quotation system on which futures or options
contracts relating to the Index are traded, any successor to such exchange or quotation system or any
substitute exchange or quotation system to which trading in the futures or options contracts relating to such
Index has temporarily relocated (provided that the calculation agent has determined that there is
comparable liquidity relative to the futures or options contracts relating to such Index on such temporary
substitute exchange or quotation system as on the original related exchange).

Reference Asset Sponsor and Reference Asset Information

The notes have not been passed on by the sponsor of the Reference Asset as to their legality or
suitability. The notes are not issued, endorsed, sponsored or promoted by and are not financial or legal
obligations of the sponsor of the Reference Asset. The trademarks, service marks or registered trademarks
of the sponsor of the Reference Asset are the property of their owner. The sponsor of the Reference Asset
makes no warranties and bears no liabilities with respect to the notes or to the administration or operation
of the notes. This reference asset supplement relates only to the notes offered by the relevant pricing supplement and does not relate to any index of a sponsor.

Information regarding a Reference Asset in this index or the sponsor of the Reference Asset may be obtained from various public sources including, but not limited to, press releases, newspaper articles, the sponsor website and other publicly disseminated documents. We make no representation or warranty as to the accuracy or completeness of the information referred to above relating to the Reference Asset or any other publicly available information regarding the sponsor of the Reference Asset. In connection with any issuance of notes under the product prospectus supplement, neither we nor the agent has participated in the preparation of the above-described documents or made any due diligence inquiry with respect to the sponsor of the Reference Asset. Furthermore, we cannot give any assurance that all events occurring prior to the date of the relevant pricing supplement (including events that would affect the accuracy or completeness of the publicly available documents described herein) that would affect the levels of the Reference Asset (and therefore the levels of the Reference Asset at the time we price the notes) have been publicly disclosed. Subsequent disclosure of any such events or the disclosure of or failure to disclose material future events concerning the sponsor of the Reference Asset could affect the interest, payments at maturity or any other amounts payable on your notes and therefore the market value of the notes in the secondary market, if any.

The AMEX Gold BUGS® Index

We have obtained all information regarding the AMEX Gold BUGS® Index contained in this reference asset supplement, including its makeup, method of calculation and changes in its components, from publicly available information. That information reflects the policies of, and is subject to change by, the index sponsor. The index sponsor has no obligation to continue to publish, and may discontinue publication of the AMEX Gold BUGS® Index at any time. We make no representation or warranty as to the accuracy or completeness of such information.

The AMEX Gold BUGS® Index is a modified equal dollar weighted index of companies involved in gold mining. The AMEX Gold BUGS® Index was designed to provide significant exposure to near term movements in gold prices by including companies that do not hedge their gold production beyond 1.5 years. The AMEX Gold BUGS® Index was developed on March 15, 1996 with a base value of 200.00. Adjustments are made quarterly after the close of trading on the third Friday of March, June, September and December so that each component stock represents its assigned weight in the AMEX Gold BUGS® Index. The value of the AMEX Gold BUGS® Index is published every 15 seconds through the Consolidated Tape Association’s Network B under the ticker symbol “HUI”. As of October 3, 2007, the common stocks included in the AMEX Gold BUGS® Index and their respective ticker symbols were as follows: Gold Fields Ltd ADR (“GFI”), Newmont Mining (“NEM”), Agnico Eagle Mines (“AEM”), Meridian Gold Inc. (“MDG”), Rangold Resources Ltd. ADS (“GOLD”), Kinross Gold Corporation (“KGC”), IAMGOLD Corporation (“IAG”), Eldorado Gold Corporation (“EGO”), Goldcorp Inc. (“GG”), Hecla Mining Company (“HL”), Golden Star Resources Ltd. (“GSS”), Harmony Gold Mining Co. ADR (“HMY”), Barrick Gold (“ABX”), Yamana Gold (“AUY”) and Coeur d’Alene Mines Corporation (“CDE”).

Computation of the AMEX Gold BUGS® Index

The AMEX Gold BUGS® Index is calculated using a modified equal-dollar weighting methodology. Three of the largest component stocks by market value are assigned higher percentage weights in the index at the time of the quarterly rebalancing and the remaining component stocks are given an equal percentage weight. The AMEX Gold BUGS® Index has a scheduled quarterly rebalance after the close of trading on the third Friday of March, June, September and December, so that each component stock is represented at approximately its assigned weight in the AMEX Gold BUGS® Index. Every quarter after the close of trading on the third Friday of March, June, September and December, the index portfolio is adjusted by changing the number of shares of each component stock so that each one again represents an
assigned weight in the AMEX Gold BUGS® Index. The newly adjusted portfolio becomes the basis for the index’s value effective on the first trading day following the quarterly adjustments. If necessary, a divisor adjustment is made to ensure continuity of the index’s value.

**Modifications to the Common Stocks Underlying the AMEX Gold BUGS® Index**

AMEX has, and may at any time, change the number or assigned weighting of the component stocks by adding or deleting one or more component stocks, or replace one or more component stocks with one or more substitute stocks of its choice, if in AMEX’s discretion such addition, deletion or substitution is necessary or appropriate to maintain the quality and/or character of the AMEX Gold BUGS® Index. However, in order to reduce turnover in the index, the AMEX generally attempts to combine additions and deletions to the AMEX Gold BUGS® Index with a scheduled rebalancing.

The AMEX Gold BUGS® Index is calculated and maintained by AMEX. AMEX may change the composition of the index at any time to reflect the conditions of the gold mining industry and to ensure that the component stocks continue to represent the gold mining companies.

The number of shares of each component stock in the AMEX Gold BUGS® Index portfolio remain fixed between quarterly reviews, except in the event of certain types of corporate actions such as the payment of a dividend, other than an ordinary cash dividend, stock distribution, stock split, reverse stock split, rights offering, or a distribution, reorganization, recapitalization, or some similar event with respect to a component stock. When the AMEX Gold BUGS® Index is adjusted between quarterly reviews for such events, the number of shares of the relevant component stock will be adjusted, to the nearest whole share, to maintain the component stock’s relative weight in the AMEX Gold BUGS® Index at the level immediately prior to the corporate action. The AMEX Gold BUGS® Index may also be adjusted in the event of a merger consolidation, dissolution or liquidation of an issuer of a component stock. In the event of a stock replacement, the average dollar value of the remaining component stocks that are assigned the lower index weight will be calculated and that amount invested in the new component stock to the nearest whole share.

**License Agreement**

We have entered into a non-exclusive license agreement with the American Stock Exchange LLC (the “Exchange”), which allows us and our affiliates, in exchange for a fee, to use the AMEX Gold BUGS® Index in connection with the issuance of certain securities, including the principal protected notes. We are not affiliated with the Exchange; the only relationship between the Exchange and us is the licensing of the use of the AMEX Gold BUGS® Index and trademarks relating to the AMEX Gold BUGS® Index.

The Exchange is under no obligation to continue the calculation and dissemination of the AMEX Gold BUGS® Index. The securities are not sponsored, endorsed, sold or promoted by the Exchange. No inference should be drawn from the information contained in this reference asset supplement that the Exchange makes any representation or warranty, implied or express, to us, any holder of the notes or any member of the public regarding the advisability of investing in securities generally or in the notes in particular or the ability of the AMEX Gold BUGS® Index to track general stock market performance.

The Exchange determines, composes and calculates the AMEX Gold BUGS® Index without regard to the notes. The Exchange has no obligation to take into account your interest, or that of anyone else having an interest, in the notes in determining, composing or calculating the AMEX Gold BUGS® Index. The Exchange is not responsible for, and has not participated in the determination of, the terms, prices or amount of the notes and will not be responsible for, or participate in, any determination or calculation regarding the principal amount of the notes payable at maturity. The Exchange has no obligation or liability in connection with the administration, marketing or trading of the notes.
The Exchange disclaims all responsibility for any errors or omissions in the calculation and dissemination of the AMEX Gold BUGS® Index or the manner in which the AMEX Gold BUGS® Index is applied in determining the Initial Reference Price or the Final Reference Price or any amount payable upon maturity of the notes.

THE AMEX GOLD BUGS® INDEX IS SPONSORED BY, AND IS A SERVICE MARK OF, THE EXCHANGE. THE AMEX GOLD BUGS® INDEX IS BEING USED WITH THE PERMISSION OF THE EXCHANGE. THE EXCHANGE IN NO WAY SPONSORS, ENDORSES OR IS OTHERWISE INVOLVED IN THE TRANSACTIONS SPECIFIED AND DESCRIBED IN THE PRODUCT PROSPECTUS SUPPLEMENT AND THE ACCOMPANYING PROSPECTUS AND PROSPECTUS SUPPLEMENT AND THE EXCHANGE DISCLAIMS ANY LIABILITY TO ANY PARTY FOR ANY INACCURACY IN THE DATA ON WHICH THE AMEX GOLD BUGS® INDEX IS BASED, FOR ANY MISTAKES, ERRORS, OR OMISSIONS IN THE CALCULATION AND/OR DISSEMINATION OF THE INDEX, OR FOR THE MANNER IN WHICH IT IS APPLIED IN CONNECTION WITH SUCH TRANSACTIONS.

AMEX Hong Kong 30 Index

Unless otherwise stated, all information contained herein on the AMEX Hong Kong 30 Index is derived from publicly available sources. Such information reflects the policies of the American Stock Exchange, Inc., (the “AMEX Hong Kong 30 Index Sponsor”) as stated in such sources and such policies are subject to change by the AMEX Hong Kong 30 Index Sponsor. The AMEX Hong Kong 30 Index, a service mark of the AMEX Hong Kong 30 Index Sponsor, is a capitalization-weighted stock index designed, developed, maintained and operated by the AMEX Hong Kong 30 Index Sponsor that measures the market value performance (share price times the number of shares outstanding) of selected The Stock Exchange of Hong Kong Ltd. (the “HKSE”) listed stocks. The AMEX Hong Kong 30 Index currently is based on the capitalization of 30 stocks actively traded on the HKSE and is designed to represent a substantial segment of the Hong Kong stock market. The primary trading market for all of these stocks is either Hong Kong or London. Business sector representation of the stocks comprising the AMEX Hong Kong 30 Index consists primarily of finance, energy, property development, utilities and conglomerates, and also includes hotel/leisure, property investment, airlines, telecommunications, transportation and publishing. The AMEX Hong Kong 30 Index was established on June 25, 1993.

The AMEX Hong Kong 30 Index is maintained by the AMEX Hong Kong 30 Index Sponsor and will contain at least 30 stocks at all times. In addition, the stocks must meet certain listing and maintenance standards as discussed below. The AMEX Hong Kong 30 Index Sponsor may change the composition of the AMEX Hong Kong 30 Index at any time in order to more accurately reflect the composition and track the movement of the Hong Kong stock market. Any replacement stock must also meet the stock listing and maintenance standards as discussed below. Further, the AMEX Hong Kong 30 Index Sponsor may replace stocks in the event of certain corporate events, such as takeovers or mergers that change the nature of the security. The AMEX Hong Kong 30 Index Sponsor selects stocks comprising the AMEX Hong Kong 30 Index on the basis of their market weight, trading liquidity and representation of the business industries reflected on the HKSE. The AMEX Hong Kong 30 Index Sponsor requires that each stock be one issued by an entity with major business interests in Hong Kong, be listed for trading on the HKSE and have its primary trading market located in a country with which the AMEX Hong Kong 30 Index Sponsor has an effective surveillance sharing agreement. The sponsor will remove any stock failing to meet the above listing and maintenance criteria within 30 days after such failure occurs. In order to ensure that the AMEX Hong Kong 30 Index does not contain a large number of thinly capitalized, low-priced securities with small public floats and low trading volumes, the AMEX Hong Kong 30 Index Sponsor has also established additional qualification criteria for the inclusion and maintenance of stocks, based on the following standards: all stocks selected for inclusion in the AMEX Hong Kong 30 Index must have, and thereafter maintain, (1) an average daily capitalization, as calculated by the total number of shares outstanding times the latest price per share (in Hong Kong dollars), measured over the prior 6-month period, of at least H.K.$3,000,000,000; (2) an average daily closing price, measured over the prior 6-month period, not lower
than H.K.$2.50; (3) an average daily trading volume, measured over the prior 6-month period, of more than 1,000,000 shares per day, although up to, but no more than, three stocks may have an average daily trading volume, measured over the prior 6-month period, of less than 1,000,000 shares per day, but in no event less than 500,000 shares per day; and (4) a minimum “free float” value (total freely tradable outstanding shares minus insider holdings), based on a monthly average measured over the prior 3-month period, of U.S.$238,000,000, although up to, but no more than, three stocks may have a free float value of less than U.S.$238,000,000 but in no event less than U.S.$238,000,000, measured over the same period.

The AMEX Hong Kong 30 Index Sponsor reviews and applies the above qualification criteria relating to the stocks comprising the AMEX Hong Kong 30 Index on a quarterly basis, conducted on the last business day in January, April, July and October. Any stock failing to meet the above listing and maintenance criteria will be reviewed on the second Friday of the second month following the quarterly review to again determine compliance with the above criteria. Any stock failing this second review will be replaced by a “qualified” stock effective upon the close of business on the following Friday, provided, however, that if such Friday is not a New York business day, the replacement will be effective at the close of business on the first preceding New York business day. The AMEX Hong Kong 30 Index Sponsor will notify its membership immediately after it determines to replace a stock.

The annual reports and prospectuses of the companies listed on the HKSE are available for investors’ inspection in the City Hall Library (a public library in Hong Kong, Central). The HKSE library also has information for each listed company, but it is available only to members of the HKSE. A company whose stock is included in the index is not required to be incorporated under the laws of Hong Kong.

The AMEX Hong Kong 30 Index is a capitalization-weighted index. A company's market capitalization is calculated by multiplying the number of shares outstanding by the company’s current share price (in Hong Kong dollars). For valuation purposes, one AMEX Hong Kong 30 Index unit is assigned a fixed value of one U.S. dollar. The AMEX Hong Kong 30 Index measures the average changes in price of the stocks comprising the AMEX Hong Kong 30 Index, weighted according to the respective market capitalizations, so that the effect of a percentage price change in a stock will be greater the larger the stock’s market capitalization. The AMEX Hong Kong 30 Index was established by its sponsor on June 25, 1993, on which date the AMEX Hong Kong 30 Index value was set at 350.00. The daily calculation and public dissemination by the AMEX Hong Kong 30 Index sponsor of the AMEX Hong Kong 30 Index value commenced on September 1, 1993. The data relating to the AMEX Hong Kong 30 Index was back-calculated by the index sponsor from January 2, 1989 to August 31, 1993.

The AMEX Hong Kong 30 Index is calculated by (i) aggregating the market capitalization of each stock comprising the AMEX Hong Kong 30 Index and (ii) dividing such sum by an adjusted base market capitalization or divisor. On June 25, 1993, the market value of the underlying stocks was approximately H.K.$1,152,829,149,500 and the divisor used to calculate the AMEX Hong Kong 30 Index was 3,293,797,570. The AMEX Hong Kong 30 Index Sponsor selected that particular divisor number in order, among other things, to ensure that the AMEX Hong Kong 30 Index was set at a general price level consistent with other well recognized stock market indices. The divisor is subject to periodic adjustments as set forth below. The AMEX Hong Kong 30 Index is calculated once each day by the AMEX Hong Kong 30 Index Sponsor based on the most recent official closing prices of each of the stocks comprising the AMEX Hong Kong 30 Index reported by the HKSE. Pricing of the AMEX Hong Kong 30 Index is disseminated before the opening of trading via the Consolidated Tape Authority Network-B and continuously during each New York business day. The dissemination value, however, will remain the same throughout the trading day because the trading hours of the HKSE do not overlap with New York trading hours. Accordingly, updated price information will be unavailable.

In order to maintain continuity in the level of the AMEX Hong Kong 30 Index in the event of certain changes due to non-market factors affecting the stocks comprising the AMEX Hong Kong 30 Index, such as the addition or deletion of stocks, substitution of stocks, stock dividends, stock splits, distributions of assets to stockholders or other capitalization events, the divisor used in calculating the AMEX Hong
Kong 30 Index is adjusted in a manner designed to prevent any instantaneous change or discontinuity in the level of the AMEX Hong Kong 30 Index and in order that the value of the AMEX Hong Kong 30 Index immediately after such change will equal the level of the AMEX Hong Kong 30 Index immediately prior to the change. Thereafter, the divisor remains at the new value until a further adjustment is necessary as the result of another change. Nevertheless, changes in the identities and characteristics of the stocks comprising the index may significantly affect the behavior of the AMEX Hong Kong 30 Index over time.

_The Stock Exchange of Hong Kong Ltd_

Trading on the HKSE is fully electronic through an Automatic Order Matching and Execution System, which was introduced in November 1983. The system is an electronic order book in which orders are matched and executed instantaneously if there are matching orders in the book, and on the basis of time/price priority. On-line real-time order entry and execution have eliminated the previous limitations of telephone-based trading. Trading takes place through trading terminals on the trading floor. There are no market-makers on the HKSE, but exchange dealers may act as dual capacity broker-dealers. Trading is undertaken from 9:30 a.m. to 4:00 p.m. (Hong Kong time) every Hong Kong day except Saturdays, Sundays and other days on which the HKSE is closed. Hong Kong time is 12 hours ahead of Eastern Daylight Savings Time and 13 hours ahead of Eastern Standard Time. Settlement of trade is required within 48 hours and is conducted by electronic book-entry delivery through the Central Clearing and Settlement System.

Due to the time differences between New York City and Hong Kong, on any normal trading day, trading on the HKSE currently will cease at 3:00 a.m. or 4:00 a.m., New York City time. Using the last reported closing prices of the stocks underlying the AMEX Hong Kong 30 Index on the HKSE, the closing level of the AMEX Hong Kong 30 Index on any such trading day generally will be calculated, published and disseminated by the AMEX Hong Kong 30 Index Sponsor in the United States shortly before the opening of trading on the American Stock Exchange in New York on the same calendar day.

The HKSE has adopted certain measures intended to prevent any extreme short-term price fluctuations resulting from order imbalances or market volatility. Where the HKSE considers it necessary for the protection of the investor or the maintenance of an orderly market, it may at any time suspend dealings in any securities or cancel the listing of any securities in such circumstances and subject to such conditions as it thinks fit, whether requested by the listed issuer or not. The HKSE may also do so where: (1) an issuer fails, in a manner which the HKSE considers material, to comply with the HKSE Listing Rules or its Listing Agreements; (2) the HKSE considers there are insufficient securities in the hands of the public; (3) the HKSE considers that the listed issuer does not have a sufficient level of operations or sufficient assets to warrant the continued listing of the issuer’s securities; or (4) the HKSE considers that the issuer or its business is no longer suitable for listing. Investors should also be aware that the HKSE may suspend the trading of individual stocks in certain limited and extraordinary circumstances, until certain price-sensitive information has been disclosed to the public. Trading will not be resumed until a formal announcement has been made. Trading of a company’s shares may also be suspended if there is unusual trading activity in such shares.

An issuer may apply for suspension of its own accord. A suspension request will normally only be acceded to in the following circumstances: (1) where, for a reason acceptable to the HKSE, price-sensitive information cannot at that time be disclosed; (2) where the issuer is subject to an offer, but only where terms have been agreed in principle and require discussion with, and agreement by, one or more major shareholders (suspensions will only normally be appropriate where no previous announcement has been made); (3) to maintain an orderly market; (4) where there is an occurrence of certain levels of notifiable transactions, such as substantial changes in the nature, control or structure of the issuer, where publication of full details is necessary to permit a realistic valuation to be made of the securities concerned, or the approval of shareholders is required; (5) where the issuer is no longer suitable for listing, or becomes a “cash” company; or (6) for issuers going into receivership or liquidation. As a result of the foregoing, variations in the AMEX Hong Kong 30 Index may be limited by suspension of trading of individual stocks.
which comprise the AMEX Hong Kong 30 Index which may, in turn, adversely affect the value of the notes.

License Agreement

The AMEX Hong Kong 30 Index Sponsor is under no obligation to continue the calculation and dissemination of the AMEX Hong Kong 30 Index and the method by which the AMEX Hong Kong 30 Index is calculated and the name “AMEX Hong Kong 30 Index” may be changed at the discretion of the AMEX Hong Kong 30 Index Sponsor. No inference should be drawn from the information contained in this reference asset supplement that the AMEX Hong Kong 30 Index Sponsor makes any representation or warranty, implied or express, to you or any member of the public regarding the advisability of investing in securities generally or in the notes in particular or the ability of the AMEX Hong Kong 30 Index to track general stock market performance. The AMEX Hong Kong 30 Index Sponsor has no obligation to take into account your interest, or that of anyone else having an interest in determining, composing or calculating the index. The AMEX Hong Kong 30 Index Sponsor is not responsible for, and has not participated in the determination of the timing of, prices for or quantities of, the notes or in the determination or calculation of the equation by which the notes are to be settled in cash. The AMEX Hong Kong 30 Index Sponsor has no obligation or liability in connection with the administration, marketing or trading of the notes. The use of and reference to the AMEX Hong Kong 30 Index in connection with the notes have been consented to by the sponsor.

The AMEX Hong Kong 30 Index Sponsor disclaims all responsibility for any inaccuracies in the data on which the index is based, or any mistakes or errors or omissions in the calculation or dissemination of the AMEX Hong Kong 30 Index.

Dow Jones-AIG Commodity IndexSM

The following is a description of the Dow Jones-AIG Commodity IndexSM (the “DJ-AIG Commodity Index”), including, without limitation, its make-up, method of calculation and changes in its components. The information in this description has been taken from (i) publicly available sources and (ii) a summary of the Dow Jones-AIG Commodity Index Handbook (a document that is considered proprietary to Dow Jones and AIGI and is available to those persons who enter into a license agreement available at http://www.djindexes.com/mdsidx/index.cfm?event=showAigRequest). Such information reflects the policies of, and is subject to change by, Dow Jones & Company, Inc. (“Dow Jones”), and American International Group, Inc. (“AIGI”). Royal Bank has not independently verified this information. You, as an investor in the notes, should make your own investigation into the indices, AIGI and Dow Jones. Dow Jones and AIGI are not involved in the offer of the notes in any way and have no obligation to consider your interests as a holder of the notes. Dow Jones and AIGI have no obligation to continue to publish the indices, and may discontinue publication of either DJ-AIG Commodity Index at any time in their sole discretion.

Overview

The DJ-AIG Commodity Index was introduced in July 1998 to provide unique, diversified, economically rational and liquid benchmarks for commodities as an asset class. The DJ-AIG Commodity Index currently is composed of the prices of nineteen exchange-traded futures contracts on physical commodities. An exchange-traded futures contract is a bilateral agreement providing for the purchase and sale of a specified type and quantity of a commodity or financial instrument during a stated delivery month for a fixed price. For a general description of the commodity future markets, see “Commodities Futures Markets” on page R-21. The commodities included in the DJ-AIG Commodity Index for 2007 are as follows: aluminum, coffee, copper, corn, cotton, crude oil, gold, heating oil, lean hogs, live cattle, natural gas, nickel, silver, soybeans, soybean oil, sugar, unleaded gas (RBOB), wheat and zinc.
The DJ-AIG Commodity Index is a proprietary index that Dow Jones and AIGI developed and that Dow Jones, in conjunction with AIGI, calculates. The methodology for determining the composition and weighting of the DJ-AIG Commodity Index and for calculating its value is subject to modification by Dow Jones and AIGI at any time.

AIGI and its affiliates actively trade futures contracts and options on futures contracts on the commodities that underlie the DJ-AIG Commodity Index, as well as commodities, including commodities included in the DJ-AIG Commodity Index. AIGI and its affiliates also actively enter into or trade and market securities, swaps, options, derivatives and related instruments which are linked to the performance of commodities or are linked to the performance of the DJ-AIG Commodity Index. Certain of AIGI’s affiliates may underwrite or issue other securities or financial instruments indexed to the DJ-AIG Commodity Index and related indices, and AIGI and Dow Jones and their affiliates may license the DJ-AIG Commodity Index for publication or for use by unaffiliated third parties. These activities could present conflicts of interest and could affect the level of the DJ-AIG Commodity Index. For instance, a market maker in a financial instrument linked to the performance of the DJ-AIG Commodity Index may expect to hedge some or all of its position in that financial instrument. Purchase (or selling) activity in the underlying DJ-AIG Commodity Index components in order to hedge the market maker’s position in the financial instrument may affect the market price of the futures contracts included in the DJ-AIG Commodity Index, which in turn may affect the value of the DJ-AIG Commodity Index. With respect to any of the activities described above, none of AIGI, Dow Jones or their respective affiliates has any obligation to take the needs of any buyers, sellers or holders of the Securities into consideration at any time.

The Dow Jones-AIG Commodity Index Oversight Committee

Dow Jones and AIGI have established the Dow Jones-AIG Commodity Index Oversight Committee to assist them in connection with the operation of the commodity indices published by Dow Jones and AIGI, including the DJ-AIG Commodity Index. The Dow Jones-AIG Commodity Index Oversight Committee includes prominent members of the financial, academic and legal communities selected by AIGI and meets annually to consider any changes to be made to the indices for the coming year. The Dow Jones-AIG Commodity Index Oversight Committee may also meet at such other times as may be necessary.

As described in more detail below, the DJ-AIG Commodity Index is reweighted and rebalanced each year in January on a price-percentage basis. The annual weightings for the DJ-AIG Commodity Index are determined each year in June or July by AIGI under the supervision of the Dow Jones-AIG Commodity Index Oversight Committee. Following the Dow Jones-AIG Commodity Index Oversight Committee’s annual meeting in June or July, the annual weightings are publicly announced in July.

Four Main Principles Guiding the Creation of the Dow Jones-AIG Commodity Index

The DJ-AIG Commodity Index was created using the following four main principles:

- **Economic significance.** A commodity index should fairly represent the importance of a diversified group of commodities to the world economy. To achieve a fair representation, the DJ-AIG Commodity Index uses both liquidity data and dollar-weighted production data in determining the relative quantities of included commodities.

The DJ-AIG Commodity Index primarily relies on liquidity data, or the relative amount of trading activity of a particular commodity, as an important indicator of the value placed on that commodity by financial and physical market participants. The DJ-AIG Commodity Index also relies on production data as a useful measure of the importance of a commodity to the world economy. Production data alone, however, may underestimate the economic significance of storable commodities (e.g., gold) relative to non-storable commodities (e.g.,
live cattle). Production data alone also may underestimate the investment value that financial market participants place on certain commodities, and/or the amount of commercial activity that is centered around various commodities. Additionally, production statistics alone do not necessarily provide as accurate a blueprint of economic importance as the pronouncements of the markets themselves. The DJ-AIG Commodity Index thus relies on data that is both endogenous to the futures market (liquidity) and exogenous to the futures market (production) in determining relative weightings.

- **Diversification.** A second major goal of the DJ-AIG Commodity Index is to provide diversified exposure to commodities as an asset class. Disproportionate weightings of any particular commodity or sector increase volatility and negate the concept of a broad-based commodity index. Instead of diversified commodities exposure, the investor is unduly subjected to micro-economic shocks in one commodity or sector. As described further below, diversification rules have been established and are applied annually. Additionally, the DJ-AIG Commodity Index is re-balanced annually on a price-percentage basis in order to maintain diversified commodities exposure over time.

- **Continuity.** The third goal of the DJ-AIG Commodity Index is to be responsive to the changing nature of commodity markets in a manner that does not completely reshape the character of the Indices from year to year. The DJ-AIG Commodity Index is intended to provide a stable benchmark, so that end-users may be reasonably confident that historical performance data (including such diverse measures as correlation, spot yield, roll yield and volatility) is based on a structure that bears some resemblance to both the current and future composition of the DJ-AIG Commodity Index.

- **Liquidity.** Another goal of the DJ-AIG Commodity Index is to be highly liquid. The explicit inclusion of liquidity as a weighting factor helps to ensure that the indices can accommodate substantial investment flows. The liquidity of an index affects transaction costs associated with current investments. It also may affect the reliability of historical price performance data.

These principles represent goals of the DJ-AIG Commodity Index and its creators, and there can be no assurance that these goals will be reached by either Dow Jones or AIGI.

**Composition of the DJ-AIG Commodity Index**

**Commodities Available for Inclusion in the DJ-AIG Commodity Index**

The commodities that have been selected for possible inclusion in the DJ-AIG Commodity Index are believed by Dow Jones and AIGI to be sufficiently significant to the world economy to merit consideration for inclusion in the Indices, and each such commodity is the subject of a qualifying related futures contract (a “Designated Contract”).

With the exception of several LME contracts, where the Dow Jones-AIG Commodity DJ-AIG Commodity Index Oversight Committee believes that there exists more than one futures contract with sufficient liquidity to be chosen as a Designated Contract for a commodity, the Dow Jones-AIG Commodity Index Oversight Committee selects the futures contract that is traded in North America and denominated in dollars. If more than one such contract exists, the Dow Jones-AIG Commodity Index Oversight Committee selects the most actively traded contract. Data concerning this Designated Contract will be used to calculate the DJ-AIG Commodity Index. The termination or replacement of a futures contract on an established exchange occurs infrequently; if a Designated Contract were to be terminated or replaced, a comparable futures contract would be selected, if available, to replace that Designated Contract.
The 23 potential commodities that may be included in the DJ-AIG Commodity Index in a given year currently are aluminum, cocoa, coffee, copper, corn, cotton, crude oil, gold, heating oil, lead, cattle, hogs, natural gas, nickel, platinum, silver, soybeans, soybean oil, sugar, tin, unleaded gasoline, wheat and zinc.

Commodity Groups

For purposes of applying the diversification rules discussed above and below, the commodities available for inclusion in the DJ-AIG Commodity Index are assigned to Commodity Groups. For current information on Commodity Groups, please refer to http://www.djindexes.com/mdsidx/index.cfm?event=show AigIntro.

Determination of Relative Weightings

The relative weightings of the component commodities included in the DJ-AIG Commodity Index are determined annually according to both liquidity and dollar-adjusted production data in 2/3 and 1/3 shares, respectively. Each June, for each commodity designated for potential inclusion in the DJ-AIG Commodity Index, liquidity is measured by the Commodity Liquidity Percentage ("CLP") and production by the Commodity Production Percentage ("CPP"). The CLP for each commodity is determined by taking a five-year average of the product of trading volume and the historic dollar value of the Designated Contract for that commodity, and dividing the result by the sum of such products for all commodities which were designated for potential inclusion in the applicable index. The CPP is determined for each commodity by taking a five-year average of annual world production figures, adjusted by the historic dollar value of the Designated Contract, and dividing the result by the sum of such production figures for all the commodities which were designated for potential inclusion in the applicable index. The CLP and the CPP are then combined (using a ratio of 2:1) to establish the Commodity Index Percentage ("CIP") for each commodity. This CIP is then adjusted in accordance with certain diversification rules in order to determine the commodities which will be included in each index (the “Index Commodities”) and their respective percentage weights.

Diversification Rules

The DJ-AIG Commodity Index is designed to provide diversified exposure to commodities as an asset class. To ensure that no single commodity or commodity sector dominates the DJ-AIG Commodity Index, the following diversification rules are applied to the annual reweighting and rebalancing of the DJ-AIG Commodity Index as of January of the applicable year:

- No related group of commodities designated as a “Commodity Group” (e.g., precious metals, livestock, grains or, with respect to the DJ-AIG Commodity Index, energy) may constitute more than 33% of the index.
- No single commodity may constitute more than 15% of the DJ-AIG Commodity Index.
- No single commodity, together with its derivatives (e.g., crude oil, together with heating oil and unleaded gasoline), may constitute more than 25% of the DJ-AIG Commodity Index.
- No single commodity that is in the DJ-AIG Commodity Index may constitute less than 2% of the DJ-AIG Commodity Index.

Following the annual reweighting and rebalancing of the DJ-AIG Commodity Index in January, the percentage of any single commodity or group of commodities at any time prior to the next reweighting or rebalancing will fluctuate and may exceed or be less than the percentages set forth above.
Commodity Index Multipliers

Following application of the diversification rules discussed above, CIPs are incorporated into the DJ-AIG Commodity Index by calculating the new unit weights for each DJ-AIG Commodity Index Commodity. Near the beginning of each new calendar year (the “CIM Determination Date”), the CIPs, along with the settlement prices on that date for Designated Contracts included in the DJ-AIG Commodity Index, are used to determine a Commodity Index Multiplier (“CIM”) for each DJ-AIG Commodity Index Commodity. This CIM is used to achieve the percentage weightings of the commodities included in the DJ-AIG Commodity Index, in dollar terms, indicated by their respective CIPs. After the CIMs are calculated, they remain fixed throughout the year. As a result, the observed price percentage of each DJ-AIG Commodity Index Commodity will float throughout the year, until the CIMs are reset the following year based on new CIPs.

Calculations

The DJ-AIG Commodity Index is calculated by Dow Jones, in conjunction with AIGI, by applying the impact of the changes to the futures prices of commodities included in the DJ-AIG Commodity Index (based on their relative weightings). Once the CIMs are determined as discussed above, the calculation of the indices is a mathematical process whereby the CIMs for the commodities included in the DJ-AIG Commodity Index are multiplied by the prices in U.S. dollars for the applicable Designated Contracts. These products are then summed. The percentage change in this sum is then applied to the prior DJ-AIG Commodity Index level to calculate the current DJ-AIG Commodity Index level. Dow Jones disseminates the DJ-AIG Commodity Index level approximately every fifteen seconds (assuming the DJ-AIG Commodity Index level has changed within such fifteen-second interval) from 8:00 a.m. to 3:00 p.m. (New York time), and publishes a daily DJ-AIG Commodity Index level at approximately 4:00 p.m. (New York time) on each DJ-AIG Business Day on Reuters page AIGCI1. DJ-AIG Commodity Index levels can also be obtained from the official websites of both Dow Jones and AIGI and are also published in The Wall Street Journal.

The DJ-AIG Commodity Index is a Rolling Index

The DJ-AIG Commodity Index is composed of futures contracts on physical commodities. Unlike equities, which typically entitle the holder to a continuing stake in a corporation, commodity futures contracts normally specify a certain date for the delivery of the underlying physical commodity. In order to avoid delivering the underlying physical commodities and to maintain exposure to the underlying physical commodities, periodically futures contracts on physical commodities specifying delivery on a nearby date must be sold and futures contracts on physical commodities that have not yet reached the delivery period must be purchased. The rollover for each contract occurs over a period of five DJ-AIG Business Days each month according to a pre-determined schedule. This process is known as “rolling” a futures position. The DJ-AIG Commodity Index is a “rolling index.”

DJ-AIG Commodity Index Calculation Disruption Events

From time to time, disruptions can occur in trading futures contracts on various commodity exchanges. The daily calculation of an index will be adjusted in the event that AIGI determines that any of the following index calculation disruption events exists:

(a) the termination or suspension of, or material limitation or disruption in the trading of any futures contract used in the calculation of the index on that day,

(b) the settlement price of any futures contract used in the calculation of the index reflects the maximum permitted price change from the previous day’s settlement price,
(c) the failure of an exchange to publish official settlement prices for any futures contract used in the calculation of the DJ-AIG Commodity Index, or

(d) with respect to any futures contract used in the calculation of the DJ-AIG Commodity Index that trades on the LME, a business day on which the LME is not open for trading.

License Agreement

“Dow JonesSM,” “AIG®,” “Dow Jones-AIG Commodity IndexSM,” and “DJ-AIGCommodity IndexSM” are registered trademarks or service marks of Dow Jones & Company, Inc. and American International Group, Inc. (“American International Group”), as the case may be, and have been licensed for use for certain purposes by Royal Bank. The notes are not sponsored, endorsed, sold or promoted by Dow Jones, AIGI, American International Group, or any of their respective subsidiaries or affiliates, and none of Dow Jones, AIGI, American International Group or any of their respective subsidiaries or affiliates, makes any representation regarding the advisability of investing in such products.

Dow Jones, AIGI and Royal Bank have entered into a non-exclusive license agreement providing for the license to Royal Bank, and certain of its affiliated or subsidiary companies, in exchange for a fee, of the right to use the indices, which are published by Dow Jones and AIGI, in connection with certain products, including the notes.

The license agreement between Dow Jones, AIGI and Royal Bank provides that the following language must be set forth in this reference asset supplement: The notes are not sponsored, endorsed, sold or promoted by Dow Jones, American International Group, AIGI or any of their respective subsidiaries or affiliates. None of Dow Jones, American International Group, AIGI or any of their affiliates makes any representation or warranty, express or implied, to the owners of or counterparts to the notes or any member of the public regarding the advisability of investing in securities or commodities generally or in the notes particularly. The only relationship of Dow Jones, American International Group, AIGI or any of their respective subsidiaries or affiliates to Royal Bank is the licensing of certain trademarks, trade names and service marks and of the DJ-AIG Commodity Index, which are determined, composed and calculated by Dow Jones in conjunction with AIGI without regard to Royal Bank or the notes. Dow Jones and AIGI have no obligation to take the needs of Royal Bank or the owners of the notes into consideration in determining, composing or calculating the DJ-AIG Commodity Index. None of Dow Jones, American International Group, AIGI or any of their respective subsidiaries or affiliates is responsible for or has participated in the determination of the timing of, prices at, or quantities of the notes to be issued or in the determination or calculation of the equation by which the notes are to be converted into cash. None of Dow Jones, American International Group, AIGI or any of their respective subsidiaries or affiliates shall have any obligation or liability, including without limitation to notes customers, in connection with the administration, marketing or trading of the notes. Notwithstanding the foregoing, AIGI, American International Group and their respective subsidiaries or affiliates may independently issue and/or sponsor financial products unrelated to the notes currently being issued by Royal Bank, but which may be similar to and competitive with the notes. In addition, American International Group, AIGI and their respective subsidiaries or affiliates actively trade commodities, commodity indices and commodity futures (including the DJ-AIG Commodity Index), as well as swaps, options and derivatives which are linked to the performance of such commodities, commodity indices and commodity futures. It is possible that this trading activity will affect the value of the DJ-AIG Commodity Index and the notes.

This reference asset supplement relates only to the notes and does not relate to the exchange-traded physical commodities underlying any of the DJ-AIG Commodity Index components. Purchasers of the notes should not conclude that the inclusion of a futures contract in the DJ-AIG Commodity Index is any form of investment recommendation of the futures contract or the underlying exchange-traded physical commodity by Dow Jones, American International Group, AIGI or any of their respective subsidiaries or affiliates. The information in this reference asset supplement regarding the exchange-traded futures contracts on physical commodities, which comprise the DJ-AIG Commodity Index components has been
derived solely from publicly available documents. None of Dow Jones, American International Group, AIGI or any of their respective subsidiaries or affiliates has made any due diligence inquiries with respect to the exchange-traded futures contracts which comprise the DJ-AIG Commodity Index in connection with the notes. None of Dow Jones, American International Group, AIGI or any of their respective subsidiaries or affiliates makes any representation that these publicly available documents or any other publicly available information regarding the exchange-traded futures contracts which comprise the DJ-AIG Commodity Index, including without limitation a description of factors that affect the prices of such exchange-traded futures contracts, are accurate or complete.

NONE OF DOW JONES, AMERICAN INTERNATIONAL GROUP, AIGI OR ANY OF THEIR RESPECTIVE SUBSIDIARIES OR AFFILIATES GUARANTEES THE ACCURACY AND/OR THE COMPLETENESS OF THE DJ-AIG COMMODITY INDEX OR ANY DATA INCLUDED THEREIN AND NONE OF DOW JONES, AMERICAN INTERNATIONAL GROUP, AIGI OR ANY OF THEIR RESPECTIVE SUBSIDIARIES OR AFFILIATES SHALL HAVE ANY LIABILITY FOR ANY ERRORS, OMISSIONS, OR INTERRUPTIONS THEREIN. NONE OF DOW JONES, AMERICAN INTERNATIONAL GROUP, AIGI OR ANY OF THEIR RESPECTIVE SUBSIDIARIES OR AFFILIATES MAKES ANY WARRANTY, EXPRESS OR IMPLIED, AS TO RESULTS TO BE OBTAINED BY ROYAL BANK, OWNERS OF THE NOTES, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE DJ-AIG COMMODITY INDEX OR ANY DATA INCLUDED THEREIN. NONE OF DOW JONES, AMERICAN INTERNATIONAL GROUP, AIGI OR ANY OF THEIR RESPECTIVE SUBSIDIARIES OR AFFILIATES HAS ANY LIABILITY FOR ANY LOST PROFITS OR INDIRECT, PUNITIVE, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSSES, EVEN IF NOTIFIED OF THE POSSIBILITY THEREOF. THERE ARE NO THIRD PARTY BENEFICIARIES OF ANY AGREEMENTS OR ARRANGEMENTS AMONG DOW JONES, AIGI AND ROYAL BANK, OTHER THAN AMERICAN INTERNATIONAL GROUP AND ITS AFFILIATES.

**Dow Jones EURO STOXX 50® Index**

We have derived all information regarding the Dow Jones EURO STOXX 50® Index (the “EURO STOXX Index”) contained in this reference asset supplement from publicly available information without independent verification. Such information reflects the policies of, and is subject to change by, STOXX Limited (the “EURO STOXX Index Sponsor”). The EURO STOXX Index Sponsor owns the copyright and all other rights to the EURO STOXX Index. The EURO STOXX Index Sponsor has no obligation to continue to publish, and may discontinue publication of, the EURO STOXX Index. We do not assume any responsibility for the accuracy or completeness of such information.

The EURO STOXX Index seeks to provide exposure to European large capitalization equity securities. The EURO STOXX Index universe is defined as all components of the 18 Dow Jones EURO STOXX Supersector Indices. The Dow Jones EURO STOXX Supersector Indices represent the Eurozone portion of the Dow Jones STOXX Total Market Index (the “Dow Jones STOXX TMI”), which in turn covers 95% of the total market capitalization of the stocks traded on the major exchanges of 17 European countries. The EURO STOXX Index universe includes Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. The stocks that compose the EURO STOXX Index are traded in Euros and in other European currencies.

For each of the 18 Dow Jones EURO STOXX Supersector Indices, the component stocks are ranked by free-float market capitalization. The largest stocks are added to the selection list until the coverage is close to, but still less than, 60% of the free-float market capitalization of the corresponding
Dow Jones STOXX TMI Supersector index. If the next-ranked stock brings the coverage closer to 60% in absolute terms, then it is also added to the selection list.

Any remaining stocks that are currently components of the EURO STOXX Index are added to the selection list. The stocks on the selection list are ranked by free-float market capitalization. In exceptional cases, the EURO STOXX Index Sponsor’s Supervisory Board may make additions and deletions to the selection list.

The 40 largest stocks on the selection list are chosen as components. Any remaining current components of the EURO STOXX Index ranked between 41 and 60 are added as EURO STOXX Index components. If the component number is still below 50, then the largest stocks on the selection list are added until the EURO STOXX Index contains 50 stocks. The EURO STOXX Index composition is reviewed annually in September and is subject to change.

The EURO STOXX Index is weighted by free-float market capitalization. Each component’s weight is capped at 10% of the EURO STOXX Index’s total free-float market capitalization. Weights are reviewed quarterly and are also subject to change in response to specific events affecting the EURO STOXX Index component stocks.

The EURO STOXX Index is denominated in Euros. The EURO STOXX Index Return will be calculated based on the closing levels of the EURO STOXX Index, as reported by Bloomberg L.P. under ticker symbol “SX5E.”

License Agreement

We have entered into a non-exclusive license agreement with the EURO STOXX Index Sponsor, which grants us a license in exchange for a fee to use the EURO STOXX Index in connection with the issuance of certain securities, including the notes.

“Dow Jones EURO STOXX 50®” is a service mark of the EURO STOXX Index Sponsor. The EURO STOXX Index Sponsor has no relationship to Royal Bank, other than the licensing of the EURO STOXX Index and its service marks for use in connection with the notes.

The EURO STOXX Index Sponsor does not:

- Sponsor, endorse, sell or promote the notes.
- Recommend that any person invest in the notes or any other financial products.
- Have any responsibility or liability for or make any decisions about the timing, amount or pricing of the notes.
- Have any responsibility or liability for the administration, management or marketing of the notes.
- Consider the needs of the notes or the owners of the notes in determining, composing or calculating the EURO STOXX Index or have any obligation to do so.

The EURO STOXX Index Sponsor will not have any liability in connection with the notes. Specifically, the EURO STOXX Index Sponsor does not make any warranty, express or implied, and the EURO STOXX Index Sponsor disclaims any warranty about:
• the results to be obtained by the notes, the owner of the notes or any other person in connection with the use of the EURO STOXX Index and the data included in the EURO STOXX Index;

• the accuracy or completeness of the EURO STOXX Index or its data;

• the merchantability and the fitness for a particular purpose or use of the EURO STOXX Index or its data;

• any errors, omissions or interruptions in the EURO STOXX Index or its data; and

• any lost profits or indirect, punitive, special or consequential damages or losses, even if the EURO STOXX Index Sponsor knows that they might occur.

The licensing relating to the use of the EURO STOXX Index and trademark referred to above by Royal Bank is solely for the benefit of Royal Bank, and not for any other third parties.

**Dow Jones Industrial Average® Index**

We have derived all information regarding the Dow Jones Industrial Average (the “DJIA Index”) contained in this reference asset supplement from publicly available information. Such information reflects the policies of, and is subject to change by, Dow Jones & Company, Inc. (“Dow Jones”). Dow Jones owns the copyright and all other rights to the DJIA Index. Dow Jones has no obligation to continue to publish, and may discontinue publication of, the DJIA Index. We do not assume any responsibility for the accuracy or completeness of such information.

The DJIA Index is a benchmark of performance for leading companies in the U.S. stock market. The DJIA Index consists of 30 “blue-chip” U.S. stocks, although this has not always been the case. The number of stocks in the DJIA Index was 12 in 1896, rose to 20 in 1916, then to 30 in 1928, and has been at that level ever since.

The DJIA Index is calculated by adding up the prices of the 30 constituent stocks and dividing the total by a divisor. The divisor is now a number that reflects adjustments over time resulting from spin-offs, stock splits, stock dividends and other corporate actions, as well as additions and deletions to the DJIA Index. The adjustments to the divisor also allow the DJIA Index calculation to remain comparable over time.

According to Dow Jones, the composition of the DJIA Index is determined at the discretion of the editors of The Wall Street Journal. While there are no rules for component selection, a stock typically is added only if it has an excellent reputation, demonstrates sustained growth, is of interest to a large number of investors and accurately represents the sector(s) covered by the average. The DJIA Index is not limited to traditionally defined industrial stocks. Instead, the DJIA Index serves as a measure of the entire U.S. market, covering such diverse industries as financial services, technology, retail, entertainment and consumer goods.

For the sake of continuity, changes to the composition of the DJIA Index are rare, and generally occur only after corporate acquisitions or other dramatic shifts in a component’s core business. When such an event necessitates that one component be replaced, the entire DJIA Index is reviewed by the editors of The Wall Street Journal. As a result, multiple component changes are often implemented simultaneously.
License Agreement

We have entered into a non-exclusive license agreement with Dow Jones, which grants us a license in exchange for a fee to use the DJIA Index in connection with the issuance of certain securities, including the notes.

“Dow Jones” and “Dow Jones Industrial AverageSM” are service marks of Dow Jones and have been licensed for use for certain purposes by Royal Bank.

The notes are not sponsored, endorsed, sold or promoted by Dow Jones. Dow Jones makes no representation or warranty, express or implied, to the owners of the notes or any member of the public regarding the advisability of investing in securities generally or in the notes particularly. Dow Jones’ only relationship to Royal Bank is the licensing of certain trademarks, trade names and service marks of Dow Jones and of the Dow Jones Industrial AverageSM, which is determined, composed and calculated by Dow Jones without regard to Royal Bank or the notes. Dow Jones has no obligation to take the needs of Royal Bank or the owners of the notes into consideration in determining, composing or calculating the Dow Jones Industrial AverageSM. Dow Jones is not responsible for and has not participated in the determination of the timing of, prices at, or quantities of the notes to be issued or in the determination or calculation of the equation by which the notes are to be converted into cash. Dow Jones has no obligation or liability in connection with the administration, marketing or trading of the notes.

DOW JONES DOES NOT GUARANTEE THE ACCURACY AND/OR THE COMPLETENESS OF THE DOW JONES INDUSTRIAL AVERAGESM OR ANY DATA INCLUDED THEREIN AND DOW JONES SHALL HAVE NO LIABILITY FOR ANY ERRORS, OMISSIONS, OR INTERRUPTIONS THEREIN. DOW JONES MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO RESULTS TO BE OBTAINED BY ROYAL BANK, OWNERS OF THE SECURITIES, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE DOW JONES INDUSTRIAL AVERAGESM OR ANY DATA INCLUDED THEREIN. DOW JONES MAKES NO EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIMS ALL WARRANTIES, OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE WITH RESPECT TO THE DOW JONES INDUSTRIAL AVERAGESM OR ANY DATA INCLUDED THEREIN. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT SHALL DOW JONES HAVE ANY LIABILITY FOR ANY LOST PROFITS OR INDIRECT, PUNITIVE, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSSES, EVEN IF NOTIFIED OF THE POSSIBILITY THEREOF. THERE ARE NO THIRD PARTY BENEFICIARIES OF ANY AGREEMENTS OR ARRANGEMENTS BETWEEN DOW JONES AND ROYAL BANK.

The FTSE™ 100 Index

The FTSE™ 100 Index is a capitalization-weighted index and consists of the 100 most highly capitalized companies traded on the London Stock Exchange (the “Exchange”). The FTSE™ 100 Index was developed with a base value of 1,000 as of January 3, 1984 and is maintained by FTSE International Limited. To qualify for inclusion in the FTSE™ 100 Index, companies must have a full listing on the Exchange with a Sterling or Euro denominated price, subject to eligibility screens. The FTSE Europe/Middle East/Africa Regional (“EMEA”) Committee meets quarterly, on the Wednesday after the first Friday in March, June, September and December, to review the constituents of the FTSE™ 100 Index. A constant number of constituents are maintained for the FTSE™ 100 Index.

Computation of the FTSE™ 100 Index

For the purposes of computing the FTSE™ 100 Index, the number of shares in issue for each constituent security is expressed to the nearest share and, to prevent a large number of insignificant weighting changes, the number of shares in issue for each constituent security is amended only when the...
total shares in issue held within the index system changes by more than 1% on a cumulative basis. Changes are made quarterly after the close of business on the third Friday of March, June, September and December. However, if a corporate action is applied to a FTSE™ 100 Index constituent which involves a change in the number of shares in issue, the change in shares will be applied simultaneously with the corporate action, and if accumulated changes in the number of shares in issue add up to 10% or more, or when an accumulated share change represents US$2 billion of a company’s total market capitalization, such changes are implemented between quarters. A minimum of 4 days notice is given to users of the FTSE™ 100 Index. WM/Reuters Spot Rates are used to convert the market capitalization into U.S. dollars. The US$2 billion threshold may be adjusted annually in December by the FTSE Equity Indices Committee, and such adjustment would be applied for the first time at the next review in March of the following year.

The FTSE™ 100 Index is calculated in real-time and published every 15 seconds during the FTSE™ 100 Index opening hours, using real time prices. The FTSE™ 100 Index return is calculated based on the closing levels of the FTSE™ 100 Index, as reported by Bloomberg L.P. The FTSE™ 100 Index is calculated by: (i) multiplying the per share price of each stock included in the FTSE™ 100 Index by the number of outstanding shares; (ii) calculating the sum of all these products (such sum, the “FTSE Aggregate Market Value”) as of the starting date of the FTSE™ 100 Index; (iii) dividing the FTSE Aggregate Market Value by a divisor which represents the FTSE Aggregate Market Value on the base date of the FTSE™ 100 Index and which can be adjusted to allow changes in the issued share capital of individual underlying stocks including the deletion and addition of stocks, the substitution of stocks, stock dividends and stock splits to be made without distorting the FTSE™ 100 Index; and (iv) multiplying the result by 1000.

License Agreement

The securities are not in any way sponsored, endorsed, sold or promoted by FTSE International Limited or by the London Stock Exchange Plc or by The Financial Times Limited (“FT”) and neither FTSE International Limited nor London Stock Exchange Plc nor FT makes any warranty or representation whatsoever, expressly or impliedly, either as to the results to be obtained from the use of the FTSESM 100 Index and/or the figure at which the said index stands at any particular time on any particular day or otherwise. The FTSESM 100 Index is compiled and calculated by FTSE. However, neither FTSE nor London Stock Exchange Plc nor FT shall be liable (whether in negligence or otherwise) to any person for any error in the FTSESM 100 Index and neither FTSE or London Stock Exchange Plc or FT shall be under any obligation to advise any person of any error therein.

“FTSE® “, “FT-SE® “ and “Footsie® “ are trade marks of the London Stock Exchange Plc and The Financial Times Limited and are used by FTSE International Limited under license. “All-World”, “All-Share” and “All-Small” and “FTSE4Good” are trade marks of FTSE International Limited.

FTSE/ JSE Africa

Africa Top 40 Index

We have obtained all information regarding the Africa Top 40 Index contained in this reference asset supplement, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. That information reflects the policies of, and is subject to change by the FTSE/JSE. We do not assume any responsibility for the accuracy or completeness of such information. FTSE/JSE have no obligation to continue to publish the Africa Top 40 Index, and may discontinue publication of the Africa Top 40 Index at any time.

The Africa Top 40 Index is a free float-adjusted market capitalization index that is designated to represent the performance of the 40 largest South African companies which are constituents of the
FTSE/JSE Africa All Shares Index, ranked by full market value. The index is calculated in real time and is a part of a series of indices sponsored by FTSE/JSE called the “FTSE/JSE Africa Index Series”.

Selection of Component Stocks Included in the Africa Top 40 Index

The Africa Top 40 Index is maintained by the FTSE/JSE Advisory Committee, whose members are selected for having specific expertise. The goal of this committee is to represent the interests of the industry generally.

Factors for Stock Selection. The FTSE/JSE Advisory Committee undertakes an index construction process which considers eligibility, free float and liquidity in determining which constituent companies should be included in the Africa Top 40 Index.

(i) Eligibility. The following securities are eligible for inclusion in the Africa Top 40 Index subject to the free float and liquidity requirements:

- All classes of ordinary shares in issue.
- Companies that have a full listing on the main board of the JSE Securities Exchange South Africa.
- A security listed on the JSE Securities exchange and traded on the JSE trading system.
- Companies whose business is that of holding equity and other investments.

The following securities are not eligible or are partially eligible for inclusion in the Africa Top 40 Index:

- Companies which are listed on other African Stock Exchanges, and are using a trading system sanctioned by the JSE, will be eligible for inclusion in relevant index category forming part of the FTSE/JSE Africa Index Series.
- Companies listed on secondary markets may be included in the category for secondary markets, but will not be included in any other indices.
- Convertible preference shares and loan stocks are excluded until converted.
- Investment funds which have been assessed by the FTSE Global Classification Committee as being in sectors, coded 890.
- Exchange Traded Funds and funds whose prices are a direct derivation of underlying holdings.

(ii) Free Float. The entire quoted equity capital of a constituent company is included in the calculation of its market capitalization, subject to free float restrictions. Free float restrictions are calculated using available published information.

Free Float Restrictions:

- Trade investments in an index constituent either by another constituent or non-constituent company or entity;
- Significant long term holdings by founders, their families and/or directors;
• Employee share schemes;

• Government holdings;

• Foreign ownership limits; and Portfolio investments subject to a lock in clause, for the duration of that clause.

(iii) **Liquidity.** Securities must be sufficiently liquid to be traded. The following criteria are used to ensure that illiquid securities are excluded:

• **Reliable Price:** The FTSE/JSE Advisory Committee must be satisfied that an accurate and reliable price exists for the purpose of determining the market value of a company.

• **Size:** All eligible listed companies will be included in the Africa Top 40 Index. The FTSE/JSE Advisory Committee will review the companies, which are proposed to be included at its quarterly meetings. The 40 largest eligible companies ranked by full market capitalization, comprising 99% of all companies will be included.

• **Liquidity:** Securities which do not turnover at least .5% of their shares in issue, after the application of any free float restrictions, per month in at least ten of the twelve months prior to an annual review in December by the FTSE/JSE Advisory Committee will not be eligible for inclusion in the indices for the next 12 months. An existing constituent failing to trade at least .5% of its shares in issue, after the application of any free float restrictions, per month, for more than four of the 12 months prior to the annual review will be removed.

**Periodic Reviews of Constituent Companies**

The Africa Top 40 Index is reviewed by the FTSE/JSE Advisory Committee on a quarterly basis for the purpose of reviewing the constituent companies and implementing any necessary changes. A security will be inserted into the Africa Top 40 Index at a periodic review if it rises above the 34th position based on full market value. A security will be deleted from the Africa Top 40 Index at a periodic review if it falls below the 45th position based on full market value.

**Computation of the Africa Top 40 Index**

The Africa Top 40 Index is determined, comprised and calculated by FTSE/JSE without regard to the notes.

The Africa Top 40 Index is calculated and disseminated in real-time, with updates every 15 seconds. The Africa Top 40 Index computation is as follows: The Africa Top 40 Index Value equals the quotient of (i) the sum of the product of (x) the latest trade price of the $i^{th}$ component security or the closing price of the $i^{th}$ component security on that day, (y) the number of shares in issue used for the $i^{th}$ security, and (z) the free float factor, and (ii) the total issued share capital of the index at the base date.

The FTSE/JSE Advisory Committee makes operational adjustments to the Africa Top 40 Index that are intended to insure that the index level remains unchanged. The types of operational index adjustments that may occur are as follows:

• **De-listed:** If a constituent is de-listed from the JSE, or ceases to have a firm quotation, or is subject to a takeover or has, in the opinion of the Chairman and Deputy Chairman of the FTSE/JSE Advisory Committee (or their nominated deputies), ceased to be a viable constituent, it will be removed from the list of constituents and replaced by the highest
ranking company by full market capitalization eligible on the FTSE/JSE Top 40 Reserve List as at the close of the index calculation two days prior to deletion.

- **Merger or Takeover**: If the effect of a merger or takeover is that one constituent in the Africa Top 40 Index is absorbed by another constituent, the resulting company will remain a constituent of the appropriate index, and a vacancy will be created. This vacancy will be filled by selecting the highest ranking security in the FTSE/JSE Top 40 Reserve List. If a constituent company in the Africa Top 40 Index is taken over by a non-constituent company, the original constituent will be removed and replaced by the highest ranking non-constituent on the FTSE/JSE Top 40 Reserve List.

**FTSE/Xinhua China 25 Index™**

All information in this reference supplement regarding the FTSE/Xinhua China 25 Index™ (the “China 25 Index”), including, without limitation, its make-up, method of calculation and changes in its components, is derived from publicly available information. Such information reflects the policies of, and is subject to change by, FTSE Xinhua Index Limited or any of its affiliates (the “China 25 Index Sponsor”). The China 25 Index Sponsor owns the copyright and all other rights to the China 25 Index. The China 25 Index Sponsor has no obligation to continue to publish, and may discontinue publication of, the China 25 Index. We do not assume any responsibility for the accuracy or completeness of such information. Historical performance of the China 25 Index is not an indication of future performance. Future performance of the China 25 Index may differ significantly from historical performance, either positively or negatively.

The China 25 Index is designed to represent the performance of the mainland Chinese market that is available to international investors. The China 25 Index is a real-time index consisting of 25 of the largest and most liquid Chinese stocks (each, a “China 25 Index Constituent Stock”) listed and trading on the Hong Kong Stock Exchange (HKSE). The shares comprised by the China 25 Index are classified as “H Shares” or “Red Chip Shares.” H Shares are securities of companies incorporated in the People’s Republic of China and nominated by the Chinese Government for listing and trading on the HKSE. H Shares are quoted and traded in Hong Kong dollars (HKD). Like other securities trading on the HKSE, there are no restrictions on who can trade H Shares. Red Chip Shares are securities of Hong Kong incorporated companies that trade on the HKSE. These securities are quoted and traded in HKD. Red Chip Shares are shares of companies that are substantially owned directly or indirectly by the Chinese Government and have a majority of their business interests in mainland China. The China 25 Index is published every 15 seconds between 10:00 a.m. and 4:15 p.m., Hong Kong time, using last trade prices. End of day data is as of 4:30 p.m. The China 25 Index is not calculated on Hong Kong public holidays.

The China 25 Index is calculated using the free float index calculation methodology of FTSE Group. The index is calculated using the following formula:

\[(\Sigma P(N)E(N)S(N)F(N)C(N)) / D\]

where P is the latest trade price of the component security N, E is the exchange rate required to convert the security’s home currency into the index’s base currency, S is the number of shares of the security in issue, F is the portion of free floating shares, adjusted in accordance with the policies of the China 25 Index Sponsor, C is the capping factor published by the China 25 Index Sponsor at the most recent quarterly review of the index, and D is the divisor, a figure that represents the total issued share capital of the China 25 Index at the base date, which may be adjusted to allow for changes in the issued share capital of individual securities without distorting the index. The China 25 Index uses actual trade prices for securities with local stock exchange quotations and Reuters real-time spot currency rates for its calculations.
Under this methodology, the China 25 Index Sponsor excludes from free floating shares trade investments in a China 25 Index constituent company by another China 25 Index constituent company, significant long-term holdings by founders, directors and/or their families, employee share schemes (if restricted), government holdings, foreign ownership limits, and portfolio investments subject to lock-in clauses (for the duration of the clause). Free float restrictions are calculated using available published information. The initial weighting of a China 25 Index Constituent Stock is applied in bands, as follows:

<table>
<thead>
<tr>
<th>Free float</th>
<th>Initial weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than or equal to 15%</td>
<td>Ineligible for inclusion in the China 25 Index, unless free float is also greater than 5% and the full capitalization is greater than US$2.5 billion (or local currency equivalent), in which case actual free float is used.</td>
</tr>
<tr>
<td>greater than 15% but less than or equal to 20%</td>
<td>20%</td>
</tr>
<tr>
<td>greater than 20% but less than or equal to 30%</td>
<td>30%</td>
</tr>
<tr>
<td>greater than 30% but less than or equal to 40%</td>
<td>40%</td>
</tr>
<tr>
<td>greater than 40% but less than or equal to 50%</td>
<td>50%</td>
</tr>
<tr>
<td>greater than 50% but less than or equal to 75%</td>
<td>75%</td>
</tr>
<tr>
<td>greater than 75%</td>
<td>100%</td>
</tr>
</tbody>
</table>

These bands are narrow at the lower end, to ensure that there is sufficient sensitivity in order to maintain accurate representation, and broader at the higher end, in order to ensure that the weightings of larger companies do not fluctuate absent a significant corporate event. Following the application of an initial free float restriction, a China 25 Index Constituent Stock’s free float will only be changed if its actual free float is more than 5 percentage points above the minimum or 5 percentage points below the maximum of an adjacent band. This 5 percentage points threshold does not apply if the initial free float is less than 15%. Foreign ownership limits, if any, are applied after calculating the actual free float restriction, but before applying the bands shown above. If the foreign ownership limit is more restrictive than the free float restriction, the precise foreign ownership limit is applied. If the foreign ownership limit is less restrictive or equal to the free float restriction, the free float restriction is applied, subject to the bands shown above.

As of December 2005, the China 25 Index adopted a new classification system, the Industry Classification Benchmark (“ICB”). The ICB replaced the FTSE Global Classification System formerly used by the China 25 Index and covers over 45,000 securities worldwide. The new structure is a merger of FTSE Group and Dow Jones Indices’ industry classification systems, creating a single, definitive structure for the market. The primary purpose of the ICB is to provide a service to investors and other interested persons by grouping companies according to homogenous subsectors in such a way that general industrial and economic themes may be common to all companies in the sector. The sectors themselves will be aggregated into supersectors, which will be aggregated into industries.

The China 25 Index is periodically reviewed for changes in free float. These reviews coincide with the quarterly reviews undertaken of the China 25 Index. Implementation of any changes takes place after the close of the China 25 Index calculation on the third Friday in January, April, July and October. A stock’s free float is also reviewed and adjusted if necessary following certain corporate events. If the corporate event includes a corporate action which affects the China 25 Index, any change in free float is implemented at the same time as the corporate action. If there is no corporate action, the change in free float is applied as soon as practicable after the corporate event.

Stocks must be sufficiently liquid to be traded. The following criteria, among others, are used to ensure that illiquid stocks are excluded:

- **Price.** The China 25 Index Sponsor must be satisfied that an accurate and reliable price exists for the purposes of determining the market value of a company. The China 25 Index Sponsor may exclude a stock from the China 25 Index if it considers that an “accurate and reliable”
price is not available. The China 25 Index uses the last trade prices from the relevant stock exchanges, when available.

- **Liquidity.** Stocks in the China 25 Index will be reviewed annually for liquidity. Stocks that do not turn over at least 2% of their shares in issue, after the application of any free float restrictions, per month for ten of the twelve months prior to the quarterly review by the China 25 Index Sponsor will not be eligible for inclusion in the China 25 Index. An existing constituent failing to trade at least 2.0% of its shares in issue, after the application of any free float restrictions, per month for more than four of the twelve months prior to the quarterly review will be removed after close of the index calculation on the next trading day following the third Friday in January, April, July and October. Any period when a share is suspended will be excluded from the calculation.

- **New issues.** New issues must have a minimum trading record of at least 20 trading days prior to the date of the review and turnover of a minimum of 2% of their shares in issue, after the application of any free float restrictions, per month each month, except in certain circumstances.

The China 25 Index, like other indices of the China 25 Index Sponsor, is governed by an independent advisory committee that ensures that the index is operated in accordance with its published ground rules, and that the rules remain relevant to the China 25 Index.

**The Stock Exchange of Hong Kong Ltd**

Trading on the HKSE is fully electronic through an Automatic Order Matching and Execution System, which was introduced in November 1983. The system is an electronic order book in which orders are matched and executed instantaneously if there are matching orders in the book, and on the basis of time/price priority. Online real-time order entry and execution have eliminated the previous limitations of telephone-based trading. Trading takes place through trading terminals on the trading floor. There are no market-makers on the HKSE, but exchange dealers may act as dual capacity broker-dealers. Trading is undertaken from 9:30 a.m. to 4:00 p.m. (Hong Kong time) every Hong Kong day except Saturdays, Sundays and other days on which the HKSE is closed. Hong Kong time is 12 hours ahead of Eastern Daylight Savings Time and 13 hours ahead of Eastern Standard Time. Settlement of trade is required within 48 hours and is conducted by electronic book-entry delivery through the Central Clearing and Settlement System.

Due to the time differences between New York City and Hong Kong, on any normal trading day, trading on the HKSE currently will cease at 3:00 a.m. or 4:00 a.m., New York City time. Therefore, the closing level of the China 25 Index will generally be available in the United States by the opening of business on that business day.

The HKSE has adopted certain measures intended to prevent any extreme short-term price fluctuations resulting from order imbalances or market volatility. Where the HKSE considers it necessary for the protection of the investor or the maintenance of an orderly market, it may at any time suspend dealings in any securities or cancel the listing of any securities in such circumstances and subject to such conditions as it thinks fit, whether requested by the listed issuer or not. The HKSE may also do so where: (1) an issuer fails, in a manner which the HKSE considers material, to comply with the HKSE Listing Rules or its Listing Agreements; (2) the HKSE considers there are insufficient securities in the hands of the public; (3) the HKSE considers that the listed issuer does not have a sufficient level of operations or sufficient assets to warrant the continued listing of the issuer’s securities; or (4) the HKSE considers that the issuer or its business is no longer suitable for listing. Investors should also be aware that the HKSE may suspend the trading of individual stocks in certain limited and extraordinary circumstances, until certain price-sensitive information has been disclosed to the public. Trading will not be resumed until a
formal announcement has been made. Trading of a company’s shares may also be suspended if there is unusual trading activity in such shares.

An issuer may apply for suspension of its own accord. A suspension request will normally only be acceded to in the following circumstances: (1) where, for a reason acceptable to the HKSE, price-sensitive information cannot at that time be disclosed; (2) where the issuer is subject to an offer, but only where terms have been agreed in principle and require discussion with, and agreement by, one or more major shareholders (suspensions will only normally be appropriate where no previous announcement has been made); (3) to maintain an orderly market; (4) where there is an occurrence of certain levels of notifiable transactions, such as substantial changes in the nature, control or structure of the issuer, where publication of full details is necessary to permit a realistic valuation to be made of the securities concerned, or the approval of shareholders is required; (5) where the issuer is no longer suitable for listing, or becomes a “cash” company; or (6) for issuers going into receivership or liquidation. As a result of the foregoing, variations in the China 25 Index may be limited by suspension of trading of individual stocks which comprise the China 25 Index which may, in turn, adversely affect the value of the notes.

License Agreement

We have entered into a non-exclusive license agreement with the China 25 Index Sponsor, which allows us and our affiliates, in exchange for a fee, to use the China 25 Index in connection with the issuance of certain securities, including the notes. We are not affiliated with the China 25 Index Sponsor; the only relationship between the China 25 Index Sponsor and us is the licensing of the use of the China 25 Index and trademarks relating to the China 25 Index.

The notes are not in any way sponsored, endorsed, sold or promoted by the China 25 Index Sponsor, FTSE International Limited (“FTSE”) or Xinhua Financial Network Limited (“Xinhua”) or by the London Stock Exchange PLC (the “Exchange”) or by The Financial Times Limited (“FT”) and neither the China 25 Index Sponsor, FTSE, Xinhua nor Exchange nor FT makes any warranty or representation whatsoever, expressly or impliedly, either as to the results to be obtained from the use of the China 25 Index and/or the figure at which the China 25 Index stands at any particular time on any particular day or otherwise. The China 25 Index is compiled and calculated by or on behalf of the China 25 Index Sponsor. However, neither the China 25 Index Sponsor or FTSE or Xinhua or Exchange or FT shall be liable (whether in negligence or otherwise) to any person for any error in the China 25 Index and neither the China 25 Index Sponsor, FTSE, Xinhua or Exchange or FT shall be under any obligation to advise any person of any error therein.

“FTSE™” is a trade mark jointly owned by the London Stock Exchange PLC and The Financial Times Limited. “富時指數” is a trade mark of FTSE International Limited. “Xinhua” and “新華” are service marks and trade marks of Xinhua Financial Network Limited. All marks are licensed for use by FTSE/Xinhua Index Limited.

The S&P GSCI Excess Return Index and the S&P GSCI

The S&P GSCI Excess Return Index, originally established in May 1991 by The Goldman Sachs Group, Inc. and subsequently purchased by Standard and Poor’s in early 2007, reflects the excess returns that are potentially available through an unleveraged investment in the contracts composing the S&P GSCI. The S&P GSCI Excess Return Index is a sub-index of the S&P GSCI. The Index is a sub-index of the S&P GSCI Excess Return Index and is comprised solely of those agricultural commodities futures contracts included in the S&P GSCI Excess Return Index.

The value of the S&P GSCI, on any given day, reflects
• the price levels of the contracts included in the S&P GSCI (which represents the value of the S&P GSCI); and

• the “contract daily return,” which is the percentage change in the total dollar weight of the S&P GSCI from the previous day to the current day.

Each of these components is described below.

The S&P GSCI is an index on a production weighted basket of principal non-financial commodities (i.e., physical commodities) that satisfy specified criteria. The S&P GSCI is designed to be a measure of the performance over time of the markets for these commodities. The only commodities represented in the S&P GSCI are those physical commodities on which active and liquid contracts are traded on trading facilities in major industrialized countries. The commodities included in the S&P GSCI are weighted, on a production basis, to reflect the relative significance of such commodities to the world economy. The fluctuations in the value of the S&P GSCI are intended generally to correlate with changes in the prices of such physical commodities in global markets. The S&P GSCI was established in 1991 and has been normalized so that its hypothetical level on January 2, 1970 was 100. Futures contracts on the S&P GSCI, and options on such futures contracts, are currently listed for trading on the Chicago Mercantile Exchange.

Set forth below is a summary of the composition of and the methodology used to calculate the S&P GSCI as of the date of this reference asset supplement. The methodology for determining the composition and weighting of the S&P GSCI and for calculating its value is subject to modification in a manner consistent with the purposes of the S&P GSCI, as described below. The Index Sponsor makes the official calculations of the S&P GSCI. At present, this calculation is performed continuously and is reported on Reuters page GSCI (or any successor or replacement page) and is updated on Reuters at least once every three minutes during business hours on each day on which the offices of the Index Sponsor in New York City are open for business, which we refer to as a “S&P GSCI Business Day” for the purposes of this description. The settlement price for the S&P GSCI Excess Return Index is also reported on Reuters page S&P GSCI (or any successor or replacement page) at the end of each S&P GSCI Business Day.

The Index Committee and the Index Advisory Panel

The Index Sponsor has established an Index Committee (the “Index Committee”) to oversee the daily management and operations of the S&P GSCI, and is responsible for all analytical methods and calculation in the indices. The Index Committee is comprised of three full-time professional members of the Index Sponsor’s staff and two members of Goldman Sachs Group. At each meeting, the Index Committee reviews any issues that may affect index constituents, statistics comparing the composition of the indices to the market, commodities that are being considered as candidates for addition to an index, and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting commodities, or other matters. The Index Sponsor considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

The Index Sponsor has established an Index Advisory Panel (the “Panel”) to assist it in connection with the operation of the S&P GSCI. The Panel meets on an annual basis and at other times at the request of the Index Sponsor. The principal purpose of the Panel is to advise the Index Sponsor with respect to, among other things, the calculation of the S&P GSCI, the effectiveness of the S&P GSCI as a measure of commodity futures market performance and the need for changes in the composition or methodology of the S&P GSCI. The Panel acts solely in an advisory and consultative capacity; all decisions with respect to the composition, calculation and operation of the S&P GSCI are made by the Index Sponsor. Also, certain of the members of the Panel may be affiliated with entities which from time to
time may be invested in the S&P GSCI, either through transactions in the contracts included in the S&P GSCI, futures contracts on the S&P GSCI or derivative products linked to the S&P GSCI.

Composition of the S&P GSCI

In order to be included in the S&P GSCI, a contract must satisfy the following eligibility criteria:

- The contract must be in respect of a physical commodity and not a financial commodity.
- In addition, the contract must:
  - have a specified expiration or term or provide in some other manner for delivery or settlement at a specified time, or within a specified period, in the future; and
  - at any given point in time, be available for trading at least five months prior to its expiration or such other date or time period specified for delivery or settlement.

The commodity must be the subject of a contract that:

- is denominated in U.S. dollars;
- is traded on or through an exchange, facility or other platform (referred to as a “trading facility”) that has its principal place of business or operations in a country which is a member of the Organization for Economic Cooperation and Development and that:
  - makes price quotations generally available to its members or participants (and, if the Index Sponsor is not such a member or participant, to the Index Sponsor) in a manner and with a frequency that is sufficient to provide reasonably reliable indications of the level of the relevant market at any given point in time;
  - makes reliable trading volume information available to the Index Sponsor with at least the frequency required by the Index Sponsor to make the monthly determinations;
  - accepts bids and offers from multiple participants or price providers; and
  - is accessible by a sufficiently broad range of participants.

The price of the relevant contract that is used as a reference or benchmark by market participants (referred to as the “daily contract reference price”) generally must have been available on a continuous basis for at least two years prior to the proposed date of inclusion in the S&P GSCI. In appropriate circumstances, however, the Index Sponsor, in consultation with its Index Committee, may determine that a shorter time period is sufficient or that historical daily contract reference prices for such contract may be derived from daily contract reference prices for a similar or related contract. The daily contract reference price may be (but is not required to be) the settlement price or other similar price published by the relevant trading facility for purposes of margining transactions or for other purposes.

At and after the time a contract is included in the S&P GSCI, the daily contract reference price for such contract must be published between 10:00 A.M. and 4:00 P.M., New York City time, on each business day relating to such contract by the trading facility on or through which it is traded and must generally be available to all members of, or participants in, such facility (and, if the Index Sponsor is not such a member or participant, to the Index Sponsor) on the same day from the trading facility or through a recognized third-party data vendor. Such publication must include, at all times, daily contract reference
prices for at least one expiration or settlement date that is five months or more from the date the
determination is made, as well as for all expiration or settlement dates during such five-month period.

For a contract to be eligible for inclusion in the S&P GSCI, volume data with respect to
such contract must be available for at least the three months immediately proceeding the date on which the
determination is made.

A contract that is:

- not included in the S&P GSCI at the time of determination and that is based on a commodity
  that is not represented in the S&P GSCI at such time must, in order to be added to the S&P
  GSCI at such time, have a total dollar value traded, over the relevant period, as the case may
  be and annualized, of at least US$15 billion. The total dollar value traded is the dollar value
  of the total quantity of the commodity underlying transactions in the relevant contract over the
  period for which the calculation is made, based on the average of the daily contract reference
  prices on the last day of each month during the period.

- already included in the S&P GSCI at the time of determination and that is the only contract on
  the relevant commodity included in the S&P GSCI must, in order to continue to be included
  in the S&P GSCI after such time, have a total dollar value traded, over the relevant period, as
  the case may be and annualized, of at least US$5 billion and at least US$10 billion during at
  least one of the three most recent annual periods used in making the determination.

- not included in the S&P GSCI at the time of determination and that is based on a commodity
  on which there are one or more contracts already included in the S&P GSCI at such time
  must, in order to be added to the S&P GSCI at such time, have a total dollar value traded,
  over the relevant period, as the case may be and annualized of at least US$30 billion.

- already included in the S&P GSCI at the time of determination and that is based on a
  commodity on which there are one or more contracts already included in the S&P GSCI at
  such time must, in order to continue to be included in the S&P GSCI after such time, have a
  total dollar value traded, over the relevant period, as the case may be and annualized, of at
  least US$10 billion and at least US$20 billion during at least one of the three most recent
  annual periods used in making the determination.

A contract that is already included in the S&P GSCI at the time of determination must, in
order to continue to be included after such time, have a reference percentage dollar weight of at least
0.10%. The reference percentage dollar weight of a contract is determined by multiplying the CPW
(defined below) of a contract by the average of its daily contract reference prices on the last day of each
month during the relevant period. These amounts are summed for all contracts included in the S&P GSCI
and each contract’s percentage of the total is then determined. A contract that is not included in the S&P
GSCI at the time of determination must, in order to be added to the S&P GSCI at such time, have a
reference percentage dollar weight of at least 1.00%.

In the event that two or more contracts on the same commodity satisfy the eligibility
criteria, such contracts will be included in the S&P GSCI in the order of their respective total quantity
traded during the relevant period (determined as the total quantity of the commodity underlying
transactions in the relevant contract), with the contract having the highest total quantity traded being
included first, provided that no further contracts will be included if such inclusion would result in the
portion of the S&P GSCI attributable to such commodity exceeding a particular level. If additional
contracts could be included with respect to several commodities at the same time, that procedure is first
applied with respect to the commodity that has the smallest portion of the S&P GSCI attributable to it at the
time of determination. Subject to the other eligibility criteria set forth above, the contract with the highest
The contracts currently included in the S&P GSCI are all futures contracts traded on the New York Mercantile Exchange, Inc., the International Petroleum Exchange, the Chicago Mercantile Exchange, the Chicago Board of Trade, the Coffee, Sugar & Cocoa Exchange, Inc., the New York Cotton Exchange, the Kansas City Board of Trade, the Commodities Exchange Inc. and the London Metal Exchange.

The futures contracts currently included in the S&P GSCI, their percentage dollar weights (“PDW”), their market symbols, the exchanges on which they are traded and their contract production weights for 2007 are:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Current PDW*</th>
<th>Market Symbol</th>
<th>Trading Facility</th>
<th>2007 CPW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat (Chicago)</td>
<td>4.41</td>
<td>W</td>
<td>Agricultural</td>
<td>15780.51</td>
</tr>
<tr>
<td>Wheat (Kansas City)</td>
<td>1.52</td>
<td>KW</td>
<td>Agricultural</td>
<td>5505.581</td>
</tr>
<tr>
<td>Corn</td>
<td>2.86</td>
<td>C</td>
<td>Agricultural</td>
<td>24061.91</td>
</tr>
<tr>
<td>Soybeans</td>
<td>1.98</td>
<td>S</td>
<td>Agricultural</td>
<td>6365.684</td>
</tr>
<tr>
<td>Coffee</td>
<td>0.69</td>
<td>KC</td>
<td>Agricultural</td>
<td>16286.43</td>
</tr>
<tr>
<td>Sugar</td>
<td>1.00</td>
<td>SB</td>
<td>Agricultural</td>
<td>309910.4</td>
</tr>
<tr>
<td>Cocoa</td>
<td>0.21</td>
<td>CC</td>
<td>Agricultural</td>
<td>3.2188</td>
</tr>
<tr>
<td>Cotton</td>
<td>0.89</td>
<td>CT</td>
<td>Agricultural</td>
<td>42063.77</td>
</tr>
<tr>
<td>Lean Hogs</td>
<td>1.20</td>
<td>LH</td>
<td>Livestock</td>
<td>59656.22</td>
</tr>
<tr>
<td>Cattle (Live Cattle)</td>
<td>2.50</td>
<td>LC</td>
<td>Livestock</td>
<td>77822.17</td>
</tr>
<tr>
<td>Cattle (Feeder Cattle)</td>
<td>0.57</td>
<td>FC</td>
<td>Livestock</td>
<td>15302.12</td>
</tr>
<tr>
<td>RBOB Gas</td>
<td>1.27</td>
<td>QU</td>
<td>Energy</td>
<td>19369.38</td>
</tr>
<tr>
<td>Heating Oil</td>
<td>5.93</td>
<td>HO</td>
<td>Energy</td>
<td>82735.08</td>
</tr>
<tr>
<td>Gasoil</td>
<td>5.21</td>
<td>QS</td>
<td>Energy</td>
<td>231.3952</td>
</tr>
<tr>
<td>Crude Oil</td>
<td>36.94</td>
<td>CL</td>
<td>Energy</td>
<td>143231.18</td>
</tr>
<tr>
<td>Oil (Brent Crude Oil)</td>
<td>14.76</td>
<td>LCO</td>
<td>Energy</td>
<td>585283.33</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>6.61</td>
<td>NG</td>
<td>Energy</td>
<td>28946.93</td>
</tr>
<tr>
<td>High Grade Primary</td>
<td>2.52</td>
<td>IA</td>
<td>Metals</td>
<td>331836</td>
</tr>
<tr>
<td>Aluminium</td>
<td>2.52</td>
<td>IA</td>
<td>Metals</td>
<td>331836</td>
</tr>
<tr>
<td>Copper — Grade A</td>
<td>3.90</td>
<td>IC</td>
<td>Metals</td>
<td>15.18</td>
</tr>
<tr>
<td>Standard Lead</td>
<td>0.74</td>
<td>IL</td>
<td>Metals</td>
<td>6.594</td>
</tr>
<tr>
<td>Primary Nickel</td>
<td>1.21</td>
<td>IN</td>
<td>Metals</td>
<td>1.152</td>
</tr>
<tr>
<td>Special High Grade Zinc</td>
<td>0.87</td>
<td>IZ</td>
<td>Metals</td>
<td>9.302</td>
</tr>
<tr>
<td>Gold</td>
<td>1.96</td>
<td>GC</td>
<td>Metals</td>
<td>83.14184</td>
</tr>
<tr>
<td>Silver</td>
<td>0.25</td>
<td>SI</td>
<td>Metals</td>
<td>584.5006</td>
</tr>
</tbody>
</table>

*Percentage dollar weights as of September 24, 2007.

The quantity of each of the contracts included in the S&P GSCI is determined on the basis of a five-year average (referred to as the “world production average”) of the production quantity of the underlying commodity as published by the United Nations Statistical Yearbook, the Industrial Commodity Statistics Yearbook and other official sources. However, if a commodity is primarily a regional commodity, based on its production, use, pricing, transportation or other factors, the Index Sponsor, in consultation with the Index Committee, may calculate the weight of such commodity based on
regional, rather than world, production data. At present, natural gas is the only commodity the weights of which are calculated on the basis of regional production data, with the relevant region defined as North America.

The five-year moving average is updated annually for each commodity included in the S&P GSCI, based on the most recent five-year period (ending approximately two years prior to the date of calculation and moving backwards) for which complete data for all commodities is available. The contract production weights, or CPWs, used in calculating the S&P GSCI are derived from world or regional production averages, as applicable, of the relevant commodities, and are calculated based on the total quantity traded for the relevant contract and the world or regional production average, as applicable, of the underlying commodity. However, if the volume of trading in the relevant contract, as a multiple of the production levels of the commodity, is below specified thresholds, the CPW of the contract is reduced until the threshold is satisfied. This is designed to ensure that trading in each such contract is sufficiently liquid relative to the production of the commodity.

In addition, the Index Sponsor performs this calculation on a monthly basis and, if the multiple of any contract is below the prescribed threshold, the composition of the S&P GSCI is reevaluated, based on the criteria and weighting procedure described above. This procedure is undertaken to allow the S&P GSCI to shift from contracts that have lost substantial liquidity into more liquid contracts, during the course of a given year. As a result, it is possible that the composition or weighting of the S&P GSCI will change on one or more of these monthly evaluation dates. In addition, regardless of whether any changes have occurred during the year, the Index Sponsor reevaluates the composition of the S&P GSCI, in consultation with the Index Committee, at the conclusion of each year, based on the above criteria. Other commodities that satisfy such criteria, if any, will be added to the S&P GSCI. Commodities included in the S&P GSCI which no longer satisfy such criteria, if any, will be deleted.

The Index Sponsor, in consultation with the Index Committee, also determines whether modifications in the selection criteria or the methodology for determining the composition and weights of and for calculating the S&P GSCI are necessary or appropriate in order to assure that the S&P GSCI represents a measure of commodity market performance. The Index Sponsor has the discretion to make any such modifications in consultation with the Index Committee. Upon request, the Index Sponsor will disclose to any investor any such modifications that are made. Requests should be directed to the Index Sponsor at the following address: Standard & Poor’s, 55 Water Street, New York, NY 10041.

Contract Expirations

Because the S&P GSCI comprises actively traded contracts with scheduled expirations, it can only be calculated by reference to the prices of contracts for specified expiration, delivery or settlement periods, referred to as “contract expirations”. The contract expirations included in the S&P GSCI for each commodity during a given year are designated by the Index Sponsor, provided that each such contract must be an “active contract”. An “active contract” for this purpose is a liquid, actively traded contract expiration, as defined or identified by the relevant trading facility or, if no such definition or identification is provided by the relevant trading facility, as defined by standard custom and practice in the industry.

If a trading facility deletes one or more contract expirations, the S&P GSCI will be calculated during the remainder of the year in which such deletion occurs on the basis of the remaining contract expirations designated by the Index Sponsor. If a trading facility ceases trading in all contract expirations relating to a particular contract, the Index Sponsor may designate a replacement contract on the commodity. The replacement contract must satisfy the eligibility criteria for inclusion in the S&P GSCI. To the extent practicable, the replacement will be effected during the next monthly review of the composition of the S&P GSCI. If that timing is not practicable, the Index Sponsor will determine the date of the replacement and will consider a number of factors, including the differences between the existing contract and the replacement contract with respect to contractual specifications and contract expirations.
License Agreement

Standard & Poor’s®, S&P®, and S&P GSCI® are trademarks of The McGraw-Hill Companies, Inc. and have been licensed for use by Royal Bank. The S&P GSCI® and the S&P GSCI® Agriculture Excess Return Index are not owned, endorsed or approved by or associated with Goldman Sachs & Co. or its affiliated companies. The Notes are not sponsored, endorsed, sold or promoted by Standard & Poor’s, a division of The McGraw-Hill Companies, Inc., and Standard & Poor’s does not make any representation regarding the advisability of investing in the Notes.

We have entered into a non-exclusive license agreement with Standard & Poor’s, a division of The McGraw-Hill Companies, Inc. (the “Licensor”), which allows us and our affiliates, in exchange for a fee, to use the Index in connection with the issuance of certain securities, including the Notes. We are not affiliated with the Licensor; the only relationship between the Licensor and us is the licensing of the use of the Index and trademarks relating to the Index.

The Licensor is under no obligation to continue the calculation and dissemination of the S&P GSCI® or any subindices (individually and collectively, the “S&P GSCI Index”). The Notes are not sponsored, endorsed, sold or promoted by the Licensor. No inference should be drawn from the information contained in this reference asset supplement that the Licensor makes any representation or warranty, implied or express, to us, any holder of the Notes or any member of the public regarding the advisability of investing in securities generally or in the Notes in particular or the ability of the Index to track commodities futures prices generally.

The Licensor determines, composes and calculates the S&P GSCI Index without regard to the Notes. The Licensor has no obligation to take into account your interest, or that of anyone else having an interest, in the Notes in determining, composing or calculating the S&P GSCI Index. The Licensor is not responsible for, and has not participated in the determination of, the terms, prices or amount of the Notes and will not be responsible for, or participate in, any determination or calculation regarding the principal amount of the Notes payable at maturity. The Licensor has no obligation or liability in connection with the administration, marketing or trading of the Notes.

The Licensor disclaims all responsibility for any errors or omissions in the calculation and dissemination of the S&P GSCI Index or the manner in which the S&P GSCI Index is applied in determining the Initial Index Level or the Final Index Level or any amount payable upon maturity of the Notes.

The Notes are not sponsored, endorsed, sold or promoted by the Licensor. The Licensor does not make any representation or warranty, express or implied, to the holders of the Notes or any member of the public regarding the advisability of investing in securities generally or in the Notes particularly or the ability of the S&P GSCI Index to track general commodity market performance. The Licensor’s only relationship to Royal Bank is the licensing of certain trademarks and trade names of the Licensor and of the S&P GSCI Index, which is determined, composed and calculated by the Licensor without regard to Royal Bank or the Notes. The Licensor has no obligation to take the needs of Royal Bank or the holders of the Notes into consideration in determining, composing or calculating the S&P GSCI Index. The Licensor is not responsible for and has not participated in the determination of the timing of, prices at, or quantities of the Notes to be issued or in the determination or calculation of the equation by which the Notes are to be converted into cash. The Licensor has no obligation or liability in connection with the administration, marketing or trading of the Notes.

THE LICENSOR DOES NOT GUARANTEE THE ACCURACY AND/OR THE COMPLETENESS OF THE S&P GSCI INDEX OR ANY DATA INCLUDED THEREIN AND S&P SHALL HAVE NO LIABILITY FOR ANY ERRORS, OMISSIONS, OR INTERRUPTIONS THEREIN. THE LICENSOR MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO
RESULTS TO BE OBTAINED BY ROYAL BANK, HOLDERS OF THE NOTES OR ANY OTHER
PERSON OR ENTITY FROM THE USE OF THE S&P GSCI INDEX OR ANY DATA INCLUDED
THEREIN. THE LICENSOR MAKES NO EXPRESS OR IMPLIED WARRANTIES, AND
HEREBY EXPRESSLY DISCLAIMS ALL WARRANTIES OF MERCHANTABILITY OR
FITNESS FOR A PARTICULAR PURPOSE OR USE WITH RESPECT TO THE S&P GSCI
INDEX OR ANY DATA INCLUDED THEREIN. WITHOUT LIMITING ANY OF THE
FOREGOING, IN NO EVENT SHALL THE LICENSOR HAVE ANY LIABILITY FOR ANY
SPECIAL, PUNITIVE, INDIRECT, OR CONSEQUENTIAL DAMAGES (INCLUDING LOST
PROFITS), EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

Korea KOSPI 200 Index

All information in this reference asset supplement regarding the Korea KOSPI 200 Index (the
“KOSPI2 Index”), including, without limitation, its make-up, method of calculation and changes in its
components, is derived from publicly available information. Such information reflects the policies of, and
is subject to change by the Korea Stock Exchange (“KSE”). KSE owns the copyright and all other rights to
the KOSPI2 Index. KSE has no obligation to continue to publish, and may discontinue publication of, the
KOSPI2 Index. We do not assume any responsibility for the accuracy or completeness of such
information. Historical performance of the KOSPI2 Index is not an indication of future performance.
Future performance of the KOSPI2 Index may differ significantly from historical performance, either
positively or negatively.

The KOSPI2 Index, which is the underlying index for stock index futures and options trading, is
composed of 200 blue chips and accounts for about 90% of the total market capitalization of the KSE. The
constituent stocks are selected on a basis of the market value of the individual stocks, liquidity and their
relative positions in the industry groups they belong. The base date for the index is January 3, 1990 and the
base index is 100.

The Korea Stock Exchange

The KSE’s predecessor, the Daehan Stock Exchange, was established in 1956. The KSE is a
typical order-driven market, where buy and sell orders compete for best prices. The KSE seeks to maintain
a fair and orderly market for trading and regulates and supervises its member firms.

Throughout the trading hours, orders are matched at a price satisfactory to both buy and sell sides,
according to price and time priorities. The opening and closing prices, however, are determined by call
auctions: at the market opening and closing, orders received for a certain period of time are pooled and
matched at the price at which the most number of shares can be executed. The KSE uses electronic trading
procedures, from order placement to trade confirmation. The KSE is open from 9:00 a.m. to 3:00 p.m.,
Korean time, during weekdays. Investors can submit their orders from 8:00 a.m., one hour before the
market opening. Orders delivered to the market during the period from 8:00 a.m. to 9:00 a.m. are queued
in the order book and matched by call auction method at 9:00 a.m. to determine opening prices. After
opening prices are determined, the trades are conducted by continuous auctions until 2:50 p.m. (10 minutes
before the market closing). Besides the regular session, the KSE conducts pre-hours and after-hours
sessions for block trading and basket trading.

On January 26, 2004, the KSE introduced the random-end system at the opening and closing call
auctions. The stated purpose of the random-end system is to prevent any distortion in the price discovery
function of the KSE caused by “fake” orders placed with an intention of misleading other investors. In
cases where the highest or lowest indicative price of a stock set during the last 5 minutes before the closing
time of the opening (or closing) call session, 8:55-9:00 a.m. (or 2:55-3:00 p.m.), deviates from the
provisional opening (or closing) price by 5 percent or more, the KSE delays the determination of the
opening (or closing) price of the stock up to five minutes. The official opening (or closing) price of such
stock is determined at a randomly chosen time within five minutes after the regular opening (or closing) time. The KSE makes public the indicative prices during the opening (or closing) call trading sessions. Pooling together all bids and offers placed during the order receiving hours for the opening (or closing) session, 8:10-9:00 a.m. (or 2:50-3:00 p.m.), the indicative opening (or closing) prices of all stocks are released to the public on a real-time basis.

The KSE sets a limit on the range that the price of individual stocks can change during a day. In addition, when the price and/or trading activities of a stock are expected to show an abnormal movement in response to an unidentified rumor or news, or when an abnormal movement is observed in the market, the KSE may halt the trading of the stock. In such cases, the KSE requests the company concerned to make a disclosure regarding the matter. Once the company makes an official announcement regarding the matter, trading can resume within an hour; however, if the KSE deems that the situation was not fully resolved by the disclosure, trading resumption may be delayed.

The KSE introduced circuit breakers in December 1998. The trading in the equity markets is halted for 20 minutes when the KOSPI2 Index falls by 10 percent or more from the previous day’s closing and the situation lasts for one minute or longer. The trading resumes by call auction where the orders submitted during the 10 minutes after the trading halt ended are matched at a single price.

As a result of the foregoing, variations in the KOSPI2 Index may be limited by suspension of trading of the KOSPI2 Index Constituent Stocks, individually or in the aggregate, which may in turn adversely affect the value of the notes.

License Agreement

We have entered into a non-exclusive license agreement with the KSE, which allows us and our affiliates, in exchange for a fee, to use the KOSPI2 Index in connection with the issuance of certain securities, including the notes. We are not affiliated with the KSE; the only relationship between the KSE and us is the licensing of the use of the KOSPI2 Index and trademarks relating to the KOSPI2 Index.

The notes are not sponsored, endorsed, sold or promoted by Korea Stock Exchange (KSE). KSE makes no representation or warranty, express or implied, to the owners of the notes or any member of the public regarding the advisability of investing in securities generally or in the notes particularly or the ability of the KOSPI2 Index to track general stock market performance. KSE’s only relationship to Royal Bank is the licensing of certain trademarks and trade names of KSE and of the KOSPI2 Index, which is determined, composed and calculated by KSE without regard to Royal Bank or the notes. KSE has no obligation to take our needs or the needs of owners of the notes into consideration in determining, composing or calculating the KOSPI2 Index. KSE is not responsible for and has not participated in the determination of the prices and amount of the notes or the timing of the issuance or sale of the notes or in the determination or calculation of the equation by which the notes are to be converted into cash. KSE has no obligation or liability in connection with the administration, marketing or trading of the notes.

KSE DOES NOT GUARANTEE THE ACCURACY AND/OR THE COMPLETENESS OF THE KOSPI2 INDEX OR ANY DATA INCLUDED THEREIN AND KSE SHALL HAVE NO LIABILITY FOR ANY ERRORS, OMISSIONS, OR INTERRUPTIONS THEREIN. KSE MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO RESULTS TO BE OBTAINED BY LICENSEE, OWNERS OF THE PRODUCT, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE KOSPI2 INDEX OR ANY DATA INCLUDED THEREIN. KSE MAKES NO EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIMS ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE WITH RESPECT TO THE KOSPI2 INDEX OR ANY DATA INCLUDED THEREIN. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT SHALL KSE HAVE ANY LIABILITY FOR ANY SPECIAL, PUNITIVE, INDIRECT, OR
CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS), EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

“KOSPI” is a trade mark / service mark of KSE and has been licensed for use by Royal Bank.

The MSCI® Indices

All information in this reference asset supplement regarding the MSCI Indices, including, without limitation, their make-up, method of calculation and changes in their components, is derived from publicly available information. Such information reflects the policies of, and is subject to change by Morgan Stanley Capital International Inc. (the “MSCI Indices Sponsor”). The MSCI Indices Sponsor has no obligation to continue to publish, and may discontinue publication of, the MSCI Indices. We no not assume any responsibility for the accuracy or completeness of such information. Historical performance of the MSCI Indices is not an indication of future performance. Future performance of the MSCI Indices may differ significantly from historical performance, either positively or negatively.

The Brazil Index℠

The MSCI® Brazil Index is a free float-adjusted market capitalization index that is designed to measure developed market equity performance in Brazil. The Brazil Index is calculated by MSCI and reported by Bloomberg L.P. under the ticker symbol “MXBR”.

The New Zealand Index℠

The MSCI New Zealand Index℠ (the “New Zealand Index”) is a free float-adjusted market capitalization index that is designed to measure equity market performance in New Zealand. The New Zealand Index is calculated by MSCI and reported by Bloomberg L.P. under the ticker symbol “MXNZ.”

The Philippines Index℠

The MSCI Philippines Index℠ (the “Philippines Index”) is a free float-adjusted market capitalization index that is designed to measure equity market performance in the Philippines. The Philippines Index is calculated by MSCI and reported by Bloomberg L.P. under the ticker symbol “MSEUSPHF.”

The Singapore Index℠

The MSCI Singapore Index℠ (the “Singapore Index”) is a free float-adjusted market capitalization index of 39 stocks that is designed to measure equity market performance in Singapore. The Singapore Index is calculated by Royal Bank Capital International Inc. (“MSCI”) and reported by Bloomberg L.P. under the ticker symbol “SGY.”

The Taiwan Index℠

The MSCI Taiwan Index℠ (the “Taiwan Index”) is a free float-adjusted market capitalization index that is designed to measure equity market performance in Taiwan. The Taiwan Index is calculated by MSCI and reported by Bloomberg L.P. under the ticker symbol “TWY.”

The Thailand Index℠

The MSCI Thailand Index℠ (the “Thailand Index”) is a free float-adjusted market capitalization index that is designed to measure equity market performance in Thailand. The Thailand Index is calculated by MSCI and reported by Bloomberg L.P. under the ticker symbol “MXTH.”
The MSCI-EAFE® Index℠

The MSCI-EAFE Index is a free float-adjusted market capitalization index that is designed to measure developed market equity performance in Europe, Asia, Australia and the Far East, excluding the United States and Canada.

The MSCI® Emerging Markets Index℠

The MSCI-EM Index is a free float-adjusted market capitalization index designed to measure equity market performance in the global emerging markets.

Constructing the MSCI Standard Index Series

MSCI undertakes an index construction process which involves:

- Defining the equity universe.
- Adjusting the total market capitalization of all securities in the universe for free floating available to foreign investors.
- Classifying the universe of securities under the Global Industry Classification Standard (“GICS”).
- Selecting securities for inclusion according to MSCI’s index construction rules and guidelines.

Defining the Equity Universe

The index construction process starts at the country level, with the identification of the universe of investment opportunities.

MSCI classifies each company and its securities in one and only one country. This allows securities to be sorted distinctly by their respective countries. In general, companies and their respective securities are classified as belonging to the country in which they are incorporated. All listed equity securities, or listed securities that exhibit characteristics of equity securities, except investment trusts, mutual funds and equity derivatives, are eligible for inclusion in the universe. Generally, only equity or equity-like securities that are listed in the country of classification are included in the universe.

Adjusting the Total Market Capitalization of Securities for Free Float

After identifying the universe of securities, MSCI calculates the free float-adjusted market capitalization of each security in that universe. The process of free floating-adjusting market capitalization involves:

- Defining and estimating the free float available to foreign investors for each security, using MSCI’s definition of free float.
- Assigning a free float-adjustment factor to each security.
- Calculating the free float-adjustment market capitalization of each security.
MSCI defines the free float of a security as the proportion of shares outstanding that are deemed to be available for purchase in the public equity markets by international investors. In practice, limitations on free float available to international investors include:

- Strategic and other shareholdings not considered part of available free float.
- Limits on share ownership for foreign investors.
- Other foreign investment restrictions.

MSCI’s estimation of free float is based solely on publicly available shareholder information obtained from multiple information sources. For each security, all available shareholdings are considered where public data is available, regardless of the size of the shareholding. Construction may be conducted with analysts, other industry experts and official company contracts, particularly where disclosure standards or data quality make the estimation of free float difficult.

Classifying the Universe of Securities Under the Global Industry Classification Standard

In addition to the free floating-adjustment of market capitalization, all securities in the universe are assigned to the industry that best describes their business activities. To this end, MSCI has designed, in conjunction with S&P, the Global Industry Classification Standard (“GICS”). The comprehensive classification scheme provides a universal approach to industries worldwide and forms the basis for achieving MSCI’s objective of reflecting broad and fair representation in its indices. GICS consists of 10 sectors, 24 industry groups, 62 industries and 132 sub-industries. Each company is assigned to one sub-industry. The GICS guidelines used to determine the appropriate industry classification are:

- A security is classified in a sub-industry according to the business activities that generate approximately 60% or more of the company’s revenues.
- A company engaged in two or more substantially different business activities, none of which contributes 60% or more of revenues, is classified in the sub-industry that provides the majority of both the company’s revenues and earnings.
- Where the above guidelines cannot be applied, or are considered inappropriate, further analysis is conducted, and other factors are analyzed to determine an appropriate classification.

Selecting Securities for Index Inclusion

In order to ensure a broad and fair representation in the indices of the diversity of business activities in the universe, MSCI follows a “bottom-up” approach to index construction, building indices from the industry group level up. The bottom-up approach to index construction requires a thorough analysis and understanding of the characteristics of the universe. This analysis drives the individual security selection decisions, which aim to reflect the overall features of the universe in the country index.

MSCI targets an 85% free float-adjusted market representation level within each industry group, within each country. The security selection process within each industry group is based on the careful analysis of:

- Each company’s business activities and the diversification that its securities would bring to the index.
• The size (based on free float-adjusted market capitalization) and liquidity of securities. All other things being equal, MSCI targets for inclusion the most sizable and liquid securities in an industry group. In addition, securities that do not meet the minimum size guidelines discussed below and/or securities with inadequate liquidity are not considered for inclusion.

• The estimated free float for the company and its individual share classes. Only securities of companies with an estimated overall and/or security free float greater than 15% are, in general, considered for inclusion.

Maintaining the MSCI Standard Index Series

Overall, index maintenance can be described by three broad categories of implementation of changes.

• Annual full country index reviews that systematically re-assess the various dimensions of the equity universe for all countries and are conducted on a fixed annual timetable.

• Quarterly index reviews, aimed at promptly reflecting other significant market events.

• Ongoing event-related changes, such as mergers and acquisitions, which are generally implemented in the indices rapidly as they occur.

Potential changes in the status of countries (standalone, emerging, developed) follow their own separate timetables. These changes are normally implemented in one or more phases at the regular annual full country index review and quarterly index review dates.

Annual Full Country Index Review

The objective of the annual full country review, which is carried out every May, is to systematically re-assess the various dimensions of the equity universe for all countries on a fixed annual timetable. This includes a re-appraisal of the free float-adjusted industry group representation within a country, a detailed review of the shareholder information used to estimate free float for constituent and non-constituent securities, updating of minimum size guidelines for new and existing constituents, as well as changes typically considered for a quarterly index review as discussed below.

Quarterly Index Review

The quarterly index review process is designed to ensure that the indices continue to be an accurate reflection of the evolving equity marketplace. This is achieved by rapidly reflecting significant market driven changes that were not captured in the index at the time of their actual occurrence and that should not wait until the annual full country index review due to their importance.

During a quarterly index review, securities may be added to or deleted from a country index for a variety of reasons including the following:

• Additions or deletions of securities, due to one or more industry groups having become significant over- or under-represented as a result of mergers, acquisitions, restructuring and other major market events affecting that industry group.

• Additions or deletions resulting from changes in industry classification, significant increases or decreases in free float, and relaxation/removal or decreases of foreign ownership limitations not implemented immediately.
• Replacement of companies, which are no longer suitable industry representatives.
• Deletion of securities whose company and/or security free float has fallen to less than 15%.
• Deletion of securities that have become very small or illiquid.
• Replacement of securities (additions or deletions) resulting from the review of price source for constituents with both domestic and foreign board quotations.
• Additions or deletions of securities as a result of other market events.

**Ongoing Event-Related Changes**

Ongoing event-related changes to the indices are the result of mergers, acquisitions, spin-offs, bankruptcies, reorganizations and other similar corporate events. Ongoing event-related charges can also result from capital reorganizations in the form of rights issues, bonus issues, public placements and other similar corporate actions that take place on a continuing basis. These changes are reflected in the indices at the time of the event.

**Announcement Policy**

The results of the annual full country index review are announced at least two weeks in advance of their effective implementation dates as of the close of the last business day of May.

The results of the quarterly index reviews are announced at least two weeks in advance of their effective implementation dates as of the close of the last business day of February, August and November.

All changes resulting from the corporate events are announced prior to their implementations.

The changes are typically announced at least ten business days prior to these changes becoming effective in the indices as an “expected” announcement, or as an “undetermined” announcement, when the effective dates are not known yet or when aspects of the event are uncertain. MSCI sends “confirmed” announcements at least two business days prior to events becoming effective in the indices, provided that all necessary public information concerning the event is available. The full list of all new and pending changes is delivered to clients on a daily basis, at 5:30 p.m. U.S. Eastern Standard Time.

In exceptional cases, events are announced during market hours for same or next day implementation. Announcements made by MSCI during market hours are usually linked to late company disclosure of corporate events or unexpected changes to previously announced corporate events.

In the case of large secondary offerings for existing constituents, where possible, these changes will be announced prior to the end of a relevant subscription period and a subsequent announcement confirming the details of the event (including the date of implementation) will be made as soon as the results are available.

Both equity offerings and secondary offerings for U.S. securities will be confirmed through an announcement during market hours for same or next day implementation, as the completion of the events cannot be confirmed prior to the notification of the pricing.

Early deletions of constituents due to bankruptcy or other significant cases are announced as soon as practicable.
License Agreement

Royal Bank has entered into a non-exclusive license agreement with MSCI providing for the license to us and certain of our affiliates, in exchange for a fee, of the right to use the MSCI Indices in connection with securities, including the notes. The MSCI Indices are owned and published by MSCI.

The notes are not sponsored, endorsed, sold or promoted by MSCI or any affiliate of MSCI. Neither MSCI nor any other party makes any representation or warranty, express or implied, to the owners of the notes or any member of the public regarding the advisability of investing in securities generally or in the notes or the ability of the MSCI Indices to track general stock market performance. MSCI is the licensor of certain trademarks, service marks and trade names of MSCI and of the MSCI Indices, which is determined, composed and calculated by MSCI without regard to the notes or Royal Bank. MSCI has no obligation to take the needs of Royal Bank or the owners of this note into consideration in determining, composing or calculating the MSCI Indices. MSCI is not responsible for and has not participated in the determination of the timing of, pricing at or quantities of this note or in the determination or calculation of the equation by which this note is redeemable for cash. Neither MSCI nor any other party has any obligation or liability to owners of the notes in connection with the administration, marketing or trading of the notes.

ALTHOUGH MSCI SHALL OBTAIN INFORMATION FOR INCLUSION IN OR FOR USE IN THE CALCULATION OF THE MSCI INDICES FROM SOURCES WHICH MSCI CONSIDERS RELIABLE, NEITHER MSCI NOR ANY OTHER PARTY GUARANTEES THE ACCURACY AND/OR THE COMPLETENESS OF THE INDICES OR ANY DATA INCLUDED THEREIN. NEITHER MSCI NOR ANY OTHER PARTY MAKES ANY WARRANTY, EXPRESS OR IMPLIED, AS TO RESULTS TO BE OBTAINED BY LICENSEE, LICENSEE’S CUSTOMERS OR COUNTERPARTIES, OWNERS OF THE PRODUCTS OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE INDICES OR ANY DATA INCLUDED THEREIN IN CONNECTION WITH THE RIGHTS LICENSED HEREUNDER OR FOR ANY OTHER USE. FURTHER, NEITHER MSCI NOR ANY OTHER PARTY MAKES ANY EXPRESS OR IMPLIED WARRANTIES AND MSCI HEREBY EXPRESSLY DISCLAIMS ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INDICES AND ANY DATA INCLUDED THEREIN. NEITHER MSCI NOR ANY OTHER PARTY SHALL HAVE ANY LIABILITY FOR ANY ERRORS, OMISSIONS OR INTERRUPTIONS OF OR IN CONNECTION WITH THE INDICES OR ANY DATA INCLUDED THEREIN. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT SHALL MSCI OR ANY OTHER PARTY HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, SPECIAL, PUNITIVE, CONSEQUENTIAL OR ANY OTHER DAMAGES (INCLUDING LOST PROFITS) EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

No purchaser, seller or holder of the notes, or any other person or entity, should use or refer to MSCI’s trade name, trade mark or service mark rights to the designations “Morgan Stanley Capital International®,” “MSCI®,” “Morgan Stanley Capital International Perspective®,” to sponsor, endorse, market or promote the notes without first contacting MSCI to determine whether MSCI’s permission is required. Under no circumstances may any person or entity claim affiliation with MSCI without the prior written permission of MSCI.

Nasdaq-100® Index

All information in this reference asset supplement regarding the Nasdaq-100® Index (the “Nasdaq Index”) is derived from publicly available information. Such information reflects the policies of, and is subject to change by The Nasdaq Global Market, Inc. or any of its affiliates (“Nasdaq”). Nasdaq owns the copyright and all other rights to the Nasdaq Index. Nasdaq has no obligation to continue to publish, and may discontinue publication of, the Nasdaq Index. We do not assume any responsibility for the accuracy or completeness of such information. Historical performance of the Nasdaq Index is not an indication of

R-70
future performance. Future performance of the Nasdaq Index may differ significantly from historical performance, either positively or negatively.

The Nasdaq Index is a modified capitalization-weighted index of 100 of the largest and most actively traded stocks of non-financial companies listed on the Nasdaq National Market® tier of the National Market System. The Nasdaq Index reflects companies across major industry groups including computer hardware and software, telecommunications, retail and wholesale trade, and biotechnology. It does not contain financial companies including investment companies. The Nasdaq Index was first published in January 1985 and includes companies across a variety of major industry groups. Current information regarding the market level of the Nasdaq Index is available from Nasdaq and from numerous market information services. The level of the Nasdaq Index is determined, comprised and calculated by Nasdaq without regard to the notes.

License Agreement

We have entered into a non-exclusive license agreement with Nasdaq, which grants us a license in exchange for a fee to use the Nasdaq Index in connection with the issuance of certain securities, including the notes.

The notes are not sponsored, endorsed, sold or promoted by Nasdaq. Nasdaq has not passed on the legality or suitability of, or the accuracy or adequacy of descriptions and disclosures relating to, the notes. Nasdaq makes no representation or warranty, express or implied, to the holders of the notes or any member of the public regarding the advisability of investing in securities generally or in the notes particularly, or the ability of the Nasdaq Index to track general stock market performance. Nasdaq’s only relationship to Royal Bank is in the licensing of the Nasdaq-100®, Nasdaq-100 Index®, and Nasdaq® trademarks or service marks, and certain trade names of Nasdaq and the use of the Nasdaq Index which is determined, composed and calculated by Nasdaq without regard to Royal Bank or the notes. Nasdaq has no obligation to take the needs of Royal Bank or the holders of the notes into consideration in determining, composing or calculating the Nasdaq Index. Nasdaq is not responsible for and has not participated in the determination of the timing of, prices or quantities of the notes to be issued or in the determination or calculation of the equation by which the notes are to be converted into cash. Nasdaq has no liability in connection with the administration, marketing or trading of the notes.

NASDAQ DOES NOT GUARANTEE THE ACCURACY AND/OR UNINTERRUPTED CALCULATION OF THE NASDAQ INDEX OR ANY DATA INCLUDED THEREIN. NASDAQ MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE RESULTS TO BE OBTAINED BY ROYAL BANK, HOLDERS OF THE NOTES, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE NASDAQ INDEX OR ANY DATA INCLUDED THEREIN. NASDAQ MAKES NO EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIMS ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE WITH RESPECT TO THE NASDAQ INDEX OR ANY DATA INCLUDED THEREIN. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT SHALL NASDAQ HAVE ANY LIABILITY FOR ANY LOST PROFITS OR SPECIAL, INCIDENTAL, PUNITIVE, INDIRECT, OR CONSEQUENTIAL DAMAGES, EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

Nikkei® 225 Index

We have derived all information regarding the Nikkei® 225 Index (the “Nikkei Index”) contained in this reference asset supplement, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. Such information reflects the policies of, and is subject to change by, Nihon Keizai Shimbun, Inc. or any of its affiliates (the “Nikkei Index Sponsor”). The Nikkei Index Sponsor owns the copyright and all other rights to the Nikkei Index. The Nikkei Index Sponsor has no obligation to continue to publish, and may discontinue publication of, the
Nikkei Index. We do not assume any responsibility for the accuracy or completeness of such information. Historical performance of the Nikkei Index is not an indication of future performance. Future performance of the Nikkei Index may differ significantly from historical performance, either positively or negatively.

The Nikkei Index is a stock index calculated, published and disseminated by the Nikkei Index Sponsor that measures the composite price performance of selected Japanese stocks. The Nikkei Index is currently based on 225 underlying stocks trading on the Tokyo Stock Exchange (the "TSE"), and represents a broad cross-section of Japanese industry. All stocks included in the Nikkei Index trade on the TSE in Japanese yen. All 225 Nikkei Index stocks are listed in the First Section of the TSE. Domestic stocks admitted to the TSE are assigned either to the First Section, Second Section or Mothers Section. Stocks listed in the First Section are among the most actively traded stocks on the TSE. At the end of each business year, the TSE examines each First Section stock to determine whether it continues to meet the criteria for inclusion in the First Section and each Second Section stock to determine whether it may qualify for inclusion in the First Section. Futures and options contracts on the Nikkei Index are traded on the Singapore Exchange Ltd., the Osaka Securities Exchange Co., Ltd. and the Chicago Mercantile Exchange Inc.

The Nikkei Index is a modified, price-weighted index. Each stock’s weight in the Nikkei Index is based on its price per share rather than the total market capitalization of the issuer. The Nikkei Index Sponsor calculates the Nikkei Index by multiplying the per-share price of each stock in the Nikkei Index by the corresponding weighting factor for such stock, calculating the sum of all these products and dividing that sum by a divisor. The weighting factor for each stock in the Nikkei Index is computed by dividing 50 Japanese yen by the par value of that stock, so that the share price of each such stock when multiplied by its weighting factor corresponds to a share price based on a uniform par value of 50 Japanese yen. Each weighting factor represents the number of shares of the related Nikkei Index stock that are included in one trading unit of the Nikkei Index. The stock prices used in the calculation of the Nikkei Index are those reported by a primary market for the stocks in the Nikkei Index, which is currently the TSE. The level of the Nikkei Index is calculated once per minute during TSE trading hours.

In order to maintain continuity in the level of the Nikkei Index in the event of certain changes affecting the stocks included in the Nikkei Index, such as the addition or deletion of stocks, substitution of stocks, stock dividends, stock splits or distributions of assets to stockholders, the divisor used in calculating the Nikkei Index is adjusted in a manner designed to prevent any change or discontinuity in the level of the Nikkei Index. The divisor remains at the new value until a further adjustment is necessary as the result of another change. As a result of each change affecting any stock in the Nikkei Index, the divisor is adjusted in such a way that the sum of all share prices immediately after the change multiplied by the applicable weighting factor and divided by the new divisor, the level of the Nikkei Index immediately after the change, will equal the level of the Nikkei Index immediately prior to the change.

Stocks included in the Nikkei Index may be deleted or added by the Nikkei Index Sponsor. However, to maintain continuity in the Nikkei Index, the policy of the Nikkei Index Sponsor is generally not to alter the composition of the Nikkei Index stocks except when a stock is deleted in accordance with the following criteria.

Any stock in the Nikkei Index becoming ineligible for listing in the First Section of the TSE due to any of the following reasons will be deleted from the Nikkei Index: bankruptcy of the issuer; merger of the issuer into, or acquisition of the issuer by, another company; delisting of the stock because of excess debt of the issuer or because of any other reason; transfer of the stock to the “Kanri Post” (Post for stocks under supervision); transfer of the stock to the “Seiri Post” (the Liquidation Post); or transfer of the stock to the Second Section of the TSE. In addition, any stock in the Nikkei Index with relatively low liquidity, based on trading volume and price fluctuation over the past five years, may be deleted by the Nikkei Index Sponsor. Upon deletion of a stock from the Nikkei Index, the Nikkei Index Sponsor will select, in accordance with certain criteria established by it, a replacement for the deleted stock.
replacement, the Nikkei Index will be calculated with the remaining stocks included in the Nikkei Index less the deleted stocks.

A list of the issuers of the stocks included in the Nikkei Index is available from the NKS Economic Electronic Databank System and the Nikkei Index Sponsor directly. The Nikkei Index Sponsor may delete, add or substitute any stock underlying the Nikkei Index.

**The Tokyo Stock Exchange**

The TSE is one of the world’s largest securities exchanges in terms of market capitalization. Due to time zone differences, on any normal trading day, the TSE will close before the opening of business in New York City on the same calendar day. Therefore, the closing level of the Nikkei Index on any particular business day will generally be available in the United States by the opening of business on that business day.

The TSE has adopted certain measures, including daily price floors and ceilings on individual stocks, intended to prevent any extreme short-term price fluctuations resulting from order imbalances. In general, any stock listed on the TSE cannot be traded at a price lower than the applicable price floor or higher than the applicable price ceiling. These price floors and ceilings are expressed in absolute Japanese yen, rather than percentage limits based on the closing price of the stock on the previous trading day. In addition, when there is a major order imbalance in a listed stock, the TSE posts a “special bid quote” or a “special offer quote” for that stock at a specified higher or lower price level than the stock’s last sale price in order to solicit counter-orders and balance supply and demand for the stock. Prospective investors should also be aware that the TSE may suspend the trading of individual stocks in certain limited and extraordinary circumstances, including, for example, unusual trading activity in that stock. As a result, changes in the Nikkei Index may be limited by price limitations, special quotes or by suspension of trading on stocks in the Nikkei Index, and these limitations may, in turn, adversely affect the value of the notes.

**License Agreement**

We have entered into a non-exclusive license agreement with the Nikkei Index Sponsor, which allows us and our affiliates, in exchange for a fee, to use the Nikkei Index in connection with the issuance of certain securities, including the notes. We are not affiliated with the Nikkei Index Sponsor; the only relationship between the Nikkei Index Sponsor and us is the licensing of the use of the Nikkei Index and trademarks relating to the Nikkei Index.

The Nikkei Index Sponsor is under no obligation to continue the calculation and dissemination of the Nikkei Index. The notes are not sponsored, endorsed, sold or promoted by the Nikkei Index Sponsor. No inference should be drawn from the information contained in this reference asset supplement that the Nikkei Index Sponsor makes any representation or warranty, implied or express, to us, any holder of the notes or any member of the public regarding the advisability of investing in securities generally, or in the notes in particular, or the ability of the Nikkei Index to track general stock market performance.

The Nikkei Index Sponsor determines, composes and calculates the Nikkei Index without regard to the notes. The Nikkei Index Sponsor has no obligation to take into account your interest, or that of anyone else having an interest, in the notes in determining, composing or calculating the Nikkei Index. The Nikkei Index Sponsor is not responsible for, and has not participated in the determination of, the terms, prices or amount of the notes and will not be responsible for, or participate in, any determination or calculation regarding the principal amount of the notes payable at maturity. The Nikkei Index Sponsor has no obligation or liability in connection with the administration, marketing or trading of the notes.

The Nikkei Index Sponsor disclaims all responsibility for any errors or omissions in the calculation and dissemination of the Nikkei Index or the manner in which the Nikkei Index is applied in
determining any initial Nikkei Index Starting Level or Nikkei Index Ending Level or any amount payable
upon maturity of the notes.

THE NIKKEI INDEX SPONSOR DOES NOT GUARANTEE THE ACCURACY OR THE
COMPLETENESS OF THE NIKKEI INDEX OR ANY DATA INCLUDED IN THE NIKKEI INDEX.
THE NIKKEI INDEX SPONSOR ASSUMES NO LIABILITY FOR ANY ERRORS OR OMISSIONS.

“Nikkei®” is a trademark of the Nikkei Index Sponsor and has been licensed for use by Royal
Bank. The notes are not sponsored, endorsed, sold or promoted by the Nikkei Index Sponsor, and the
Nikkei Index Sponsor makes no representation regarding the advisability of investing in the notes.

THE U.S. DOLLAR INDEX®

License Agreement

The NYBOT and Royal Bank have entered into a non-exclusive license agreement granting us,
and certain of our affiliated or subsidiary companies, the right to use the Index trademarks “USDX” and
“U.S. Dollar Index” in connection with certain securities, including the notes.

NEITHER THE PUBLICATION OF THE U.S. DOLLAR INDEX® (“USDX®”) NOR THE
LICENSING OF THE U.S. DOLLAR INDEX® TRADEMARKS BY THE NYBOT OR ITS AFFILIATES
FOR USE IN CONNECTION WITH SECURITIES OR OTHER FINANCIAL PRODUCTS DERIVED
FROM SUCH INDEX IN ANY WAY SUGGEST OR IMPLIES A REPRESENTATION OR OPINION
BY THE NYBOT OR ANY SUCH AFFILIATES AS TO THE ATTRACTION OF INVESTMENT
IN ANY SECURITIES OR OTHER FINANCIAL PRODUCTS BASED UPON OR DERIVED FROM
SUCH INDEX. THE NYBOT IS NOT THE ISSUER OF ANY SUCH SECURITIES OR OTHER
FINANCIAL PRODUCTS AND MAKES NO EXPRESS OR IMPLIED WARRANTIES OF
MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE WITH RESPECT TO
RESULTS LINKED TO SUCH INDEX OR ANY DATA INCLUDED OR REFLECTED THEREIN,
NOR AS TO RESULTS TO BE OBTAINED BY ANY PERSON OR ANY ENTITY FROM THE USE
OF THE INDEX OR ANY DATA INCLUDED OR REFLECTED THEREIN.

No purchaser, seller or holder of the notes, or any other person or entity, should use or refer to any
NYBOT trade name, trademark or service mark in any manner of endorsement without first contacting the
NYBOT to determine whether the NYBOT’s permission is required. Under no circumstances may any
person or entity claim any affiliation with the NYBOT without the prior written permission of the NYBOT.

“U.S. Dollar Index®” and USDX® are trademarks and service marks of the New York Board of
Trade®, used under license. The notes are not issued, sponsored, endorsed, sold or promoted by the
NYBOT and the NYBOT makes no representation regarding the advisability of investing in the notes.

The U.S. Dollar Index®

We have derived all information regarding the U.S. Dollar Index® contained in this reference asset
supplement, including, without limitation, its make-up, method of calculation, and changes in its
components, from publicly available information. This information reflects the policies of, and is subject
to change by, the U.S. Dollar Index® Sponsor. The U.S. Dollar Index® Sponsor determines and weights the
components of the Index and causes the Index to be calculated and published. We make no representation
or warranty as to the accuracy or completeness of this information.

R-74
Computation of the U.S. Dollar Index®

The U.S. Dollar Index® geometrically averages the exchange rates between the U.S. dollar and six major world currencies to provide a general indication of the international value of the U.S. dollar. Each currency is weighted in the U.S. Dollar Index® based on a general representation of foreign trade between the United States and the countries whose currencies are represented in the U.S. Dollar Index®. As of the date of this reference asset supplement, the 17 countries (the 12 countries of the Euro zone, Japan, the United Kingdom, Canada, Sweden and Switzerland) whose currencies are used to calculate the value of the U.S. Dollar Index® are the markets for the bulk of the United States’ international trade and have well-developed foreign exchange markets with exchange rates freely determined by market participants. The U.S. Dollar Index® is computed 24 hours a day, seven days a week based on exchange rates supplied to Reuters by approximately 500 banks worldwide.

The U.S. Dollar Index® measures the change in the following six currency exchange rates, weighted as indicated, against the U.S. dollar relative to a base period of March 1973 and a base value of 100.00:

<table>
<thead>
<tr>
<th>Index Currency</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euro</td>
<td>57.6%</td>
</tr>
<tr>
<td>Japanese Yen</td>
<td>13.6%</td>
</tr>
<tr>
<td>British Pound</td>
<td>11.9%</td>
</tr>
<tr>
<td>Canadian Dollar</td>
<td>9.1%</td>
</tr>
<tr>
<td>Swedish Krona</td>
<td>4.2%</td>
</tr>
<tr>
<td>Swiss Franc</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

Currencies and weights used in the calculation of the U.S. Dollar Index® are based on those used in the original Federal Reserve Board’s trade-weighted U.S. Dollar Index.

The level of the U.S. Dollar Index® reflects the average value of the U.S. dollar relative to the 1973 base period. For example, an U.S. Dollar Index® level of 105.5 means that the U.S. dollar’s value has risen 5.5% against the other currencies in the U.S. Dollar Index® relative to the value of the U.S. dollar against those currencies, or their predecessor currencies in the U.S. Dollar Index®, in March 1973. March 1973 was chosen as the base period because the world’s major trading nations replaced the previous fixed-rate Bretton Woods regime and allowed their currencies to float freely against each other in March 1973. Since 1973, the level of the U.S. Dollar Index® has ranged from the mid-160s to the high-70s.

PHLX Housing Sector Index

The PHLX Housing Sector℠ Index (the “Housing Sector Index”) was developed by the Philadelphia Stock Exchange, Inc. (the “PHLX”) and is calculated, maintained and published by PHLX.

The Housing Sector Index is a modified capitalization weighted index composed of twenty-one companies whose primary lines of business are directly associated with the United States housing construction market (the “Housing Sector Index Stocks”). The Housing Sector Index composition encompasses residential builders, suppliers of aggregate, lumber and other construction materials, manufactured housing and mortgage insurers. The Housing Sector Index was set to an initial value of 250 on January 2, 2002. Options commenced trading on the Housing Sector Index on July 17, 2002. Modified capitalization weighting is intended to maintain as closely as possible the proportional capitalization distribution of the portfolio of Housing Sector Index Stocks, while limiting the maximum weight of a single stock or group of stocks to a predetermined maximum (normally 25% for a single stock, and 50% to 60% for the top five or an aggregation of all stocks weighing 5% or more). This rebalancing is accomplished by occasionally artificially reducing the capitalization of higher weighted stocks and redistributing the weight
to lower weighted stocks without changing the total capitalization of the portfolio. The net result is a weight distribution that is less skewed toward the larger stocks, but still does not approach equal weighting.

**Methodology for inclusion in the Housing Sector Index**

Housing Sector Index securities are first defined as small stocks (current market capitalization less than or equal to 50% of the average market capitalization of all component securities), medium stocks (current market capitalization greater than 50% and less than 150% of the average market capitalization of all component securities), or large stocks (current market capitalization greater than or equal to 150% of the average market capitalization of all component securities).

A determination is then made, based on the current (true) market capitalization if:

1. Any single component security represents 25% or more of the current market capitalization of the basket; and/or

2. All component securities that individually represent 5% or more of the total current market capitalization of the basket in aggregate represent 50% or more of the total current market capitalization of the basket.

If 1 is true, then:

3. The weight of all qualifying component securities is set to 22.5%;

4. The weight that represents the aggregate difference between the original weight and the new weight of 22.5% for each qualifying component is redistributed as follows:

   a) The weight of any component security that represents less than 1% of the total current market capitalization of the basket is increased to exactly 1%, beginning with the highest weighted, sub 1% component security and continuing until either all component securities are equal to or above 1% or until no excess weight remains to be distributed;

   b) Beginning with the largest small stock, its weight is increased to the nearest whole percentage weight, and in one half percentage increments thereafter until the last iteration causes its weight to exceed the weight of the second largest small stock by 100%, and continuing until no excess weight remains to be distributed, except that:

   i. If the next iteration would cause the subject stock to have a higher weight than the stock ranked immediately above it, the larger stock’s weight is increased to the nearest whole percentage weight and in one half percents increments thereafter until the paused iteration would no longer cause the original subject stock to have a higher weight than the stock ranked immediately above it, until no excess weight remains to be distributed, or until the larger stock’s weight exceeds the stock ranked immediately above it, in which case the step is repeated for the next higher weighted stock.

If 2 is true after steps 3 and 4, then:

5. The weight of each qualifying component is proportionally reduced such that the aggregate weight of the qualifying components is exactly 45%, as follows:

   a) For qualifying components 1 through n, (a) the difference between 45% and the aggregate weight of all the qualifying components prior to this reduction and (b) the percent of the total capitalization of the qualifying components that each qualifying component represents, is
calculated. The weight of each qualifying component is reduced by an amount that equals a $b(1-n)$, except that the proportional reduction shall not cause any component to have a lesser weight than the component security ranked immediately beneath it. If such a situation should occur, then the next largest component security or securities that would not have otherwise qualified for inclusion in the proportional reduction shall then be included.

6. The weight that represents the difference between the original aggregate weight and the new weight of 45% for the group of qualifying components is redistributed as follows:

a) Beginning with the largest small stock, its weight is increased to the nearest whole percentage weight, and in one half percentage increments thereafter until the last iteration causes its weight to exceed the weight of the second largest small stock by 100%, and continuing until no excess weight remains to be distributed, except that:

i. If the next iteration would cause the subject stock to have a higher weight than the stock ranked immediately above it, the larger stock’s weight is increased to the nearest one half percentage weight and in half percent increments thereafter until the paused iteration would no longer cause the original subject stock to have a higher weight than the stock ranked immediately above it, until no excess weight remains to be distributed, or until the larger stock’s weight exceeds the stock ranked immediately above it, in which case this step is repeated for the next higher weighted stock; and

ii. Excess weight distributed to the smallest stock will increase its weight to no more than that of the adjusted weight of the second smallest stock; and

iii. If the smallest stock has been increased to the level of the second smallest stock and excess weight remains to be distributed, then beginning with the largest small stock and continuing downward, the weight of each component is increased by half percentage increments until no excess weight remains, subject to the conditions and remedies of (i) above, except that if insufficient excess weight remains to solve the conditions and remedies of paragraph (i) above, then paragraph (iii) is started with the smallest stock whose weight exceeds the next smallest stock by at least one half percent.

New share values will be assigned to each component security by calculating the dollar value of each component security’s new percent weight of the original total current market capitalization of the basket, divided by the last sale price of each respective component security.

This process will be repeated at least semi-annually for implementation at the end of the January and July option expiration if the modified capitalization of a single component or group of components exceed the concentration thresholds stated above as of the last trading day of the previous month, and such rebalancing will be based on actual market capitalizations of the component stocks as determined by actual share amounts and closing prices on the last trading day of the previous month.

Adjustments for corporate actions:

Stock splits – modified share amounts will be adjusted proportionally to the stock price adjustment using the announced split ratio on the effective date of the split. No divisor change should be necessary except for rounding.

Share changes greater than 5% – due to mergers, acquisitions, or stock repurchase, modified share amounts will be adjusted in proportion to the announced share change. Divisor changes will be necessary.
Adjustments for stock addition or removal:

Stock removal – no adjustments to the remaining component modified shares made. Divisor changes will be necessary.

Stock addition – the modified share weight of a stock addition will be determined in a 4 step process:

- Determine the relative weight rank of the new component’s true capitalization compared to the true capitalization of the current component list (e.g., 14th out of 25);

- Assign a modified capitalization to the new component that is midway between the modified capitalization of the two current components that ranked immediately above and below the new component (e.g., midway between the modified cap of numbers 13 and 14);

- Determine a number of modified shares required to achieve the modified capitalization based on the closing price of the new component on the day immediately prior to its addition.

- Divisor changes will necessary.

In this reference asset supplement, unless the context requires otherwise, references to the Housing Sector Index will include any Successor Index and references to PHLX will include any successor to PHLX.

License Agreement between PHLX and MS & Co. PHLX and MS & Co. have entered into a non-exclusive license agreement providing license to Royal Bank, and certain of its affiliated and subsidiary companies, in exchange for a fee, of the right to use the Housing Sector Index, which is owned and published by PHLX, in connection with securities, including the notes.

The license agreement between PHLX and Royal Bank provides that the following language must be set forth in this reference asset supplement:

The PHLX Housing SectorSM Index (HGX) (“Housing Sector Index”) is not sponsored, endorsed, sold or promoted by the PHLX. The PHLX makes no representation or warranty, express or implied, to the owners of the Housing Sector Index or any member of the public regarding the advisability of investing in securities generally or in the Housing Sector Index particularly or the ability of the Housing Sector Index to track market performance. The PHLX’s only relationship to Licensee is the licensing of certain names and marks and of the Housing Sector Index, which is determined, composed and calculated without regard to the Licensee. The PHLX has no obligation to take the needs of the Licensee or the owners of the Housing Sector Index into consideration in determining, composing or calculating the Housing Sector Index. The PHLX is not responsible for and has not participated in any determination or calculation made with respect to the issuance or redemption of the Housing Sector Index. The PHLX has no obligation or liability in connection with the administration, purchase, sale, marketing, promotion or trading of the Housing Sector Index.

“PHLX Housing SectorSM” and “HGXSM” are service marks of the Philadelphia Stock Exchange, Inc. and have been licensed for use by Royal Bank.
Rogers International Commodity Index® Excess ReturnSM

The following is a description of the Rogers International Commodity Index® Excess ReturnSM (the “Rogers Index”), including, without limitation, its make-up, method of calculation and changes in its components. The information in this description has been taken from (i) publicly available sources, (ii) a summary of the Rogers International Commodity Index Handbook (a document available publicly on the website of Diapason Commodities Management LLP (“Diapason”) at http://www.diapasoncm.com) and (iii) other non-public sources deemed by Royal Bank to be reliable. Such information reflects the policies of, and is subject to change at any time by, James B. Rogers, Jr. (“Rogers”) and the Index Committee. We accept responsibility as to the correct reproduction of such information, but no further or other responsibility (express or implied) is accepted by us in respect of such information. Royal Bank has not independently verified this information. You, as an investor in the notes, should make your own investigation into the Rogers Index and Diapason. Except as provided in the next sentence, none of Beeland Interests, Inc. (“Beeland Interests”), the Index Committee (as defined below), members of the Index Committee individually (except as described in the next sentence) and/or Rogers is involved in the offer of the notes in any way and has no obligation to consider your interests as a holder of the notes. Beeland Interests has no obligation to continue to publish the Rogers Index, and may discontinue publication of the Rogers Index at any time in its sole discretion.

Overview

The Rogers Index was developed by Rogers and launched on July 31, 1998. The Rogers Index is a composite U.S. dollar-based index that is designed to serve as a diversified benchmark for the price movements of commodities consumed in the global economy. The Rogers Index is composed of 36 futures contracts on physical commodities traded on ten exchanges in five countries and quoted in four different currencies. The commodities represented in the Rogers Index range from agricultural products and energy products to metals and minerals. The exchanges include the New York Mercantile Exchange, the Chicago Board of Trade, the London Metal Exchange, the New York Board of Trade, Chicago Mercantile Exchange, the Tokyo Grain Exchange, the Sydney Futures Exchange, the Tokyo Commodity Exchange, the Winnipeg Commodity Exchange and the Yokohama Commodity Exchange. The commodities futures contracts are quoted in U.S. dollars, Canadian dollars, Japanese yen and Australian dollars.

The Rogers Index aims to be an effective measure of the price action of raw materials not just in the United States but also around the world. The Rogers Index’s weightings attempt to balance consumption patterns worldwide (in developed and developing countries) and specific contract liquidity.

The Index Committee

The Index Committee formulates and enacts all business assessments and decisions regarding the composition of the Rogers Index. Rogers, as the founder of the Rogers Index, chairs the Index Committee and is the final arbiter of its decisions. Beside Rogers, representatives of the following parties are members of the Index Committee: (1) Diapason, (2) Daiwa Asset Management America, (3) Beeland Management Company, (4) UBS, (5) ABN AMRO and (6) Merrill Lynch. Exclusively, Rogers, as chairman of the committee, is authorized to designate new members of the committee, if necessary.

The Index Committee meets each December to consider changes in the components and weightings of the Rogers Index for the following calendar year; however, such changes can be made at any time.
Rogers Index Composition

The Process

The contracts chosen for the basket of commodities that constitute the Rogers Index are required to fulfill various conditions described below. Generally, the selection and weighting of the items in the Rogers Index are reviewed annually by the Index Committee, and weights for the next year are assigned every December.

The Rogers Index’s composition is modified in order to maintain liquidity and stability, and the composition of the Rogers Index generally will not be changed unless severe circumstances in fact occur. Such “severe circumstances” may include (but are not restricted to):

- continuous adverse trading conditions for a single contract (e.g., trading volume collapses), or
- critical changes in the global consumption pattern (e.g., scientific breakthroughs that fundamentally alter consumption of a commodity).

Exchanges and Non-Traded Items

All commodities included in the Rogers Index must be publicly traded on recognized exchanges in order to ensure ease of tracking and verification. The 14 international exchanges recognized by the Index Committee are:

1. Chicago Mercantile Exchange (USA) 8. Sydney Futures Exchange (Australia)
2. Chicago Board of Trade (USA) 9. Fukuoka Futures Exchange (Japan)
3. New York Board of Trade (USA) 10. Central Japan Commodity Exchange (Japan)
5. Winnipeg Commodity Exchange (Canada) 12. The Tokyo Commodity Exchange (Japan)

General Contract Eligibility

A commodity may be considered suitable for inclusion in the Rogers Index if it plays a significant role in worldwide (developed and developing economies) consumption. “Worldwide consumption” is measured by tracking international import and export patterns, and domestic consumption environments of the world’s prime commodity consumers. Only raw materials that reflect the current state of international trade and commerce are eligible to become Index Commodities. Commodities that are merely linked to national consumption patterns will not be considered. The Rogers Index is not related to any commodities production data.

Commodity Screening Process

Data of private and governmental providers concerning the world’s top consumed commodities is actively monitored and analyzed by the members of the Index Committee throughout the year. In order to obtain the most accurate picture of international commodities consumption, a wide range of sources on commodities demand and supply is consulted. The findings of this research are then condensed into the different commodities contracts weightings of the Rogers Index. Sources on global commodity consumption data include:

- Industrial Commodity Statistics Yearbook, United Nations (New York)
• Commodity Trade Statistics Database, United Nations Statistic Division (New York)
• Copper Bulletin Yearbook, International Copper Study Group (Lisbon)
• Foreign Agricultural Service’s Production, Supply and Distribution Database, U.S. Department of Agriculture (Washington, D.C.)
• Manufactured Fiber Review, Fiber Economics Bureau, Inc. (U.S.A.)
• Monthly Bulletin, International Lead and Zinc Study Group (London)
• Rubber Statistical Bulletin, International Rubber Study Group (London)
• Statistical Bulletin Volumes, Arab Gulf Cooperation Council (GCC)
• Sugar Yearbook, International Sugar Organization (ISO), (London)
• World Agriculture Assessments of Intergovernmental Groups, Food & Agriculture Organization of the United Nations (Rome)
• World Commodity Forecasts, Economist Intelligence Unit (London)
• World Cotton Statistics, International Cotton Advisory Committee (Washington)
• World Metals Statistics, World Bureau of Metal Statistics (London)

Contract Characteristics

In order to decide whether a specific commodity contract is actually investable, the Index Committee screens the volume and liquidity data of international exchanges, published on a regular basis by the Futures Industry Association (Washington, DC, United States). Additionally individual exchange data on contracts may also be included in the process.

If a commodity contract trades on more than one exchange, the most liquid contract globally, in terms of volume and open interest combined, is then selected for inclusion in the Rogers Index, taking legal considerations into account. Beyond liquidity, the Index Committee seeks to include the contract representing the highest quality grade of a specific commodity.

Rogers Index Weightings

As of the date of this reference asset supplement, the Rogers Index components have the initial weightings listed in the following chart (the “Initial Weightings”). The Initial Weightings may be amended from time to time, as described below.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude Oil</td>
<td>21.00%</td>
</tr>
<tr>
<td>Brent Oil</td>
<td>14.00%</td>
</tr>
<tr>
<td>Wheat</td>
<td>7.00%</td>
</tr>
<tr>
<td>Corn</td>
<td>4.75%</td>
</tr>
<tr>
<td>Cotton</td>
<td>4.05%</td>
</tr>
</tbody>
</table>
### Commodity Allocation

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>4.00%</td>
</tr>
<tr>
<td>Aluminum</td>
<td>4.00%</td>
</tr>
<tr>
<td>Soybeans</td>
<td>3.00%</td>
</tr>
<tr>
<td>Gold</td>
<td>3.00%</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>3.00%</td>
</tr>
<tr>
<td>Bean Oil</td>
<td>2.00%</td>
</tr>
<tr>
<td>Live Cattle</td>
<td>2.00%</td>
</tr>
<tr>
<td>Silver</td>
<td>2.00%</td>
</tr>
<tr>
<td>Sugar</td>
<td>2.00%</td>
</tr>
<tr>
<td>Coffee</td>
<td>2.00%</td>
</tr>
<tr>
<td>Lead</td>
<td>2.00%</td>
</tr>
<tr>
<td>Zinc</td>
<td>2.00%</td>
</tr>
<tr>
<td>Heat Oil</td>
<td>1.80%</td>
</tr>
<tr>
<td>Platinum</td>
<td>1.80%</td>
</tr>
<tr>
<td>RBOB Gasoline</td>
<td>3.00%</td>
</tr>
<tr>
<td>Gas Oil</td>
<td>1.20%</td>
</tr>
<tr>
<td>Lumber</td>
<td>1.00%</td>
</tr>
<tr>
<td>Lean Hogs</td>
<td>1.00%</td>
</tr>
<tr>
<td>Cocoa</td>
<td>1.00%</td>
</tr>
<tr>
<td>Nickel</td>
<td>1.00%</td>
</tr>
<tr>
<td>Tin</td>
<td>1.00%</td>
</tr>
<tr>
<td>Rubber</td>
<td>1.00%</td>
</tr>
<tr>
<td>Bean Meal</td>
<td>0.75%</td>
</tr>
<tr>
<td>Canola</td>
<td>0.67%</td>
</tr>
<tr>
<td>OJ</td>
<td>0.66%</td>
</tr>
<tr>
<td>Oats</td>
<td>0.50%</td>
</tr>
<tr>
<td>Rice</td>
<td>0.50%</td>
</tr>
<tr>
<td>Azuki Beans</td>
<td>0.50%</td>
</tr>
<tr>
<td>Palladium</td>
<td>0.30%</td>
</tr>
<tr>
<td>Barley</td>
<td>0.27%</td>
</tr>
<tr>
<td>Wool</td>
<td>0.25%</td>
</tr>
</tbody>
</table>

### Changes in Weights and/or Index Composition

The Index Committee reviews the selection and weighting of the futures contracts in the Rogers Index annually. Thus, weights are potentially reassigned during each month of December for the following year, if the Index Committee so determines in its sole discretion.

### Monthly Rolling of Contracts

On the close of the last business day of each month, all the futures contracts used to calculate the Rogers Index, except for the contracts traded on the London Metal Exchange, are rolled. Generally, if the next calendar month of a futures contract includes a first notice day, a delivery day or historical evidence that liquidity migrates to a next contract month during this period, then the next contract month is intended to be applied to calculate the Rogers Index, taking legal constraints into account. For example, on the close of the last business day of November, the January Crude Oil contract is replaced by the February Crude Oil contract. If the exchange on which one of the Rogers Index components is closed the last business day of the month, the roll of this specific contract takes place the next business day for that exchange.

### Rebalancing of the Rogers Index Components

On the close of the last business day of each month, the current weight of each Rogers Index component is rebalanced in order to be set at its Initial Weighting. If the exchange on which one of the
Rogers Index components is traded is closed on the last business day of the month, the reference price for the calculation of the weighting of this specific component is the closing price of the next business day. This rule is also valid if there is more than one component that cannot be traded on the last business day of the month.

Data Source

The Rogers Index calculation is based on the official commodity exchanges’ prices of the futures contracts used. Diapason is not responsible for the existence of any errors, delays, omissions or inaccuracies in data provided by a third party to Diapason that is used by Diapason to calculate the Rogers Index.

Market Disruption

If, for any reason, one of the Rogers Index components ceases to exist or its liquidity collapses to unacceptable levels, or any other similar event occurs with similar consequences, as determined at the discretion of the Index Committee, the Index Committee will call an exceptional meeting to assess the situation and decide on a replacement for this component or on a change in the weighting. For example, following a currency board on the Malaysian ringgit in 1998, the liquidity of the Palm Oil futures contract on the Kuala Lumpur Commodity Exchange collapsed to a point where it became impossible to trade it. In that case, the Index Committee, calling an exceptional meeting, decided to replace the Palm Oil futures contract with the Soybean Oil contract that trades on the Chicago Board of Trade.

Reference Rates

The foreign exchange rates used to translate the value of the futures contracts denominated in a foreign currency into U.S dollars are obtained from Bloomberg. This is the “close” value for each currency taken at 5:00 p.m. New York time.

Calculation of the Rogers Index

Diapason is responsible for calculating the Rogers Index and disseminating quotes of the Rogers Index continuously from 8:30 a.m. to 8:30 p.m. Central European Time on the Rogers Index business days.

Excess Return vs. Total Return

The Rogers Index reflects the returns that are potentially available through an unleveraged investment in the futures contracts on physical commodities composing the Rogers Index. The Rogers International Commodity Index® (Total Return), a “total return” index, reflects those returns as well as any interest that could be earned on cash collateral invested in 3-month treasury bills. The term “Excess Return” in the title of the Rogers Index is not intended to suggest that the performance of the Rogers Index at any time or the return on your notes will be positive or that the Rogers Index is designed to exceed a particular benchmark.

License Agreement

The notes are not sponsored, endorsed, sold or promoted by Beeland Interests, Diapason or any of their respective subsidiaries or affiliates, and none of Beeland Interests, Diapason or any of their respective subsidiaries or affiliates makes any representation regarding the advisability of investing in such products.

Beeland Interests, Diapason and Royal Bank have entered into a non-exclusive license agreement providing for the license to Royal Bank, and certain of its affiliated or subsidiary companies, in exchange for a fee, of the right to use the Rogers Index.
Neither Beeland Interests, Diapason nor any of their respective affiliates makes any representation or warranty, express or implied, to the owners of or counterparts to the notes or any member of the public regarding the advisability of investing in securities or commodities generally or in the notes particularly. The only relationship of Beeland Interests, Diapason or any of their respective subsidiaries or affiliates to Royal Bank is the licensing of certain trademarks, trade names and service marks and of the Rogers International Commodity Index® Excess Return℠, which is determined, composed and calculated by the Index Committee without regard to Royal Bank or the notes. Neither Beeland Interests, Diapason or the Index Committee has any obligation to take the needs of Royal Bank or the owners of the notes into consideration in determining, composing or calculating the Rogers International Commodity Index® Excess Return℠. None of Beeland Interests, Diapason or any of their respective subsidiaries or affiliates is responsible for or has participated in the determination of the timing of, prices at, or quantities of the notes to be issued or in the determination or calculation of the equation by which the notes are to be converted into cash. None of Beeland Interests, Diapason or any of their respective subsidiaries or affiliates shall have any obligation or liability, including without limitation to notes customers, in connection with the administration, marketing or trading of the notes. Notwithstanding the foregoing, Beeland Interests, Diapason and their respective subsidiaries or affiliates may independently issue and/or sponsor financial products unrelated to the notes currently being issued by Royal Bank, but which may be similar to and competitive with the notes. In addition, Beeland Interests, Diapason and their respective subsidiaries or affiliates may actively trade commodities, commodity indices and commodity futures (including the Rogers International Commodity Index® Excess Return℠), as well as swaps, options and derivatives which are linked to the performance of such commodities, commodity indices and commodity futures. It is possible that this trading activity will affect the value of the Rogers International Commodity Index® Excess Return℠ and the notes.

This reference asset supplement relates only to the notes and does not relate to the exchange-traded physical commodities underlying any of the Rogers International Commodity Index® Excess Return℠ components. Purchasers of the notes should not conclude that the inclusion of a futures contract in the Rogers International Commodity Index® Excess Return℠ is any form of investment recommendation of the futures contract or the underlying exchange-traded physical commodity by Beeland Interests, Diapason or any of their respective subsidiaries or affiliates. The information in the reference asset supplement regarding the exchange-traded futures contracts on physical commodities which compose the Rogers International Commodity Index® Excess Return℠ components has been derived solely from publicly available documents. None of Beeland Interests, Diapason or any of their respective subsidiaries or affiliates has made any due diligence inquiries with respect to the exchange-traded futures contracts which compose the Rogers International Commodity Index® Excess Return℠ in connection with the notes. None of Beeland Interests, Diapason or any of their respective subsidiaries or affiliates makes any representation that these publicly available documents or any other publicly available information regarding the exchange-traded futures contracts which compose the Rogers International Commodity Index® Excess Return℠, including without limitation a description of factors that affect the prices of such exchange-traded futures contracts, are accurate or complete.

NONE OF BEELAND INTERESTS, DIAPASON OR ANY OF THEIR RESPECTIVE SUBSIDIARIES OR AFFILIATES GUARANTEES THE ACCURACY AND/OR THE COMPLETENESS OF THE ROGERS INTERNATIONAL COMMODITY INDEX® EXCESS RETURN℠ OR ANY DATA INCLUDED THEREIN AND NONE OF BEELAND INTERESTS, DIAPASON OR ANY OF THEIR RESPECTIVE SUBSIDIARIES OR AFFILIATES SHALL HAVE ANY LIABILITY FOR ANY ERRORS, OMISSIONS OR INTERRUPTIONS THEREIN. NONE OF BEELAND INTERESTS, DIAPASON OR ANY OF THEIR RESPECTIVE SUBSIDIARIES OR AFFILIATES MAKES ANY WARRANTY, EXPRESS OR IMPLIED, AS TO RESULTS TO BE OBTAINED BY ROYAL BANK, OWNERS OF THE SECURITIES, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE ROGERS INTERNATIONAL COMMODITY INDEX® EXCESS RETURN℠ OR ANY DATA INCLUDED THEREIN. NONE OF BEELAND INTERESTS, DIAPASON OR ANY OF THEIR RESPECTIVE SUBSIDIARIES OR AFFILIATES MAKES ANY EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIMS ALL WARRANTIES OF
The Commodity Futures Markets

For descriptions of the commodity future markets, see page R-21.

The Russell 1000 Growth® Index

We have obtained all information regarding the Russell 1000 Growth® Index contained in this reference asset supplement, including its make-up, method of calculation and changes in its components, from publicly available information. That information reflects the policies of, and is subject to change by, Frank Russell Company (the “Russell 1000 Growth® Index Sponsor”). The Russell 1000 Growth® Index Sponsor has no obligation to continue to publish, and may discontinue publication of the Russell 1000 Growth® Index at any time. We make no representation or warranty as to the accuracy or completeness of such information.

The Russell 1000 Growth® Index is calculated, published and disseminated by Frank Russell Company, and measures the composite price performance of those stocks included in the Russell 1000® Index, all of which are incorporated in the United States and its territories, that have been determined by the Frank Russell Company to be growth oriented, with higher price-to-book ratios and higher forecasted growth values (each a “component stock” and collectively the “component stocks”). All component stocks are traded on either a major U.S. stock exchange or in the over-the-counter (“OTC”) market.

Selection of Component Stocks Included in the Russell 1000 Growth® Index

To be eligible for inclusion in the Russell 1000 Growth® Index, a company’s stocks must be listed on May 31 of a given year and Frank Russell Company must have access to documentation verifying the company’s eligibility for inclusion. Only common stocks belonging to corporations incorporated in the United States and its territories are eligible for inclusion in the Russell 1000 Growth® Index. The following securities are specifically excluded from the Russell 1000 Growth® Index: (i) stocks traded on U.S. exchanges but incorporated in other countries; (ii) preferred and convertible preferred stock, redeemable shares, participating preferred stock, warrants and rights; and (iii) trust receipts, royalty trusts, limited liability companies, OTC Bulletin Board companies, pink sheets, closed-end mutual funds and limited partnerships that are traded on U.S. exchanges.

The primary criteria used to determine the initial list of securities eligible for the Russell 1000 Growth® Index is total market capitalization, which is defined as the price of the shares times the total number of available shares. All common stock share classes are combined in determining market capitalization. If multiple share classes have been combined, the price of the primary vehicle (usually the most liquid) is used in the calculations. In cases where the common stock share classes act independently (e.g., tracking stocks), each class is considered for inclusion separately. Stocks must trade at or above $1.00 on May 31 of each year to be eligible for inclusion in the Russell 1000 Growth® Index. However, if a stock falls below $1.00 intrayear, it will not be removed until the next reconstitution of the Russell 1000 Growth® Index if it is still trading below $1.00.

The Russell 1000 Growth® Index is reconstituted annually to reflect changes in the marketplace. The list of companies is ranked based on May 31 total market capitalization, with the actual reconstitution...
effective on the first trading day following the final Friday of June each year. Changes in the constituent stocks are preannounced and subject to change if any corporate activity occurs or if any new information is received prior to release.

The level of the Russell 1000 Growth® Index at any time does not reflect the payment of dividends on the component stocks included in the Russell 1000 Growth® Index. Because of this factor, the return on the notes will not be the same as the return you would receive if you were to purchase these stocks and hold them for a period equal to the term of the offered notes.

**Computation of the Russell 1000 Growth® Index**

The market value of each security in the Russell 1000 Growth® Index is determined as a percentage of the market value within the Russell 1000® Index. A security designated as 100% growth will hold the same market value in the Russell 1000 Growth® Index as in the Russell 1000® Index. A security designated as 50% growth will be included at half the market value in the Russell 1000 Growth® Index as in the Russell 1000® Index. As a capitalization-weighted index, the Russell 1000 Growth® Index reflects changes in the capitalization, or market value, of the component stocks relative to their capitalization on a base date. The current Russell 1000 Growth® Index value is calculated by adding the market values of the Russell 1000 Growth® Index’s component stocks, which are derived by multiplying the price of each stock by the number of available shares, to arrive at the total market capitalization of the 1,000 stocks. The total market capitalization is then divided by a divisor. To calculate the Russell 1000 Growth® Index, last sale prices will be used for exchange-traded and Nasdaq Global Market stocks. If a component stock is not open for trading, the most recently traded price for that security will be used in calculating the Russell 1000 Growth® Index. In order to provide continuity for the Russell 1000 Growth® Index value, the divisor is adjusted periodically to reflect events including changes in the number of common shares outstanding for component stocks, company additions or deletions, corporate restructurings and other capitalization changes.

Russell uses a “non-linear probability” method to assign growth and value weights to stocks, where the term “probability” is used to indicate the degree of certainty that a stock is value or growth based on its relative book-to-price ratio and I/B/E/S forecast long-term growth mean. This method allows stocks to be represented as having both growth and value characteristics, while preserving the additive nature of the index.

A process for assigning growth and value weights is applied to the stocks after the index is comprised. Stocks are ranked by their adjusted book-to-price ratio and their I/B/E/S forecast long-term growth mean. These rankings are converted to standardized units and combined to produce a composite value score (“CVS”). Stocks are then ranked by their CVS, and a probability algorithm is applied to the CVS distribution to assign growth and value.

Available shares are assumed to be shares available for trading. Exclusion of capitalization held by other listed companies and large holdings of private investors (10% or more) is based on information recorded in SEC corporate filings. Other sources are used in cases of missing or questionable data.

The following types of shares are considered unavailable for the purposes of capitalization determinations:

- ESOP or LESOP shares — corporations that have Employee Stock Ownership Plans that comprise 10% or more of the shares outstanding are adjusted;

- Corporate cross-owned shares — when shares of a corporation included in the Russell 1000 Growth® Index are held by another corporation also included in the Russell 1000 Growth®
Index, this is considered corporate cross-ownership. Any percentage held in this class will be adjusted;

- Large private and corporate shares — large private and corporate holdings are defined as those shares held by an individual, a group of individuals acting together or a corporation not included the Russell 1000 Growth® Index that own 10% or more of the shares outstanding. However, not to be included in this class are institutional holdings, which are: investment companies, partnerships, insurance companies, mutual funds, banks or venture capitals;

- Unlisted share classes — classes of common stock that are not traded on a U.S. securities exchange; and

- Initial public offering lock-ups — shares locked-up during an initial public offering are not available to the public and will be excluded from the market value at the time the initial public offering enters the Russell 1000 Growth® Index.

**Corporate Actions Affecting the Russell 1000 Growth® Index.**

The following summarizes the types of Russell 1000 Growth® Index maintenance adjustments and indicates whether or not an adjustment to the Russell 1000 Growth® Index is required.

- “No Replacement” Rule — Securities that leave the Russell 1000 Growth® Index, between reconstitution dates, for any reason (e.g., mergers, acquisitions or other similar corporate activity) are not replaced. Thus, the number of securities in the Russell 1000 Growth® Index over the past year will fluctuate according to corporate activity.

- Deleted Stocks — Effective on January 1, 2002, when deleting stocks from the Russell 1000 Growth® Index as a result of exchange de-listing or reconstitution, the price used will be the market price on the day of deletion, including potentially the OTC Bulletin Board price. Previously, prices used to reflect de-listed stocks were the last traded price on the primary exchange.

- Exceptions — There may be corporate events, like mergers or acquisitions, that result in the lack of current market price for the deleted security and in such an instance the latest primary exchange closing price available will be used.

- Rule for Additions — The only additions between reconstitution dates are as a result of spin-offs and initial public offerings. Spin-off companies are added to the parent company’s index and capitalization tier of membership, if the spin-off is large enough. To be eligible, the spun-off company’s total market capitalization must be greater than the market-adjusted total market capitalization of the smallest security in the Russell 1000 Growth® Index at the latest reconstitution.

- Rule for Corporate Action-Driven Changes — Beginning April 1, 2003 changes resulting from corporate actions will generally be applied at the open of the ex-date using the previous day’s closing prices. For reclassification of shares, mergers and acquisitions, spin-offs or reorganizations, adjustments will be made at the open of the ex-date using previous day closing prices. For reincorporations and exchange de-listing, deleted entities will be removed at the open on the day following re-incorporation or delisting using previous day closing prices (including OTC prices for de-listed stocks).

- Quarterly IPO Additions — Eligible companies that have recently completed an initial public offering (“IPO”) are added to the Russell 1000 Growth® Index at the end of each calendar...
quarter based on total market capitalization ranking within the market-adjusted capitalization breaks established during the most recent reconstitution. Market adjustments will be made using the returns of the Russell 1000 Growth® Index. Eligible companies will be added to the Russell 1000 Growth® Index using their industry’s average style probability established at the latest constitution.

Each month, the Russell 1000 Growth® Index is updated for changes to shares outstanding as companies report changes in share capital to the Commission. Effective April 30, 2002 only cumulative changes to shares outstanding greater than 5% will be reflected in the Russell 1000 Growth® Index. This does not affect treatment of major corporate events, which are effective on the ex-date.

License Agreement with Frank Russell Company

Frank Russell Company and Royal Bank have entered into a non-exclusive license agreement providing for the license to Royal Bank, its subsidiaries and affiliates, in exchange for a fee, of the right to use indices owned and published by Frank Russell Company in connection with some securities, including the securities.

Frank Russell Company does not guarantee the accuracy and/or the completeness of the Russell 1000® Growth Index, the Russell 1000 Value® Index or the Russell 2000® Index or any data included in those indices and has no liability for any errors, omissions, or interruptions in those indices. Frank Russell Company makes no warranty, express or implied, as to results to be obtained by the calculation agent, holders of the securities, or any other person or entity from the use of the Russell 1000® Growth Index, the Russell 1000 Value® Index or the Russell 2000® Index or any data included in those indices in connection with the rights licensed under the license agreement described in this reference asset supplement or for any other use. Frank Russell Company makes no express or implied warranties, and hereby expressly disclaims all warranties of merchantability or fitness for a particular purpose with respect to the Russell 1000® Growth Index, the Russell 1000 Value® Index or the Russell 2000® Index or any data included in those indices. Without limiting any of the above information, in no event will Frank Russell Company have any liability for any special, punitive, indirect or consequential damages, including lost profits, even if notified of the possibility of these damages.

The notes are not sponsored, endorsed, sold or promoted by Frank Russell Company. Frank Russell Company makes no representation or warranty, express or implied, to the owners of the notes or any member of the public regarding the advisability of investing in securities generally or in the notes particularly or the ability of the Russell 1000® Growth Index, the Russell 1000 Value® Index or the Russell 2000® Index to track general stock market performance or a segment of the same. Frank Russell Company’s publication of the Russell 1000® Growth Index, the Russell 1000 Value® Index or the Russell 2000® Index in no way suggests or implies an opinion by Frank Russell Company as to the advisability of investment in any or all of the stocks upon which those indices are based. Frank Russell Company’s only relationship to Royal Bank is the licensing of certain trademarks and trade names of Frank Russell Company and of the Russell 1000® Growth Index, the Russell 1000 Value® Index or the Russell 2000® Index, which are determined, composed and calculated by Frank Russell Company without regard to Royal Bank or the notes. Frank Russell Company is not responsible for and has not reviewed the notes nor any associated literature or publications and Frank Russell Company makes no representation or warranty express or implied as to their accuracy or completeness, or otherwise. Frank Russell Company reserves the right, at any time and without notice, to alter, amend, terminate or in any way change the Russell 1000® Growth Index, the Russell 1000 Value® Index or the Russell 2000® Index. Frank Russell Company has no obligation or liability in connection with the administration, marketing or trading of the notes.

Russell 1000® Growth Index, the Russell 1000 Value® Index and the Russell 2000® Index are registered trademarks of Russell Investment Group in the U.S. and other countries.
The Russell 1000 Value® Index

We have obtained all information regarding the Russell 1000 Value® Index contained in this reference asset supplement, including its make-up, method of calculation and changes in its components, from publicly available information. That information reflects the policies of, and is subject to change by, Frank Russell Company (the “Russell 1000 Value® Index Sponsor”). The Russell 1000 Value® Index Sponsor has no obligation to continue to publish, and may discontinue publication of the Russell 1000 Value® Index at any time. We make no representation or warranty as to the accuracy or completeness of such information.

The Russell 1000 Value® Index is calculated, published and disseminated by Frank Russell Company, and measures the composite price performance of those stocks included in the Russell 1000® Index, all of which are incorporated in the United States and its territories, that have been determined by the Frank Russell Company to be value oriented, with lower price-to-book ratios and lower forecasted growth values (each a “component stock” and collectively the “component stocks”). All component stocks are traded on either a major U.S. stock exchange or in the over-the-counter (“OTC”) market.

Selection of Component Stocks Included in the Russell 1000 Value® Index

To be eligible for inclusion in the Russell 1000 Value® Index, a company’s stocks must be listed on May 31 of a given year and Frank Russell Company must have access to documentation verifying the company’s eligibility for inclusion. Only common stocks belonging to corporations incorporated in the United States and its territories are eligible for inclusion in the Russell 1000 Value® Index. The following securities are specifically excluded from the Russell 1000 Value® Index: (i) stocks traded on U.S. exchanges but incorporated in other countries; (ii) preferred and convertible preferred stock, redeemable shares, participating preferred stock, warrants and rights; and (iii) trust receipts, royalty trusts, limited liability companies, OTC Bulletin Board companies, pink sheets, closed-end mutual funds and limited partnerships that are traded on U.S. exchanges.

The primary criteria used to determine the initial list of securities eligible for the Russell 1000 Value® Index is total market capitalization, which is defined as the price of the shares times the total number of available shares. All common stock share classes are combined in determining market capitalization. If multiple share classes have been combined, the price of the primary vehicle (usually the most liquid) is used in the calculations.

In cases where the common stock share classes act independently of each other (e.g., tracking stocks), each class is considered for inclusion separately. Stocks must trade at or above $1.00 on May 31 of each year to be eligible for inclusion in the Russell 1000 Value® Index. However, if a stock falls below $1.00 intra-year, it will not be removed until the next reconstitution if it is still trading below $1.00.

The Russell 1000 Value® Index is reconstituted annually to reflect changes in the marketplace. The list of companies is ranked based on May 31 total market capitalization, with the actual reconstitution effective on the first trading day following the final Friday of June each year. Changes in the constituent stocks are preannounced and subject to change if any corporate activity occurs or if any new information is received prior to release.

The level of the Russell 1000 Value® Index at any time does not reflect the payment of dividends on the component stocks included in the Russell 1000 Value® Index. Because of this factor, the return on the notes will not be the same as the return you would receive if you were to purchase these stocks and hold them for a period equal to the term of the offered notes.
The market value of each security in the Russell 1000 Value® Index is determined as a percentage of the market value within the Russell 1000® Index. A security designated as 100% value will hold the same market value in the Russell 1000 Value® Index as in the Russell 1000® Index. A security designated as 50% value will be included at half the market value in the Russell 1000 Value® Index as in the Russell 1000® Index. As a capitalization-weighted index, the Russell 1000 Value® Index reflects changes in the capitalization, or market value, of the component stocks relative to their capitalization on a base date. The current Russell 1000 Value® Index value is calculated by adding the market values of the Russell 1000 Value® Index’s component stocks, which are derived by multiplying the price of each stock by the number of available shares, to arrive at the total market capitalization of the 1,000 stocks. The total market capitalization is then divided by a divisor. To calculate the Russell 1000 Value® Index, last sale prices will be used for exchange-traded and Nasdaq Global Market stocks.

If a component stock is not open for trading, the most recently traded price for that security will be used in calculating the Russell 1000 Value® Index. In order to provide continuity for the Russell 1000 Value® Index value, the divisor is adjusted periodically to reflect events including changes in the number of common shares outstanding for component stocks, company additions or deletions, corporate restructurings and other capitalization changes.

Russell uses a “non-linear probability” method to assign growth and value weights to stocks, where the term “probability” is used to indicate the degree of certainty that a stock is value or growth based on its relative book-to-price ratio and I/B/E/S forecast long-term growth mean. This method allows stocks to be represented as having both growth and value characteristics, while preserving the additive nature of the index.

A process for assigning growth and value weights is applied to the stocks after the index is comprised. Stocks are ranked by their adjusted book-to-price ratio and their I/B/E/S forecast long-term growth mean. These rankings are converted to standardized units and combined to produce a composite value score (“CVS”). Stocks are then ranked by their CVS, and a probability algorithm is applied to the CVS distribution to assign growth and value.

Available shares are assumed to be shares available for trading. Exclusion of capitalization held by other listed companies and large holdings of private investors (10% or more) is based on information recorded in SEC corporate filings. Other sources are used in cases of missing or questionable data.

The following types of shares are considered unavailable for the purposes of capitalization determinations:

- ESOP or LESOP shares — corporations that have Employee Stock Ownership Plans that comprise 10% or more of the shares outstanding are adjusted;

- Corporate cross-owned shares — when shares of a corporation included in the Russell 1000 Value® Index are held by another corporation also included in the Russell 1000 Value® Index, this is considered corporate cross-ownership. Any percentage held in this class will be adjusted;

- Large private and corporate shares — large private and corporate holdings are defined as those shares held by an individual, a group of individuals acting together or a corporation not included the Russell 1000 Value® Index that own 10% or more of the shares outstanding. However, not to be included in this class are institutional holdings, which are: investment companies, partnerships, insurance companies, mutual funds, banks or venture capitals;
- Unlisted share classes — classes of common stock that are not traded on a U.S. securities exchange; and

- Initial public offering lock-ups — shares locked-up during an initial public offering are not available to the public and will be excluded from the market value at the time the initial public offering enters the Russell 1000 Value® Index.

**Corporate Actions Affecting the Russell 1000 Value® Index**

The following summarizes the types of Russell 1000 Value® Index maintenance adjustments and indicates whether or not an adjustment to the Russell 1000 Value® Index is required:

- “No Replacement” Rule — Securities that leave the Russell 1000 Value® Index, between reconstitution dates, for any reason (e.g., mergers, acquisitions or other similar corporate activity) are not replaced. Thus, the number of securities in the Russell 1000 Value® Index over the past year will fluctuate according to corporate activity.

- Deleted Stocks — Effective on January 1, 2002, when deleting stocks from the Russell 1000 Value® Index as a result of exchange de-listing or reconstitution, the price used will be the market price on the day of deletion, including potentially the OTC Bulletin Board price. Previously, prices used to reflect de-listed stocks were the last traded price on the primary exchange.

- Exceptions — There may be corporate events, like mergers or acquisitions, that result in the lack of current market price for the deleted security and in such an instance the latest primary exchange closing price available will be used.

- Rule for Additions — The only additions between reconstitution dates are as a result of spin-offs and initial public offerings. Spin-off companies are added to the parent company’s index and capitalization tier of membership, if the spin-off is large enough. To be eligible, the spun-off company’s total market capitalization must be greater than the market-adjusted total market capitalization of the smallest security in the Russell 1000 Value® Index at the latest reconstitution.

- Rule for Corporate Action-Driven Changes — Beginning April 1, 2003 changes resulting from corporate actions will generally be applied at the open of the ex-date using the previous day’s closing prices. For reclassification of shares, mergers and acquisitions, spin-offs or reorganizations, adjustments will be made at the open of the ex-date using previous day closing prices. For reincorporations and exchange de-listing, deleted entities will be removed at the open on the day following re-incorporation or delisting using previous day closing prices (including OTC prices for de-listed stocks).

- Quarterly IPO Additions — Eligible companies that have recently completed an initial public offering (“IPO”) are added to the Russell 1000 Value® Index at the end of each calendar quarter based on total market capitalization ranking within the market-adjusted capitalization breaks established during the most recent reconstitution. Market adjustments will be made using the returns of the Russell 1000 Value® Index. Eligible companies will be added to the Russell 1000 Value® Index using their industry’s average style probability established at the latest constitution.

Each month, the Russell 1000 Value® Index is updated for changes to shares outstanding as companies report changes in share capital to the Commission. Effective April 30, 2002 only cumulative
changes to shares outstanding greater than 5% will be reflected in the Russell 1000 Value® Index. This does not affect treatment of major corporate events, which are effective on the ex-date.

**Russell 2000® Index**

We have derived all information regarding the Russell 2000® Index contained in this reference asset supplement, including its make-up, method of calculation, and changes in its components, from publicly available information. That information reflects the policies of, and is subject to change by, Frank Russell Company (the “Russell 2000® Index Sponsor”). The Russell 2000® Index Sponsor has no obligation to continue to publish, and may discontinue publication of, the Russell 2000® Index. We do not assume any responsibility for the accuracy or completeness of any information relating to the Russell 2000® Index. The Russell 2000® Index is an index calculated, published, and disseminated by the Russell 2000® Index Sponsor, and measures the composite price performance of stocks of 2,000 companies incorporated and domiciled in the United States and its territories. All 2,000 stocks are traded on the New York Stock Exchange, the American Stock Exchange LLC, or Nasdaq, and form a part of the Russell 3000® Index. The Russell 3000® Index is composed of the 3,000 largest United States companies as determined by market capitalization and represents approximately 98.00% of the United States equity market. The Russell 2000® Index consists of the smallest 2,000 companies included in the Russell 3000® Index. The Russell 2000® Index is designed to track the performance of the small capitalization segment of the United States equity market.

**Stocks Included in the Russell 2000® Index**

Only common stocks belonging to corporations domiciled in the United States and its territories are eligible for inclusion in the Russell 3000® Index and the Russell 2000® Index. Stocks traded on United States exchanges but domiciled in other countries are excluded. Preferred and convertible preferred stock, redeemable shares, participating preferred stock, paired shares, warrants, and rights also are excluded. Trust receipts, royalty trusts, limited liability companies, OTC Bulletin Board companies, pink sheets, closed-end mutual funds, and limited partnerships that are traded on United States exchanges also are ineligible for inclusion. Real Estate Investment Trusts and Beneficial Trusts, however, are eligible for inclusion.

In general, only one class of securities of a company is allowed in the Russell 2000® Index, although exceptions to this general rule have been made where the Russell 2000® Index Sponsor has determined that each class of securities acts independently of the other. Stocks must trade at or above $1.00 on May 31 of each year to be eligible for inclusion in the Russell 2000® Index. However, if a stock falls below $1.00 intra-year, it will not be removed until the next reconstitution if it is still trading below $1.00.

The primary criterion used to determine the initial list of securities eligible for the Russell 3000® Index is total market capitalization, which is defined as the price of a company’s shares times the total number of available shares, as described below. Based on closing values on May 31 of each year, the Russell 2000® Index Sponsor reconstitutes the composition of the Russell 3000® Index using the then existing market capitalizations of eligible companies. As of the last Friday in June of each year, the Russell 2000® Index is adjusted to reflect the reconstitution of the Russell 3000® Index for that year. Real-time dissemination of the Russell 2000® Index began on January 1, 1987.

**Computation of the Russell 2000® Index**

As a capitalization-weighted index, the Russell 2000® Index reflects changes in the capitalization, or market value, of the component stocks relative to the capitalization on a base date. The current Russell 2000® Index value is calculated by adding the market values of the Russell 2000® Index’s component stocks, which are derived by multiplying the price of each stock by the number of available shares, to arrive
at the total market capitalization of the 2,000 stocks. The total market capitalization is then divided by a
divisor, which represents the “adjusted” capitalization of the Russell 2000® Index on the base date of
December 31, 1986. To calculate the Russell 2000® Index, last sale prices will be used for exchange-traded
and Nasdaq stocks. If a component stock is not open for trading, the most recently traded price for that
security will be used in calculating the Russell 2000® Index. In order to provide continuity for the Russell
2000® Index’s value, the divisor is adjusted periodically to reflect certain events, including changes in the
number of common shares outstanding for component stocks, company additions or deletions, corporate
restructurings, and other capitalization changes.

Available shares are assumed to be shares available for trading. Exclusion of capitalization held
by other listed companies and large holdings of private investors (10.00% or more) is based on information
recorded in notes and Exchange Commission filings. Other sources are used in cases of missing or
questionable data.

The following types of shares are considered unavailable for the purposes of capitalization
determinations:

- ESOP or LESOP shares—shares of corporations that have Employee Stock Ownership Plans
  that comprise 10.00% or more of the shares outstanding are adjusted;

- Corporate cross-owned shares—when shares of a company in the index are held by another
  company also in the index, this is considered corporate cross-ownership. Any percentage held
  in this class will be adjusted;

- Large private and corporate shares—when an individual, a group of individuals acting
  together, or a corporation not in the index owns 10.00% or more of the shares outstanding.
  However, institutional holdings (investment companies, partnerships, insurance companies,
  mutual funds, banks, or venture capital companies) are not included in this class; and

- Unlisted share classes—classes of common stock that are not traded on a United States
  securities exchange or Nasdaq.

The following summarizes the types of Russell 2000® Index maintenance adjustments and
indicates whether or not an index adjustment is required:

- “No Replacement” Rule—Securities that leave the Russell 2000® Index, between
  reconstitution dates, for any reason (e.g., mergers, acquisitions, or other similar corporate
  activity) are not replaced. Thus, the number of securities in the Russell 2000® Index over a
  year will fluctuate according to corporate activity.

- Rule for Corporate Action-Driven Changes—When a stock is acquired, delisted or moves to
  the pink sheets or bulletin boards on the floor of a United States securities exchange, the stock
  is deleted from the Russell 2000® Index at the open of trading on the ex-date using the
  previous day’s closing prices.

- When acquisitions or mergers take place within the Russell 2000® Index, the stock’s
  capitalization moves to the acquiring stock; as a result, mergers have no effect on the index
  total capitalization. Shares are updated for the acquiring stock at the time the transaction is
  final.

- Deleted Stocks—When deleting stocks from the Russell 2000® Index as a result of exchange
delisting or reconstitution, the price used is the market price on the day of deletion, including
potentially the OTC Bulletin Board price. Previously, prices used to reflect delisted stocks
were the last traded price on the primary exchange. There may be corporate events, like mergers or acquisitions, that result in the lack of a current market price for the deleted security, and in such an instance the latest primary exchange closing price available will be used.

- Additions for Spin-Offs—Spin-off companies are added to the parent company’s index and capitalization tier of membership, if the spin off is large enough. To be eligible, the spun-off company’s total market capitalization must be greater than the market-adjusted total market capitalization of the smallest security in the Russell Index at the latest reconstitution.

- Quarterly IPO Additions—Eligible companies that have recently completed an initial public offering are added to the Russell 2000® Index at the end of each calendar quarter based on total market capitalization ranking within the market-adjusted capitalization breaks established during the most recent reconstitution. Market adjustments will be made using the returns of the Russell 3000® Index. Eligible companies will be added to the Russell 2000® Index using their industry’s average style probability established at the latest constitution.

In order to be added in a quarter outside of reconstitution, the IPO company must meet all Russell U.S. Index eligibility requirements. Additionally, the IPO company must meet the following criteria on the final trading day of the month prior to quarter-end: (1) price/trade; (2) rank larger in total market capitalization than the market-adjusted smallest company in the Russell 3000® Index as of the latest June reconstitution; and (3) meet criteria (1) and (2) during an initial offering period.

Each month, the Russell 2000® Index is updated for changes to shares outstanding as companies report changes in share capital to the Securities and Exchange Commission. Only cumulative changes to shares outstanding greater than 5.00% are reflected in the Russell 2000® Index. This does not affect treatment of major corporate events, which are effective on the ex-date.

Neither we nor any of our affiliates, including the agents, accepts any responsibility for the calculation, maintenance, or publication of, or for any error, omission, or disruption in, the Russell 2000® Index or any successor Russell 2000® Index. The Russell 2000® Index Sponsor does not guarantee the accuracy or the completeness of the Russell 2000® Index or any data included in the Russell 2000® Index. The Russell 2000® Index Sponsor assumes no liability for any errors, omissions, or disruption in the calculation and dissemination of the Russell 2000® Index. The Russell 2000® Index Sponsor disclaims all responsibility for any errors or omissions in the calculation and dissemination of the Russell 2000® Index or the manner in which the Russell 2000® Index is applied in determining the amount payable at maturity.

License Agreement

We have entered into a non-exclusive license agreement with the Russell 2000® Index Sponsor providing for the license to us and certain of our affiliated or subsidiary companies, in exchange for a fee, of the right to use indices owned and published by the Russell 2000® Index Sponsor (including the Russell 2000® Index) in connection with certain securities, including the notes.

The license agreement between Royal Bank and the Russell Index Sponsor requires that the following language be stated in this reference asset supplement:

The notes are not sponsored, endorsed, sold, or promoted by the Russell 2000® Index Sponsor. The Russell 2000® Index Sponsor makes no representation or warranty, expressed or implied, to you or any member of the public regarding the advisability of investing in securities generally or in the notes particularly or the ability of the Russell 2000® Index to track general stock market performance or a segment of the same. The Russell 2000® Index Sponsor’s publication of the Russell 2000® Index in no way suggests or implies an opinion by the Russell 2000® Index Sponsor as to the advisability of investment in
any or all of the securities upon which the Russell 2000® Index is based. The Russell 2000® Index Sponsor’s only relationship to us is the licensing of certain trademarks and trade names of the Russell 2000® Index Sponsor and of the Russell 2000® Index which is determined, composed, and calculated by the Russell 2000® Index Sponsor without regard to us or the notes. The Russell 2000® Index Sponsor is not responsible for and has not reviewed the notes nor any associated literature or publications and the Russell 2000® Index Sponsor makes no representation or warranty express or implied as to their accuracy or completeness, or otherwise. The Russell 2000® Index Sponsor reserves the right, at any time and without notice, to alter, amend, terminate, or in any way change the Russell 2000® Index. The Russell 2000® Index Sponsor has no obligation or liability in connection with the administration, marketing, or trading of the notes.


Russian Traded Index®

We have obtained all information regarding the Russian Traded Index® contained in this reference asset supplement, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. That information reflects the policies of, and is subject to change by, Wiener Börse. We do not assume any responsibility for the accuracy or completeness of such information. Wiener Börse has no obligation to continue to publish the Russian Traded Index®, and may discontinue publication of the Russian Traded Index® at any time.

The Russian Traded Index® is denominated in U.S. dollars and is designed to represent the performance of the most liquid blue chip stocks of Russia. The index is capped to ensure that no individual company represents more than 25% of the index. It is a real time index designed for use by the international investment community as a basis for derivatives trading. There is no maximum for the number of stocks that may be included in the Russian Traded Index®, however, the index is only meant to reflect the most liquid stocks and will not become a broad market index.

The Russian Traded Index® is primarily rule-based and is monitored by a governing index committee. As of October 3, 2007, there were a total of 12 companies included in the Russian Traded Index®, many of which are traded internationally at more than one trading place. The aggregate market value of the 12 companies was approximately $176 billion. The companies included and the percentage of the index which it comprised is as follows: Gazprom (24.17%), Lukoil (20.37%), Novatek (2.30%), Rostelecom (2.20%), Surgutneftegaz (6.89%), Tatneft (3.55%), Norilsk Nickel (14.62%), Novolipetsk Steel (3.11%), Polyus Gold (2.35%), Rosneft (12.85%), Severstal (3.21%) and VTB Bank (4.40%).

R-95
Selection of Component Stocks Included in the Russian Traded Index®

The Russian Traded Index® is maintained by the Russian Traded Index Committee, whose members include representatives of Wiener Börse, Wiener Börse members, financial institutions issuing financial products on the index, academic circles and local market experts. The Russian Traded Index Committee meets quarterly and decides upon the composition of stocks on the index, as well as adjustments and policies for the index. All members of the Russian Traded Index Committee must act in good faith and with consideration for the interests and protection of investors in making decisions.

The Russian Traded Index Committee adheres to the following criteria in maintaining the Russian Traded Index®:

- **Factors for stock selection.** The factors considered for selecting stocks on the Russian Traded Index® are (a) market capitalization; (b) liquidity; (c) price availability; (d) stock representativity; and (e) market interest. The primary criteria are market capitalization and liquidity. Such quantitative criteria serve as a basis for the Russian Traded Index Committee, whose decisions on the admission and deletion of stocks are guided by these data, as well as their own market knowledge and experience.

- **Types of Shares Eligible/Not Eligible.** Ordinary shares of joint-stock companies domiciled in Russia that are listed and introduced into trading at the local official stock exchange are eligible for inclusion. Different series of shares issued by a company are treated as separate shares, even though only one stock series of a company will generally be admitted. Shares with special privileges, national privatization units, investment funds or similar investment vehicles incorporated as joint-stock companies are not eligible for inclusion.

- **Periodic Reviews of Constituent Companies.** The Russian Traded Index Watch List is the basis for the admission and deletion of stocks. It is used by the Russian Traded Index Committee to conduct periodic reviews of the index composition. The Russian Traded Index Watch List is published on a quarterly basis. The three most actively traded stocks during the last period on the Russian Trading System, which are not yet index members, must be put on the Russian Traded Index Watch List. In addition, new issues and privatized companies may be put on the Russian Traded Index Watch List if so decided by the Russian Traded Index Committee at its quarterly meetings. The Russian Traded Index Watch List also includes index members to be considered for deletion, based on such criteria as low liquidity and market capitalization.

The Russian Traded Index Committee makes all decisions related to periodic adjustment and changes in the index composition based on their quarterly reviews of the constituent companies. Such adjustments include the decision to admit new stocks and the deletion of existing stocks. As a general rule, a stock can only be admitted to or deleted from the Russian Traded Index® if it has been on the Russian Traded Index Watch List for at least one period before the next meeting of the Russian Traded Index Committee. The inclusion of a new stock does not automatically lead to the exclusion of existing stocks in the index, but gradually leads to the replacement of stocks with low levels of liquidity by more liquid stocks.

**Computation of the Russian Traded Index®**

The Russian Traded Index® is determined, comprised and calculated by Wiener Börse without regard to the notes. The stocks on the Russian Traded Index® are adjusted for free float and each has a free float factor. The free float of each index member is defined as the percentage of shares that are effectively available for trading. There are four possible free float factors that an index member can have: .25, -.5, -.75, and -1. That free float factor is selected which exceeds the calculated free float of the company. The
free float factors are used to prevent high-capitalization stocks with a small spread in ownership from exerting a strong influence on the Russian Traded Index® and to accurately represent the investment opportunities in each Russian Traded Index® constituent. The free float factor is determined by the information on disclosed holdings in listed companies provided by the respective trading place, securities registrars, information providers and the relevant notifications by the companies themselves.

The Russian Traded Index® is calculated and disseminated in real-time, with updates every five seconds, on exchange trading days of the Russian Trading System between 09:00 am and 5:00 pm CET. The opening value for the Russian Traded Index® is calculated using the first available mid-rate of an index stock. The closing value of the Russian Traded Index® is calculated on the basis of the last available mid-rate of an index stock. The source of the share prices used for the calculation of the Russian Traded Index® are quotations on the Russian Trading System in US-Dollar as transmitted by Reuters and received by Wiener Börse. The Russian Traded Index® computation is as follows: The Russian Traded Index® at time (t) equals (a) the value of the Russian Traded Index® at time (t-1) multiplied by the quotient of (i) the sum of the product of (w) the best ask quote of the ith stock at time (t), (x) the number of shares of stock issued at time (t-1) (y) the float factor of the ith stock, and (z) the representation factor of the ith stock, and (ii) the sum of the product of (w) the best ask quote of the ith stock at time (t-1), (x) the number of shares of stock issued at time (t-1), (y) the float factor of the ith stock, and (z) the representation factor of the ith stock.

The Russian Traded Index Committee makes operational adjustments to the Russian Traded Index® that are intended to ensure that the index level remains unchanged. The operational adjustments are generally considered and implemented immediately on the days these changes are effective. The types of operational index adjustments that may occur are as follows:

- **Rights Issues**: If a company raises capital through an issue of additional shares to its existing shareholders, the Russian Traded Index® is adjusted on the basis of the subscription right on the exchange concerned on the trading day on which the stock is listed ex-rights.

- **Stock Split and Share Consolidation**: If an index stock is subject to a stock split or consolidation, the number of shares is adjusted as of the first day of listing.

- **Trading Suspensions**: If an index stock is suspended from trading for more than 5 trading days, the Russian Traded Index Committee has to reach a decision on the further procedure.

- **De-listed**: If an index stock is de-listed from the local trading place, the stock will be deleted from the index as of the day of delisting. The Russian Traded Index Committee will decide on a replacement at its following meeting.

**S&P 400 (Midcap)**

The S&P MidCap Index is published by S&P and is intended to provide a benchmark for performance measurement of the medium capitalization segment of the U.S. equity markets. It tracks the stock price movement of 400 companies with mid-sized market capitalizations, primarily ranging from $1 billion to $4 billion. The calculation of the value of the S&P MidCap Index (discussed below in further detail) is based on the relative value of the aggregate Market Value (as defined below) of the common stocks of 400 companies (the “Component Stocks”) as of a particular time as compared to the aggregate average Market Value of the common stocks of 400 similar companies during the base period of June 28, 1991. The “Market Value” of any Component Stock is the product of the market price per share and the number of the then outstanding shares of such Component Stock. S&P chooses companies for inclusion in the S&P MidCap Index with an aim of achieving a distribution by broad industry groupings that approximates the distribution of these groupings in the common stock population of the medium capitalization segment of the U.S. equity market. S&P may from time to time, in its sole discretion, add companies to, or delete companies from, the S&P MidCap Index to achieve the objectives stated above.
Relevant criteria employed by S&P include the viability of the particular company, the extent to which that company represents the industry group to which it is assigned, the extent to which the company’s common stock is widely held and the Market Value and trading activity of the common stock of that company.

The S&P MidCap Index is calculated using a base-weighted aggregate methodology: the level of the S&P MidCap Index reflects the total Market Value of all 400 Component Stocks relative to the S&P MidCap Index’s base period of June 28, 1991 (the “Base Period”). An indexed number is used to represent the results of this calculation in order to make the value easier to work with and track over time.

The actual total Market Value of the Component Stocks during the Base Period has been set equal to an indexed value of 100. This is often indicated by the notation June 28, 1991=100. In practice, the daily calculation of the S&P MidCap Index is computed by dividing the total Market Value of the Component Stocks by a number called the Index Divisor. By itself, the Index Divisor is an arbitrary number. However, in the context of the calculation of the S&P MidCap Index, it is the only link to the original base period value of the S&P MidCap Index. The Index Divisor keeps the S&P MidCap Index comparable over time and is the manipulation point for all adjustments to the S&P MidCap Index (“Index Maintenance”). Index Maintenance includes monitoring and completing the adjustments for company additions and deletions, share changes, stock splits, stock dividends and stock price adjustments due to company restructurings or spinoffs.

To prevent the value of the S&P MidCap Index from changing due to corporate actions, all corporate actions which affect the total Market Value of the S&P MidCap Index require an Index Divisor adjustment. By adjusting the Index Divisor for the change in total Market Value, the value of the S&P MidCap Index remains constant. This helps maintain the value of the S&P MidCap Index as an accurate barometer of stock market performance and ensures that the movement of the S&P MidCap Index does not reflect the corporate actions of individual companies in the S&P MidCap Index. All Index Divisor adjustments are made after the close of trading and after the calculation of the index closing value of the S&P MidCap Index. Some corporate actions, such as stock splits and stock dividends, require simple changes in the common shares outstanding and the stock prices of the companies in the S&P MidCap Index and do not require Index Divisor adjustments.

The table below summarizes the types of S&P MidCap Index maintenance adjustments and indicates whether or not an Index Divisor adjustment is required.

<table>
<thead>
<tr>
<th>Type of Corporate Action</th>
<th>Adjustment Factor</th>
<th>Divisor Adjustment Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock split (i.e., 2-for-1)</td>
<td>Shares Outstanding multiplied by 2; Stock Price divided by 2</td>
<td>No</td>
</tr>
<tr>
<td>Share issuance (i.e., change &gt; 5%)</td>
<td>Shares Outstanding plus newly issued Shares</td>
<td>Yes</td>
</tr>
<tr>
<td>Share repurchase (i.e., change &gt; 5%)</td>
<td>Shares Outstanding minus Repurchased Shares</td>
<td>Yes</td>
</tr>
<tr>
<td>Special cash dividends</td>
<td>Share Price minus Special Dividend</td>
<td>Yes</td>
</tr>
<tr>
<td>Company change</td>
<td>Add new company Market Value minus old company</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### Type of Corporate Action

<table>
<thead>
<tr>
<th>Adjustment Factor</th>
<th>Divisor Adjustment Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Value</td>
<td></td>
</tr>
<tr>
<td>Rights offering Price of parent company minus Price of Rights (\text{Right Ratio})</td>
<td>Yes</td>
</tr>
<tr>
<td>Spin-Off Price of parent company minus Price of Spinoff Co. (\text{Share Exchange Ratio})</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Stock splits and stock dividends do not affect the Index Divisor of the S&P MidCap Index, because following a split or dividend both the stock price and number of shares outstanding are adjusted by S&P so that there is no change in the Market Value of the Component Stock. All stock split and dividend adjustments are made after the close of trading on the day before the ex-date.

Each of the corporate events exemplified in the table requiring an adjustment to the Index Divisor has the effect of altering the Market Value of the Component Stock and consequently of altering the aggregate Market Value of the Component Stocks (the “Post-Event Aggregate Market Value”). In order that the level of the S&P MidCap Index (the “Pre-Event Index Value”) not be affected by the altered Market Value (whether increase or decrease) of the affected Component Stock, a new Index Divisor (“New Divisor”) is derived as follows:

\[
\frac{\text{Post-Event Aggregate Market Value}}{\text{Pre-Event Index Value}} = \text{New Divisor}
\]

\[
\text{New Divisor} = \frac{\text{Post-Event Aggregate Market Value}}{\text{Pre-Event Index Value}}
\]

A large part of the S&P MidCap Index maintenance process involves tracking the changes in the number of shares outstanding of each of the S&P MidCap Index companies. Four times a year, on a Friday near the end of each calendar quarter, the share totals of companies in the S&P MidCap Index are updated as required by any changes in the number of shares outstanding. After the totals are updated, the Index Divisor is adjusted to compensate for the net change in the total Market Value of the S&P MidCap Index. In addition, any changes over 5% in the current common shares outstanding for the S&P MidCap Index companies are carefully reviewed on a weekly basis, and when appropriate, an immediate adjustment is made to the Index Divisor.

The S&P MidCap Index and S&P’s other U.S. indices moved to a float adjustment methodology in 2005 so that the indices will reflect only those shares that are generally available to investors in the market rather than all of a company’s outstanding shares. Float adjustment excludes shares that are closely held by other publicly traded companies, venture capital firms, private equity firms, strategic partners or leveraged buyout groups; government entities; or other control groups, such as a company’s own current or former officers, board members, founders, employee stock ownership plans or other investment vehicles controlled by the company or such other persons. In March 2005 the official S&P U.S. indices moved half way to float adjustment and on September 16, 2005 the indices moved to full float adjustment.
License Agreement between Standard & Poor’s Corporation and Royal Bank

S&P and Royal Bank have entered into a non-exclusive license agreement providing for the license to Royal Bank, and certain of its affiliated or subsidiary companies, in exchange for a fee, of the right to use the S&P MidCap Index, which is owned and published by S&P, in connection with securities, including the notes.

The license agreement between S&P and Royal Bank provides that the following language must be set forth in this reference asset supplement:

The notes are not sponsored, endorsed, sold or promoted by S&P. S&P makes no representation or warranty, express or implied, to the holders of the notes or any member of the public regarding the advisability of investing in securities generally or in the notes particularly or the ability of the S&P MidCap Index to track general stock market performance. S&P’s only relationship to us is the licensing of certain trademarks and trade names of S&P and of the S&P MidCap Index, which is determined, composed and calculated by S&P without regard to us or the notes. S&P has no obligation to take our needs or the needs of holders of the notes into consideration in determining, composing or calculating the S&P MidCap Index. S&P is not responsible for and has not participated in the determination of the timing of, prices at, or quantities of the notes to be issued or in the determination or calculation of the equation by which the notes are to be converted into cash. S&P has no obligation or liability in connection with the administration, marketing or trading of the notes.

S&P does not guarantee the accuracy and/or the completeness of the S&P MidCap Index or any data included therein. S&P makes no warranty, express or implied, as to results to be obtained by Royal Bank, holders of the notes, or any other person or entity from the use of the S&P MidCap Index or any data included therein in connection with the rights licensed under the license agreement described herein or for any other use. S&P makes no express or implied warranties, and hereby expressly disclaims all warranties of merchantability or fitness for a particular purpose or use with respect to the S&P MidCap Index or any data included therein. Without limiting any of the foregoing, in no event shall S&P have any liability for any special, punitive, indirect or consequential damages (including lost profits), even if notified of the possibility of such damages.

“Standard & Poor’s(R),” “S&P(R),” “S&P 400(R),” “Standard & Poor’s MidCap 400(R) Index” and “S&P MidCap Index” are trademarks of Standard & Poor’s Corporation and have been licensed for use by Royal Bank.

S&P 500® Index

We have derived all information regarding the S&P 500® Index (the “S&P Index”) contained in this reference asset supplement, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. Such information reflects the policies of, and is subject to change by Standard & Poor’s, a division of The McGraw-Hill Companies, Inc. (“S&P”). We do not assume any responsibility for the accuracy or completeness of such information. S&P has no obligation to continue to publish the S&P Index, and may discontinue publication of the S&P Index.

The S&P Index is intended to provide an indication of the pattern of common stock price movement. The calculation of the value of the S&P Index, discussed below in further detail, is based on the relative value of the aggregate market value of the common stocks of 500 companies (the “S&P Index Constituent Stocks”) as of a particular time compared to the aggregate average market value of the common stocks of 500 similar companies during the base period of the years 1941 through 1943.
S&P calculates the S&P Index by reference to the prices of the S&P Index Constituent Stocks without taking account of the value of dividends paid on such stocks. As a result, the return on the notes will not reflect the return you would realize if you actually owned the stocks that compose the S&P Index and received the dividends paid on such stocks.

**Computation of the S&P Index**

S&P currently computes the S&P Index as of a particular time as follows:

- the product of the market price per share and the number of then outstanding shares of each component stock, adjusted as described below, is determined as of that time (referred to as the “market value” of that stock);
- the market values of all component stocks as of that time are aggregated;
- the mean average of the market values as of each week in the base period of the years 1941 through 1943 of the common stock of each company in a group of 500 substantially similar companies is determined;
- the mean average market values of all these common stocks over the base period are aggregated (the aggregate amount being referred to as the “base value”);
- the current aggregate market value of all component stocks is divided by the base value; and
- the resulting quotient, expressed in decimals, is multiplied by ten.

Prior to March 2005, the market value of a component stock was calculated as the product of the market price per share and the total number of outstanding shares of the component stock. In September 2004, S&P announced that it would transition to using a “float-adjusted” number of shares to calculate the S&P Index, meaning that, with respect to each component stock, only the number of shares of such stock available to investors, rather than all of the outstanding shares, would be used to determine the component stock’s market value. The transition to float adjustment took place in two steps. The first step took place in March 2005, when S&P began calculating market value as the product of the market price per share and the average of the number of outstanding shares and the float-adjusted number of shares of a component stock. The second step took place in September 2005, when S&P began using only the float-adjusted number of shares to calculate market value.

S&P adjusts the foregoing formula to offset the effects of changes in the market value of a component stock that are determined by S&P to be arbitrary or not due to true market fluctuations. These changes may result from causes such as:

- the issuance of stock dividends;
- the granting to shareholders of rights to purchase additional shares of stock;
- the purchase of shares by employees pursuant to employee benefit plans;
- consolidations and acquisitions;
- the granting to shareholders of rights to purchase other securities of the issuer;
- the substitution by S&P of particular component stocks in the S&P Index; or
• other reasons.

In these cases, S&P first recalculates the aggregate market value of all component stocks, after taking account of the new market price per share of the particular component stock or the new number of outstanding shares of that stock or both, as the case may be, and then determines the new base value in accordance with the following formula:

\[
\text{Old Base Value} \times \frac{\text{New Market Value}}{\text{Old Market Value}} = \text{New Base Value}
\]

The result is that the base value is adjusted in proportion to any change in the aggregate market value of all component stocks resulting from the causes referred to above to the extent necessary to negate the effects of these causes upon the S&P Index.

Neither Royal Bank nor any of its affiliates accepts any responsibility for the calculation, maintenance or publication of, or for any error, omission or disruption in, the S&P Index or any successor index. While S&P currently employs the above methodology to calculate the S&P Index, no assurance can be given that S&P will not modify or change this methodology in a manner that may affect the amount payable at maturity to beneficial owners of the notes. S&P does not guarantee the accuracy or the completeness of the S&P Index or any data included in the S&P Index. S&P assumes no liability for any errors, omissions or disruption in the calculation and dissemination of the S&P Index. S&P disclaims all responsibility for any errors or omissions in the calculation and dissemination of the S&P Index or the manner in which the S&P Index is applied in determining the amount payable at maturity.

License Agreement

S&P and Royal Bank have entered into a non-exclusive license agreement providing for the license to Royal Bank, and certain of its affiliates, in exchange for a fee, of the right to use the S&P Index, in connection with securities, including the notes. The S&P Index is owned and published by S&P.

The license agreement between S&P and Royal Bank provides that the following language must be set forth in this reference asset supplement:

The notes are not sponsored, endorsed, sold or promoted by S&P. S&P makes no representation or warranty, express or implied, to the owners of the notes or any member of the public regarding the advisability of investing in securities generally or in the notes particularly, or the ability of the S&P Index to track general stock market performance. S&P’s only relationship to Royal Bank is the licensing of certain trademarks and trade names of S&P and of the S&P Index which is determined, composed and calculated by S&P without regard to Royal Bank or the notes. S&P has no obligation to take the needs of Royal Bank or the owners of the notes into consideration in determining, composing or calculating the S&P Index. S&P is not responsible for and has not participated in the determination of the timing of, prices at, or quantities of the notes to be issued or in the determination or calculation of the equation by which the notes are to be converted into cash. S&P has no obligation or liability in connection with the administration, marketing or trading of the notes.

S&P DOES NOT GUARANTEE THE ACCURACY AND/OR THE COMPLETENESS OF THE S&P INDEX OR ANY DATA INCLUDED THEREIN AND S&P SHALL HAVE NO LIABILITY FOR ANY ERRORS, OMISSIONS, OR INTERRUPTIONS THEREIN. S&P MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO RESULTS TO BE OBTAINED BY ROYAL BANK, OWNERS OF THE NOTES, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE S&P INDEX OR ANY DATA INCLUDED THEREIN. S&P MAKES NO EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIMS ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE WITH RESPECT TO THE S&P INDEX OR ANY DATA INCLUDED THEREIN.
WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT SHALL S&P HAVE ANY LIABILITY FOR ANY SPECIAL, PUNITIVE, INDIRECT, OR CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS), EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

“Standard & Poor’s,” “S&P,” “S&P 500,” “Standard & Poor’s 500” and “500” are trademarks of The McGraw-Hill Companies, Inc. and have been licensed for use by Royal Bank. The notes are not sponsored, endorsed, sold or promoted by S&P and S&P makes no representation regarding the advisability of investing in the notes.

The S&P™/ASX 200 Index

The S&P™/ASX 200 Index (the “ASX 200 Index”), is Australia’s premier large capitalization tradeable equity index, and is Australia’s institutional benchmark. The ASX 200 Index was introduced in April 2000 and is maintained by the S&P Australian Index Committee (the “ASX Committee”), a team of representatives from both Standard and Poor’s and the Australian Stock Exchange.

Composition and Maintenance

The ASX 200 is composed of the ASX 100 stocks plus an additional 100 stocks selected by the ASX Committee. As of September 30, 2007, the ASX 200 represented approximately 78% of the total market capitalization of the Australian market. The index essentially covers large-cap and mid-cap stocks evaluated for liquidity and size.

The ASX 200 Index weights companies according to the Global Industry Classification Standard (GICS®)SM, which creates uniform ground rules for replicable, custom-tailored, industry-focused portfolios. It also enables meaningful comparisons of sectors and industries across regions. Sector indices are available for the ASX 200 Index.

The ASX Committee reviews constituents quarterly to ensure adequate market capitalization and liquidity.

Both market capitalization and liquidity are assessed using the previous six months worth of data. Quarterly review changes take effect on the third Friday of December, March, June and September. The weighting of constituents in the ASX 200 Index is determined by the free float assigned to each stock by the ASX Committee. Each index constituent’s free float is reviewed as part of the March quarterly review.

Only stocks listed on the ASX are considered for inclusion in the ASX 200 Index. Stocks are assessed based on the average of their previous six-month day-end free float adjusted market capitalization. Only stocks that are actively and regularly traded are considered for inclusion in the ASX 200 Index. A stock’s liquidity is measured relative to its size peers. A minimum free float threshold of 30% exists for a stock to warrant inclusion in the ASX 200 Index.

The ASX 200 Index Calculation

The ASX 200 Index has a base value of 3000. Calculation for the ASX 200 Index is based on stock prices taken from the ASX. The official daily index closing values for price and accumulation indices, are calculated after the market closes and are based on the last traded price for each constituent.

License Agreement

Standard & Poor’s and Royal Bank have entered into a non-exclusive license agreement providing for the license to Royal Bank, its subsidiaries and affiliates, in exchange for a fee, of the right to use indices owned and published by Standard & Poor’s in connection with some securities, including the notes.
Standard & Poor’s does not guarantee the accuracy and/or the completeness of the ASX 200 Index or any data included in the ASX 200 Index. Standard & Poor’s makes no warranty, express or implied, as to results to be obtained by the calculation agent, holders of the notes, or any other person or entity from the use of the ASX 200 Index or any data included in the ASX 200 Index in connection with the rights licensed under the license agreement described in this reference asset supplement or for any other use. Standard & Poor’s makes no express or implied warranties, and hereby expressly disclaims all warranties of merchantability or fitness for a particular purpose with respect to the ASX 200 Index or any data included in the ASX 200 Index. Without limiting any of the above information, in no event will Standard & Poor’s have any liability for any special, punitive, indirect or consequential damages, including lost profits, even if notified of the possibility of these damages.

The notes are not sponsored, endorsed, sold or promoted by Standard & Poor’s. Standard & Poor’s makes no representation or warranty, express or implied, to the holders of the notes or any member of the public regarding the advisability of investing in securities generally or in the securities particularly or the ability of the ASX 200 Index to track general stock market performance. Standard & Poor’s only relationship to Royal Bank (other than transactions entered into in the ordinary course of business) is the licensing of certain servicemarks and trade names of Standard & Poor’s and of the ASX 200 Index which is determined, composed and calculated by Standard & Poor’s without regard to Royal Bank or the notes. Standard & Poor’s has no obligation to take the needs of Royal Bank or the holders of the securities into consideration in determining, composing or calculating the ASX 200 Index. Standard & Poor’s is not responsible for and has not participated in the determination of the timing of the sale of the notes, prices at which the notes are to initially be sold, or quantities of the notes to be issued or in the determination or calculation of the equation by which the notes are to be converted into cash. Standard & Poor’s has no obligation or liability in connection with the administration, marketing or trading of the securities.

“Standard & Poor’s®” and “S&P®” are trademarks of The McGraw-Hill Companies, Inc. and have been licensed by Royal Bank, its subsidiaries and affiliates. The notes are not sponsored, endorsed, sold or promoted by Standard & Poor’s and Standard & Poor’s makes no representation regarding the advisability of investing in the notes.

Swiss Market Index (SMI)®

We have derived all information regarding the Swiss Market Index (SMI)® (the “SMI Index”) contained in this reference asset supplement from publicly available information without independent verification. Such information reflects the policies of, and is subject to change by, SWX Swiss Exchange (the “SMI Index Sponsor”). The SMI Index Sponsor owns the copyright and all other rights to the SMI Index. The SMI Index Sponsor has no obligation to continue to publish, and may discontinue publication of, the SMI Index. We do not assume any responsibility for the accuracy or completeness of such information.

The SMI Index contains approximately 90% of the entire free float market capitalization of the Swiss equity market and is made up of a maximum of 30 of the largest and most liquid stocks from the SPI Large- and Mid-Cap segment (as described below). The SMI Index is primarily available as a non-dividend-corrected index (price index), but is also published under the designation SMIC® (SMI® cum dividend) as a performance index. Your notes will be linked to the SMI Index not the SMIC® index.

The basic universe for admission to the SMI Index is the Swiss Performance Index (“SPI”). In order to be admitted and remain in the SPI universe a given security must meet a minimum free float rate of 20%. If a stock falls below this limit and does not reach or exceed it again within three months, it is excluded. Stocks, which are not admitted to the SPI universe on free float grounds, are admitted if the minimum free float rate of 20% has been met continuously over a period of three months.
To be admitted to the SMI Index, the market value of the security must amount to a minimum of 0.45% of the overall SPI capitalization as of June 30 of a given year. The determination of the rankings of a maximum of 30 securities from the stock universe is calculated through a combination of market capitalization and the percentage sales at the market value of each individual security. For a security to be admitted to the SMI Index it must have occupied rank 30 or above over four quarters and must occupy rank 25 or above as of June 30.

The SMI was introduced on June 30, 1988 at a baseline value of 1500 points. Its composition is examined once a year. Calculation takes place in real-time: as soon as a new transaction occurs in a security contained in the SMI Index, an updated index level is calculated and displayed.

The SMI Index Return will be calculated based on the closing levels of the SMI Index, as reported by Bloomberg L.P. under ticker symbol “SMI.”

**SWX Swiss Exchange**

The SMI Index Sponsor is a central link in the value chain of the Swiss financial marketplace. It organizes, operates and regulates key aspects of Switzerland’s capital market. The SMI Index Sponsor is subject to Swiss law (the Federal Act on Stock Exchanges and Securities Trading, SESTA), which stipulates the concept of self-regulation and compliance with international standards. The SMI Index Sponsor is supervised by the Swiss Federal Banking Commission (“SFBC”).

The SMI Index Sponsor trading subdivisions encompass shares, domestic bonds, international bonds (formerly referred to as Eurobonds), derivatives (warrants, structured financial products), exchange-traded funds and investment funds.

The SMI Index Sponsor is denominated in Swiss francs. The shares traded on the SMI Index Sponsor are mainly held in the Swiss-based accounts of domestic and international investors.

In the event of extraordinary situations, such as the large price fluctuations, decisions or information which are to be published shortly and which could have a significant influence on the market price (price-sensitive information), or other situations likely to hamper fair and orderly trading, the SMI Index Sponsor may take all the measures which it deems necessary to maintain fair and orderly trading as far as possible. In addition, the SMI Index Sponsor may engage in trading interventions which it considers necessary, in particular by delaying the opening of trading in a security, interrupting or suspending continuous trading in a security, or delisting a security. The SMI Index Sponsor informs participants if any measures taken.

**License Agreement**

We have entered into a non-exclusive license agreement with the SMI Index Sponsor, which allows us and our affiliates, in exchange for a fee, to use the SMI Index in connection with the issuance of certain securities, including the notes. We are not affiliated with the SMI Index Sponsor; the only relationship between the SMI Index Sponsor and us is the licensing of the use of the SMI Index and trademarks relating to the SMI Index.

The SMI Index Sponsor is under no obligation to continue the calculation and dissemination of the SMI Index. The notes are not sponsored, endorsed, sold or promoted by the SMI Index. No inference should be drawn from the information contained in this reference asset supplement that the SMI Index Sponsor makes any representation or warranty, implied or express, to us, any holder of the notes or any member of the public regarding the advisability of investing in securities generally, or in the notes in particular, or the ability of the SMI Index to track general stock market performance.
The SMI Index Sponsor determines, composes and calculates the SMI Index without regard to the notes. The SMI Index Sponsor has no obligation to take into account your interest, or that of anyone else having an interest, in the notes in determining, composing or calculating the SMI Index. The SMI Index Sponsor is not responsible for, and has not participated in the determination of, the terms, prices or amount of the notes and will not be responsible for, or participate in, any determination or calculation regarding the principal amount of the notes payable at maturity. The SMI Index Sponsor has no obligation or liability in connection with the administration, marketing or trading of the notes.

The SMI Index Sponsor disclaims all responsibility for any errors or omissions in the calculation and dissemination of the SMI Index or the manner in which the SMI Index is applied in determining any initial SMI Index Starting Level or SMI Index Ending Level or any amount payable upon maturity of the notes.

THESE SECURITIES ARE NOT IN ANY WAY SPONSORED, ENDORSED, SOLD OR PROMOTED BY THE SWX SWISS EXCHANGE AND THE SWX SWISS EXCHANGE MAKES NO WARRANTY OR REPRESENTATION WHATSOEVER, EXPRESS OR IMPLIED, EITHER AS TO THE RESULTS TO BE OBTAINED FROM THE USE OF THE SMI INDEX (THE “INDEX”) AND/OR THE FIGURE AT WHICH THE SAID INDEX STANDS AT ANY PARTICULAR TIME ON ANY PARTICULAR DAY OR OTHERWISE. THE INDEX IS COMPILED AND CALCULATED SOLELY BY THE SWX SWISS EXCHANGE. HOWEVER, THE SWX SWISS EXCHANGE SHALL NOT BE LIABLE (WHETHER IN NEGLIGENCE OR OTHERWISE) TO ANY PERSON FOR ANY ERROR IN THE INDEX AND THE SWX SWISS EXCHANGE SHALL NOT BE UNDER ANY OBLIGATION TO ADVISE ANY PERSON OF ANY ERROR THEREIN.

SMI® is a registered trademark of the SWX Swiss Exchange.

The Tokyo Stock Exchange

The TSE is one of the world’s largest securities exchanges in terms of market capitalization. Trading hours for TSE-listed stocks are currently from 9:00 a.m. to 11:00 a.m. and from 12:30 p.m. to 3:00 p.m., Tokyo time, Monday through Friday.

Due to time zone differences, on any normal trading day, the TSE will close before the opening of business in New York City on the same calendar day. Therefore, the closing level of the TOPIX Index and the TSEREIT Index on any particular business day will generally be available in the United States by the opening of business on that business day.

The TSE has adopted certain measures, including daily price floors and ceilings on individual stocks, intended to prevent any extreme short-term price fluctuations resulting from order imbalances. In general, any stock listed on the TSE cannot be traded at a price lower than the applicable price floor or higher than the applicable price ceiling. These price floors and ceilings are expressed in absolute Japanese yen, rather than percentage limits based on the closing price of the stock on the previous trading day. In addition, when there is a major order imbalance in a listed stock, the TSE posts a “special bid quote” or a “special offer quote” for that stock at a specified higher or lower price level than the stock’s last sale price in order to solicit counter-orders and balance supply and demand for the stock. Prospective investors should also be aware that the TSE may suspend the trading of individual stocks in certain limited and extraordinary circumstances, including, for example, unusual trading activity in that stock.

As a result, changes in the TOPIX Index and the TSEREIT Index may be limited by price limitations, special quotes or by suspension of trading on TOPIX Index Constituent Stocks or TSEREIT Index Constituent Stocks, and these limitations may, in turn, adversely affect the value of the Notes.
The TOPIX® Index

We have derived all information regarding the TOPIX Index (the “TOPIX Index”) contained in this reference asset supplement, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. Such information reflects the policies of, and is subject to change by the Tokyo Stock Exchange, Inc. (the “TSE”). We do not assume any responsibility for the accuracy or completeness of such information. TSE has no obligation to continue to publish the TOPIX Index, and may discontinue publication of the TOPIX Index.

The TOPIX Index was developed by the TSE. Publication of the TOPIX Index began on July 1, 1969, based on an initial index value of 100 at January 4, 1968, which was reset at 1000 on April 1, 1998. The TOPIX Index is computed and published every 15 seconds via the TSE’s Market Information System, and is reported to securities companies across Japan and available worldwide through computerized information networks.

The component stocks of the TOPIX Index consist of all common domestic stocks listed on the First Section of the TSE which have an accumulative length of listing and OTC registration of at least six months. The TOPIX Index measures changes in the aggregate market value of these stocks. The TSE domestic stock market is divided into two sections: the First Section and the Second Section. Listings of stocks on the TSE are divided between these two sections, with stocks listed on the First Section typically being limited to larger, longer established and more actively traded issues and the Second Section to smaller and newly listed companies. The component stocks of the TOPIX Index are determined based on market capitalization and liquidity. Review and selection of component stocks is conducted semiannually, based on market data as of the base date for selection.

The TOPIX Index is a weighted index, with the market price of each component stock multiplied by the number of shares listed. The TSE is responsible for calculating and maintaining the TOPIX Index, and can add, delete or substitute the stocks underlying the TOPIX Index or make other methodological changes that could change the value of the TOPIX Index. The underlying stocks may be removed, if necessary, in accordance with deletion/addition rules which provide generally for the deletion of a stock from the TOPIX Index if such stock ceases to meet the criteria for inclusion. Stocks listed on the Second Section of the TSE may be transferred to the First Section if they satisfy applicable criteria. Such criteria include numerical minimum values for number of shares listed, number of shareholders and average monthly trading volume, among others. Similarly, when a First Section stock falls within the coverage of TSE rules prescribing reassignment thereof to the Second Section, such stock will be removed from the First Section.

Computation of the TOPIX Index

The TOPIX Index is not expressed in Japanese Yen, but is presented in terms of points (as a decimal figure) rounded off to the nearest one-hundredth. The TOPIX Index is calculated by multiplying 1000 by the figure obtained by dividing the current market value (the current market price per share at the time of the index calculation multiplied by the number of common shares listed on the First Section of the TSE at the same instance) (the “TOPIX Aggregate Current Market Value”) by the base market value (i.e., the TOPIX Aggregate Current Market Value on the base date) (the “TOPIX Base Aggregate Market Value”).

The calculation of the TOPIX Index can be represented by the following formula:

\[
\text{Index} = \frac{\text{TOPIX Aggregate Market Value}}{\text{TOPIX Base Aggregate Market Value}} - 1000
\]

In order to maintain continuity, the TOPIX Base Aggregate Market Value is adjusted from time to time to ensure that it reflects only price movements resulting from auction market activity, and to eliminate
the effects of other factors and prevent any instantaneous change or discontinuity in the level of the TOPIX Index. Such factors include, without limitation: new listings; delistings; new share issues either through public offerings or through rights offerings to shareholders; issuance of shares as a consequence of exercise of convertible bonds or warrants; and transfer of listed securities from the First Section to the Second Section of the TSE.

The formula for the adjustment is as follows:

\[
\frac{\text{Old TOPIX Aggregate Market Value}}{\text{Old TOPIX Base Aggregate Market Value}} = \frac{\text{New TOPIX Aggregate Market Value}}{\text{New TOPIX Base Aggregate Market Value}}
\]

Therefore,

\[
\text{New TOPIX Base Aggregate Market Value} = \frac{\text{Old TOPIX Base Aggregate Market Value} \times \text{New TOPIX Aggregate Market Value}}{\text{Old TOPIX Base Aggregate Market Value}}
\]

The TOPIX Base Aggregate Market Value remains at the new value until a further adjustment is necessary as a result of another change. As a result of such change affecting the TOPIX Aggregate Market Value or any stock underlying the TOPIX Index, the TOPIX Base Aggregate Market Value is adjusted in such a way that the new value of the TOPIX Index will equal the level of the TOPIX Index immediately prior to such change.

No adjustment is made to the TOPIX Base Aggregate Market Value, however, in the case of events such as stock splits and decreases in paid-in capital, which theoretically do not affect market capitalization because the new stock price multiplied by the increased (or decreased) number of shares is the same as the old stock price multiplied by the old number of shares.

Neither Royal Bank nor any of its affiliates accepts any responsibility for the calculation, maintenance or publication of, or for any error, omission or disruption in, the TOPIX Index or any successor index. While the TSE currently employs the above methodology to calculate the TOPIX Index, no assurance can be given that the TSE will not modify or change this methodology in a manner that may affect the amount payable at maturity to beneficial owners of the notes. The TSE disclaims all responsibility for any errors or omissions in the calculation and dissemination of the TOPIX Index or the manner in which the TOPIX Index is applied in determining the amount payable at maturity.

License Agreement

The TSE and Royal Bank have entered into a non-exclusive license agreement providing for the license to Royal Bank, in exchange for a fee, of the right to use the TOPIX Index and the TSEREIT Index, in connection with securities, including the notes. The TOPIX Index and the TSEREIT Index is owned and published by the TSE.

The license agreement between the TSE and Royal Bank provides that the following language must be set forth in this reference asset supplement:

(i) The TOPIX Index and the Tokyo Stock Exchange REIT Index Values and the TOPIX and Tokyo Stock Exchange REIT Index Trademarks are subject to the intellectual property rights owned by the Tokyo Stock Exchange, Inc. and the Tokyo Stock Exchange, Inc. owns all rights relating to the TOPIX Index and the Tokyo Stock
Exchange REIT Index such as calculation, publication and use of the TOPIX Index and the Tokyo Stock Exchange REIT Index Values and relating to the TOPIX and the Tokyo Stock Exchange REIT Index Trademarks.

(ii) The Tokyo Stock Exchange, Inc. shall reserve the rights to change the methods of calculation or publication, to cease the calculation or publication of the TOPIX Index and the Tokyo Stock Exchange REIT Index Values or to change the TOPIX and the Tokyo Stock Exchange REIT Index Trademarks or cease the use thereof.

(iii) The Tokyo Stock Exchange, Inc. makes no warranty or representation whatsoever, either as to the results stemmed from the use of the TOPIX Index and the Tokyo Stock Exchange REIT Index Values and the TOPIX and the Tokyo Stock Exchange REIT Index Trademarks or as to the figure at which the TOPIX Index and the Tokyo Stock Exchange REIT Index Values stands on any particular day.

(iv) The Tokyo Stock Exchange, Inc. gives no assurance regarding accuracy or completeness of the TOPIX Index and the Tokyo Stock Exchange REIT Index Value and data contained therein. Further, the Tokyo Stock Exchange, Inc. shall not be liable for the miscalculation, incorrect publication, delayed or interrupted publication of the TOPIX Index and the Tokyo Stock Exchange REIT Index Values.

(v) No note is in any way sponsored, endorsed or promoted by the Tokyo Stock Exchange, Inc.

(vi) The Tokyo Stock Exchange, Inc. shall not bear any obligation to give an explanation of the notes or an advice on investments to any purchaser of the notes or to the public.

(vii) The Tokyo Stock Exchange, Inc. neither selects specific stocks or groups thereof nor takes into account any needs of the issuing company or any purchaser of the Notes, for calculation of the TOPIX Index and the Tokyo Stock Exchange REIT Index Values.

(viii) Including but not limited to the foregoing, the Tokyo Stock Exchange, Inc. shall not be responsible for any damage resulting from the issue and sale of the notes.

“TOPIX®,” “TOPIX® Index” and “Tokyo Stock Exchange REIT Index” are trademarks of the Tokyo Stock Exchange, Inc. and have been licensed for use by Royal Bank. The notes have not been passed on by the TSE as to their legality or suitability. The notes are not issued, endorsed, sold or promoted by the TSE. THE TSE MAKES NO WARRANTIES AND BEARS NO LIABILITY WITH RESPECT TO THE NOTES.

**PHLX Oil Service Sector℠ Index**

The PHLX Oil Service Sector℠ (OSX℠) is published by the Philadelphia Stock Exchange, Inc. (the “Sponsor”). OSX℠ Index is a price-weighted index composed of 15 companies that provide oil drilling and production services, oil field equipment, support services and geophysical/reservoir services. The OSX was set to an initial value of 75 on December 31, 1996; options commenced trading on February 24, 1997. The Exchange shall determine fixed-point intervals of exercise prices for index options. Generally, the exercise (strike) price intervals will be no less than $5. However, the Exchange may determine to list strike prices at no less than $2.50 intervals if the strike price is less than $200 for listed indexes, and in response to demonstrated customer interest or specialist request. For more information on the OSX Index, see http://www.phlx.com/products/osx.html
The calculation of the TOPIX Index can be represented by the following formula:

\[
\frac{\text{Total of all Component Prices}}{\text{Base Market Divisor}}
\]

**Licensing Agreement**

PHLX Oil Service Sector\textsuperscript{SM}, OSX\textsuperscript{SM} are service marks of the Philadelphia Stock Exchange, Inc. ("PHLX").

We expect that the Philadelphia Stock Exchange, Inc. will grant Royal Bank a non-exclusive, non-transferable, worldwide license to use the OSX Index as the basis of the notes to be issued by Royal Bank.

PHLX Oil Service Sector\textsuperscript{SM} (OSX\textsuperscript{SM}) is not sponsored, endorsed, sold or promoted by PHLX. PHLX makes no representation or warranty, express or implied, to the owners of the Index or any member of the public regarding the advisability of investing in securities generally or in the Index particularly or the ability of the Index to track market performance. PHLX’s only relationship to Licensee is the licensing of certain names and marks and of the Index, which is determined, composed and calculated without regard to the Licensee. PHLX has no obligation to take the needs of the Licensee or the owners of the Index into consideration in determining, composing or calculating the Index. PHLX is not responsible for and has not participated in any determination or calculation made with respect to the issuance or redemption of the Index. PHLX has no obligation or liability in connection with the administration, purchase, sale, marketing, promotion or trading of the OSX\textsuperscript{SM} Index.

**PHLX Drug Sector\textsuperscript{SM} Index**

The PHLX Drug Sector\textsuperscript{SM} (RXS\textsuperscript{SM}) is a capitalization-weighted index composed of 14 companies whose primary lines of business are the development, manufacture or sale of pharmaceuticals. RXS was set to an initial value of 250 on December 27, 2000; options commenced trading on July 16, 2001. For more information on the OSX Index, see http://www.phlx.com/products/rsx.html

The calculation of the TOPIX Index can be represented by the following formula

\[
\frac{\text{Total Capitalization of Assigned Shares}}{\text{Base Market Divisor}}
\]

**Licensing Agreement**

PHLX Drug Sector\textsuperscript{SM}, RXS\textsuperscript{SM} are service marks of the Philadelphia Stock Exchange, Inc. ("PHLX").

We expect that the Philadelphia Stock Exchange, Inc. will grant Royal Bank a non-exclusive, non-transferable, worldwide license to use the RSX Index as the basis of the notes to be issued by Royal Bank.
PHLX Drug Sector℠ (RSX℠) is not sponsored, endorsed, sold or promoted by PHLX. PHLX makes no representation or warranty, express or implied, to the owners of the Index or any member of the public regarding the advisability of investing in securities generally or in the Index particularly or the ability of the Index to track market performance. PHLX’s only relationship to Licensee is the licensing of certain names and marks and of the Index, which is determined, composed and calculated without regard to the Licensee. PHLX has no obligation to take the needs of the Licensee or the owners of the Index into consideration in determining, composing or calculating the Index. PHLX is not responsible for and has not participated in any determination or calculation made with respect to the issuance or redemption of the Index. PHLX has no obligation or liability in connection with the administration, purchase, sale, marketing, promotion or trading of the RSX℠ Index.

S&P TSX Composite (ticker “GSPTSE”)

Introduced in 1977 the S&P/TSX Composite is the headline index and the principal broad market measure for Canadian Equity markets. It includes common stock and income trust units and serves as the benchmark for the majority of Canadian pension funds and mutual market funds. Constituents of the S&P/TSX Composite Index are also members of either the S&P/TSX Equity indices (the S&P/TSX Equity, the S&P/TSX Equity MidCap, the S&P/TSX Equity SmallCap) or the suite of indices which include income trusts (S&P/TSX Income Trust, the S&P/TSX 60, the S&P/TSX MidCap or the S&P/TSX SmallCap), or both. The S&P/TSX Composite in the basis for numerous sub-indices, which break down the Canadian market by different factors including size, Global Industry Classification Standard (GICS) and income trust inclusion versus non-inclusion. This index is maintained by the S&P Canadian Index Committee, whose members include representatives from both Standard & Poor's and the Toronto Stock Exchange. Committee oversight gives investors the benefit of Standard & Poor's depth of experience, research and analytic capabilities, combined with Toronto Stock Exchange's intimate local industry knowledge.

The S&P/TSX Composite is the premier indicator of market activity for Canadian equity markets since its launch on January 1, 1977. With approximately 95% coverage of the Canadian equities market, it is the primary gauge for Canadian-based, Toronto Stock Exchange listed companies. It addresses the needs of investment managers who require a portfolio benchmark characterized by sufficient size and liquidity. The size of the S&P/TSX Composite (C$642.4 Billion in float market capitalization as of May, 2003) and its broad economic sector coverage has made the S&P/TSX Composite Index the primary benchmark for Canadian pension funds and mutual market funds. Approximately C$32 Billion is indexed to the S&P/TSX Composite Index. The S&P/TSX Composite is part of the S&P/TSX index series, which provides the building blocks for portfolio construction. The S&P/TSX Composite index serves the dual purpose of benchmark and investable index. The index is designed to offer the representation of a broad benchmark index while maintaining the liquidity characteristics of narrower indices. This unique combination makes the S&P/TSX Composite ideal for portfolio management and index replication. The S&P/TSX Composite is maintained by the Standard & Poor's Canadian Index Committee. The Committee comprises a team of seven, including four members from Standard & Poor's, and three from the Toronto Stock Exchange (TSX). The Committee draws on the significant experience in index management of its members at a local and global level.

The Standard & Poor's Canadian Index Committee follows a set of published guidelines for maintaining the S&P/TSX Composite. These guidelines provide the transparency required to enable investors to replicate the index and achieve the same performance as the S&P/TSX Composite. The Committee reviews constituents quarterly to ensure adequate market capitalization and liquidity. Both market capitalization and liquidity are assessed using the previous twelve months' worth of data. Quarterly review changes take effect after the close on the third Friday of March, June, September and December.
The weighting of constituents in the S&P/TSX Composite is determined by the free float assigned to each stock. Every index constituents' free float is reviewed as part of the Quarterly Share Update.

Criteria for Index additions are as follows:

- **Listing.** Only stocks listed on the Toronto Stock Exchange are considered for inclusion in any of the S&P/TSX indices.

- **Canadian Incorporation.** Only the common shares of Canadian incorporated companies are eligible.

- **Size.** Stocks are assessed based on their float market capitalization. A company's float market capitalization is calculated by removing control blocks of 20% or more.

- **Liquidity.** Only stocks that are actively and regularly traded are considered for inclusion in any S&P/TSX index. A stock's liquidity is measured relative to liquidity thresholds.

License Agreement

Investors, asset managers and financial institutions may use S&P indices to track the performance of publicly available securities in general, or as benchmarks for their actively managed portfolios, in particular. If an institution is simply comparing its investment performance to an S&P index, no license is required. If the investment replicates the S&P index, however, Standard & Poor’s must be contacted for a license.

S&P indices are regularly used as the basis for a wide range of financial instruments offered to investors worldwide. These include OTC options, swaps, warrants, and other derivatives, certificates of deposit, insurance products as well as retail and institutional indexed funds. A license from S&P is required for institutions creating a product based on or linked to an S&P index.

S&P offers global licenses covering all S&P index-linked offerings by an institution, as well as licenses for single transactions. S&P Index Services maintains over 550 license agreements with major financial institutions around the world.

**Hang Seng Index (HSI)**

Hang Seng Index (HSI) is a barometer of the Hong Kong stock market. The Hang Seng Index has a history of over 35 years and is one of the earliest stock market indices in Hong Kong. Since its public launch on November 24, 1969, the HIS has become the most widely quoted indicator of the performance of the Hong Kong stock market. The HSI is widely used as the base index for various derivatives products.

Only companies with a primary listing on the Main Board of the Stock Exchange of Hong Kong (SEHK) are eligible as constituents. Mainland China enterprises that have an H-share listing in Hong Kong will be eligible for inclusion in the Hang Seng Index (HSI) when they meet any one of the following conditions: 1) the H-share company has 100% of its ordinary share capital in the form of H-shares which are listed on the Stock Exchange of Hong Kong; 2) the H-share company has completed the process of Share Reform, with the result that there is no unlisted share capital in the company; or 3) for new H-share IPOs, the company has no unlisted share capital. Constituent stocks of the HSI are selected by a rigorous process of detailed analysis, supported by extensive external consultation. To be eligible for selection, a company 1) must be among those companies that constitute the top 90% of the total market value of all eligible shares listed on the SEHK (market value is expressed as an average of the past 12 months); 2) must be among those companies that constitute the top 90% of the total turnover of all eligible shares listed on the SEHK (turnover is aggregated and individually assessed for eight quarterly sub-periods over the past 24
months); or 3) should normally have a listing history of at least 24 months or meet the requirements of the following Guidelines:

**Guidelines for Handling Large-cap Stocks Listed for Less than 24 Months**

For a newly listed large-cap stock, the minimum listing time required for inclusion in the stock universe for the HSI review is as follows:

<table>
<thead>
<tr>
<th>Average MV Rank at Time of Review</th>
<th>Minimum Listing History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 5</td>
<td>3 Months</td>
</tr>
<tr>
<td>6-15</td>
<td>6 Months</td>
</tr>
<tr>
<td>16-20</td>
<td>12 Months</td>
</tr>
<tr>
<td>21-25</td>
<td>18 Months</td>
</tr>
<tr>
<td>Below 25</td>
<td>24 Months</td>
</tr>
</tbody>
</table>

From the many eligible candidates, final selections are based on the market value and turnover ranking of the companies, the representation of the sub-sectors within the HSI directly reflecting that of the market, and the financial performance of the companies.

**Computation of the Hang Seng Index**

(a) The formula for calculating HIS is as follows:

\[
\text{Current Index} = \frac{\sum(P_t \times IS \times FAF \times CF)}{\sum(P_{t-1} \times IS \times FAF \times CF)} \times \text{Yesterday's Closing Index}
\]

- \(P_t\) : Current Price at Day \(t\)
- \(P_{t-1}\) : Closing Price at Day \((t-1)\)
- \(IS\) : Issued Shares
- \(FAF\) : Freefloat-adjusted Factor, which is between 0 and 1, adjusted every six months
- \(CF\) : Cap Factor, which is between 0 and 1, adjusted every six months

**Index Price/Earnings Ratio**

\[
\text{Index Price/Earnings Ratio} = \frac{\text{Total Freefloat - adjusted Market Capitalisation of Index Constituent Stocks}}{\text{Total Freefloat - adjusted Earnings of Index Constituent Stocks}}
\]

**Index Dividend Yield**

\[
\text{Index Dividend Yield} = \frac{\text{Total Freefloat - adjusted Dividends of Index Constituent Stocks}}{\text{Total Freefloat - adjusted Market Capitalisation of Index Constituent Stocks}} \times 100
\]

**Freefloat Adjustment**

The following shareholdings are viewed as strategic in nature and are excluded for index calculation:

1. Strategic holdings – shares held by strategic shareholder(s) who individually or collectively control more than 30% of the shareholdings;
2. Directors’ holdings – shares held by director(s) who individually control more than 5% of the shareholdings;
3. Cross-holdings – shares held by a Hong Kong-listed company which controls more than 5% of the shareholdings as investments; and
4. Lock-up shares – shares held by shareholder(s) who individually or collectively represent more than 5% of the shareholdings in the company and with a publicly disclosed lock-up arrangement.

The data used for the freefloat adjustment are taken from publicly available sources, including annual reports and Securities Notification History Reports from Hong Kong Exchanges and Clearing Limited.

The Freefloat-adjusted Factor (FAF), representing the proportion of shares that is freefloated as a percentage of issued shares, is rounded up to the nearest multiple of 5% for Index calculation.

**Cap Adjustment**
A Cap Factor (CF) is calculated in each regular half-yearly constituent change implementation, such that no constituent has a weighting exceeding 15%.

*The compilation of the HSI was switched from a full market capitalization weighted formula to a freefloat-adjusted market capitalization weighted formula with a 15% cap on individual stock weightings starting from 11 September 2006. The above changes are phased in over a period of 12 months from September 2006 to September 2007 to ensure a smooth transition and to minimize any impact on the market.*

A re-capping exercise will be conducted semi-annually in Q1 and Q3 to coincide with the regular update of the FAF. Additional re-capping will be performed should there be constituent changes.

The timetable for the adjustments is as follows:

<table>
<thead>
<tr>
<th></th>
<th>Freefloat Adjustment</th>
<th>Capping Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 1:</strong></td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>8 Sep 2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Fri), after market close</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td><strong>Phase 2:</strong></td>
<td>Applying 2/3 Freefloat Adjustment (FAF1),</td>
<td>20%</td>
</tr>
<tr>
<td>9 Mar 2007</td>
<td>Where:</td>
<td></td>
</tr>
<tr>
<td>(Fri), after market close</td>
<td>FAF1 = 100% − ( \frac{2}{3} (100% − \text{FAF}_i) )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rounded up to the nearest 5%</td>
<td></td>
</tr>
<tr>
<td><strong>Phase 3:</strong></td>
<td>Applying full Freefloat Adjustment (FAF2)</td>
<td>15%</td>
</tr>
<tr>
<td>7 Sep 2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Fri), after market close</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**License Agreement**

Licenses have to be obtained from HIS Services Limited or the real-time index dissemination and the issuance of derivatives linked with any of the Hang Seng family of Indices.

Hang Seng family of Indices are owned by Hang Seng Data Services Limited and published and compiled pursuant to licenses by HSI Services Limited. The Hang Seng Index is published and compiled by HSI Services Limited pursuant to a license from Hang Seng Data Services Limited. The mark and name "Hang
Seng Index" is proprietary to Hang Seng Data Services Limited. HSI Services Limited and Hang Seng Data Services Limited have agreed to the use of, and reference to, the Hang Seng Index by LICENSEE in connection with the offered notes (the "Product"), but neither HSI Services Limited nor Hang Seng Data Services Limited warrants or represents or guarantees to any broker or holder of the Product or any other person the accuracy or completeness of the Hang Seng Index and its computation or any information related thereto and no warranty or representation or guarantee of any kind whatsoever relating to the Hang Seng Index is given or may be implied. The process and basis of computation and compilation of the Hang Seng Index and any of the related formula or formulae, constituent stocks and factors may at any time be changed or altered by HSI Services Limited without notice. No responsibility or liability is accepted by HSI Services Limited or Hang Seng Data Services Limited in respect of the use of and/or reference to the Hang Seng Index by LICENSEE in connection with the Product, or for any inaccuracies, omissions, mistakes or errors of HSI Services Limited in the computation of the Hang Seng Index or for any economic or other loss which may be directly or indirectly sustained by any broker or holder of the Product or any other person dealing with the Product as a result thereof and no claims, actions or legal proceedings may be brought against HSI Services Limited and/or Hang Seng Data Services Limited in connection with the Product in any manner whatsoever by any broker, holder or other person dealing with the Product. Any broker, holder or other person dealing with the Product does so therefore in full knowledge of this disclaimer and can place no reliance whatsoever on HSI Services Limited and Hang Seng Data Services Limited. For the avoidance of doubt, this disclaimer does not create any contractual or quasi-contractual relationship between any broker, holder or other person and HSI Services Limited and/or Hang Seng Data Services Limited and must not be construed to have created such relationship.
No dealer, salesman or other person has been authorized to give any information or to make any representation not contained in this product prospectus supplement or the accompanying prospectus or prospectus supplement and, if given or made, such information or representation must not be relied upon as having been authorized by Royal Bank of Canada or the Underwriter. This product prospectus supplement, the accompanying prospectus and prospectus supplement do not constitute an offer to sell or a solicitation of an offer to buy any securities other than the securities described in this product prospectus supplement nor do they constitute an offer to sell or a solicitation of an offer to buy the securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. The delivery of this product prospectus supplement, the accompanying prospectus and prospectus supplement at any time does not imply that the information they contain is correct as of any time subsequent to their respective dates.

Royal Bank of Canada

Senior Global Medium-Term Notes, Series C

Principal Protected Notes

January 7, 2008
Royal Bank of Canada

US$8,000,000,000

Senior Global Medium-Term Notes, Series C

Terms of Sale

Royal Bank of Canada may from time to time offer and sell notes with various terms, including the following:

- fixed or floating interest rate, zero-coupon or issued with original issue discount; a floating interest rate may be based on:
  - commercial paper rate
  - U.S. prime rate
  - LIBOR
  - EURIBOR
  - Treasury rate
  - CMT rate
  - CD rate
  - federal funds rate
  - ranked as senior indebtedness of Royal Bank of Canada

- amount of principal and/or interest may be determined by reference to an index or formula
- book-entry form only through The Depository Trust Company
- redemption at the option of Royal Bank of Canada or the option of the holder
- interest on notes paid monthly, quarterly, semi-annually or annually
- minimum denominations of $1,000 and integral multiples of $1,000 in excess thereof (except that non-U.S. investors may be subject to higher minimums)
- denominated in a currency other than U.S. dollars or in a composite currency
- settlement in immediately available funds

The final terms of each note will be included in a pricing supplement. If we sell all of the notes through agents and in the form of fixed or floating rate notes, we expect to receive between $8,000,000,000 and $7,920,000,000 of the proceeds from the sale of the notes, after paying the agents’ commissions of between $0 and $80,000,000. If we sell all of the notes through agents and in the form of indexed or other structured notes, we expect to receive between $7,920,000,000 and $7,600,000,000 of the proceeds from the sale of such notes, after paying the agents’ commission of between $80,000,000 and $400,000,000. See “Supplemental Plan of Distribution” beginning on page S-24 for additional information about the agents’ commissions. The aggregate initial offering price of the notes is subject to reduction as a result of the sale by Royal Bank of Canada of other debt securities pursuant to another prospectus supplement to the accompanying prospectus.

See “Risk Factors” beginning on page S-1 to read about factors you should consider before investing in any notes.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the securities or passed upon the adequacy or accuracy of this prospectus supplement and the accompanying prospectus. Any representation to the contrary is a criminal offense.

The notes will not constitute deposits insured under the Canada Deposit Insurance Corporation Act or by the United States Federal Deposit Insurance Corporation or any other Canadian or United States governmental agency or instrumentality.

Royal Bank of Canada may sell the notes directly or through one or more agents or dealers, including the agents listed below. The agents are not required to sell any particular amount of the notes.

Royal Bank of Canada may use this prospectus supplement in the initial sale of any notes. In addition, RBC Capital Markets Corporation, RBC Dain Rauscher Inc. or any other affiliate of Royal Bank of Canada may use this prospectus supplement and accompanying prospectus in a market-making or other transaction in any note after its initial sale. Unless Royal Bank of Canada or its agent informs the purchaser otherwise in the confirmation of sale or pricing supplement, this prospectus supplement and accompanying prospectus are being used in a market-making transaction.
The date of this prospectus supplement is February 28, 2007.
TABLE OF CONTENTS

Prospectus Supplement
About This Prospectus Supplement ................................................................. S-1
Risk Factors ........................................................................................................ S-1
Use of Proceeds .................................................................................................. S-4
Description of the Notes We May Offer ............................................................ S-5
Certain Income Tax Consequences .................................................................. S-24
Supplemental Plan of Distribution ................................................................. S-25
Documents Filed As Part of the Registration Statement ................................ S-30

Prospectus
Documents Incorporated by Reference ............................................................. 2
Where You Can Find More Information .......................................................... 3
Further Information .......................................................................................... 4
About This Prospectus ....................................................................................... 4
Presentation of Financial Information ............................................................... 5
Caution Regarding Forward-Looking Information ............................................ 5
Royal Bank of Canada ....................................................................................... 6
Risk Factors ...................................................................................................... 6
Use of Proceeds .............................................................................................. 6
Consolidated Ratios of Earnings to Fixed Charges ........................................... 7
Consolidated Capitalization and Indebtedness ................................................ 8
Description of Debt Securities ......................................................................... 9
Tax Consequences ........................................................................................... 26
Plan of Distribution ......................................................................................... 38
Benefit Plan Investor Considerations .............................................................. 40
Limitations on Enforcement of U.S. Laws Against the Bank, Our Management and Others ...... 41
Validity of Securities ..................................................................................... 41
Experts ............................................................................................................. 41
Supplemental Financial Statement Schedule ................................................... 42
Other Expenses of Issuance and Distribution .................................................. 45
ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus and, if applicable, a product prospectus supplement, provide you with a general description of the notes we may offer. Each time we sell notes we will provide a pricing supplement containing specific information about the terms of the notes being offered. Each pricing supplement may include a discussion of any risk factors or other special considerations that apply to those notes. The pricing supplement may also add, update or change the information in this prospectus supplement. If there is any inconsistency between the information in this prospectus supplement and any pricing supplement, you should rely on the information in that pricing supplement.

RISK FACTORS

Our Credit Ratings May Not Reflect All Risks of an Investment in the Notes

The credit ratings of our medium-term note program may not reflect the potential impact of all risks related to structure and other factors on any trading market for, or trading value of, your notes. In addition, real or anticipated changes in our credit ratings will generally affect any trading market for, or trading value of, your notes.

Risks Relating to Indexed Notes

We use the term “indexed notes” to mean notes whose value is linked to an underlying property or index. Indexed notes may present a high level of risk, and those who invest in indexed notes may lose their entire investment. In addition, the treatment of indexed notes for U.S. federal income tax purposes is often unclear due to the absence of any authority specifically addressing the issues presented by any particular indexed note. Thus, if you propose to invest in indexed notes, you should independently evaluate the federal income tax consequences of purchasing an indexed note that apply in your particular circumstances. You should also read “Certain Income Tax Consequences—United States Taxation” in this prospectus supplement, as well as “Tax Consequences – United States Taxation” in the accompanying prospectus, for a discussion of U.S. tax matters.

Investors in Indexed Notes Could Lose Their Investment

The amount of principal and/or interest payable on an indexed note and the cash value or physical settlement value of a physically settled note will be determined by reference to the price, value or level of one or more securities, currencies, commodities or other properties, any other financial, economic or other measure or instrument, including the occurrence or non-occurrence of any event or circumstance, and/or one or more indices or baskets of any of these items. We refer to each of these as an “index”. The direction and magnitude of the change in the price, value or level of the relevant index will determine the amount of principal and/or interest payable on the indexed note, and the cash value or physical settlement value of a physically settled note. The terms of a particular indexed note may or may not include a guaranteed return of a percentage of the face amount at maturity or a minimum interest rate. Thus, if you purchase an indexed note, you may lose all or a portion of the principal or other amount you invest and may receive no interest on your investment.

The Issuer of a Security or Currency That Serves as an Index Could Take Actions That May Adversely Affect an Indexed Note

The issuer of a security that serves as an index or part of an index for an indexed note will have no involvement in the offer and sale of the indexed note and no obligations to the holder of the indexed note. The issuer may take actions, such as a merger or sale of assets, without regard to the interests of the
holder. Any of these actions could adversely affect the value of a note indexed to that security or to an index of which that security is a component.

If the index for an indexed note includes a non-U.S. dollar currency or other asset denominated in a non-U.S. dollar currency, the government that issues that currency will also have no involvement in the offer and sale of the indexed note and no obligations to the holder of the indexed note. That government may take actions that could adversely affect the value of the note. See “—Risks Relating to Notes Denominated or Payable in or Linked to a Non-U.S. Dollar Currency” below for more information about these kinds of government actions.

**An Indexed Note May Be Linked to a Volatile Index, Which Could Hurt Your Investment**

Some indices are highly volatile, which means that their value may change significantly, up or down, over a short period of time. The amount of principal and/or interest that can be expected to become payable on an indexed note may vary substantially from time to time. Because the amounts payable with respect to an indexed note are generally calculated based on the value or level of the relevant index on a specified date or over a limited period of time, volatility in the index increases the risk that the return on the indexed note may be adversely affected by a fluctuation in the level of the relevant index. The volatility of an index may be affected by political or economic events, including governmental actions, or by the activities of participants in the relevant markets. Any of these events or activities could adversely affect the value of an indexed note.

**An Index to Which a Note Is Linked Could Be Changed or Become Unavailable**

Some indices compiled by us or our affiliates or third parties may consist of or refer to several or many different securities, commodities or currencies or other instruments or measures. The compiler of such an index typically reserves the right to alter the composition of the index and the manner in which the value or level of the index is calculated. An alteration may result in a decrease in the value of or return on an indexed note that is linked to the index. The indices for our indexed notes may include published indices of this kind or customized indices developed by us or our affiliates in connection with particular issues of indexed notes.

A published index may become unavailable, or a customized index may become impossible to calculate in the normal manner, due to events such as war, natural disasters, cessation of publication of the index or a suspension or disruption of trading in one or more securities, commodities or currencies or other instruments or measures on which the index is based. If an index becomes unavailable or impossible to calculate in the normal manner, the terms of a particular indexed note may allow us to delay determining the amount payable as principal or interest on an indexed note, or we may use an alternative method to determine the value of the unavailable index. Alternative methods of valuation are generally intended to produce a value similar to the value resulting from reference to the relevant index. However, it is unlikely that any alternative method of valuation we use will produce a value identical to the value that the actual index would have produced. If we use an alternative method of valuation for a note linked to an index of this kind, the value of the note, or the rate of return on it, may be lower than it otherwise would be.

Some indexed notes are linked to indices that are not commonly used or that have been developed only recently. The lack of a trading history may make it difficult to anticipate the volatility or other risks associated with an indexed note of this kind. In addition, trading in these indices or their underlying stocks, commodities or currencies or other instruments or measures, or options or futures contracts on these stocks, commodities or currencies or other instruments or measures, may be limited, which could increase their volatility and decrease the value of the related indexed notes or the rates of return on them.
Pricing Information About the Property Underlying a Relevant Index May Not Be Available

Special risks may also be presented because of differences in time zones between the United States and the market for the property underlying the relevant index, such that the underlying property is traded on a foreign exchange that is not open when the trading market for the notes in the United States, if any, is open or where trading occurs in the underlying property during times when the trading market for the notes in the United States, if any, is closed. In such cases, holders of the notes may have to make investment decisions at a time when current pricing information regarding the property underlying the relevant index is not available.

We May Engage in Hedging Activities that Could Adversely Affect an Indexed Note

In order to hedge an exposure on a particular indexed note, we may, directly or through our affiliates, enter into transactions involving the securities, commodities or currencies or other instruments or measures that underlie the index for the note, or involving derivative instruments, such as swaps, options or futures, on the index or any of its component items. By engaging in transactions of this kind, we could adversely affect the value of an indexed note. It is possible that we could achieve substantial returns from our hedging transactions while the value of the indexed note may decline.

Information About Indices May Not Be Indicative of Future Performance

If we issue an indexed note, we may include historical information about the relevant index in the relevant pricing supplement. Any information about indices that we may provide will be furnished as a matter of information only, and you should not regard the information as indicative of the range of, or trends in, fluctuations in the relevant index that may occur in the future.

We May Have Conflicts of Interest Regarding an Indexed Note

RBC Capital Markets Corporation, RBC Dain Rauscher Inc. and our other affiliates may have conflicts of interest with respect to some indexed notes. RBC Capital Markets Corporation, RBC Dain Rauscher Inc. and our other affiliates may engage in trading, including trading for hedging purposes, for their proprietary accounts or for other accounts under their management, in indexed notes and in the securities, commodities or currencies or other instruments or measures on which the index is based or in other derivative instruments related to the index or its component items. These trading activities could adversely affect the value of indexed notes. We and our affiliates may also issue or underwrite securities or derivative instruments that are linked to the same index as one or more indexed notes. By introducing competing products into the marketplace in this manner, we could adversely affect the value of a particular indexed note.

RBC Capital Markets Corporation or another of our affiliates may serve as calculation agent for the indexed notes and may have considerable discretion in calculating the amounts payable in respect of the notes. To the extent that RBC Capital Markets Corporation or another of our affiliates calculates or compiles a particular index, it may also have considerable discretion in performing the calculation or compilation of the index. Exercising discretion in this manner could adversely affect the value of an indexed note based on the index or the rate of return on the security.

Risks Relating to Notes Denominated or Payable in or Linked to a Non-U.S. Dollar Currency

If you intend to invest in a non-U.S. dollar note—e.g., a note whose principal and/or interest is payable in a currency other than U.S. dollars or that may be settled by delivery of or reference to a non-U.S. dollar currency or property denominated in or otherwise linked to a non-U.S. dollar currency—you should consult your own financial and legal advisors as to the currency risks entailed by your investment. Notes of this kind may not be an appropriate investment for investors who are unsophisticated with respect to non-U.S. dollar currency transactions.
An Investment in a Non-U.S. Dollar Note Involves Currency-Related Risks

An investment in a non-U.S. dollar note entails significant risks that are not associated with a similar investment in a note that is payable solely in U.S. dollars and where settlement value is not otherwise based on a non-U.S. dollar currency. These risks include the possibility of significant changes in rates of exchange between the U.S. dollar and the various non-U.S. dollar currencies or composite currencies and the possibility of the imposition or modification of foreign exchange controls or other conditions by either the United States or non-U.S. governments. These risks generally depend on factors over which we have no control, such as economic and political events and the supply of and demand for the relevant currencies in the global markets.

Changes in Currency Exchange Rates Can Be Volatile and Unpredictable

Rates of exchange between the U.S. dollar and many other currencies have been highly volatile, and this volatility may continue and perhaps spread to other currencies in the future. Fluctuations in currency exchange rates could adversely affect an investment in a note denominated in, or where value is otherwise linked to, a specified currency other than U.S. dollars. Depreciation of the specified currency against the U.S. dollar could result in a decrease in the U.S. dollar-equivalent value of payments on the note, including the principal payable at maturity. That in turn could cause the market value of the note to fall. Depreciation of the specified currency against the U.S. dollar could result in a loss to the investor on a U.S. dollar basis.

In courts outside of New York, investors may not be able to obtain judgment in a specified currency other than U.S. dollars. For example, a judgment for money in an action based on a non-U.S. dollar note in many other U.S. federal or state courts ordinarily would be enforced in the United States only in U.S. dollars. The date used to determine the rate of conversion of the currency in which any particular note is denominated into U.S. dollars will depend upon various factors, including which court renders the judgment.

Information About Exchange Rates May Not Be Indicative of Future Performance

If we issue a non-U.S. dollar note, we may include in the relevant pricing supplement a currency supplement that provides information about historical exchange rates for the relevant non-U.S. dollar currency or currencies. Any information about exchange rates that we may provide will be furnished as a matter of information only, and you should not regard the information as indicative of the range of, or trends in, fluctuations in currency exchange rates that may occur in the future. That rate will likely differ from the exchange rate used under the terms that apply to a particular note.

Non-U.S. Investors May Be Subject to Certain Additional Risks

If we issue a U.S. dollar note and you are a non-U.S. investor who purchased such notes with a currency other than U.S. dollars, changes in rates of exchange may have an adverse effect on the value, price or income of your investment.

This prospectus supplement contains a general description of certain U.S. and Canadian tax consequences relating to the notes. If you are a non-U.S. investor, you should consult your tax advisors as to the consequences, under the tax laws of the country where you are resident for tax purposes, of acquiring, holding and disposing of notes and receiving payments of principal or other amounts under the notes.

USE OF PROCEEDS

Except as otherwise set forth in a pricing supplement, the net proceeds from the sale of any notes will be added to our general funds and will be used for general banking purposes.
DESCRIPTION OF THE NOTES WE MAY OFFER

You should carefully read the description of the terms and provisions of our debt securities and our senior indenture under “Description of Debt Securities” in the accompanying prospectus. That section, together with this prospectus supplement and the applicable pricing supplement, summarizes all the material terms of our senior indenture and your note. They do not, however, describe every aspect of our senior indenture and your note. For example, in this section entitled “Description of the Notes We May Offer”, the accompanying prospectus and the applicable pricing supplement, we use terms that have been given special meanings in our senior indenture, but we describe the meanings of only the more important of those terms. The specific terms of any series of notes will be described in the relevant pricing supplement. As you read this section, please remember that the specific terms of your note as described in your pricing supplement will supplement and, if applicable, may modify or replace the general terms described in this section. If your pricing supplement is inconsistent with this prospectus supplement or the accompanying prospectus, your pricing supplement will control with regard to your note. Thus, the statements we make in this section may not apply to your note.

General

The notes will be issued under our senior indenture, dated as of October 23, 2003, between Royal Bank of Canada and The Bank of New York, as successor to the corporate trust business of JPMorgan Chase Bank, N.A., as trustee, as supplemented by a first supplemental indenture, dated as of July 21, 2006, and by the second supplemental indenture, dated as of February 28, 2007, and as further amended from time to time, which we may refer to as the Indenture. The notes constitute a single series of debt securities of Royal Bank of Canada issued under the indenture. The term “debt securities”, as used in this prospectus supplement, refers to all debt securities, including the notes, issued and issuable from time to time under the indenture. The indenture is subject to, and governed by, the Trust Indenture Act of 1939, as amended. The indenture is more fully described below in this section. Whenever we refer to specific provisions or defined terms in the indenture, those provisions or defined terms are incorporated in this prospectus supplement by reference. Section references used in this discussion are references to the indenture. Capitalized terms which are not otherwise defined shall have the meanings given to them in the indenture.

The notes will be limited to an aggregate initial offering price of US$8,000,000,000 or at our option if so specified in the relevant pricing supplement, the equivalent of this amount in any other currency or currency unit, and will be our direct, unsecured obligations. This aggregate initial offering price is subject to reduction as a result of the sale by us of other debt securities pursuant to another prospectus supplement to the accompanying prospectus. The notes will not constitute deposits insured under the Canada Deposit Insurance Corporation Act or by the United States Federal Deposit Insurance Corporation or any other Canadian or United States governmental agency or instrumentality.

We will offer the notes on a continuous basis through one or more agents listed in the section entitled “Supplemental Plan of Distribution” in this prospectus supplement. The indenture does not limit the aggregate principal amount of senior notes that we may issue. We may, from time to time, without the consent of the holders of the notes, provide for the issuance of notes or other debt securities under the indenture in addition to the US$8,000,000,000 aggregate initial offering price of notes noted on the cover of this prospectus supplement. Each note issued under this prospectus supplement will have a stated maturity that will be specified in the applicable pricing supplement and may be subject to redemption or repayment before its stated maturity. As a general matter, each note will mature nine months or more from its date of issue, except that indexed notes may have a maturity of less than nine months. Notes may be issued at significant discounts from their principal amount due on the stated maturity (or on any prior date on which the principal or an installment of principal of a note becomes due and payable, whether by the declaration of acceleration, call for redemption at our option, repayment at the option of the holder or
otherwise), and some notes may not bear interest. We may from time to time, without the consent of the existing holders of the relevant notes, create and issue further notes having the same terms and conditions as such notes in all respects, except for the issue date, issue price and, if applicable, the first payment of interest thereon.

Unless we specify otherwise in the relevant pricing supplement, currency amounts in this prospectus supplement are expressed in U.S. dollars. Unless we specify otherwise in any note and pricing supplement, the notes will be denominated in U.S. dollars and payments of principal, premium, if any, and any interest on the notes will be made in U.S. dollars. If any note is to be denominated other than exclusively in U.S. dollars, or if the principal of, premium, if any, or any interest on the note is to be paid in one or more currencies (or currency units or in amounts determined by reference to an index or indices) other than that in which that note is denominated, additional information (including authorized denominations and related exchange rate information) will be provided in the relevant pricing supplement. Unless we specify otherwise in any pricing supplement, notes denominated in U.S. dollars will be issued in minimum denominations of $1,000 and integral multiples of $1,000 in excess thereof (except that non-U.S. investors may be subject to higher minimums).

Interest rates that we offer on the notes may differ depending upon, among other factors, the aggregate principal amount of notes purchased in any single transaction. Notes with different variable terms other than interest rates may also be offered concurrently to different investors. We may change interest rates or formulas and other terms of notes from time to time, but no change of terms will affect any note we have previously issued or as to which we have accepted an offer to purchase.

Each note will be issued as a book-entry note in fully registered form without coupons. Each note issued in book-entry form may be represented by a global note that we deposit with and register in the name of a financial institution or its nominee, that we select. The financial institution that we select for this purpose is called the depositary. Unless we specify otherwise in the applicable pricing supplement, The Depository Trust Company, New York, New York, will be the depositary for all notes in global form. Except as discussed in the accompanying prospectus under “Description of Debt Securities - Ownership and Book-Entry Issuance”, owners of beneficial interests in book-entry notes will not be entitled to physical delivery of notes in certificated form. We will make payments of principal of, and premium, if any and interest, if any, on the notes through the applicable trustee to the depositary for the notes.

**Legal Ownership**

*Street Name and Other Indirect Holders*

Investors who hold their notes in accounts at banks or brokers will generally not be recognized by us as legal holders of notes. This is called holding in street name. Instead, we would recognize only the bank or broker, or the financial institution the bank or broker uses to hold its notes. These intermediary banks, brokers and other financial institutions pass along principal, interest and other payments on the notes, either because they agree to do so in their customer agreements or because they are legally required to do so. If you hold your notes in street name, you should check with your own institution to find out:

- how it handles note payments and notices;
- whether it imposes fees or charges;
- how it would handle voting if it were ever required;
- whether and how you can instruct it to send you notes registered in your own name so you can be a direct holder as described below; and
- how it would pursue rights under the notes if there were a default or other event triggering the need for holders to act to protect their interests.
Direct Holders

Our obligations, as well as the obligations of the trustee and those of any third parties employed by us or the trustee, under the notes run only to persons who are registered as holders of notes. As noted above, we do not have obligations to you if you hold in street name or other indirect means, either because you choose to hold your notes in that manner or because the notes are issued in the form of global securities as described below. For example, once we make payment to the registered holder we have no further responsibility for the payment even if that holder is legally required to pass the payment along to you as a street name customer but does not do so.

Global Notes

A global note is a special type of indirectly held security, as described above under “—Street Name and Other Indirect Holders”. If we choose to issue notes in the form of global notes, the ultimate beneficial owners of global notes can only be indirect holders. We require that the global note be registered in the name of a financial institution we select.

We also require that the notes included in the global note not be transferred to the name of any other direct holder except in the special circumstances described in the accompanying prospectus in the section “Description of Debt Securities - Ownership and Book-Entry Issuance”. The financial institution that acts as the sole direct holder of the global note is called the depositary. Any person wishing to own a global note must do so indirectly by virtue of an account with a broker, bank or other financial institution, known as a “participant”, that in turn has an account with the depositary. The pricing supplement indicates whether your series of notes will be issued only in the form of global notes.

Further details of legal ownership are discussed in the accompanying prospectus in the section “Ownership and Book-Entry Issuance”.

In the remainder of this description, “you” or “holder” means direct holders and not street name or other indirect holders of notes. Indirect holders should read the previous subsection titled “—Street Name and Other Indirect Holders”.

Types of Notes

We may issue the following three types of notes:

- **Fixed Rate Notes.** A note of this type will bear interest at a fixed rate described in the applicable pricing supplement. This type includes zero-coupon notes, which bear no interest and are instead issued at a price lower than the principal amount.

- **Floating Rate Notes.** A note of this type will bear interest at rates that are determined by reference to an interest rate formula. In some cases, the rates may also be adjusted by adding or subtracting a spread or multiplying by a spread multiplier and may be subject to a minimum rate or a maximum rate. The various interest rate formulas and these other features are described below in “—Interest Rates—Floating Rate Notes”. If your note is a floating rate note, the formula and any adjustments that apply to the interest rate will be specified in your pricing supplement.

- **Indexed Notes.** A note of this type provides that the principal amount payable at its maturity, and/or the amount of interest payable on an interest payment date, will be determined by reference to:
  - one or more securities;
  - one or more currencies;
  - one or more commodities;
— any other financial, economic or other measures or instruments, including the occurrence or non-occurrence of any event or circumstance; and/or
— indices or baskets of any of these items.

If you are a holder of an indexed note, you may receive a principal amount at maturity that is greater than or less than the face amount of your note depending upon the value of the applicable index at maturity. That value may fluctuate over time. If you purchase an indexed note your pricing supplement will include information about the relevant index and how amounts that are to become payable will be determined by reference to that index. In addition, your pricing supplement will specify whether your note will be exchangeable for, or payable in cash, securities of an issuer other than Royal Bank of Canada or other property. Before you purchase any indexed note, you should read carefully the section entitled “Risk Factors—Risks Relating to Indexed Notes” above.

Original Issue Discount Notes

A fixed rate note, a floating rate note or an indexed note may be an original issue discount note. A note of this type is issued at a price lower than its principal amount and provides that, upon redemption or acceleration of its maturity, an amount less than its principal amount will be payable. An original issue discount note may be a zero-coupon note. A note issued at a discount to its principal may, for U.S. federal income tax purposes, be considered an original issue discount note, regardless of the amount payable upon redemption or acceleration of maturity. See “Tax Consequences – Taxation of Debt Securities” in the accompanying prospectus for a brief description of the U.S. federal income tax consequences of owning an original issue discount note.

Information in the Pricing Supplement

Your pricing supplement will describe one or more of the following terms of your note:

• the stated maturity;
• the specified currency or currencies for principal and interest, if not U.S. dollars;
• the price at which we originally issue your note, expressed as a percentage of the principal amount, and the original issue date;
• whether your note is a fixed rate note, a floating rate note or an indexed note;
• if your note is a fixed rate note, the yearly rate at which your note will bear interest, if any, and the interest payment dates;
• if your note is a floating rate note, the interest rate basis, which may be one of the eight interest rate bases described in “—Interest Rates—Floating Rate Notes” below; any applicable index currency or maturity, spread or spread multiplier or initial, maximum or minimum rate; and the interest reset, determination, calculation and payment dates, all of which we describe under “—Interest Rates—Floating Rate Notes” below;
• if your note is an indexed note, the principal amount, if any, we will pay you at maturity, the amount of interest, if any, we will pay you on an interest payment date or the formula we will use to calculate these amounts, if any, and whether your note will be exchangeable in cash, securities of an issuer other than Royal Bank of Canada or other property;
• if your note is an original issue discount note, the yield to maturity;
• if applicable, the circumstances under which your note may be redeemed at our option before the stated maturity, including any redemption commencement date, redemption price(s) and redemption period(s);
• if applicable, the circumstances under which you may demand repayment of your note before the stated maturity, including any repayment commencement date, repayment price(s) and repayment period(s);
• any special Canadian or United States federal income tax consequences of the purchase, ownership or disposition of a particular issuance of notes;
• the use of proceeds, if materially different than those discussed in this prospectus supplement; and
• any other terms of your note, which could be different from those described in this prospectus supplement.

Market-Making Transactions

If you purchase your note in a market-making transaction, you will receive information about the price you pay and your trade and settlement dates in a separate confirmation of sale. A market-making transaction is one in which RBC Capital Markets Corporation, RBC Dain Rauscher Inc. or another of our affiliates resells a note that it has previously acquired from another holder. A market-making transaction in a particular note occurs after the original sale of the note.

Redemption at the Option of Royal Bank of Canada; No Sinking Fund

If an initial redemption date is specified in the applicable pricing supplement, we may redeem the particular notes prior to their stated maturity date at our option on any date on or after that initial redemption date in whole or from time to time in part in increments of $1,000 or any other integral multiple of an authorized denomination specified in the applicable pricing supplement (provided that any remaining principal amount thereof shall be at least $1,000 or other minimum authorized denomination applicable thereto), at the redemption price or prices specified in that pricing supplement, together with unpaid interest accrued thereon to the date of redemption. Unless otherwise specified in the applicable pricing supplement, we must give written notice to registered holders of the particular notes to be redeemed at our option not more than 60 nor less than 30 calendar days prior to the date of redemption.

The notes will not be subject to, or entitled to the benefit of, any sinking fund.

Repayment at the Option of the Holder

If one or more optional repayment dates are specified in the applicable pricing supplement, registered holders of the particular notes may require us to repay those notes prior to their stated maturity date on any optional repayment date in whole or from time to time in part in increments of $1,000 or any other integral multiple of an authorized denomination specified in the applicable pricing supplement (provided that any remaining principal amount thereof shall be at least $1,000 or other minimum authorized denomination applicable thereto), at the repayment price or prices specified in that pricing supplement, together with unpaid interest accrued thereon to the date of repayment. A registered holder’s exercise of the repayment option will be irrevocable.

For any note to be repaid, the applicable trustee must receive, at its corporate trust office in the Borough of Manhattan, The City of New York, not more than 60 nor less than 30 calendar days prior to the date of repayment, the particular notes to be repaid and, in the case of a book-entry note, repayment instructions from the applicable beneficial owner to the depositary and forwarded by the depositary. Only the depositary may exercise the repayment option in respect of global notes representing book-entry notes. Accordingly, beneficial owners of global notes that desire to have all or any portion of the book-entry notes represented thereby repaid must instruct the participant through which they own their interest to direct the depositary to exercise the repayment option on their behalf by forwarding the repayment instructions to the applicable trustee as aforesaid. In order to ensure that these instructions are received by
the applicable trustee on a particular day, the applicable beneficial owner must so instruct the participant through which it owns its interest before that participant’s deadline for accepting instructions for that day. Different firms may have different deadlines for accepting instructions from their customers. Accordingly, beneficial owners should consult their participants for the respective deadlines. In addition, at the time repayment instructions are given, each beneficial owner shall cause the participant through which it owns its interest to transfer the beneficial owner’s interest in the related book-entry notes, on the depositary’s records, to the applicable trustee.

If applicable, we will comply with the requirements of Section 14(e) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and the rules promulgated thereunder, and any other securities laws or regulations in connection with any repayment of notes at the option of the registered holders thereof.

We may at any time purchase notes at any price or prices in the open market or otherwise. Notes so purchased by us may, at our discretion, be held, resold or surrendered to the applicable trustee for cancellation.

Interest

Each interest-bearing note will bear interest from its date of issue at the rate per annum, in the case of a fixed rate note, or pursuant to the interest rate formula, in the case of a floating rate note, in each case as specified in the applicable pricing supplement, until the principal thereof is paid. We will make interest payments in respect of fixed rate notes and floating rate notes in an amount equal to the interest accrued from and including the immediately preceding interest payment date in respect of which interest has been paid or from and including the date of issue, if no interest has been paid, to but excluding the applicable interest payment date or the maturity date, as the case may be (each, an “interest period”).

Interest on fixed rate notes and floating rate notes will be payable in arrears on each interest payment date and on the maturity date. The first payment of interest on any note originally issued between a regular record date and the related interest payment date will be made on the interest payment date immediately following the next succeeding record date to the registered holder on the next succeeding record date. The “regular record date” shall be the fifteenth calendar day, whether or not a “business day”, immediately preceding the related interest payment date. “Business day” is defined below under “—Interest Rates—Special Rate Calculation Terms”. For the purpose of determining the holder at the close of business on a regular record date when business is not being conducted, the close of business will mean 5:00 P.M., New York City time, on that day.

Interest Rates

This subsection describes the different kinds of interest rates that may apply to your note, if it bears interest.

Fixed Rate Notes

The relevant pricing supplement will specify the interest payment dates for a fixed rate note as well as the maturity date. Interest on fixed rate notes will be computed on the basis of a 360-day year consisting of twelve 30-day months or such other day count fraction set forth in the pricing supplement.

If any interest payment date or the maturity date of a fixed rate note falls on a day that is not a business day, we will make the required payment of principal, premium, if any, and/or interest on the next succeeding business day, and no additional interest will accrue in respect of the payment made on that next succeeding business day.
Floating Rate Notes

In this subsection, we use several specialized terms relating to the manner in which floating interest rates are calculated. These terms appear in bold, italicized type the first time they appear, and we define these terms in “—Special Rate Calculation Terms” at the end of this subsection.

The following will apply to floating rate notes.

**Interest Rate Basis.** We currently expect to issue floating rate notes that bear interest at rates based on one or more of the following interest rate bases:

- commercial paper rate;
- U.S. prime rate;
- LIBOR;
- EURIBOR;
- treasury rate;
- CMT rate;
- CD rate; and/or
- federal funds rate.

We describe each of the interest rate bases in further detail below in this subsection. If you purchase a floating rate note, your pricing supplement will specify the interest rate basis that applies to your note.

**Calculation of Interest.** Calculations relating to floating rate notes will be made by the calculation agent, an institution that we appoint as our agent for this purpose. That institution may include any affiliate of ours, such as RBC Capital Markets Corporation. The pricing supplement for a particular floating rate note will name the institution that we have appointed to act as the calculation agent for that note as of its original issue date. We may appoint a different institution to serve as calculation agent from time to time after the original issue date of the note without your consent and without notifying you of the change.

For each floating rate note, the calculation agent will determine, on the corresponding interest calculation date or on the interest determination date, as described below, the interest rate that takes effect on each interest reset date. In addition, the calculation agent will calculate the amount of interest that has accrued during each interest period—that is, the period from and including the original issue date, or the last date to which interest has been paid or made available for payment, to but excluding the payment date. For each interest period, the calculation agent will calculate the amount of accrued interest by multiplying the face or other specified amount of the floating rate note by an accrued interest factor for the interest period. This factor will equal the sum of the interest factors calculated for each day during the interest period. The interest factor for each day will be expressed as a decimal and will be calculated by dividing the interest rate, also expressed as a decimal, applicable to that day by 360 or by the actual number of days in the year, as specified in the relevant pricing supplement.

Upon the request of the holder of any floating rate note, the calculation agent will provide for that note the interest rate then in effect—and, if determined, the interest rate that will become effective on the next interest reset date. The calculation agent’s determination of any interest rate, and its calculation of the amount of interest for any interest period, will be final and binding in the absence of manifest error.

All percentages resulting from any calculation relating to a note will be rounded upward or downward, as appropriate, to the next higher or lower one hundred-thousandth of a percentage point, e.g., 9.876541% (or .09876541) being rounded down to 9.87654% (or .0987654) and 9.876545% (or
(0.09876545) being rounded up to 9.87655% (or 0.0987655). All amounts used in or resulting from any calculation relating to a floating rate note will be rounded upward or downward, as appropriate, to the nearest cent, in the case of U.S. dollars, or to the nearest corresponding hundredth of a unit, in the case of a currency other than U.S. dollars, with one-half cent or one-half of a corresponding hundredth of a unit or more being rounded upward.

In determining the interest rate basis that applies to a floating rate note during a particular interest period, the calculation agent may obtain rate quotes from various banks or dealers active in the relevant market, as discussed below. Those reference banks and dealers may include the calculation agent itself and its affiliates, as well as any agent participating in the distribution of the relevant floating rate notes and its affiliates, and they may include our affiliates.

Initial Interest Rate. For any floating rate note, the interest rate in effect from the original issue date to the first interest reset date will be the initial interest rate. We will specify the initial interest rate or the manner in which it is determined in the relevant pricing supplement.

Spread or Spread Multiplier. In some cases, the interest rate basis for a floating rate note may be adjusted:

• by adding or subtracting a specified number of basis points, called the spread, with one basis point being 0.01%; or

• by multiplying the interest rate basis by a specified percentage, called the spread multiplier.

If you purchase a floating rate note, your pricing supplement will indicate whether a spread or spread multiplier will apply to your note and, if so, the amount of the spread or spread multiplier.

Maximum and Minimum Rates. The actual interest rate, after being adjusted by the spread or spread multiplier, may also be subject to either or both of the following limits:

• a maximum rate—i.e., a specified upper limit that the actual interest rate in effect at any time may not exceed; and/or

• a minimum rate—i.e., a specified lower limit that the actual interest rate in effect at any time may not fall below.

If you purchase a floating rate note, your pricing supplement will indicate whether a maximum rate and/or minimum rate will apply to your note and, if so, what those rates are.

Whether or not a maximum rate applies, the interest rate on a floating rate note will in no event be higher than the maximum rate permitted by New York law, as it may be modified by U.S. law of general application and the Criminal Code (Canada). Under current New York law, the maximum rate of interest, with some exceptions, for any loan in an amount less than $250,000 is 16% and for any loan in the amount of $250,000 or more but less than $2,500,000 is 25% per year on a simple interest basis. These limits do not apply to loans of $2,500,000 or more, except for the Criminal Code (Canada), which limits the rate to 60%.

The rest of this subsection describes how the interest rate and the interest payment dates will be determined, and how interest will be calculated, on a floating rate note.

Interest Reset Dates. The rate of interest on a floating rate note will be reset, by the calculation agent described below, daily, weekly, monthly, quarterly, semi-annually or annually. The date on which the interest rate resets and the reset rate becomes effective is called the interest reset date. Except as otherwise specified in the applicable pricing supplement, the interest reset date will be as follows:

• for floating rate notes that reset daily, each business day;
• for floating rate notes that reset weekly and are not treasury rate notes, the Wednesday of each week;
• for treasury rate notes that reset weekly, the Tuesday of each week;
• for floating rate notes that reset monthly, the third Wednesday of each month;
• for floating rate notes that reset quarterly, the third Wednesday of each of four months of each year as indicated in the relevant pricing supplement;
• for floating rate notes that reset semi-annually, the third Wednesday of each of two months of each year as indicated in the relevant pricing supplement; and
• for floating rate notes that reset annually, the third Wednesday of one month of each year as indicated in the relevant pricing supplement.

For a floating rate note, the interest rate in effect on any particular day will be the interest rate determined with respect to the latest interest reset date that occurs on or before that day. There are several exceptions, however, to the reset provisions described above.

If any interest reset date for a floating rate note would otherwise be a day that is not a business day, the interest reset date will be postponed to the next day that is a business day. For a LIBOR or EURIBOR note, however, if that business day is in the next succeeding calendar month, the interest reset date will be the immediately preceding business day.

**Interest Determination Dates.** The interest rate that takes effect on an interest reset date will be determined by the calculation agent by reference to a particular date called an interest determination date. Except as otherwise indicated in the relevant pricing supplement:

• for commercial paper rate, federal funds rate and U.S. prime rate notes, the interest determination date relating to a particular interest reset date will be the business day preceding the interest reset date;
• for LIBOR notes, the interest determination date relating to a particular interest reset date will be the second London business day preceding the interest reset date, unless the index currency is pounds sterling, in which case the interest determination date will be the interest reset date. We refer to an interest determination date for a LIBOR note as a LIBOR interest determination date;
• for EURIBOR notes, the interest determination date relating to a particular interest reset date will be the second euro business day preceding the interest reset date. We refer to an interest determination date for a EURIBOR note as a EURIBOR interest determination date;
• for treasury rate notes, the interest determination date relating to a particular interest reset date, which we refer to as a treasury interest determination date, will be the day of the week in which the interest reset date falls on which treasury bills—i.e., direct obligations of the U.S. government—would normally be auctioned. Treasury bills are usually sold at auction on the Monday of each week, unless that day is a legal holiday, in which case the auction is usually held on the following Tuesday, except that the auction may be held on the preceding Friday. If as the result of a legal holiday an auction is held on the preceding Friday, that Friday will be the treasury interest determination date relating to the interest reset date occurring in the next succeeding week; and
• for CD rate and CMT rate notes, the interest determination date relating to a particular interest reset date will be the second business day preceding the interest reset date.
The interest determination date pertaining to a floating rate note the interest rate of which is determined with reference to two or more interest rate bases will be the latest business day which is at least two business days before the related interest reset date for the applicable floating rate note on which each interest rate basis is determinable.

**Interest Calculation Dates.** As described above, the interest rate that takes effect on a particular interest reset date will be determined by reference to the corresponding interest determination date. Except for LIBOR notes and EURIBOR notes, however, the determination of the rate will actually be made on a day no later than the corresponding interest calculation date. The interest calculation date will be the earlier of the following:

- the tenth calendar day after the interest determination date or, if that tenth calendar day is not a business day, the next succeeding business day; and
- the business day immediately preceding the interest payment date or the maturity, whichever is the day on which the next payment of interest will be due.

The calculation agent need not wait until the relevant interest calculation date to determine the interest rate if the rate information it needs to make the determination is available from the relevant sources sooner.

**Interest Payment Dates.** The interest payment dates for a floating rate note will depend on when the interest rate is reset and, unless we specify otherwise in the relevant pricing supplement, will be as follows:

- for floating rate notes that reset daily, weekly or monthly, the third Wednesday of each month;
- for floating rate notes that reset quarterly, the third Wednesday of the four months of each year specified in the relevant pricing supplement;
- for floating rate notes that reset semi-annually, the third Wednesday of the two months of each year specified in the relevant pricing supplement; or
- for floating rate notes that reset annually, the third Wednesday of the month specified in the relevant pricing supplement.

Regardless of these rules, if a note is originally issued after the regular record date and before the date that would otherwise be the first interest payment date, the first interest payment date will be the date that would otherwise be the second interest payment date.

In addition, the following special provision will apply to a floating rate note with regard to any interest payment date other than one that falls on the maturity. If the interest payment date would otherwise fall on a day that is not a business day, then the interest payment date will be the next day that is a business day. However, if the floating rate note is a LIBOR note or a EURIBOR note and the next business day falls in the next calendar month, then the interest payment date will be advanced to the next preceding day that is a business day. If the maturity date of a floating rate note falls on a day that is not a business day, we will make the required payment of principal, premium, if any, and interest on the next succeeding business day, and no additional interest will accrue in respect of the payment made on that next succeeding business day.

**Calculation Agent.** We have initially appointed The Bank of New York as our calculation agent for the notes. See “—Calculation of Interest” above for details regarding the role of the calculation agent.
Commercial Paper Rate Notes

If you purchase a commercial paper rate note, your note will bear interest at an interest rate equal to the commercial paper rate and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The commercial paper rate will be the money market yield of the rate, for the relevant interest determination date, for commercial paper having the index maturity indicated in your pricing supplement, as published in H.15(519) under the heading “Commercial Paper—Nonfinancial”. If the commercial paper rate cannot be determined as described above, the following procedures will apply.

- If the rate described above does not appear in H.15(519) at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from that source at that time, then the commercial paper rate will be the rate, for the relevant interest determination date, for commercial paper having the index maturity specified in your pricing supplement, as published in H.15 daily update or any other recognized electronic source used for displaying that rate, under the heading “Commercial Paper—Nonfinancial”.
- If the rate described above does not appear in H.15(519), H.15 daily update or another recognized electronic source at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from one of those sources at that time, the commercial paper rate will be the money market yield of the arithmetic mean of the following offered rates for U.S. dollar commercial paper that has the relevant index maturity and is placed for an industrial issuer whose bond rating is “AA”, or the equivalent, from a nationally recognized rating agency: the rates offered as of 11:00 A.M., New York City time, on the relevant interest determination date, by three leading U.S. dollar commercial paper dealers in New York City selected by the calculation agent.
- If fewer than three dealers selected by the calculation agent are quoting as described above, the commercial paper rate for the new interest period will be the commercial paper rate in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

U.S. Prime Rate Notes

If you purchase a U.S. prime rate note, your note will bear interest at an interest rate equal to the U.S. prime rate and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The U.S. prime rate will be the rate, for the relevant interest determination date, published in H.15(519) under the heading “Bank Prime Loan”. If the U.S. prime rate cannot be determined as described above, the following procedures will apply.

- If the rate described above does not appear in H.15(519) at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from that source at that time, then the U.S. prime rate will be the rate, for the relevant interest determination date, as published in H.15 daily update or another recognized electronic source used for the purpose of displaying that rate, under the heading “Bank Prime Loan”.
- If the rate described above does not appear in H.15(519), H.15 daily update or another recognized electronic source at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from one of those sources at that time, then the U.S. prime rate will be the arithmetic mean of the following rates as they appear on the Reuters screen US PRIME 1 page: the rate of interest publicly announced
by each bank appearing on that page as that bank’s prime rate or base lending rate, as of 11:00 A.M., New York City time, on the relevant interest determination date.

- If fewer than four of these rates appear on the Reuters screen US PRIME 1 page, the U.S. prime rate will be the arithmetic mean of the prime rates or base lending rates, as of the close of business on the relevant interest determination date, of three major banks in New York City selected by the calculation agent. For this purpose, the calculation agent will use rates quoted on the basis of the actual number of days in the year divided by a 360-day year.

- If fewer than three banks selected by the calculation agent are quoting as described above, the U.S. prime rate for the new interest period will be the U.S. prime rate in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

**LIBOR Notes**

If you purchase a LIBOR note, your note will bear interest at an interest rate equal to LIBOR, which will be the London interbank offered rate for deposits in U.S. dollars or any other index currency, as noted in your pricing supplement. In addition, when LIBOR is the interest rate basis the applicable LIBOR rate will be adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement. LIBOR will be determined in the following manner:

- LIBOR will be either:
  - the offered rate appearing on the Reuters Page LIBOR01; or
  - the arithmetic mean of the offered rates appearing on the Reuters screen LIBO page unless that page by its terms cites only one rate, in which case that rate;

in either case, as of 11:00 A.M., London time, on the relevant LIBOR interest determination date, for deposits of the relevant index currency having the relevant index maturity beginning on the relevant interest reset date. Your pricing supplement will indicate the index currency, the index maturity and the reference page that apply to your LIBOR note. If no reference page is mentioned in your pricing supplement, Reuters Page LIBOR01 will apply to your LIBOR note.

- If Reuters Page LIBOR01 applies and the rate described above does not appear on that page, or if Reuters screen LIBO page applies and fewer than two of the rates described above appears on that page or no rate appears on any page on which only one rate normally appears, then LIBOR will be determined on the basis of the rates, at approximately 11:00 A.M., London time, on the relevant LIBOR interest determination date, for deposits of the following kind to prime banks in the London interbank market by four major banks in that market selected by the calculation agent: deposits of the index currency having the relevant index maturity, beginning on the relevant interest reset date, and in a representative amount. The calculation agent will request the principal London office of each of these banks to provide a quotation of its rate. If at least two quotations are provided, LIBOR for the relevant LIBOR interest determination date will be the arithmetic mean of the quotations.

- If fewer than two quotations are provided as described above, LIBOR for the relevant LIBOR interest determination date will be the arithmetic mean of the rates for loans of the following kind to leading European banks quoted, at approximately 11:00 A.M., in the applicable principal financial center, on that LIBOR interest determination date, by three major banks in that financial center selected by the calculation agent: loans of the index currency having the relevant index maturity, beginning on the relevant interest reset date and in a representative amount.
If fewer than three banks selected by the calculation agent are quoting as described above, LIBOR for the new interest period will be LIBOR in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

**EURIBOR Notes**

If you purchase a EURIBOR note, your note will bear interest at an interest rate equal to the interest rate for deposits in euro, designated as “EURIBOR” and sponsored jointly by the European Banking Federation and ACI—the Financial Market Association, or any company established by the joint sponsors for purposes of compiling and publishing that rate. In addition, when EURIBOR is the interest rate basis the EURIBOR base rate will be adjusted by the spread or spread multiplier, if any, specified in your pricing supplement. EURIBOR will be determined in the following manner:

- EURIBOR will be the offered rate for deposits in euros having the index maturity specified in your pricing supplement, beginning on the second euro business day after the relevant EURIBOR interest determination date, as that rate appears on Reuters page EURIBOR01 as of 11:00 A.M., Brussels time, on the relevant EURIBOR interest determination date.

- If the rate described above does not appear on Reuters page EURIBOR01, EURIBOR will be determined on the basis of the rates, at approximately 11:00 A.M., Brussels time, on the relevant EURIBOR interest determination date, at which deposits of the following kind are offered to prime banks in the euro-zone interbank market by the principal euro-zone office of each of four major banks in that market selected by the calculation agent: euro deposits having the relevant index maturity, beginning on the relevant interest reset date, and in a representative amount. The calculation agent will request the principal euro-zone office of each of these banks to provide a quotation of its rate. If at least two quotations are provided, EURIBOR for the relevant EURIBOR interest determination date will be the arithmetic mean of the quotations.

- If fewer than two quotations are provided as described above, EURIBOR for the relevant EURIBOR interest determination date will be the arithmetic mean of the rates for loans of the following kind to leading euro-zone banks quoted, at approximately 11:00 A.M., Brussels time on that EURIBOR interest determination date, by three major banks in the euro-zone selected by the calculation agent: loans of euros having the relevant index maturity, beginning on the relevant interest reset date, and in a representative amount.

- If fewer than three banks selected by the calculation agent are quoting as described above, EURIBOR for the new interest period will be EURIBOR in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

**Treasury Rate Notes**

If you purchase a treasury rate note, your note will bear interest at an interest rate equal to the treasury rate and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The treasury rate will be the rate for the auction, on the relevant treasury interest determination date, of treasury bills having the index maturity specified in your pricing supplement, as that rate appears on Reuters page USAUCTION 10/11. If the treasury rate cannot be determined in this manner, the following procedures will apply.

- If the rate described above does not appear on either page at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from that source at that time, the treasury rate will be the bond equivalent yield of the
rate, for the relevant interest determination date, for the type of treasury bill described above, as published in H.15 daily update, or another recognized electronic source used for displaying that rate, under the heading “U.S. Government Securities/Treasury Bills/Auction High”.

- If the rate described in the prior paragraph does not appear in H.15 daily update or another recognized electronic source at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from one of those sources at that time, the treasury rate will be the bond equivalent yield of the auction rate, for the relevant treasury interest determination date and for treasury bills of the kind described above, as announced by the U.S. Department of the Treasury.

- If the auction rate described in the prior paragraph is not so announced by 3:00 P.M., New York City time, on the relevant interest calculation date, or if no such auction is held for the relevant week, then the treasury rate will be the bond equivalent yield of the rate, for the relevant treasury interest determination date and for treasury bills having a remaining maturity closest to the specified index maturity, as published in H.15(519) under the heading “U.S. Government Securities/Treasury Bills/Secondary Market”.

- If the rate described in the prior paragraph does not appear in H.15(519) at 3:00 P.M., New York City time, on the relevant interest calculation date, and the rate is available from one of those sources at that time, then the treasury rate will be the rate, for the relevant treasury interest determination date and for treasury bills having a remaining maturity closest to the specified index maturity, as published in H.15 daily update, or another recognized electronic source used for displaying that rate, under the heading “U.S. Government Securities/Treasury Bills/Secondary Market”.

- If the rate described in the prior paragraph does not appear in H.15 daily update or another recognized electronic source at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from one of those sources at that time, the treasury rate will be the bond equivalent yield of the arithmetic mean of the following secondary market bid rates for the issue of treasury bills with a remaining maturity closest to the specified index maturity: the rates bid as of approximately 3:30 P.M., New York City time, on the relevant treasury interest determination date, by three primary U.S. government securities dealers in New York City selected by the calculation agent.

- If fewer than three dealers selected by the calculation agent are quoting as described in the prior paragraph, the treasury rate in effect for the new interest period will be the treasury rate in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

**CD Rate Notes**

If you purchase a CD rate note, your note will bear interest at an interest rate equal to the CD rate and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The CD rate will be the rate, on the relevant interest determination date, for negotiable U.S. dollar certificates of deposit having the index maturity specified in your pricing supplement, as published in H.15(519) under the heading “CDs (Secondary Market)”. If the CD rate cannot be determined in this manner, the following procedures will apply.

- If the rate described above does not appear in H.15(519) at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from that source at that time, then the CD rate will be the rate, for the relevant interest
determination date, described above as published in H.15 daily update, or another recognized
electronic source used for displaying that rate, under the heading “CDs (Secondary Market”).

- If the rate described above does not appear in H.15(519), H.15 daily update or another
  recognized electronic source at 3:00 P.M., New York City time, on the relevant interest
calculation date, unless the calculation is made earlier and the rate is available from one of those
sources at that time, the CD rate will be the arithmetic mean of the following secondary market
offered rates for negotiable U.S. dollar certificates of deposit of major U.S. money market banks
with a remaining maturity closest to the specified index maturity, and in a representative
amount: the rates offered as of 10:00 A.M., New York City time, on the relevant interest
determination date, by three leading non-bank dealers in negotiable U.S. dollar certificates of
deposit in New York City, as selected by the calculation agent.

- If fewer than three dealers selected by the calculation agent are quoting as described above, the
  CD rate in effect for the new interest period will be the CD rate in effect for the prior interest
  period. If the initial interest rate has been in effect for the prior interest period, however, it will
  remain in effect for the new interest period.

CMT Rate Notes

If you purchase a CMT rate note, your note will bear interest at an interest rate equal to the CMT rate
and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The CMT rate will be the following rate displayed on the designated CMT Reuters page under the
heading “. . . Treasury Constant Maturities . . . Federal Reserve Board Release H.15 Mondays
Approximately 3:45 P.M.”, under the column for the designated CMT index maturity:

- if the designated CMT Reuters page is Reuters page FRBCMT, the rate for the relevant interest
determination date; or

- if the designated CMT Reuters page is Reuters page FEDCMT, the weekly or monthly average,
as specified in your pricing supplement, for the week that ends immediately before the week in
which the relevant interest determination date falls, or for the month that ends immediately
before the month in which the relevant interest determination date falls, as applicable.

If the CMT rate cannot be determined in this manner, the following procedures will apply.

- If the applicable rate described above is not displayed on the relevant designated CMT Reuters
  page at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the
  calculation is made earlier and the rate is available from that source at that time, then the CMT
  rate will be the applicable treasury constant maturity rate described above—i.e., for the
designated CMT index maturity and for either the relevant interest determination date or the
weekly or monthly average, as applicable—as published in H.15(519).

- If the applicable rate described above does not appear in H.15(519) at 3:00 P.M., New York
  City time, on the relevant interest calculation date, unless the calculation is made earlier and the
  rate is available from one of those sources at that time, then the CMT rate will be the treasury
  constant maturity rate, or other U.S. treasury rate, for the designated CMT index maturity and
  with reference to the relevant interest determination date, that:

  • is published by the Board of Governors of the Federal Reserve System, or the U.S.
    Department of the Treasury; and

  • is determined by the calculation agent to be comparable to the applicable rate formerly
displayed on the designated CMT Reuters page and published in H.15(519).
• If the rate described in the prior paragraph does not appear at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from one of those sources at that time, then the CMT rate will be the yield to maturity of the arithmetic mean of the following secondary market bid rates for the most recently issued treasury notes having an original maturity of approximately the designated CMT index maturity and a remaining term to maturity of not less than the designated CMT index maturity minus one year, and in a representative amount: the bid rates, as of approximately 3:30 P.M., New York City time, on the relevant interest determination date, of three primary U.S. government securities dealers in New York City selected by the calculation agent. In selecting these bid rates, the calculation agent will request quotations from five of these primary dealers and will disregard the highest quotation—or, if there is equality, one of the highest—and the lowest quotation—or, if there is equality, one of the lowest. Treasury notes are direct, non-callable, fixed rate obligations of the U.S. government.

• If the calculation agent is unable to obtain three quotations of the kind described in the prior paragraph, the CMT rate will be the yield to maturity of the arithmetic mean of the following secondary market bid rates for treasury notes with an original maturity longer than the designated CMT index maturity, with a remaining term to maturity closest to the designated CMT index maturity and in a representative amount: the bid rates, as of approximately 3:30 P.M., New York City time, on the relevant interest determination date, of three primary U.S. government securities dealers in New York City selected by the calculation agent. In selecting these bid rates, the calculation agent will request quotations from five of these primary dealers and will disregard the highest quotation (or, if there is equality, one of the highest) and the lowest quotation (or, if there is equality, one of the lowest). If two treasury notes with an original maturity longer than the designated CMT index maturity have remaining terms to maturity that are equally close to the designated CMT index maturity, the calculation agent will obtain quotations for the treasury note with the shorter remaining term to maturity.

• If fewer than five but more than two of these primary dealers are quoting as described in the prior paragraph, then the CMT rate for the relevant interest determination date will be based on the arithmetic mean of the bid rates so obtained, and neither the highest nor the lowest of those quotations will be disregarded.

• If two or fewer primary dealers selected by the calculation agent are quoting as described above, the CMT rate in effect for the new interest period will be the CMT rate in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

Federal Funds Rate Notes

If you purchase a federal funds rate note, your note will bear interest at an interest rate equal to the federal funds rate and adjusted by the spread or spread multiplier, if any, indicated in your pricing supplement.

The federal funds rate will be the rate for U.S. dollar federal funds on the relevant interest determination date, as published in H.15(519) under the heading “Federal Funds (Effective)”, as that rate is displayed on Reuters page FEDFUNDS1. If the federal funds rate cannot be determined in this manner, the following procedures will apply.

• If the rate described above is not displayed on Reuters page FEDFUNDS1 at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from that source at that time, then the federal funds rate, for the relevant interest determination date, will be the rate described above as published in H.15 daily update,
or another recognized electronic source used for displaying that rate, under the heading “Federal Funds (Effective)”.  

- If the rate described above is not displayed on Reuters page FEDFUNDS1 and does not appear in H.15(519), H.15 daily update or another recognized electronic source at 3:00 P.M., New York City time, on the relevant interest calculation date, unless the calculation is made earlier and the rate is available from one of those sources at that time, the federal funds rate will be the arithmetic mean of the rates for the last transaction in overnight, U.S. dollar federal funds arranged, before 9:00 A.M., New York City time, on the relevant interest determination date, by three leading brokers of U.S. dollar federal funds transactions in New York City selected by the calculation agent.

- If fewer than three brokers selected by the calculation agent are quoting as described above, the federal funds rate in effect for the new interest period will be the federal funds rate in effect for the prior interest period. If the initial interest rate has been in effect for the prior interest period, however, it will remain in effect for the new interest period.

Special Rate Calculation Terms

In this subsection entitled “—Interest Rates”, we use several terms that have special meanings relevant to calculating floating interest rates. We define these terms as follows:

The term “bond equivalent yield” means a yield expressed as a percentage and calculated in accordance with the following formula:

\[
\text{bond equivalent yield} = \frac{D \times N}{360 - (D \times M)} \times 100
\]

where

“D” means the annual rate for treasury bills quoted on a bank discount basis and expressed as a decimal;

“N” means 365 or 366, as the case may be; and

“M” means the actual number of days in the applicable interest reset period.

The term “business day” means, for any note, a day that meets all the following applicable requirements:

- for all notes, is a Monday, Tuesday, Wednesday, Thursday or Friday that is neither a legal holiday nor a day on which banking institutions are authorized or required by law to close in New York City, Toronto or London;
- if the note has a specified currency other than U.S. dollars or euros, is also a day on which banking institutions are not authorized or obligated by law, regulation or executive order to close in the applicable principal financial center; and
- if the note is a EURIBOR note or has a specified currency of euros, or is a LIBOR note for which the index currency is euros, is also a euro business day.

The term “designated CMT index maturity” means the index maturity for a CMT rate note and will be the original period to maturity of a U.S. treasury security—either 1, 2, 3, 5, 7, 10, 20 or 30 years—specified in the applicable pricing supplement.

The term “designated CMT Reuters page” means the Reuters page mentioned in the relevant pricing supplement that displays treasury constant maturities as reported in H.15(519). If no Reuters page is so specified, then the applicable page will be Reuters page FEDCMT. If Reuters page FEDCMT applies but
the relevant pricing supplement does not specify whether the weekly or monthly average applies, the weekly average will apply.

The term “euro business day” means any day on which the Trans-European Automated Real-Time Gross Settlement Express Transfer (TARGET) System, or any successor system, is open for business.

The term “euro-zone” means, at any time, the region comprised of the member states of the European Economic and Monetary Union that, as of that time, have adopted a single currency in accordance with the Treaty on European Union of February 1992.


The term “index currency” means, with respect to a LIBOR note, the currency specified as such in the relevant pricing supplement. The index currency may be U.S. dollars or any other currency, and will be U.S. dollars unless another currency is specified in the relevant pricing supplement.

The term “index maturity” means, with respect to a floating rate note, the period to maturity of the instrument or obligation on which the interest rate formula is based, as specified in the applicable pricing supplement.

“London business day” means any day on which dealings in the relevant index currency are transacted in the London interbank market.

The term “money market yield” means a yield expressed as a percentage and calculated in accordance with the following formula:

\[
\text{money market yield} = \frac{D \times 360}{360 - (D \times M)} \times 100
\]

where

“D” means the annual rate for commercial paper quoted on a bank discount basis and expressed as a decimal; and

“M” means the actual number of days in the relevant interest reset period.

The term “principal financial center” means the capital city of the country to which an index currency relates (or the capital city of the country issuing the specified currency, as applicable), except that with respect to U.S. dollars, Australian dollars, Canadian dollars, South African rands and Swiss francs, the “principal financial center” means The City of New York, Sydney, Toronto, Johannesburg and Zurich, respectively, and with respect to euros the principal financial center means London.

The term “representative amount” means an amount that, in the calculation agent’s judgment, is representative of a single transaction in the relevant market at the relevant time.

“Reuters Page LIBOR01” means the display designated as “LIBOR01” on Reuters 3000 Xtra (or any successor service) (or such other page as may replace Page LIBOR01 on Reuters 3000 Xtra or any successor service).

“Reuters screen LIBO page” means the display on the Reuters Monitor Money Rates Service, or any successor service, on the page designated as “LIBO” or any replacement page or pages on which London interbank rates of major banks for the relevant index currency are displayed.
“Reuters screen US PRIME 1 page” means the display on the “US PRIME 1” page on the Reuters Monitor Money Rates Service, or any successor service, or any replacement page or pages on that service, for the purpose of displaying prime rates or base lending rates of major U.S. banks.

“Reuters page” means the display on Reuters 3000 Xtra, or any successor service, on the page or pages specified in this prospectus supplement or the relevant pricing supplement, or any replacement page or pages on that service.

If, when we use the terms designated CMT Reuters page, H.15(519), H.15 daily update, Reuters screen LIBO page, Reuters screen US PRIME 1 page, Reuters Page LIBOR01 or Reuters page, we refer to a particular heading or headings on any of those pages, those references include any successor or replacement heading or headings as determined by the calculation agent.

Other Provisions; Addenda

Any provisions relating to the notes, including the determination of the interest rate basis, calculation of the interest rate applicable to a floating rate note, its interest payment dates, any redemption or repayment provisions, or any other term relating thereto, may be modified and/or supplemented by the terms as specified under “Other Provisions” on the face of the applicable notes or in an Addendum relating to the applicable notes, if so specified on the face of the applicable notes, and, in each case, in the relevant pricing supplement.
CERTAIN INCOME TAX CONSEQUENCES

Certain Canadian Income Tax Considerations

Investors should read carefully the description of material Canadian federal income tax considerations relevant to owning debt securities under "Tax Consequences – Canadian Taxation" in the accompanying prospectus. In the opinion of Ogilvy Renault LLP, Canadian tax counsel to Royal Bank of Canada, interest paid or credited, or deemed for purposes of the Income Tax Act (the "Act") to be paid or credited, on the debt securities will not generally be subject to Canadian non-resident withholding tax in the circumstances set out therein. In the event that a pricing supplement further describes the Canadian federal income tax considerations relevant to owning particular debt securities, the description of the Canadian federal income tax considerations under "Tax Consequences – Canadian Taxation" in the accompanying prospectus will be superseded by the description in the pricing supplement to the extent indicated therein.

United States Taxation

Investors should read carefully the description of material United States federal income tax consequences of owning debt securities under “Tax Consequences – United States Taxation” in the accompanying prospectus. It is the opinion of Sullivan & Cromwell LLP, United States tax counsel to Royal Bank of Canada, that commercial paper rate notes, prime rate notes, LIBOR notes, EURIBOR notes, treasury rate notes, CMT rate notes, CD rate notes and federal funds rate notes generally will be treated as variable rate debt securities under the rules described under “Tax Consequences – United States Taxation – Taxation of Debt Securities – Original Issue Discount – Variable Rate Debt Securities” in the accompanying prospectus.
SUPPLEMENTAL PLAN OF DISTRIBUTION

We and RBC Capital Markets Corporation and RBC Dain Rauscher Inc., as the agents, have entered into a distribution agreement with respect to the notes. Subject to certain conditions, the agents have agreed to use their reasonable efforts to solicit purchases of the notes. We have the right to accept offers to purchase notes and may reject any proposed purchase of the notes. The agents may also reject any offer to purchase notes. We will pay the agents a commission on any notes sold through the agents. The commission is expected to range from 0% to 1% of the principal amount of the notes, depending on the stated maturity of the notes, for fixed rate and floating rate notes. The commission is expected to range from 1% to 5% of the principal amount of the notes for indexed and other structured notes, or in such other amount as may be agreed between the agents and Royal Bank of Canada.

We may also sell notes to the agents, who will purchase the notes as principal for their own accounts. In that case, the agents will purchase the notes at a price equal to the issue price specified in the applicable pricing supplement, less a discount to be agreed with us at the time of the offering.

The agents may resell any notes they purchase as principal to other brokers or dealers at a discount, which may include all or part of the discount the agents received from us. If all the notes are not sold at the initial offering price, the agents may change the offering price and the other selling terms.

We may also sell notes directly to investors. We will not pay commissions on notes we sell directly.

We have reserved the right to withdraw, cancel or modify the offer made by this prospectus supplement without notice and may reject orders in whole or in part whether placed directly with us or with an agent. No termination date has been established for the offering of the notes.

The agents, whether acting as agent or principal, may be deemed to be “underwriters” within the meaning of the Securities Act of 1933. We have agreed to indemnify the agents against certain liabilities, including liabilities under the Securities Act of 1933.

If the agents sell notes to dealers who resell to investors and the agents pay the dealers all or part of the discount or commission they receive from us, those dealers may also be deemed to be “underwriters” within the meaning of the Securities Act of 1933.

Unless otherwise indicated in any pricing supplement, payment of the purchase price of notes, other than notes denominated in a non-U.S. dollar currency, will be required to be made in funds immediately available in The City of New York. The notes will be in the Same Day Funds Settlement System at DTC and, to the extent the secondary market trading in the notes is effected through the facilities of such depositary, such trades will be settled in immediately available funds.

We may appoint agents, other than or in addition to RBC Capital Markets Corporation and RBC Dain Rauscher Inc., with respect to the notes. Any other agents will be named in the applicable pricing supplements and those agents will enter into the distribution agreement referred to above. The other agents may be affiliates or customers of Royal Bank of Canada and may engage in transactions with and perform services for Royal Bank of Canada in the ordinary course of business. RBC Capital Markets Corporation and RBC Dain Rauscher Inc. may resell notes to or through another of our affiliates, as selling agent.

The notes are a new issue of securities, and there will be no established trading market for any note before its original issue date. We do not plan to list the notes on a securities exchange or quotation system. We have been advised by RBC Capital Markets Corporation and RBC Dain Rauscher Inc. that they intend to make a market in the notes. However, neither RBC Capital Markets Corporation, RBC Dain Rauscher Inc. nor any of our other affiliates nor any other agent named in your pricing supplement that makes a market is obligated to do so, and any of them may stop doing so at any time without notice. No assurance can be given as to the liquidity or trading market for the notes.
This prospectus supplement may be used by RBC Capital Markets Corporation or RBC Dain Rauscher Inc. in connection with offers and sales of the notes in market-making transactions. In a market-making transaction, RBC Capital Markets Corporation or RBC Dain Rauscher Inc. may resell a note it acquires from other holders after the original offering and sale of the note. Resales of this kind may occur in the open market or may be privately negotiated, at prevailing market prices at the time of resale or at related or negotiated prices. In these transactions, RBC Capital Markets Corporation or RBC Dain Rauscher Inc. may act as principal or agent, including as agent for the counterparty in a transaction in which RBC Capital Markets Corporation or RBC Dain Rauscher Inc. acts as principal, or as agent for both counterparties in a transaction in which RBC Capital Markets Corporation or RBC Dain Rauscher Inc. does not act as principal. RBC Capital Markets Corporation or RBC Dain Rauscher Inc. may receive compensation in the form of discounts and commissions, including from both counterparties in some cases. Other affiliates of Royal Bank of Canada may also engage in transactions of this kind and may use this prospectus supplement for this purpose.

The aggregate initial offering price specified on the cover of this prospectus supplement relates to the initial offering of new notes we may issue on and after the date of this prospectus supplement. This amount does not include notes that may be resold in market-making transactions. The latter includes notes that we may issue going forward as well as notes we have previously issued.

Royal Bank of Canada does not expect to receive any proceeds from market-making transactions. Royal Bank of Canada does not expect that RBC Capital Markets Corporation, RBC Dain Rauscher Inc. or any other affiliate that engages in these transactions will pay any proceeds from its market-making resales to Royal Bank of Canada.

Information about the trade and settlement dates, as well as the purchase price, for a market-making transaction will be provided to the purchaser in a separate confirmation of sale.

Unless Royal Bank of Canada or an agent informs you in your confirmation of sale that your note is being purchased in its original offering and sale, you may assume that you are purchasing your note in a market-making transaction.

In this prospectus supplement, the term “this offering” means the initial offering of the notes made in connection with their original issuance. This term does not refer to any subsequent resales of notes in market-making transactions.

The agents may engage in over-allotment, stabilizing transactions, syndicate covering transactions and penalty bids in accordance with Regulation M under the Securities Exchange Act of 1934. Over-allotment involves syndicate sales in excess of the offering size, which creates a syndicate short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Syndicate covering transactions involve purchases of the notes in the open market after the distribution has been completed in order to cover syndicate short positions. Penalty bids permit reclaiming a selling concession from a syndicate member when the notes originally sold by such syndicate member are purchased in a syndicate covering transaction to cover syndicate short positions. Such stabilizing transactions, syndicate covering transactions and penalty bids may stabilize, maintain or otherwise affect the market price of the notes, which may be higher than it would otherwise be in the absence of such transactions. The agents are not required to engage in these activities, and may end any of these activities at any time.

The participation of RBC Capital Markets Corporation or RBC Dain Rauscher Inc. in the offer and sale of the notes must comply with the requirements of Rule 2720 of the National Association of Securities Dealers, Inc. regarding underwriting securities of an “affiliate”. No NASD member participating in offers and sales will execute a transaction in the notes in a discretionary account without the prior specific written approval of such member’s customer.
In addition to offering notes through the agents as discussed above, other medium-term notes that have terms substantially similar to the terms of the notes offered by this prospectus supplement may in the future be offered, concurrently with the offering of the notes, on a continuing basis by Royal Bank of Canada. Any of these notes sold pursuant to the distribution agreement or sold by Royal Bank of Canada directly to investors will reduce the aggregate amount of notes which may be offered by this prospectus supplement.

**Selling Restrictions Outside the United States**

Royal Bank of Canada has taken no action that would permit a public offering of the notes or possession or distribution of this prospectus supplement or the accompanying prospectus or any other offering material in any jurisdiction outside the United States where action for that purpose is required other than as described below. Accordingly, each agent has represented, warranted and agreed, and each other agent will be required to represent, warrant and agree, that:

- it will comply with all applicable laws and regulations in force in any jurisdiction in which it purchases, offers or sells notes or possesses or distributes this prospectus supplement or the accompanying prospectus or any other offering material and will obtain any consent, approval or permission required by it for the purchase, offer or sale by it of notes under the laws and regulations in force in any jurisdiction to which it is subject or in which it makes such purchases, offers or sales and Royal Bank of Canada shall have no responsibility in relation to this; and

- it will not offer or sell any notes purchased by it, directly or indirectly, in Canada or to any resident of Canada without the consent of Royal Bank of Canada, and further agrees that it will include a comparable provision in any sub-underwriting, banking group or selling group agreement or similar arrangement with respect to any notes that may be entered into by such agent.

With regard to each note, the relevant purchaser will be required to comply with those restrictions that Royal Bank of Canada and the relevant purchaser shall agree and as shall be set out in the relevant pricing supplement.

**United Kingdom**

Each of RBC Capital Markets Corporation and RBC Dain Rauscher Inc. has represented and agreed, and each other agent will be required to represent and agree, that:

- it has not made or will not make an offer of notes to the public in the United Kingdom within the meaning of section 102B of the Financial Services and Markets Act 2000 (as amended) (the “FSMA”) except to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities or otherwise in circumstances which do not require the publication by Royal Bank of Canada of a prospectus pursuant to the Prospectus Rules of the Financial Services Authority;

- it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of section 21 of the FSMA) to persons who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 or in circumstances in which section 21 of the FSMA does not apply to Royal Bank of Canada ; and
• it has complied with, and will comply with, all applicable provisions of the FSMA with respect to anything done by it in relation to the notes in, from or otherwise involving the United Kingdom.

**European Economic Area**

In relation to each member state of the European Economic Area which has implemented the Prospectus Directive (each, a “Relevant Member State”), each of RBC Capital Markets Corporation and RBC Dain Rauscher Inc. has represented and agreed, and each other agent will be required to represent and agree, that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State (the “Relevant Implementation Date”) it has not made and will not make an offer of notes to the public in that Relevant Member State prior to the publication of a prospectus in relation to the notes which has been approved by the competent authority in that Relevant Member State or, where appropriate, approved in another Relevant Member State and notified to the competent authority in that Relevant Member State, all in accordance with the Prospectus Directive, except that it may, with effect from and including the Relevant Implementation Date, make an offer of notes to the public in that Relevant Member State at any time:

• to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;

• to any legal entity which has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than € 43,000,000 and (3) an annual net turnover of more than € 50,000,000, as shown in its last annual or consolidated accounts; or

• in any other circumstances which do not require the publication by Royal Bank of Canada of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an “offer of notes to the public” in relation to any notes in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the notes to be offered so as to enable an investor to decide to purchase or subscribe the notes, as the same may be varied in that member state by any measure implementing the Prospectus Directive in that member state, and the expression “Prospectus Directive” means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

**Japan**

Each of RBC Capital Markets Corporation and RBC Dain Rauscher Inc. has represented and agreed, and each other agent will be required to represent and agree, that the notes have not been registered under the Securities and Exchange Law of Japan and are not being offered or sold and may not be offered or sold, directly or indirectly, in Japan or to, or for the account or benefit of, any resident of Japan, or to, or for the account or benefit of, any resident for reoffering or resale, directly or indirectly, in Japan or to, or for the account or benefit of, any resident of Japan except (i) pursuant to an exemption from the registration requirements of, or otherwise in compliance with, the Securities and Exchange Law of Japan and (ii) in compliance with the other relevant laws and regulations of Japan. Each of RBC Capital Markets Corporation or RBC Dain Rauscher Inc. agrees, and each other agent will be required to agree, to provide any necessary information on notes denominated or payable in yen to Royal Bank of Canada (which shall not include the names of clients) so that Royal Bank of Canada may make any required reports to the Ministry of Finance through its designated agent.

In connection with an issuance of notes denominated or payable in yen, Royal Bank of Canada will be required to comply with all applicable laws, regulations and guidelines, as amended from time to time, of the Japanese government and regulatory authorities.
**Hong Kong**

The notes may not be offered or sold by means of any document other than to persons whose ordinary business is to buy or sell shares or debentures, whether as principal or agent, or in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32) of Hong Kong, and no advertisement, invitation or document relating to the notes may be issued, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to the notes which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” within the meaning of the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made thereunder.

**Singapore**

Neither this prospectus supplement nor the accompanying prospectus has been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus supplement and the accompanying prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the notes may not be circulated or distributed, nor may the notes be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (a) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”), (b) to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the SFA, or (c) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the notes are purchased under Section 275 by a relevant person which is: (a) a corporation (which is not an accredited investor) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor, shares, debentures and units of shares and debentures of that corporation or the beneficiaries’ rights and interest in that trust shall not be transferable for six months after that corporation or that trust has acquired the shares under Section 275 except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the SFA; (2) where no consideration is given for the transfer; or (3) by operation of law.

**Switzerland**

Each of RBC Capital Markets Corporation and RBC Dain Rauscher Inc. has represented and agreed, and each other agent will be required to represent and agree, that the issue of any notes denominated in Swiss francs or carrying a Swiss franc-related element will be effected in compliance with the relevant regulations of the Swiss National Bank, which currently require that such issues have a maturity of more than one year, to be effected through a bank domiciled in Switzerland that is regulated under the Swiss Federal Law on Banks and Savings Banks of 1934 (as amended) (which includes a branch or subsidiary located in Switzerland of a foreign bank) or through a securities dealer which has been licensed as a securities dealer under the Swiss Federal Law on Stock Exchanges and Securities Trading of 1995 (except for issues of notes denominated in Swiss francs on a syndicated basis, where only the lead manager need be a bank domiciled in Switzerland). The relevant agent must report certain details of the relevant transaction to the Swiss National Bank no later than the time of delivery of the notes.
DOCUMENTS FILED AS PART OF THE REGISTRATION STATEMENT

In addition to the documents specified in the accompanying prospectus under “Documents Incorporated by Reference”, the following documents will be filed with the Securities and Exchange Commission and incorporated by reference as part of the registration statement to which this prospectus supplement relates (the “Registration Statement”): (i) the Amended Distribution Agreement, dated February 28, 2007, between us and the agents, (ii) the Calculation Agency Agreement, dated as of January 5, 2007, between us and The Bank of New York, and (iii) the Exchange Rate Agency Agreement, dated as of January 5, 2007, between us and The Bank of New York. Such documents will not be incorporated by reference into this prospectus supplement or the accompanying prospectus. Additional exhibits to the Registration Statement to which this prospectus supplement relates may be subsequently filed in reports on Form 40-F or on Form 6-K that specifically state that such materials are incorporated by reference as exhibits in Part II of the Registration Statement.
No dealer, salesman or other person has been authorized to give any information or to make any representation not contained in this prospectus supplement, the accompanying prospectus or any pricing supplement and, if given or made, such information or representation must not be relied upon as having been authorized by Royal Bank of Canada or the agents. This prospectus supplement, the accompanying prospectus and any pricing supplement do not constitute an offer to sell or a solicitation of an offer to buy any securities other than the securities described in the relevant pricing supplement nor do they constitute an offer to sell or a solicitation of an offer to buy the securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. The delivery of this prospectus supplement, the accompanying prospectus and any pricing supplement at any time does not imply that the information they contain is correct as of any time subsequent to their respective dates.

US$8,000,000,000

Royal Bank of Canada

Senior Global
Medium-Term Notes, Series C

February 28, 2007
ROYAL BANK OF CANADA

Senior Debt Securities

Subordinated Debt Securities

up to an aggregate initial offering price of U.S.$8 billion or the equivalent thereof in other currencies.

This prospectus describes some of the general terms that may apply to these securities and the general manner in which they may be offered. We will give you the specific prices and other terms of the securities we are offering in supplements to this prospectus. You should read this prospectus and the applicable supplement carefully before you invest. We may sell the securities to or through one or more underwriters, dealers or agents. The names of the underwriters, dealers or agents will be set forth in supplements to this prospectus.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR DETERMINED THAT THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

Prospective investors should be aware that the acquisition of the securities described herein may have tax consequences both in the United States and in Canada. Such consequences for investors who are resident in, or citizens of, the United States may not be described fully herein or in any applicable prospectus supplement.

The enforcement by investors of civil liabilities under United States federal securities laws may be affected adversely by the fact that Royal Bank of Canada is a Canadian bank, that many of its officers and directors are residents of Canada, that some or all of the underwriters or experts named in the Registration Statement may be residents of Canada, and that all or a substantial portion of the assets of Royal Bank of Canada and said persons may be located outside the United States.

The securities described herein will not constitute deposits that are insured under the Canada Deposit Insurance Corporation Act or by the United States Federal Deposit Insurance Corporation.

Investing in the securities described herein involves a number of risks. See “Risk Factors” on page 6.

TM Trademark of Royal Bank of Canada

The date of this prospectus is January 5, 2007.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOCUMENTS INCORPORATED BY REFERENCE</td>
<td>2</td>
</tr>
<tr>
<td>WHERE YOU CAN FIND MORE INFORMATION</td>
<td>3</td>
</tr>
<tr>
<td>FURTHER INFORMATION</td>
<td>3</td>
</tr>
<tr>
<td>ABOUT THIS PROSPECTUS</td>
<td>4</td>
</tr>
<tr>
<td>PRESENTATION OF FINANCIAL INFORMATION</td>
<td>5</td>
</tr>
<tr>
<td>CAUTION REGARDING FORWARD-LOOKING INFORMATION</td>
<td>5</td>
</tr>
<tr>
<td>ROYAL BANK OF CANADA</td>
<td>6</td>
</tr>
<tr>
<td>RISK FACTORS</td>
<td>6</td>
</tr>
<tr>
<td>USE OF PROCEEDS</td>
<td>6</td>
</tr>
<tr>
<td>CONSOLIDATED RATIOS OF EARNINGS TO FIXED CHARGES</td>
<td>7</td>
</tr>
<tr>
<td>CONSOLIDATED CAPITALIZATION AND INDEBTEDNESS</td>
<td>8</td>
</tr>
<tr>
<td>DESCRIPTION OF DEBT SECURITIES</td>
<td>9</td>
</tr>
<tr>
<td>TAX CONSEQUENCES</td>
<td>26</td>
</tr>
<tr>
<td>PLAN OF DISTRIBUTION</td>
<td>38</td>
</tr>
<tr>
<td>BENEFIT PLAN INVESTOR CONSIDERATIONS</td>
<td>40</td>
</tr>
<tr>
<td>LIMITATIONS ON ENFORCEMENT OF U.S. LAWS AGAINST THE BANK, OUR MANAGEMENT AND OTHERS</td>
<td>41</td>
</tr>
<tr>
<td>VALIDITY OF SECURITIES</td>
<td>41</td>
</tr>
<tr>
<td>EXPERTS</td>
<td>41</td>
</tr>
<tr>
<td>SUPPLEMENTAL FINANCIAL STATEMENT SCHEDULE</td>
<td>42</td>
</tr>
<tr>
<td>OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION</td>
<td>45</td>
</tr>
</tbody>
</table>

In this prospectus, unless the context otherwise indicates, the “Bank”, “we”, “us” or “our” means Royal Bank of Canada and its subsidiaries. All dollar amounts referred to in this prospectus are in Canadian dollars unless otherwise specifically expressed.

## DOCUMENTS INCORPORATED BY REFERENCE

The Securities and Exchange Commission (the “SEC”) allows us to “incorporate by reference” the information we file with it, which means we can disclose important information to you by referring you to those documents. Copies of the documents incorporated herein by reference may be obtained upon written or oral request without charge from the Head, Investor Relations, Royal Bank of Canada at 123 Front Street West, 6th Floor, Toronto, Ontario, Canada M5J 2M2 (telephone: (416) 955-7803). The documents incorporated by reference are available over the Internet at [www.sec.gov](http://www.sec.gov).

We incorporate by reference our Annual Report on Form 40-F for the fiscal year ended October 31, 2006. In addition, we will incorporate by reference into this prospectus all documents that we file under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act and, to the extent, if any, we designate therein, reports on Form 6-K we furnish to the SEC after the date of this prospectus and prior to the termination of any offering contemplated in this prospectus.

Any statement contained in this prospectus or in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded, for purposes of this prospectus, to the extent that a statement contained herein or in any other subsequently-filed or furnished document that also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. The modifying or superseding statement need not state that it has modified or superseded a prior statement or include any other information set forth in the document that it modifies or supersedes. The making of a modifying or superseding statement shall not be deemed an admission for any purposes that the modified or superseded statement, when made, constituted a misrepresentation, an untrue statement of a material fact or an omission to state a material fact that is required to be stated or that is necessary to make a statement not misleading in light of the circumstances in which it was made. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.
Upon a new Annual Report and the related annual financial statements being filed by us with, and, where required, accepted by, the SEC, the previous Annual Report shall be deemed no longer to be incorporated by reference into this prospectus for purposes of future offers and sales of securities hereunder.

All documents incorporated by reference, or to be incorporated by reference, have been filed with or furnished to, or will be filed with or furnished to, the SEC.

WHERE YOU CAN FIND MORE INFORMATION

In addition to our continuous disclosure obligations under the securities laws of the Provinces of Canada, we are subject to the information reporting requirements of the United States Securities Exchange Act of 1934, as amended, and in accordance therewith file reports and other information with the SEC. Under the multijurisdictional disclosure system adopted by the United States, such reports and other information may be prepared in accordance with the disclosure requirements of Canada, which requirements are different from those of the United States. Such reports and other information, when filed by us in accordance with such requirements, can be inspected and copied by you at the SEC’s Public Reference Room located at 100 F Street, N.E., Washington, D.C. 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. Our SEC filings are also available to the public over the Internet at the SEC’s website at www.sec.gov. Our common shares are listed on the New York Stock Exchange, and reports and other information concerning us can be inspected at the offices of the New York Stock Exchange, 11 Wall Street, New York, New York 10005. Information about us can be located at our website at www.rbc.com. All Internet references in this prospectus are inactive textual references and we do not incorporate website contents into this prospectus.

FURTHER INFORMATION

We have filed with the SEC a Registration Statement on Form F-3 under the United States Securities Act of 1933, as amended, with respect to the securities offered with this prospectus. This prospectus is a part of that Registration Statement, and it does not contain all of the information set forth in the Registration Statement. You can access the Registration Statement together with its exhibits at the SEC’s website at www.sec.gov or inspect these documents at the offices of the SEC in order to obtain more information about us and about the securities offered with this prospectus.
ABOUT THIS PROSPECTUS

This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide a prospectus supplement containing specific information about the terms of the securities being offered. A prospectus supplement may include a discussion of any risk factors or other special considerations applicable to those securities or to us. A prospectus supplement may also add, update or change information in this prospectus. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement, you should rely on the information in the prospectus supplement. You should read both this prospectus and any prospectus supplement together with additional information described under the heading above “Where You Can Find More Information”.

We may sell securities to underwriters who will sell the securities to the public on terms fixed at the time of sale. In addition, the securities may be sold by us directly or through dealers or agents designated from time to time. If we, directly or through agents, solicit offers to purchase the securities, we reserve the sole right to accept and, together with any agents, to reject, in whole or in part, any of those offers.

Any prospectus supplement will contain the names of the underwriters, dealers or agents, if any, together with the terms of offering, the compensation of those underwriters and the net proceeds to us. Any underwriters, dealers or agents participating in the offering may be deemed “underwriters” within the meaning of the U.S. Securities Act of 1933.

We publish our consolidated financial statements in Canadian dollars. In this prospectus and any prospectus supplement, currency amounts are stated in Canadian dollars (“$”), unless specified otherwise. As indicated in the table below, the Canadian dollar has fluctuated in value compared to the U.S. dollar over time.

The tables below set forth the high and low daily noon buying rates, the average yearly rate and the rate at period end between Canadian dollars and U.S. dollars (in U.S. dollars per Canadian dollar) for the five-year period ended October 31, 2006 and the high and low daily noon buying rates for November and December of 2006 and January 1, 2007 through January 4, 2007. On January 4, 2007, the Canadian dollar closed at U.S.$0.8499. Our reference to the “noon buying rate” is the rate in The City of New York for cable transfers in foreign currencies as announced by the U.S. Federal Reserve Bank of New York for customs purposes on a specified date.

<table>
<thead>
<tr>
<th>YEAR ENDED OCTOBER 31</th>
<th>HIGH</th>
<th>LOW</th>
<th>AVERAGE RATE¹</th>
<th>AT PERIOD END</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>0.6603</td>
<td>0.6200</td>
<td>0.6362</td>
<td>0.6406</td>
</tr>
<tr>
<td>2003</td>
<td>0.7667</td>
<td>0.6288</td>
<td>0.6955</td>
<td>0.7578</td>
</tr>
<tr>
<td>2004</td>
<td>0.8201</td>
<td>0.7158</td>
<td>0.7606</td>
<td>0.8191</td>
</tr>
<tr>
<td>2005</td>
<td>0.8615</td>
<td>0.7872</td>
<td>0.8241</td>
<td>0.8477</td>
</tr>
<tr>
<td>2006</td>
<td>0.9100</td>
<td>0.8361</td>
<td>0.8831</td>
<td>0.8907</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MONTH</th>
<th>HIGH</th>
<th>LOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOVEMBER 2006</td>
<td>0.8869</td>
<td>0.8715</td>
</tr>
<tr>
<td>DECEMBER 2006</td>
<td>0.8760</td>
<td>0.8582</td>
</tr>
<tr>
<td>JANUARY 2007 (THROUGH JANUARY 4)</td>
<td>0.8586</td>
<td>0.8499</td>
</tr>
</tbody>
</table>

¹ The average of the noon buying rates on the last business day of each full month during the relevant period.
PRESENTATION OF FINANCIAL INFORMATION

We prepare our consolidated financial statements in accordance with Canadian GAAP, which differs in certain respects from U.S. GAAP. For a discussion of significant differences between Canadian and U.S. GAAP and a reconciliation of the consolidated balance sheet and statement of income, you should read the section titled “Note 31: Reconciliation of Canadian and United States Generally Accepted Accounting Principles” in Exhibit 2 to our Annual Report on Form 40-F for the fiscal year ended October 31, 2006.

CAUTION REGARDING FORWARD-LOOKING INFORMATION

From time to time, we make written or oral forward-looking statements within the meaning of certain securities laws, including the “safe harbor” provisions of the United States Private Securities Litigation Reform Act of 1995 and any applicable Canadian securities legislation. We may make such statements in this prospectus and the documents incorporated by reference herein, in other filings with Canadian regulators or the SEC, in reports to shareholders or in other communications. These forward-looking statements include, among others, statements with respect to our medium-term goal and 2007 objectives, and strategies to achieve our objectives, as well as statements with respect to our beliefs, outlooks, plans, objectives, expectations, anticipations, estimates and intentions. The words “may,” “could,” “should,” “would,” “suspect,” “outlook,” “believe,” “plan,” “anticipate,” “estimate,” “expect,” “intend,” “forecast,” “objective” and words and expressions of similar import are intended to identify forward-looking statements.

By their very nature, forward-looking statements involve numerous factors and assumptions, and are subject to inherent risks and uncertainties, both general and specific, which give rise to the possibility that predictions, forecasts, projections and other forward-looking statements will not be achieved. We caution readers not to place undue reliance on these statements as a number of important factors could cause our actual results to differ materially from the expectations expressed in such forward-looking statements. These factors include the management of credit, market, operational and other risks; general business and economic conditions in Canada, the United States and other countries in which we conduct business; the impact of the movement of the Canadian dollar relative to other currencies, particularly the U.S. dollar and British pound; the effects of changes in government monetary and other policies; the effects of competition in the markets in which we operate; the impact of changes in laws and regulations, including tax laws; judicial or regulatory judgments and legal proceedings; the accuracy and completeness of information concerning our clients and counterparties; successful execution of our strategy; our ability to complete and integrate strategic acquisitions and joint ventures successfully; changes in accounting standards, policies and estimates; and our ability to attract and retain key employees and executives. Other factors that may affect future results include: the timely and successful development of new products and services; technological changes; unexpected changes in consumer spending and saving habits; the possible impact on our business from disease or illness that affects local, national or global economies; disruptions to public infrastructure, including transportation, communication, power and water; the possible impact on our businesses of international conflicts and other political developments including those relating to the war on terrorism; and our success in anticipating and managing the associated risks.

Additional information about these factors can be found under “Risk management” and “Additional risks that may affect future results” in the management’s discussion and analysis incorporated by reference.

We caution that the foregoing list of important factors that may affect future results is not exhaustive. When relying on our forward-looking statements to make decisions with respect to us, investors and others should carefully consider the foregoing factors and other uncertainties and potential events. We do not undertake to update any forward-looking statement, whether written or oral, that may be made from time to time by us or on our behalf.
ROYAL BANK OF CANADA

Business

The Bank and its subsidiaries operate under the master brand name of RBC. We are Canada’s largest bank as measured by assets and market capitalization and one of North America’s leading diversified financial services companies. We provide personal and commercial banking, wealth management services, insurance, corporate and investment banking and transaction processing services on a global basis. Our corporate support team enables business growth with expert professional advice and state-of-the-art processes and technology. We employ approximately 70,000 full- and part-time employees who serve more than 14 million personal, business, public sector and institutional clients through offices in North America and 34 countries around the world.

Our operations are aligned into three client and geography-oriented segments:

- RBC Canadian Personal and Business consists of our personal and business banking and wealth management businesses in Canada and our global insurance businesses;
- RBC U.S. and International Personal and Business consists of our personal and business banking and retail brokerage businesses in the U.S., banking in the Caribbean and private banking internationally; and
- RBC Capital Markets provides a wide range of corporate and investment banking, sales and trading, research and related products and services to corporations, public sector and institutional clients in North America and specialized products and services in select global markets.

Corporate Support segment activities include our global technology and operations group, corporate treasury, finance, human resources, risk management, internal audit and other global functions, the cost of which are largely allocated to the business segments. The reported results for the Corporate Support segment mainly reflect activities that are undertaken for the benefit of the organization which are not allocated to the business segments.

We are a bank listed in Schedule I to the Bank Act (Canada), which constitutes our charter and governs our operations. Our principal executive offices are located at Royal Bank Plaza, 200 Bay Street, Toronto, Ontario, Canada M5J 2J5 and our head office is located at 1 Place Ville Marie, Montréal, Québec, Canada H3C 3A9.

RISK FACTORS

Investment in these securities is subject to various risks including those risks inherent in conducting the business of a diversified financial institution. Before deciding whether to invest in any debt securities, you should consider carefully the risks described in the documents incorporated by reference in this prospectus (including subsequently filed documents incorporated by reference) and, if applicable, those described in a prospectus supplement relating to a specific offering of securities. You should consider the categories of risks identified and discussed in the management’s discussion and analysis of financial condition and results of operations included in our Annual Report on Form 40-F for the fiscal year ended October 31, 2006, including those summarized under “Caution Regarding Forward-Looking Information” above.

USE OF PROCEEDS

Except as otherwise set forth in a prospectus supplement, the net proceeds from the sale of securities will be added to our general funds and will be used for general banking purposes. In addition, except as otherwise set forth in a prospectus supplement, the purpose of the sale of the subordinated debt securities will be to enlarge our capital base.
CONSOLIDATED RATIOS OF EARNINGS TO FIXED CHARGES

The tables below set forth our consolidated ratios of earnings to fixed charges, calculated in accordance with Canadian GAAP and U.S. GAAP, for the five-year period ended October 31, 2006:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Excluding Interest on Deposits</td>
<td>2.27</td>
<td>2.37</td>
<td>2.73</td>
<td>2.98</td>
<td>2.94</td>
<td></td>
</tr>
<tr>
<td>Including Interest on Deposits</td>
<td>1.40</td>
<td>1.45</td>
<td>1.56</td>
<td>1.58</td>
<td>1.52</td>
<td></td>
</tr>
<tr>
<td>Excluding Interest on Deposits</td>
<td>2.28</td>
<td>2.47</td>
<td>2.66</td>
<td>3.06</td>
<td>3.08</td>
<td></td>
</tr>
<tr>
<td>Including Interest on Deposits</td>
<td>1.39</td>
<td>1.47</td>
<td>1.55</td>
<td>1.59</td>
<td>1.56</td>
<td></td>
</tr>
</tbody>
</table>

For purposes of computing these ratios, earnings represent net income plus income taxes and fixed charges (excluding capitalized interest). Fixed charges represent (i) estimated interest within rental expense, (ii) amortization of debt issuance costs and (iii) interest (including capitalized interest), including or excluding deposit interest as indicated.
## CONSOLIDATED CAPITALIZATION AND INDEBTEDNESS

The following table sets forth our consolidated capitalization at October 31, 2006. This table should be read in conjunction with our consolidated financial statements and the management’s discussion and analysis of financial condition and results of operations included in our Annual Report on Form 40-F for the fiscal year ended October 31, 2006, which is incorporated by reference in this prospectus.

<table>
<thead>
<tr>
<th>Description</th>
<th>As at October 31, 2006 (in millions of Canadian dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subordinated Debt</td>
<td>$7,103</td>
</tr>
<tr>
<td>Trust Capital Securities</td>
<td>1,383</td>
</tr>
<tr>
<td>Preferred Share Liabilities</td>
<td>298</td>
</tr>
<tr>
<td>Non-Controlling Interest in Subsidiaries</td>
<td>1,775</td>
</tr>
<tr>
<td>Shareholders’ Equity</td>
<td></td>
</tr>
<tr>
<td>Preferred shares</td>
<td>1,050</td>
</tr>
<tr>
<td>Common shares</td>
<td>7,196</td>
</tr>
<tr>
<td>Contributed surplus</td>
<td>292</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>15,771</td>
</tr>
<tr>
<td>Treasury shares – preferred</td>
<td>(2)</td>
</tr>
<tr>
<td>Treasury shares – common</td>
<td>(180)</td>
</tr>
<tr>
<td>Net foreign currency translation adjustment</td>
<td>(2,004)</td>
</tr>
<tr>
<td>Total Shareholders’ Equity</td>
<td>22,123</td>
</tr>
<tr>
<td>Total Capitalization</td>
<td>$32,682</td>
</tr>
</tbody>
</table>
DESCRIPTION OF DEBT SECURITIES

We may issue senior or subordinated debt securities. Neither the senior debt securities nor the subordinated debt securities will be secured by any of our property or assets or the property or assets of our subsidiaries. Thus, by owning a debt security, you are one of our unsecured creditors.

The senior debt securities will be issued under our senior debt indenture, as supplemented by the first supplemental indenture (collectively, the “senior debt indenture”), described below and will be unsubordinated obligations that rank equally with all of our other unsecured and unsubordinated debt, including deposit liabilities, other than certain governmental claims in accordance with applicable law.

The subordinated debt securities will be issued under our subordinated debt indenture described below and will be subordinate in right of payment to all of our “senior indebtedness”, as defined in the subordinated debt indenture. Neither indenture limits our ability to incur additional indebtedness.

In the event we become insolvent, our governing legislation provides that priorities among payments of our deposit liabilities (including payments in respect of the senior debt securities) and payments of all of our other liabilities (including payments in respect of the subordinated debt securities) are to be determined in accordance with the laws governing priorities and, where applicable, by the terms of the indebtedness and liabilities. Because we have subsidiaries, our right to participate in any distribution of the assets of our banking or non-banking subsidiaries, upon a subsidiary’s dissolution, winding-up, liquidation or reorganization or otherwise, and thus your ability to benefit indirectly from such distribution, is subject to the prior claims of creditors of that subsidiary, except to the extent that we may be a creditor of that subsidiary and our claims are recognized. There are legal limitations on the extent to which some of our subsidiaries may extend credit, pay dividends or otherwise supply funds to, or engage in transactions with, us or some of our other subsidiaries. Accordingly, the debt securities will be structurally subordinated to all existing and future liabilities of our subsidiaries, and holders of debt securities should look only to our assets for payments on the debt securities.

Neither the senior debt securities nor the subordinated debt securities will constitute deposits insured under the Canada Deposit Insurance Corporation Act or by the United States Federal Deposit Insurance Corporation or any other Canadian or United States governmental agency or instrumentality.

When we refer to “debt securities” or “securities” in this prospectus, we mean both the senior debt securities and the subordinated debt securities.

The Senior and Subordinated Debt Indentures

The senior debt securities and the subordinated debt securities are each governed by an indenture — the senior debt indenture, in the case of the senior debt securities, and the subordinated debt indenture, in the case of the subordinated debt securities. When we refer to the “indentures”, we mean both the senior debt indenture and the subordinated debt indenture, and when we refer to the “indenture”, we mean either the senior debt indenture or the subordinated debt indenture. Each indenture is a contract between us and The Bank of New York, as successor to the corporate trust business of JPMorgan Chase Bank, N.A., which acts as trustee. The indentures are substantially identical, except for the provisions relating to the events of default, which are more limited in the subordinated debt indenture, to subordination, which are included only in the subordinated debt indenture, and the provisions relating to possible conversions or exchanges, which are only included in the senior debt indenture.

Reference to the indenture or the trustee, with respect to any debt securities, means the indenture under which those debt securities are issued and the trustee under that indenture.

The trustee has two main roles:

- The trustee can enforce the rights of holders against us if we default on our obligations under the terms of the indenture or the debt securities. There are some limitations on the extent to which the trustee
acts on behalf of holders, described below under “— Events of Default — Remedies If an Event of Default Occurs”.

- The trustee performs administrative duties for us, such as sending interest payments and notices to holders and transferring a holder’s debt securities to a new buyer if a holder sells.

The indentures and their associated documents contain the full legal text of the matters described in this section. The indentures and the debt securities will be governed by New York law, except that the subordination provisions in the subordinated debt indenture and certain provisions relating to the status of the senior debt securities under Canadian law in the senior debt indenture will be governed by the laws of the Province of Ontario and the laws of Canada applicable therein. A copy of each of the senior debt indenture, the first supplement to the senior debt indenture and the form of subordinated debt indenture is an exhibit to our Registration Statement. See “Where You Can Find More Information” above for information on how to obtain a copy.

General

We may issue as many distinct series of debt securities under either indenture as we wish. The provisions of the senior debt indenture and the subordinated debt indenture allow us not only to issue debt securities with terms different from those previously issued under the applicable indenture, but also to “re-open” a previous issue of a series of debt securities and issue additional debt securities of that series. We may issue debt securities in amounts that exceed the total amount specified on the cover of your prospectus supplement at any time without your consent and without notifying you.

This section summarizes the material terms of the debt securities that are common to all series, although the prospectus supplement that describes the terms of each series of debt securities may also describe differences from the material terms summarized here.

Because this section is a summary, it does not describe every aspect of the debt securities. This summary is subject to and qualified in its entirety by reference to all the provisions of the indentures, including definitions of certain terms used in the indentures. In this summary, we describe the meaning of only some of the more important terms. For your convenience, we also include references in parentheses to certain sections of the indentures. Whenever we refer to particular sections or defined terms of the indentures in this prospectus or in the prospectus supplement, such sections or defined terms are incorporated by reference here or in the prospectus supplement. You must look to the indentures for the most complete description of what we describe in summary form in this prospectus.

This summary is also subject to and qualified by reference to the description of the particular terms of your series described in the prospectus supplement. Those terms may vary from the terms described in this prospectus. The prospectus supplement relating to each series of debt securities will be attached to the front of this prospectus. There may also be a further prospectus supplement, known as a pricing supplement, which describes additional terms of debt securities you are offered.

We may issue the debt securities as original issue discount securities, which will be offered and sold at a substantial discount below their stated principal amount. (Section 101) The prospectus supplement relating to the original issue discount securities will describe U.S. federal income tax consequences and other special considerations applicable to them. The debt securities may also be issued as indexed securities or securities denominated in foreign currencies or currency units, as described in more detail in the prospectus supplement relating to any of the particular debt securities. The prospectus supplement relating to specific debt securities will also describe any special considerations and any material additional tax considerations applicable to such debt securities.

In addition, the specific financial, legal and other terms particular to a series of debt securities will be described in the prospectus supplement and, if applicable, a pricing supplement relating to the series. The prospectus supplement relating to a series of debt securities will describe the following terms of the series:

NY12528:264752.3
• the title of the series of debt securities;

• whether it is a series of senior debt securities or a series of subordinated debt securities;

• any limit on the aggregate principal amount of the series of debt securities;

• the person to whom interest on a debt security is payable, if other than the holder on the regular record date;

• the date or dates on which the series of debt securities will mature;

• the rate or rates, which may be fixed or variable per annum, at which the series of debt securities will bear interest, if any, and the date or dates from which that interest, if any, will accrue;

• the place or places where the principal of, premium, if any, and interest on the debt securities is payable;

• the terms, if any, on which any securities may or shall be converted into or exchanged at the option of the Bank or otherwise for shares or other securities of the Bank or another entity or other entities, into the cash value thereof or into any combination of the foregoing, any specific terms relating to the adjustment thereof and the period during which such securities may or shall be so converted or exchanged;

• the dates on which interest, if any, on the series of debt securities will be payable and the regular record dates for the interest payment dates;

• any mandatory or optional sinking funds or similar provisions or provisions for redemption at our option or the option of the holder;

• the date, if any, after which, and the price or prices at which, the series of debt securities may, in accordance with any optional or mandatory redemption provisions, be redeemed and the other detailed terms and provisions of those optional or mandatory redemption provisions, if any;

• if other than denominations of $1,000 and any integral multiples thereof, the denominations in which the series of debt securities will be issuable;

• the currency of payment of principal, premium, if any, and interest on the series of debt securities;

• if the currency of payment for principal, premium, if any, and interest on the series of debt securities is subject to our election or that of a holder, the currency or currencies in which payment can be made and the period within which, and the terms and conditions upon which, the election can be made;

• any index, formula or other method used to determine the amount of payment of principal or premium, if any, and interest on the series of debt securities;

• the applicability of the provisions described under “— De feasance” below;

• any event of default under the series of debt securities if different from those described under “— Events of Default” below;

• if the debt securities will be issued in bearer form, any special provisions relating to bearer securities;

• if the series of debt securities will be issuable only in the form of a global security, the depositary or its nominee with respect to the series of debt securities and the circumstances under which the global
security may be registered for transfer or exchange in the name of a person other than the depositary or the nominee; and

- any other special feature of the series of debt securities.

Overview of Remainder of This Description

The remainder of this description summarizes:

- additional mechanics relevant to the debt securities under normal circumstances, such as how holders record the transfer of ownership and where we make payments;
- holders’ rights in several special situations, such as if we merge with another company or if we want to change a term of the debt securities;
- subordination provisions in the subordinated debt indenture that may prohibit us from making payment on those securities;
- our right to release ourselves from all or some of our obligations under the debt securities and the indenture by a process called defeasance; and
- holders’ rights if we default or experience other financial difficulties.

Form, Exchange and Transfer

Unless we specify otherwise in the prospectus supplement, the debt securities will be issued:

- only in fully-registered form;
- without interest coupons; and
- in denominations that are even multiples of $1,000. (Section 302)

If a debt security is issued as a registered global debt security, only the depositary — e.g., DTC, Euroclear and Clearstream, each as defined below under “Ownership and Book-Entry Issuance” — will be entitled to transfer and exchange the debt security as described in this subsection because the depositary will be the sole registered holder of the debt security and is referred to below as the “holder”. Those who own beneficial interests in a global security do so through participants in the depositary’s securities clearance system, and the rights of these indirect owners will be governed by the applicable procedures of the depositary and its participants. We describe book-entry procedures below under “Ownership and Book-Entry Issuance”.

Holders of securities issued in fully-registered form may have their debt securities broken into more debt securities of smaller denominations of not less than $1,000, or combined into fewer debt securities of larger denominations, as long as the total principal amount is not changed. (Section 305) This is called an exchange.

Holders may exchange or register the transfer of debt securities at the office of the trustee. Debt securities may be transferred by endorsement. Holders may also replace lost, stolen or mutilated debt securities at that office. The trustee acts as our agent for registering debt securities in the names of holders and registering the transfer of debt securities. We may change this appointment to another entity or perform it ourselves. The entity performing the role of maintaining the list of registered holders is called the security registrar. It will also record transfers. (Section 305) The trustee may require an indemnity before replacing any debt securities.

Holders will not be required to pay a service charge to register the transfer or exchange of debt securities, but holders may be required to pay for any tax or other governmental charge associated with the exchange or
transfer. The registration of a transfer or exchange will only be made if the security registrar is satisfied with your proof of ownership.

If we designate additional transfer agents, they will be named in the prospectus supplement. We may cancel the designation of any particular transfer agent. We may also approve a change in the office through which any transfer agent acts. (Section 1002)

If the debt securities are redeemable and we redeem less than all of the debt securities of a particular series, we may block the registration of transfer or exchange of debt securities during the period beginning 15 days before the day we mail the notice of redemption and ending on the day of that mailing, in order to freeze the list of holders entitled to receive the mailing. We may also refuse to register transfers or exchanges of debt securities selected for redemption, except that we will continue to permit registration of transfers and exchanges of the unredeemed portion of any debt security being partially redeemed. (Section 305)

Payment and Paying Agents

We will pay interest to the person listed in the trustee’s records at the close of business on a particular day in advance of each due date for interest, even if that person no longer owns the debt security on the interest due date. That particular day, usually about two weeks in advance of the interest due date, is called the regular record date and will be stated in the prospectus supplement. (Section 307) Holders buying and selling debt securities must work out between them how to compensate for the fact that we will pay all the interest for an interest period to the one who is the registered holder on the regular record date. The most common manner is to adjust the sale price of the securities to prorate interest fairly between buyer and seller. This prorated interest amount is called accrued interest.

We will pay interest, principal and any other money due on the debt securities at the corporate trust office of the trustee in the City of New York. That office is currently located at 4 New York Plaza, 15th Floor, New York, NY 10004. Holders must make arrangements to have their payments picked up at or wired from that office. We may also choose to pay interest by mailing checks.

Book-entry and other indirect holders should consult their banks, brokers or other financial institutions for information on how they will receive payments.

We may also arrange for additional payment offices and may cancel or change these offices, including our use of the trustee’s corporate trust office. These offices are called paying agents. We may also choose to act as our own paying agent or choose one of our subsidiaries to do so. We must notify holders of changes in the paying agents for any particular series of debt securities. (Section 1002)

Conversion or Exchange of Senior Debt Securities

If and to the extent mentioned in the relevant prospectus supplement, any senior debt securities series may be optionally or mandatorily convertible or exchangeable for stock or other securities of the Bank or another entity or entities, into the cash value therefor or into any combination of the above. The specific terms on which any senior debt securities series may be so converted or exchanged will be described in the relevant prospectus supplement. These terms may include provisions for conversion or exchange, either mandatory, at the holder’s option or at our option, in which case the amount or number of securities the senior debt securities holders would receive would be calculated at the time and manner described in the relevant prospectus supplement. (Section 301)

Notices

We and the trustee will send notices regarding the debt securities only to registered holders, using their addresses as listed in the trustee’s records. (Sections 101 and 106) With respect to who is a registered “holder” for this purpose, see “Ownership and Book-Entry Issuance”.

-13-
Regardless of who acts as paying agent, all money paid by us to a paying agent that remains unclaimed at the end of two years after the amount is due to holders will be repaid to us. After that two-year period, holders may look to us for payment and not to the trustee or any other paying agent. (Section 1003)

Mergers and Similar Events

Under the indentures, we are generally permitted to consolidate or merge with another entity. We are also permitted to sell or lease substantially all of our assets to another entity, or to buy or lease substantially all of the assets of another entity. However, we may not take any of these actions unless all the following conditions are met:

- When we merge, amalgamate, consolidate or otherwise are combined with, or acquired by, another entity or sell or lease substantially all of our assets, the surviving, resulting or acquiring entity must be a properly organized entity and must be legally responsible for the debt securities, whether by agreement, operation of law or otherwise.

- The merger, amalgamation, consolidation, other combination, sale or lease of assets must not cause a default on the debt securities. A default for this purpose would include any event that would be an event of default if the requirements for giving us default notice or our default having to exist for a specific period of time were disregarded.

If the conditions described above are satisfied with respect to any series of debt securities, we will not need to obtain the approval of the holders of those debt securities in order to merge or consolidate or to sell our assets. Also, these conditions will apply only if we wish to merge or consolidate with another entity or sell substantially all of our assets to another entity. We will not need to satisfy these conditions if we enter into other types of transactions, including any transaction in which we acquire the stock or assets of another entity, any transaction that involves a change of control but in which we do not merge or consolidate and any transaction in which we sell less than substantially all of our assets. It is possible that this type of transaction may result in a reduction in our credit rating, may reduce our operating results or may impair our financial condition. Holders of our debt securities, however, will have no approval right with respect to any transaction of this type.

Modification and Waiver of the Debt Securities

There are four types of changes we can make to either indenture and the debt securities issued under that indenture.

Changes Requiring Approval of All Holders. First, there are changes that cannot be made to the indenture or the debt securities without specific approval of each holder of a debt security affected in any material respect by the change under a particular debt indenture. Following is a list of those types of changes:

- change the stated maturity of the principal or reduce the interest on a debt security;
- reduce any amounts due on a debt security;
- reduce the amount of principal payable upon acceleration of the maturity of a debt security (including the amount payable on an original issue discount security) following a default;
- change the currency of payment on a debt security;
- change the place of payment for a debt security;
- impair a holder’s right to sue for payment;
- impair the holder’s right to require repurchase on the original terms of those debt securities that provide a right of repurchase;
reduce the percentage of holders of debt securities whose consent is needed to modify or amend the indenture;

reduce the percentage of holders of debt securities whose consent is needed to waive compliance with certain provisions of the indenture or to waive certain defaults; or

modify any other aspect of the provisions dealing with modification and waiver of the indenture. (Section 902)

Changes Requiring a Majority Vote. The second type of change to the indenture and the debt securities is the kind that requires a vote in favor by holders of debt securities owning not less than a majority of the principal amount of the particular series affected. Most changes fall into this category, except for clarifying changes and certain other changes that would not adversely affect in any material respect holders of the debt securities. (Section 901) We may also obtain a waiver of a past default from the holders of debt securities owning a majority of the principal amount of the particular series affected. However, we cannot obtain a waiver of a payment default or any other aspect of the indenture or the debt securities listed in the first category described above under “— Changes Requiring Approval of All Holders” unless we obtain the individual consent of each holder to the waiver. (Section 513)

Changes Not Requiring Approval. The third type of change to the indenture and the debt securities does not require any vote by holders of debt securities. This type is limited to clarifications and certain other changes that would not adversely affect in any material respect holders of the debt securities. (Section 901)

We may also make changes or obtain waivers that do not adversely affect in any material respect a particular debt security, even if they affect other debt securities. In those cases, we do not need to obtain the approval of the holder of that debt security; we need only obtain any required approvals from the holders of the affected debt securities.

Modification of Subordination Provisions. We may not modify the subordination provisions of the subordinated debt indenture in a manner that would adversely affect in any material respect the outstanding subordinated debt securities of any one or more series without the consent of the holders of a majority of the principal amount of all affected series, voting together as one class.

Further Details Concerning Voting. When taking a vote, we will use the following rules to decide how much principal amount to attribute to a debt security:

- For original issue discount securities, we will use the principal amount that would be due and payable on the voting date if the maturity of the debt securities were accelerated to that date because of a default.

- For debt securities whose principal amount is not known (for example, because it is based on an index), we will use a special rule for that debt security described in the prospectus supplement.

- For debt securities denominated in one or more non-U.S. currencies or currency units, we will use the U.S. dollar equivalent.

Debt securities will not be considered outstanding, and therefore not eligible to vote, if we have given a notice of redemption and deposited or set aside in trust for the holders money for the payment or redemption of the debt securities. Debt securities will also not be eligible to vote if they have been fully defeased as described below under “— Defeasance — Full Defeasance”. (Section 1402)

We will generally be entitled to set any day as a record date for the purpose of determining the holders of outstanding debt securities that are entitled to vote or take other action under the indenture. In certain limited circumstances, the trustee will be entitled to set a record date for action by holders. If the trustee or we set a record date for a vote or other action to be taken by holders of a particular series, that vote or action may be taken only by
persons who are holders of outstanding securities of that series on the record date. We or the trustee, as applicable, may shorten or lengthen this period from time to time. This period, however, may not extend beyond the 180th day after the record date for the action. (Sections 104 and 512)

Book-entry and other indirect holders should consult their banks, brokers or other financial institutions for information on how approval may be granted or denied if we seek to change the indenture or the debt securities or request a waiver.

**Special Provisions Related to the Subordinated Debt Securities**

The subordinated debt securities issued under the subordinated debt indenture will be our direct unsecured obligations constituting subordinated indebtedness for the purpose of the *Bank Act* (Canada) and will therefore rank subordinate to our deposits. Holders of subordinated debt securities should recognize that contractual provisions in the subordinated debt indenture may prohibit us from making payments on these securities.

If we become insolvent or are wound-up, the subordinated debt securities will rank equally and ratably with, but not prior to, all other subordinated debt and subordinate in right of payment to the prior payment in full of (i) our indebtedness then outstanding, other than subordinated indebtedness and (ii) all indebtedness to which our other subordinated indebtedness is subordinate in right of payment to the same extent as such other subordinated indebtedness. As of October 31, 2006, we had $504 billion of senior indebtedness, including deposits, outstanding, which would rank ahead of the subordinated debt securities. The only outstanding subordinated indebtedness issued to date has been issued pursuant to our indentures with Computershare Trust Company of Canada dated October 1, 1984, June 6, 1986, November 14, 1994, May 21, 1997 and June 18, 2004, as supplemented from time to time, our existing program for issuing notes in Europe and other markets without the benefit of a trust indenture and our U.S.$300 million 6.75% Subordinated Notes due October 24, 2011.

For these purposes, “indebtedness” at any time means:

(i) the deposit liabilities of the Bank at such time; and

(ii) all other liabilities and obligations of the Bank to third parties (other than fines or penalties which pursuant to the *Bank Act* (Canada) are a last charge on the assets of a bank in the case of insolvency of such bank and obligations to shareholders of the Bank, as such) which would entitle such third parties to participate in a distribution of the Bank’s assets in the event of the insolvency or winding-up of the Bank.

“subordinated indebtedness” at any time means:

(i) the liability of the Bank in respect of the principal of and premium, if any, and interest on its outstanding subordinated indebtedness outlined above;

(ii) any indebtedness which ranks equally with and not prior to the outstanding subordinated indebtedness, in right of payment in the event of the insolvency or winding-up of the Bank and which, pursuant to the terms of the instrument evidencing or creating the same, is expressed to be subordinate in right of payment to all indebtedness to which the outstanding subordinated indebtedness is subordinate in right of payment to at least the same extent as the outstanding subordinated indebtedness is subordinate thereto pursuant to the terms of the instrument evidencing or creating the same;

(iii) any indebtedness which ranks subordinate to and not equally with or prior to the outstanding subordinated indebtedness, in right of payment in the event of the insolvency or winding-up of the Bank and which, pursuant to the terms of the instrument evidencing or creating the same, is expressed to be subordinate in right of payment to all indebtedness to which the outstanding subordinated indebtedness is subordinate in right
of payment to at least the same extent as the outstanding subordinated indebtedness is subordinate pursuant to the terms of the instrument evidencing or creating the same; and

(iv) the subordinated debt securities, which will rank equally to the Bank’s outstanding subordinated indebtedness.

The subordination provisions of the subordinated debt indenture are governed by the laws of the Province of Ontario and the federal laws of Canada applicable therein.

Defeasance

The following discussion of full defeasance and covenant defeasance will be applicable to each series of debt securities that is denominated in U.S. dollars and has a fixed rate of interest and will apply to other series of debt securities if we so specify in the prospectus supplement. (Section 1401)

Full Defeasance. If there is a change in U.S. federal tax law, as described below, we can legally release ourselves from any payment or other obligations on the debt securities, called full defeasance, if we put in place the following other arrangements for holders to be repaid:

• We must deposit in trust for the benefit of all holders of the debt securities a combination of money and notes or bonds of the U.S. government or a U.S. government agency or U.S. government-sponsored entity (the obligations of which are backed by the full faith and credit of the U.S. government) that will generate enough cash to make interest, principal and any other payments on the debt securities on their various due dates.

• There must be a change in current U.S. federal tax law or an IRS ruling that lets us make the above deposit without causing the holders to be taxed on the debt securities any differently than if we did not make the deposit and just repaid the debt securities ourselves. (Under current federal tax law, the deposit and our legal release from the obligations pursuant to the debt securities would be treated as though we took back your debt securities and gave you your share of the cash and notes or bonds deposited in trust. In that event, you could recognize gain or loss on the debt securities you give back to us.)

• We must deliver to the trustee a legal opinion of our counsel confirming the tax-law change described above and that the holders of the debt securities will not recognize income, gain or loss for federal income tax purposes as a result of such deposit, defeasance and discharge and will be subject to federal income tax on the same amounts and in the same manner and at the same times as would be the case if such deposit, defeasance and discharge had not occurred. (Sections 1402 and 1404)

• In the case of the subordinated debt securities, the following requirement must also be met:

  • No event or condition may exist that, under the provisions described under “— Subordination Provisions” above, would prevent us from making payments of principal, premium or interest on those subordinated debt securities on the date of the deposit referred to above or during the 90 days after that date.

If we ever did accomplish full defeasance, as described above, you would have to rely solely on the trust deposit for repayment on the debt securities. You could not look to us for repayment in the unlikely event of any shortfall.

Covenant Defeasance. Even without a change in current U.S. federal tax law, we can make the same type of deposit as described above, and we will be released from the restrictive covenants under the debt securities that may be described in the prospectus supplement. This is called covenant defeasance. In that event, you would lose the protection of these covenants but would gain the protection of having money and U.S. government or U.S.
government agency notes or bonds set aside in trust to repay the debt securities. In order to achieve covenant defeasance, we must do the following:

- We must deposit in trust for the benefit of all holders of the debt securities a combination of money and notes or bonds of the U.S. government or a U.S. government agency or U.S. government sponsored entity (the obligations of which are backed by the full faith and credit of the U.S. government) that will generate enough cash to make interest, principal and any other payments on the debt securities on their various due dates.

- We must deliver to the trustee a legal opinion of our counsel confirming that the holders of the debt securities will not recognize income, gain or loss for federal income tax purposes as a result of such deposit and covenant defeasance and will be subject to federal income tax on the same amounts and in the same manner and at the same times as would be the case if such deposit and covenant defeasance had not occurred.

If we accomplish covenant defeasance, certain provisions of the indenture and the debt securities would no longer apply:

- Covenants applicable to the series of debt securities and described in the prospectus supplement.

- Any events of default relating to breach of those covenants.

If we accomplish covenant defeasance, you can still look to us for repayment of the debt securities if there were a shortfall in the trust deposit. In fact, if one of the remaining events of default occurs (such as a bankruptcy) and the debt securities become immediately due and payable, there may be such a shortfall. (Sections 1403 and 1404)

Events of Default

You will have special rights if an event of default occurs and is not cured, as described later in this subsection.

What is an Event of Default?

Under the senior debt indenture, the term “Event of Default” means any of the following:

- We do not pay the principal of or any premium on a debt security.

- We do not pay interest on a debt security within 30 days of its due date.

- We file for bankruptcy or certain other events of bankruptcy, insolvency or reorganization occur.

- Any other event of default described in the prospectus supplement occurs. (Section 501)

Under the subordinated debt indenture, the term “Event of Default” means any of the following:

- We file for bankruptcy or certain other events of bankruptcy, insolvency or reorganization occur.

- Any other event of default described in the prospectus supplement occurs. (Section 501)

Remedies If an Event of Default Occurs. If an Event of Default occurs, the trustee will have special duties. In that situation, the trustee will be obligated to use those of its rights and powers under the indenture, and to use the same degree of care and skill in doing so, that a prudent person would use in that situation in conducting his or her own affairs. If an Event of Default has occurred and has not been cured, the trustee or the holders of at least 25% in
principal amount of the debt securities of the affected series may declare the entire principal amount (or, in the case of original issue discount securities, the portion of the principal amount that is specified in the terms of the affected debt security) of all the debt securities of that series to be due and immediately payable. This is called a declaration of acceleration of maturity. However, a declaration of acceleration of maturity may be cancelled, but only before a judgment or decree based on the acceleration has been obtained, by the holders of at least a majority in principal amount of the debt securities of the affected series. If you are the holder of a subordinated debt security, the principal amount of the subordinated debt security will not be paid and may not be required to be paid at any time prior to the relevant maturity date, except in the event of our insolvency or winding-up. (Section 502)

You should read carefully the prospectus supplement relating to any series of debt securities which are original issue discount securities for the particular provisions relating to acceleration of the maturity of a portion of the principal amount of original issue discount securities upon the occurrence of an event of default and its continuation.

Except in cases of default in which the trustee has the special duties described above, the trustee is not required to take any action under the indenture at the request of any holders unless the holders offer the trustee reasonable protection from expenses and liability called an indemnity. (Section 603) If reasonable indemnity is provided, the holders of a majority in principal amount of the outstanding securities of the relevant series may direct the time, method and place of conducting any lawsuit or other formal legal action seeking any remedy available to the trustee. These majority holders may also direct the trustee in performing any other action under the applicable indenture with respect to the debt securities of that series. (Section 512)

Before you bypass the trustee and bring your own lawsuit or other formal legal action or take other steps to enforce your rights or protect your interests relating to the debt securities the following must occur:

- the holder of the debt security must give the trustee written notice that an event of default has occurred and remains uncured;
- the holders of 25% in principal amount of all outstanding securities of the relevant series must make a written request that the trustee take action because of the default, and must offer reasonable indemnity to the trustee against the cost and other liabilities of taking that action; and
- the trustee must have not taken action for 90 days after receipt of the above notice and offer of indemnity. (Section 507)

However, you are entitled at any time to bring a lawsuit for the payment of money due on your debt security on or after its due date. (Section 508)

Book-entry and other indirect holders should consult their banks, brokers or other financial institutions for information on how to give notice or direction to or make a request of the trustee and to make or cancel a declaration of acceleration.

We will give to the trustee every year a written statement of certain of our officers certifying that to their knowledge we are in compliance with the applicable indenture and the debt securities issued under it, or else specifying any default. (Section 1004)

Ownership and Book-Entry Issuance

In this section, we describe special considerations that will apply to registered securities issued in global i.e., book-entry, form. First we describe the difference between registered ownership and indirect ownership of registered securities. Then we describe special provisions that apply to global securities.
Who is the Registered Owner of a Security?

Each debt security will be represented either by a certificate issued in definitive form to a particular investor or by one or more global securities representing securities. We refer to those who have securities registered in their own names, on the books that we or the trustee maintain for this purpose, as the “registered holders” of those securities. Subject to limited exceptions, we and the trustee are entitled to treat the registered holder of a security as the person exclusively entitled to vote, to receive notices, to receive any interest or other payment in respect of the security and to exercise all the rights and power as an owner of the security. We refer to those who own beneficial interests in securities that are not registered in their own names as indirect owners of those securities. As we discuss below, indirect owners are not registered holders, and investors in securities issued in book-entry form or in street name will be indirect owners.

Book-Entry Owners. Unless otherwise noted in your prospectus supplement, we will issue each security in book-entry form only. This means securities will be represented by one or more global securities registered in the name of a financial institution that holds them as depositary on behalf of other financial institutions that participate in the depositary’s book-entry system. These participating institutions, in turn, hold beneficial interests in the securities on behalf of themselves or their customers.

Under each indenture (and the Bank Act (Canada) in the case of subordinated indebtedness), subject to limited exceptions, only the person in whose name a security is registered is recognized as the holder of that security. Consequently, for securities issued in global form, we will recognize only the depositary as the holder of the securities and we will make all payments on the securities, including deliveries of any property other than cash, to the depositary. The depositary passes along the payments it receives to its participants, which in turn pass the payments along to their customers who are the beneficial owners. The depositary and its participants do so under agreements they have made with one another or with their customers; they are not obligated to do so under the terms of the securities.

As a result, investors will not own securities directly. Instead, they will own beneficial interests in a global security, through a bank, broker or other financial institution that participates in the depositary’s book-entry system or holds an interest through a participant. As long as the securities are issued in global form, investors will be indirect owners, and not registered holders, of the securities.

Street Name Owners. We may terminate an existing global security or issue securities initially in non-global form. In these cases, investors may choose to hold their securities in their own names or in street name. Securities held by an investor in street name would be registered in the name of a bank, broker or other financial institution that the investor chooses, and the investor would hold only a beneficial interest in those securities through an account he or she maintains at that institution.

For securities held in street name, we will, subject to limited exceptions, recognize only the intermediary banks, brokers and other financial institutions in whose names the securities are registered as the holders of those securities, and we will make all payments on those securities, including deliveries of any property other than cash, to them. These institutions pass along the payments they receive to their customers who are the beneficial owners, but only because they agree to do so in their customer agreements or because they are legally required to do so. Investors who hold securities in street name will be indirect owners, not registered holders, of those securities.

Registered Holders. Subject to limited exceptions, our obligations, as well as the obligations of the trustee under any indenture and the obligations, if any, of any other third parties employed by us, run only to the registered holders of the securities. We do not have obligations to investors who hold beneficial interests in global securities, in street name or by any other indirect means. This will be the case whether an investor chooses to be an indirect owner of a security or has no choice because we are issuing the securities only in global form.

For example, once we make a payment or give a notice to the registered holder, we have no further responsibility for that payment or notice even if that holder is required, under agreements with depositary participants or customers or by law, to pass it along to the indirect owners but does not do so. Similarly, if we want to obtain the approval of the holders for any purpose — for example, to amend the indenture for a series of debt securities or to relieve us of the consequences of a default or of our obligation to comply with a particular provision
of an indenture — we would seek the approval only from the registered holders, and not the indirect owners, of the relevant securities. Whether and how the registered holders contact the indirect owners is up to the registered holders.

When we refer to “you” in this prospectus, we mean all purchasers of the securities being offered by this prospectus, whether they are the registered holders or only indirect owners of those securities. When we refer to “your securities” in this prospectus, we mean the securities in which you will hold a direct or indirect interest.

Special Considerations for Indirect Owners. If you hold securities through a bank, broker or other financial institution, either in book-entry form or in street name, you should check with your own institution to find out:

- how it handles securities payments and notices;
- whether it imposes fees or charges;
- how it would handle a request for the holders’ consent, if ever required;
- how it would exercise rights under the securities if there were a default or other event triggering the need for holders to act to protect their interests; and
- if the securities are in book-entry form, how the depositary’s rules and procedures will affect these matters.

What is a Global Security?

Unless otherwise noted in the applicable prospectus supplement, we will issue each security in book-entry form only. Each security issued in book-entry form will be represented by a global security that we deposit with and register in the name of one or more financial institutions or clearing systems, or their nominees, which we select. A financial institution or clearing system that we select for any security for this purpose is called the “depositary” for that security. A security will usually have only one depositary but it may have more. Each series of securities will have one or more of the following as the depositaries:

- The Depository Trust Company, New York, New York, which is known as “DTC”;
- Euroclear System, which is known as “Euroclear”;
- Clearstream Banking, société anonyme, Luxembourg, which is known as “Clearstream”; and
- any other clearing system or financial institution named in the prospectus supplement.

The depositaries named above may also be participants in one another’s systems. Thus, for example, if DTC is the depositary for a global security, investors may hold beneficial interests in that security through Euroclear or Clearstream, as DTC participants. The depositary or depositaries for your securities will be named in your prospectus supplement; if none is named, the depositary will be DTC.

A global security may represent one or any other number of individual securities. Generally, all securities represented by the same global security will have the same terms. We may, however, issue a global security that represents multiple securities of the same kind, such as debt securities, that have different terms and are issued at different times. We call this kind of global security a master global security. Your prospectus supplement will not indicate whether your securities are represented by a master global security.

A global security may not be transferred to or registered in the name of anyone other than the depositary or its nominee, unless special termination situations arise. We describe those situations below under “— Holder’s Option to Obtain a Non-Global Security; Special Situations When a Global Security Will Be Terminated”.

-21-
result of these arrangements, the depositary, or its nominee, will be the sole registered owner and holder of all securities represented by a global security, and investors will be permitted to own only indirect interests in a global security. Indirect interests must be held by means of an account with a broker, bank or other financial institution that in turn has an account with the depositary or with another institution that does. Thus, an investor whose security is represented by a global security will not be a holder of the security, but only an indirect owner of an interest in the global security.

If the prospectus supplement for a particular security indicates that the security will be issued in global form only, then the security will be represented by a global security at all times unless and until the global security is terminated. We describe the situations in which this can occur below under “— Holder’s Option to Obtain a Non-Global Security; Special Situations When a Global Security Will Be Terminated”. If termination occurs, we may issue the securities through another book-entry clearing system or decide that the securities may no longer be held through any book-entry clearing system.

Special Considerations for Global Securities. As an indirect owner, an investor’s rights relating to a global security will be governed by the account rules of the depositary and those of the investor’s bank, broker, financial institution or other intermediary through which it holds its interest (e.g., Euroclear or Clearstream, if DTC is the depositary), as well as general laws relating to securities transfers. We do not recognize this type of investor or any intermediary as a holder of securities and instead deal only with the depositary that holds the global security.

If securities are issued only in the form of a global security, an investor should be aware of the following:

- an investor cannot cause the securities to be registered in his or her own name, and cannot obtain non-global certificates for his or her interest in the securities, except in the special situations we describe below;
- an investor will be an indirect holder and must look to his or her own bank, broker or other financial institution for payments on the securities and protection of his or her legal rights relating to the securities, as we describe above under “— Who Is the Registered Owner of a Security?”;
- an investor may not be able to sell interests in the securities to some insurance companies and other institutions that are required by law to own their securities in non-book-entry form;
- an investor may not be able to pledge his or her interest in a global security in circumstances in which certificates representing the securities must be delivered to the lender or other beneficiary of the pledge in order for the pledge to be effective;
- the depositary’s policies will govern payments, deliveries, transfers, exchanges, notices and other matters relating to an investor’s interest in a global security, and those policies may change from time to time. We and the trustee will have no responsibility for any aspect of the depositary’s policies, actions or records of ownership interests in a global security. We and the trustee also do not supervise the depositary in any way;
- the depositary may require that those who purchase and sell interests in a global security within its book-entry system use immediately available funds and your bank, broker or other financial institution may require you to do so as well; and
- financial institutions that participate in the depositary’s book-entry system and through which an investor holds its interest in the global securities, directly or indirectly, may also have their own policies affecting payments, deliveries, transfers, exchanges, notices and other matters relating to the securities, and those policies may change from time to time. For example, if you hold an interest in a global security through Euroclear or Clearstream, when DTC is the depositary, Euroclear or Clearstream, as applicable, may require those who purchase and sell interests in that security through them to use immediately available funds and comply with other policies and procedures, including deadlines for giving instructions as to transactions that are to be effected on a particular day. There
may be more than one financial intermediary in the chain of ownership for an investor. We do not monitor and are not responsible for the policies or actions or records of ownership interests of any of those intermediaries.

**Holder’s Option to Obtain a Non-Global Security; Special Situations When a Global Security Will Be Terminated.** If we issue any series of securities in book-entry form but we choose to give the beneficial owners of that series the right to obtain non-global securities, any beneficial owner entitled to obtain non-global securities may do so by following the applicable procedures of the depositary, any transfer agent or registrar for that series and that owner’s bank, broker or other financial institution through which that owner holds its beneficial interest in the securities. If you are entitled to request a non-global certificate and wish to do so, you will need to allow sufficient lead time to enable us or our agent to prepare the requested certificate.

In addition, in a few special situations described below, a global security will be terminated and interests in it will be exchanged for certificates in non-global form representing the securities it represented. After that exchange, the choice of whether to hold the securities directly or in street name will be up to the investor. Investors must consult their own banks, brokers or other financial institutions, to find out how to have their interests in a global security transferred on termination to their own names, so that they will be holders. We have described the rights of holders and street name investors above under “— Who Is the Registered Owner of a Security?”

The special situations for termination of a global security are as follows:

- if the depositary notifies us that it is unwilling, unable or no longer qualified to continue as depositary for that global security and we do not appoint another institution to act as depositary within 60 days;
- if we notify the trustee, warrant agent or unit agent, as applicable, that we wish to terminate that global security; or
- if an event of default has occurred with regard to these debt securities and has not been cured or waived.

If a global security is terminated, only the depositary, and neither we nor the trustee for any debt securities is responsible for deciding the names of the institutions in whose names the securities represented by the global security will be registered and, therefore, who will be the registered holders of those securities.

**Considerations Relating to DTC**

DTC has informed us that it is a limited-purpose trust company organized under the New York Banking Law, a “banking organization” within the meaning of the New York Banking Law, a member of the Federal Reserve System, a “clearing corporation” within the meaning of the New York Uniform Commercial Code, and a “clearing agency” registered pursuant to the provisions of Section 17A of the Exchange Act. DTC holds securities that DTC participants deposit with DTC. DTC also facilitates the settlement among DTC participants of securities transactions, such as transfers and pledges, in deposited securities through electronic computerized book-entry changes in DTC participants’ accounts, thereby eliminating the need for physical movement of certificates. DTC participants include securities brokers and dealers, banks, trust companies and clearing corporations, and may include other organizations. DTC is owned by a number of its direct participants and by the New York Stock Exchange, Inc., the American Stock Exchange, LLC and the National Association of Securities Dealers, Inc. Indirect access to the DTC system also is available to others such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a participant, either directly or indirectly. The rules applicable to DTC and DTC participants are on file with the SEC.

Purchases of securities within the DTC system must be made by or through DTC participants, who will receive a credit for the securities on DTC’s records. Transfers of ownership interests in the securities are to be accomplished by entries made on the books of participants acting on behalf of beneficial owners.
Redemption notices will be sent to DTC’s nominee, Cede & Co., as the registered holder of the securities. If less than all of the securities are being redeemed, DTC will determine the amount of the interest of each direct participant to be redeemed in accordance with its then-current procedures.

In instances in which a vote is required, neither DTC nor Cede & Co. will itself consent or vote with respect to the securities. Under its usual procedures, DTC would mail an omnibus proxy to the relevant trustee as soon as possible after the record date. The omnibus proxy assigns Cede & Co.’s consenting or voting rights to those direct participants to whose accounts such securities are credited on the record date (identified in a listing attached to the omnibus proxy).

Distribution payments on the securities will be made by the relevant trustee to DTC. DTC’s usual practice is to credit direct participants’ accounts on the relevant payment date in accordance with their respective holdings shown on DTC’s records unless DTC has reason to believe that it will not receive payments on such payment date. Payments by participants to beneficial owners will be governed by standing instructions and customary practices and will be the responsibility of such participants and not of DTC, the relevant trustee or us, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of distributions to DTC is the responsibility of the relevant trustee, and disbursements of such payments to the beneficial owners are the responsibility of direct and indirect participants.

The information in this section concerning DTC and DTC’s book-entry system has been obtained from sources that we believe to be accurate, but we assume no responsibility for the accuracy thereof. We do not have any responsibility for the performance by DTC or its participants of their respective obligations as described herein or under the rules and procedures governing their respective operations.

Considerations Relating to Clearstream and Euroclear

Clearstream and Euroclear are securities clearance systems in Europe. Clearstream and Euroclear have respectively informed us that Clearstream and Euroclear each hold securities for their customers and facilitate the clearance and settlement of securities transactions by electronic book-entry transfer between their respective account holders. Clearstream and Euroclear provide various services including safekeeping, administration, clearance and settlement of internationally traded securities and securities lending and borrowing. Clearstream and Euroclear also deal with domestic securities markets in several countries through established depositary and custodial relationships. Clearstream and Euroclear have established an electronic bridge between their two systems across which their respective participants may settle trades with each other. Clearstream and Euroclear customers are world-wide financial institutions including underwriters, securities brokers and dealers, banks, trust companies and clearing corporations. Indirect access to Clearstream and Euroclear is available to other institutions that clear through or maintain a custodial relationship with an account holder of either system.

Euroclear and Clearstream may be depositaries for a global security. In addition, if DTC is the depositary for a global security, Euroclear and Clearstream may hold interests in the global security as participants in DTC.

As long as any global security is held by Euroclear or Clearstream, as depositary, you may hold an interest in the global security only through an organization that participates, directly or indirectly, in Euroclear or Clearstream. If Euroclear or Clearstream is the depositary for a global security and there is no depositary in the United States, you will not be able to hold interests in that global security through any securities clearance system in the United States.

Payments, deliveries, transfers, exchanges, notices and other matters relating to the securities made through Euroclear or Clearstream must comply with the rules and procedures of those systems. Those systems could change their rules and procedures at any time. We have no control over those systems or their participants and we take no responsibility for their activities. Transactions between participants in Euroclear or Clearstream, on one hand, and participants in DTC, on the other hand, when DTC is the depositary, would also be subject to DTC’s rules and procedures.
**Special Timing Considerations Relating to Transactions in Euroclear and Clearstream.** Investors will be able to make and receive through Euroclear and Clearstream payments, deliveries, transfers, exchanges, notices and other transactions involving any securities held through those systems only on days when those systems are open for business. Those systems may not be open for business on days when banks, brokers and other financial institutions are open for business in the United States.

In addition, because of time-zone differences, U.S. investors who hold their interests in the securities through these systems and wish to transfer their interests, or to receive or make a payment or delivery or exercise any other right with respect to their interests, on a particular day may find that the transaction will not be effected until the next business day in Luxembourg or Brussels, as applicable. Thus, investors who wish to exercise rights that expire on a particular day may need to act before the expiration date. In addition, investors who hold their interests through both DTC and Euroclear or Clearstream may need to make special arrangements to finance any purchases or sales of their interests between the U.S. and European clearing systems, and those transactions may settle later than would be the case for transactions within one clearing system.

**The Trustee**

The Bank of New York, as successor to the corporate trust business of JPMorgan Chase Bank, N.A., serves as the trustee for our senior debt securities. The Bank of New York also serves as the trustee for the subordinated debt securities. Consequently, if an actual or potential event of default occurs with respect to any of these securities, the trustee may be considered to have a conflicting interest for purposes of the Trust Indenture Act of 1939. In that case, the trustee may be required to resign under one or both of the indentures, and we would be required to appoint a successor trustee. For this purpose, a “potential” event of default means an event that would be an event of default if the requirements for giving us default notice or for the default having to exist for a specific period of time were disregarded. From time to time, we and our affiliates have conducted commercial banking, financial and other transactions with The Bank of New York and its respective affiliates for which fees have been paid in the ordinary course of business. We may conduct these types of transactions with each other in the future and receive fees for services performed.
TAX CONSEQUENCES

UNITED STATES TAXATION

This section describes the material United States federal income tax consequences of owning debt securities that we will offer. This section is the opinion of Sullivan & Cromwell LLP, our United States federal income tax counsel. It applies to you only if you acquire debt securities in an offering and you hold debt securities as capital assets for tax purposes. This section does not apply to persons other than U.S. holders (as defined below). This section does not apply to you if you are a member of a special class of holders subject to special rules, including:

- a dealer in securities;
- a trader in securities that elects to use a mark-to-market method of accounting for your securities holdings;
- a tax-exempt organization;
- a life insurance company;
- a person that owns notes that are a hedge or that are hedged against interest rate or currency risks;
- a person that holds debt securities as part of a straddle or a hedging or conversion transaction;
- a U.S. holder whose functional currency is not the U.S. dollar;
- a person subject to the alternative minimum tax; or
- a bank.

This section is based on the Internal Revenue Code of 1986, as amended, its legislative history, existing and proposed regulations, published rulings and court decisions, as well as on the income tax treaty between the United States of America and Canada. These laws are subject to change, possibly on a retroactive basis.

If a partnership holds the debt securities, the United States federal income tax treatment of a partner will generally depend on the status of the partner and the tax treatment of the partnership. A partner in a partnership holding the notes should consult its tax advisor with regard to the United States federal income tax treatment of an investment in the notes.

You are urged to consult your own tax advisor regarding the United States federal, state and local and other tax consequences of owning and disposing of debt securities offered under the prospectus in your particular circumstances.

U.S. HOLDERS

This subsection describes the material United States federal income tax consequences to a U.S. holder of owning debt securities. You are a U.S. holder if you are a beneficial owner of debt securities and you are:

- a citizen or resident of the United States;
- a corporation, other entity taxable as a corporation for United States federal income tax purposes, created or organized in or under the laws of the United States or of any political subdivision thereof;
- an estate whose income is subject to United States federal income tax regardless of its source; or
a trust if a United States court can exercise primary supervision over the trust’s administration and one or more United States persons are authorized to control all substantial decisions of the trust.

TAXATION OF DEBT SECURITIES

This subsection deals only with debt securities that are due to mature 30 years or less from the date on which they are issued. The United States federal income tax consequences of owning debt securities that are due to mature more than 30 years from their date of issue will be discussed in the applicable prospectus supplement.

Payments of Interest

Except as described below in the case of interest on a discount debt security that is not qualified stated interest, each as defined below under “— Original Issue Discount — General”, you will be taxed on any interest on your debt securities as ordinary income at the time you receive the interest or when it accrues, depending on your method of accounting for United States tax purposes.

Cash Basis Taxpayers. If you are a taxpayer that uses the cash receipts and disbursements method of accounting for tax purposes and you receive an interest payment that is denominated in, or determined by reference to, a foreign currency, you must recognize income equal to the U.S. dollar value of the interest payment, based on the exchange rate in effect on the date of receipt, regardless of whether you actually convert the payment into U.S. dollars.

Accrual Basis Taxpayers. If you are a taxpayer that uses an accrual method of accounting for tax purposes, you may determine the amount of income that you recognize with respect to an interest payment denominated in, or determined by reference to, a foreign currency by using one of two methods. Under the first method, you will determine the amount of income accrued based on the average exchange rate in effect during the interest accrual period or, in the case of an accrual period that spans two taxable years, that part of the period within the taxable year.

If you elect the second method, you will determine the amount of income accrued based on the exchange rate in effect on the last day of the accrual period, or, in the case of an accrual period that spans two taxable years, the last day of the part of the period within the taxable year. Additionally, under this method, if you receive a payment of interest within five business days of the last day of your accrual period or taxable year, you may instead translate the interest accrued into U.S. dollars at the exchange rate in effect on the day that you actually receive the interest payment. If you elect the second method, it will apply to all debt instruments that you hold at the beginning of the first taxable year to which the election applies and to all debt instruments that you subsequently acquire, whether issued by us or any other issuer. You may not revoke this election without the consent of the Internal Revenue Service.

In addition, when you actually receive an interest payment, including a payment attributable to accrued but unpaid interest upon the sale or retirement of your note, denominated in, or determined by reference to, a foreign currency for which you accrued an amount of interest income, you will recognize ordinary income or loss measured by the difference, if any, between the exchange rate that you used to accrue interest income and the exchange rate in effect on the date of receipt, regardless of whether you actually convert the payment into U.S. dollars.

Original Issue Discount

General. If you own a debt security, other than a debt security with a term of one year or less, it will be treated as a discount debt security issued at an original issue discount if the debt security’s stated redemption price at maturity exceeds its issue price by more than a de minimis amount. Generally, a debt security’s issue price will be the first price at which a substantial amount of debt securities included in the issue of which the debt security is a part is sold to persons other than bond houses, brokers, or similar persons or organizations acting in the capacity of underwriters, placement agents, or wholesalers. A debt security’s stated redemption price at maturity is the total of all payments provided by the debt security that are not payments of qualified stated interest. Generally, an interest payment on a debt security is qualified stated interest if it is one of a series of stated interest payments that are
unconditionally payable at least annually at a single fixed rate, with certain exceptions for lower rates paid during
some periods, applied to the outstanding principal amount of the debt security. There are special rules for variable
rate debt securities that are discussed under “– Variable Rate Debt Securities”.

In general, your debt security is not a discount debt security if the amount by which its stated redemption
price at maturity exceeds its issue price is less than the de minimis amount of 1/4 of 1 percent of its stated
redemption price at maturity multiplied by the number of complete years to its maturity. Your debt security will
have de minimis original issue discount if the amount of the excess is less than the de minimis amount. If your debt
security has de minimis original issue discount, you must include the de minimis amount in income as stated
principal payments are made on the debt security, unless you make the election described below under “ – Election
to Treat All Interest as Original Issue Discount”. You can determine the includible amount with respect to each such
payment by multiplying the total amount of your debt security’s de minimis original issue discount by a fraction
equal to:

- the amount of the principal payment made
  divided by:
  - the stated principal amount of the debt security.

Generally, if your discount debt security matures more than one year from its date of issue, you must
include original issue discount, or OID, in income before you receive cash attributable to that income. The amount
of OID that you must include in income is calculated using a constant-yield method, and generally you will include
increasingly greater amounts of OID in income over the life of your debt security. More specifically, you can
calculate the amount of OID that you must include in income by adding the daily portions of OID with respect to
your discount debt security for each day during the taxable year or portion of the taxable year in which you hold
your discount debt security. You can determine the daily portion by allocating to each day in any accrual period a
pro rata portion of the OID allocable to that accrual period. You may select an accrual period of any length with
respect to your discount debt security and you may vary the length of each accrual period over the term of your
discount debt security. However, no accrual period may be longer than one year and each scheduled payment of
interest or principal on the discount debt security must occur on either the first or final day of an accrual period.

You can determine the amount of OID allocable to an accrual period by:

- multiplying your discount debt security’s adjusted issue price at the beginning of the accrual period by
  your debt security’s yield to maturity; and then

- subtracting from this figure the sum of the payments of qualified stated interest on your debt security
  allocable to the accrual period.

You must determine the discount debt security’s yield to maturity on the basis of compounding at the close
of each accrual period and adjusting for the length of each accrual period. Further, you determine your discount debt
security’s adjusted issue price at the beginning of any accrual period by:

- adding your discount debt security’s issue price and any accrued OID for each prior accrual period;
  and then

- subtracting any payments previously made on your discount debt security that were not qualified
  stated interest payments.

If an interval between payments of qualified stated interest on your discount debt security contains more
than one accrual period, then, when you determine the amount of OID allocable to an accrual period, you must
allocate the amount of qualified stated interest payable at the end of the interval, including any qualified stated
interest that is payable on the first day of the accrual period immediately following the interval, pro rata to each
accrual period in the interval based on their relative lengths. In addition, you must increase the adjusted issue price
at the beginning of each accrual period in the interval by the amount of any qualified stated interest that has accrued
prior to the first day of the accrual period but that is not payable until the end of the interval. You may compute the amount of OID allocable to an initial short accrual period by using any reasonable method if all other accrual periods, other than a final short accrual period, are of equal length.

The amount of OID allocable to the final accrual period is equal to the difference between:

• the amount payable at the maturity of your debt security, other than any payment of qualified stated interest; and

• your debt security’s adjusted issue price as of the beginning of the final accrual period.

**Acquisition Premium.** If you purchase your debt security for an amount that is less than or equal to the sum of all amounts, other than qualified stated interest, payable on your debt security after the purchase date but is greater than the amount of your debt security’s adjusted issue price, as determined above under “– General”, the excess is acquisition premium. If you do not make the election described below under “– Election to Treat All Interest as Original Issue Discount”, then you must reduce the daily portions of OID by a fraction equal to:

• the excess of your adjusted basis in the debt security immediately after purchase over the adjusted issue price of the debt security

divided by:

• the excess of the sum of all amounts payable, other than qualified stated interest, on the debt security after the purchase date over the debt security’s adjusted issue price.

**Pre-Issuance Accrued Interest.** An election may be made to decrease the issue price of your debt security by the amount of pre-issuance accrued interest if:

• a portion of the initial purchase price of your debt security is attributable to pre-issuance accrued interest;

• the first stated interest payment on your debt security is to be made within one year of your debt security’s issue date; and

• the payment will equal or exceed the amount of pre-issuance accrued interest.

If this election is made, a portion of the first stated interest payment will be treated as a return of the excluded pre-issuance accrued interest and not as an amount payable on your debt security.

**Debt Securities Subject to Contingencies, Including Optional Redemption.** Your debt security is subject to a contingency if it provides for an alternative payment schedule or schedules applicable upon the occurrence of a contingency or contingencies, other than a remote or incidental contingency, whether such contingency relates to payments of interest or of principal. In such a case, you must determine the yield and maturity of your debt security by assuming that the payments will be made according to the payment schedule most likely to occur if:

• the timing and amounts of the payments that comprise each payment schedule are known as of the issue date; and

• one of such schedules is significantly more likely than not to occur.

If there is no single payment schedule that is significantly more likely than not to occur, other than because of a mandatory sinking fund, you must include income on your debt security in accordance with the general rules that govern contingent payment obligations. If applicable, these rules will be discussed in the applicable prospectus supplement.
Notwithstanding the general rules for determining yield and maturity, if your debt security is subject to contingencies, and either you or we have an unconditional option or options that, if exercised, would require payments to be made on the debt security under an alternative payment schedule or schedules, then:

- in the case of an option or options that we may exercise, we will be deemed to exercise or not to exercise an option or combination of options in the manner that minimizes the yield on your debt security; and

- in the case of an option or options that you may exercise, you will be deemed to exercise or not to exercise an option or combination of options in the manner that maximizes the yield on your debt security.

If both you and we hold options described in the preceding sentence, those rules will apply to each option in the order in which they may be exercised. You may determine the yield on your debt security for the purposes of those calculations by using any date on which your debt security may be redeemed or repurchased as the maturity date and the amount payable on the date that you chose in accordance with the terms of your debt security as the principal amount payable at maturity.

If a contingency, including the exercise of an option, actually occurs or does not occur contrary to an assumption made according to the above rules then, except to the extent that a portion of your debt security is repaid as a result of this change in circumstances and solely to determine the amount and accrual of OID, you must redetermine the yield and maturity of your debt security by treating your debt security as having been retired and reissued on the date of the change in circumstances for an amount equal to your debt security’s adjusted issue price on that date.

**Election to Treat All Interest as Original Issue Discount.** You may elect to include in gross income all interest that accrues on your debt security using the constant-yield method described above under “— General”, with the modifications described below. For purposes of this election, interest will include stated interest, OID, de minimis OID, market discount, de minimis market discount and unstated interest, as adjusted by any amortizable bond premium, described below under “— Debt Securities Purchased at a Premium”, or acquisition premium.

If you make this election for your debt security, then, when you apply the constant-yield method:

- the issue price of your debt security will equal your cost;

- the issue date of your debt security will be the date you acquired it; and

- no payments on your debt security will be treated as payments of qualified stated interest.

Generally, this election will apply only to the debt security for which you make it; however, if the debt security has amortizable bond premium, you will be deemed to have made an election to apply amortizable bond premium against interest for all debt instruments with amortizable bond premium, other than debt instruments the interest on which is excludable from gross income, that you hold as of the beginning of the taxable year to which the election applies or any taxable year thereafter. Additionally, if you make this election for a market discount note, you will be treated as having made the election discussed below under “— Market Discount” to include market discount in income currently over the life of all debt instruments that you currently own or later acquire. You may not revoke any election to apply the constant-yield method to all interest on a debt security or the deemed elections with respect to amortizable bond premium or market discount debt securities without the consent of the Internal Revenue Service.

**Variable Rate Debt Securities.** Your debt security will be a variable rate debt security if:

- your debt security’s issue price does not exceed the total noncontingent principal payments by more than the lesser of:
• 1.5 percent of the product of the total noncontingent principal payments and the number of complete years to maturity from the issue date; or

• 15 percent of the total noncontingent principal payments; and

• your debt security provides for stated interest, compounded or paid at least annually, only at:
  • one or more qualified floating rates;
  • a single fixed rate and one or more qualified floating rates;
  • a single objective rate; or
  • a single fixed rate and a single objective rate that is a qualified inverse floating rate.

Your debt security will have a variable rate that is a qualified floating rate if:

• variations in the value of the rate can reasonably be expected to measure contemporaneous variations in the cost of newly borrowed funds in the currency in which your debt security is denominated; or

• the rate is equal to such a rate multiplied by either:
  • a fixed multiple that is greater than 0.65 but not more than 1.35; or
  • a fixed multiple greater than 0.65 but not more than 1.35, increased or decreased by a fixed rate; and

• the value of the rate on any date during the term of your debt security is set no earlier than three months prior to the first day on which that value is in effect and no later than one year following that first day.

If your debt security provides for two or more qualified floating rates that are within 0.25 percentage points of each other on the issue date or can reasonably be expected to have approximately the same values throughout the term of the debt security, the qualified floating rates together constitute a single qualified floating rate.

Your debt security will not have a qualified floating rate, however, if the rate is subject to certain restrictions (including caps, floors, governors, or other similar restrictions) unless such restrictions are fixed throughout the term of the debt security or are not reasonably expected to significantly affect the yield on the debt security.

Your debt security will have a variable rate that is a single objective rate if:

• the rate is not a qualified floating rate;

• the rate is determined using a single, fixed formula that is based on objective financial or economic information that is not within the control of or unique to the circumstances of the issuer or a related party; and

• the value of the rate on any date during the term of your debt security is set no earlier than three months prior to the first day on which that value is in effect and no later than one year following that first day.

Your debt security will not have a variable rate that is an objective rate, however, if it is reasonably expected that the average value of the rate during the first half of your debt security’s term will be either
significantly less than or significantly greater than the average value of the rate during the final half of your debt security’s term.

An objective rate as described above is a qualified inverse floating rate if:

- the rate is equal to a fixed rate minus a qualified floating rate; and
- the variations in the rate can reasonably be expected to inversely reflect contemporaneous variations in the cost of newly borrowed funds.

Your debt security will also have a single qualified floating rate or an objective rate if interest on your debt security is stated at a fixed rate for an initial period of one year or less followed by either a qualified floating rate or an objective rate for a subsequent period, and either:

- the fixed rate and the qualified floating rate or objective rate have values on the issue date of the debt security that do not differ by more than 0.25 percentage points; or
- the value of the qualified floating rate or objective rate is intended to approximate the fixed rate.

In general, if your variable rate debt security provides for stated interest at a single qualified floating rate or objective rate, or one of those rates after a single fixed rate for an initial period, all stated interest on your debt security is qualified stated interest. In this case, the amount of OID, if any, is determined by using, in the case of a qualified floating rate or qualified inverse floating rate, the value as of the issue date of the qualified floating rate or qualified inverse floating rate, or, for any other objective rate, a fixed rate that reflects the yield reasonably expected for your debt security.

If your variable rate debt security does not provide for stated interest at a single qualified floating rate or a single objective rate, and also does not provide for interest payable at a fixed rate other than a single fixed rate for an initial period, you generally must determine the interest and OID accruals on your debt security by:

- determining a fixed rate substitute for each variable rate provided under your variable rate debt security;
- constructing the equivalent fixed rate debt instrument, using the fixed rate substitute described above;
- determining the amount of qualified stated interest and OID with respect to the equivalent fixed rate debt instrument; and
- adjusting for actual variable rates during the applicable accrual period.

When you determine the fixed rate substitute for each variable rate provided under the variable rate debt security, you generally will use the value of each variable rate as of the issue date or, for an objective rate that is not a qualified inverse floating rate, a rate that reflects the reasonably expected yield on your debt security.

If your variable rate debt security provides for stated interest either at one or more qualified floating rates or at a qualified inverse floating rate and also provides for stated interest at a single fixed rate other than at a single fixed rate for an initial period, you generally must determine interest and OID accruals by using the method described in the previous paragraph. However, your variable rate debt security will be treated, for purposes of the first three steps of the determination, as if your debt security had provided for a qualified floating rate, or a qualified inverse floating rate, rather than the fixed rate. The qualified floating rate, or qualified inverse floating rate, that replaces the fixed rate must be such that the fair market value of your variable rate debt security as of the issue date approximates the fair market value of an otherwise identical debt instrument that provides for the qualified floating rate, or qualified inverse floating rate, rather than the fixed rate.
Short-Term Debt Securities. In general, if you are an individual or other cash basis U.S. holder of a short-term debt security, you are not required to accrue OID, as specially defined below for the purposes of this paragraph, for United States federal income tax purposes unless you elect to do so (although it is possible that you may be required to include any stated interest in income as you receive it). If you are an accrual basis taxpayer, a taxpayer in a special class, including, but not limited to, a regulated investment company, common trust fund, or a certain type of pass-through entity, or a cash basis taxpayer who so elects, you will be required to accrue OID on short-term debt securities on either a straight-line basis or under the constant-yield method, based on daily compounding. If you are not required and do not elect to include OID in income currently, any gain you realize on the sale or retirement of your short-term debt security will be ordinary income to the extent of the accrued OID, which will be determined on a straight-line basis unless you make an election to accrue the OID under the constant-yield method, through the date of sale or retirement. However, if you are not required and do not elect to accrue OID on your short-term debt securities, you will be required to defer deductions for interest on borrowings allocable to your short-term debt securities in an amount not exceeding the deferred income until the deferred income is realized.

When you determine the amount of OID subject to these rules, you must include all interest payments on your short-term debt security, including stated interest, in your short-term debt security’s stated redemption price at maturity.

Foreign Currency Discount Notes. If your discount note is denominated in, or determined by reference to, a foreign currency, you must determine OID for any accrual period on your discount note in the foreign currency and then translate the amount of OID into U.S. dollars in the same manner as stated interest accrued by an accrual basis U.S. holder, as described under “— U.S. Holders — Payments of Interest”. You may recognize ordinary income or loss when you receive an amount attributable to OID in connection with a payment of interest or the sale or retirement of your note.

Market Discount

You will be treated as if you purchased your debt security, other than a short-term debt security, at a market discount, and your debt security will be a market discount debt security if:

- you purchase your debt security for less than its issue price as determined above under “— Original Issue Discount – General”; and

- the difference between the debt security’s stated redemption price at maturity or, in the case of a discount debt security, the debt security’s revised issue price, and the price you paid for your debt security is equal to or greater than 1/4 of 1 percent of your debt security’s stated redemption price at maturity or revised issue price, respectively, multiplied by the number of complete years to the debt security’s maturity. To determine the revised issue price of your debt security for these purposes, you generally add any OID that has accrued on your debt security to its issue price.

If your debt security’s stated redemption price at maturity or, in the case of a discount debt security, its revised issue price, exceeds the price you paid for the debt security by less than 1/4 of 1 percent multiplied by the number of complete years to the debt security’s maturity, the excess constitutes de minimis market discount, and the rules discussed below are not applicable to you.

You must treat any gain you recognize on the maturity or disposition of your market discount debt security as ordinary income to the extent of the accrued market discount on your debt security. Alternatively, you may elect to include market discount in income currently over the life of your debt security. If you make this election, it will apply to all debt instruments with market discount that you acquire on or after the first day of the first taxable year to which the election applies. You may not revoke this election without the consent of the Internal Revenue Service. If you own a market discount debt security and do not make this election, you will generally be required to defer deductions for interest on borrowings allocable to your debt security in an amount not exceeding the accrued market discount on your debt security until the maturity or disposition of your debt security.
You will accrue market discount on your market discount debt security on a straight-line basis unless you elect to accrue market discount using a constant-yield method. If you make this election, it will apply only to the debt security with respect to which it is made and you may not revoke it.

**Debt Securities Purchased at a Premium**

If you purchase your debt security for an amount in excess of its principal amount, you may elect to treat the excess as amortizable bond premium. If you make this election, you will reduce the amount required to be included in your income each year with respect to interest on your debt security by the amount of amortizable bond premium allocable to that year, based on your debt security’s yield to maturity. If your note is denominated in, or determined by reference to, a foreign currency, you will compute your amortizable bond premium in units of the foreign currency and your amortizable bond premium will reduce your income in units of the foreign currency. Gain or loss recognized that is attributable to changes in exchange rates between the time your amortized bond premium offsets interest income and the time of the acquisition of your note is generally taxable as ordinary income or loss. If you make an election to amortize bond premium, it will apply to all debt instruments, other than debt instruments the interest on which is excludible from gross income, that you hold at the beginning of the first taxable year to which the election applies or that you thereafter acquire, and you may not revoke it without the consent of the Internal Revenue Service. See also “— Original Issue Discount – Election to Treat All Interest as Original Issue Discount”.

**Purchase, Sale and Retirement of the Debt Securities**

Your tax basis in your debt security will generally be your cost of your debt security adjusted by:

- adding any OID or market discount, *de minimis* OID and *de minimis* market discount previously included in income with respect to your debt security; and then

- subtracting any payments on your debt security that are not qualified stated interest payments and any amortizable bond premium applied to reduce interest on your debt security.

If you purchase your note with foreign currency, the U.S. dollar cost of your note will generally be the U.S. dollar value of the purchase price on the date of purchase. However, if you are a cash basis taxpayer or an accrual basis taxpayer that so elects and your note is traded on an established securities market, as defined in the applicable Treasury regulations, the U.S. dollar cost of your note will be the U.S. dollar value of the purchase price on the settlement date of your purchase.

You will generally recognize gain or loss on the sale or retirement of your debt security equal to the difference between the amount you realize on the sale or retirement and your tax basis in your debt security. If your note is sold or retired for an amount in foreign currency, the amount you realize will be the U.S. dollar value of such amount on the date the note is disposed of or retired, except that in the case of a note that is traded on an established securities market, as defined in the applicable Treasury regulations, a cash basis taxpayer, or an accrual basis taxpayer that so elects, will determine the amount realized based on the U.S. dollar value of the foreign currency on the settlement date of the sale.

You will recognize capital gain or loss when you sell or retire your debt security, except to the extent:

- described above under “— Original Issue Discount – Short-Term Debt Securities” or “— Market Discount”;

- attributable to accrued but unpaid interest;

- the rules governing contingent payment obligations apply; or

- attributable to changes in exchange rates as described below.
Capital gain of a noncorporate U.S. holder that is recognized in taxable years beginning before January 1, 2011 is generally taxed at a maximum rate of 15% where the holder has a holding period of greater than one year.

You must treat any portion of the gain or loss that you recognize on the sale or retirement of a note as ordinary income or loss to the extent attributable to changes in exchange rates. However, you take exchange gain or loss into account only to the extent of the total gain or loss you realize on the transaction.

Exchange of Amounts in other than U.S. Dollars

If you receive foreign currency as interest on your note or on the sale or retirement of your note, your tax basis in such foreign currency will equal its U.S. dollar value when the interest is received or at the time of the sale or retirement. If you purchase foreign currency, you generally will have a tax basis equal to the U.S. dollar value of such foreign currency on the date of your purchase. If you sell or dispose of foreign currency, including if you use it to purchase notes or exchange them for U.S. dollars, any gain or loss recognized generally will be ordinary income or loss.

Indexed Debt Securities and Exchangeable Debt Securities

The applicable prospectus supplement will discuss any special United States federal income tax rules with respect to debt securities the payments of which are determined by reference to any index, other debt securities that are subject to the rules governing contingent payment obligations that are not subject to the rules governing variable rate debt securities and debt securities exchangeable for stock or securities of the Bank or another entity or entities, into the cash value therefore or into any combination of the above.

Treasury Regulations Requiring Disclosure of Reportable Transactions

Recently promulgated Treasury regulations require United States taxpayers to report certain transactions that give rise to a loss in excess of certain thresholds (a “Reportable Transaction”). Under these regulations, if the notes are denominated in a foreign currency, a U.S. holder (or a U.S. alien holder that holds the notes in connection with a U.S. trade or business) that recognizes a loss with respect to the notes that is characterized as an ordinary loss due to changes in currency exchange rates (under any of the rules discussed above) would be required to report the loss on Internal Revenue Service Form 8886 (Reportable Transaction Statement) if the loss exceeds the thresholds set forth in the regulations. For individuals and trusts, this loss threshold is U.S.$50,000 in any single taxable year. For other types of taxpayers and other types of losses, the thresholds are higher. You should consult with your tax advisor regarding any tax filing and reporting obligations that may apply in connection with acquiring, owning and disposing of notes.

Information Reporting and Backup Withholding

If you are a noncorporate U.S. holder, information reporting requirements, on Internal Revenue Service Form 1099, generally will apply to:

- payments of principal and interest on a debt security within the United States, including payments made by wire transfer from outside the United States to an account you maintain in the United States; and

- the payment of the proceeds from the sale of a debt security effected at a United States office of a broker.

Additionally, backup withholding will apply to such payments if you are a noncorporate U. S. holder that:

- fails to provide an accurate taxpayer identification number, is notified by the Internal Revenue Service that you have failed to report all interest and dividends required to be shown on your federal income tax returns; or
in certain circumstances, fails to comply with applicable certification requirements.

Payment of the proceeds from the sale of a debt security effected at a foreign office of a broker generally will not be subject to information reporting or backup withholding. However, a sale of a debt security that is effected at a foreign office of a broker will be subject to information reporting and backup withholding if:

- the proceeds are transferred to an account maintained by you in the United States;
- the payment of proceeds or the confirmation of the sale is mailed to you at a United States address; or
- the sale has some other specified connection with the United States as provided in U.S. Treasury regulations,

unless the broker does not have actual knowledge or reason to know that you are a United States person and the documentation requirements described above are met or you otherwise establish an exemption.

In addition, a sale of a debt security effected at a foreign office of a broker will be subject to information reporting if the broker is:

- a United States person;
- a controlled foreign corporation for United States tax purposes;
- a foreign person 50% or more of whose gross income is effectively connected with the conduct of a United States trade or business for a specified three-year period; or
- a foreign partnership, if at any time during its tax year:
  - one or more of its partners are “U.S. persons”, as defined in U.S. Treasury regulations, who in the aggregate hold more than 50% of the income or capital interest in the partnership; or
  - such foreign partnership is engaged in the conduct of a United States trade or business,

unless the broker does not have actual knowledge or reason to know that you are a United States person and the documentation requirements described above are met or you otherwise establish an exemption. Backup withholding will apply if the sale is subject to information reporting and the broker has actual knowledge that you are a United States person.

You generally may obtain a refund of any amounts withheld under the backup withholding rules that exceed your income tax liability by filing a refund claim with the United States Internal Revenue Service.

CANADIAN TAXATION

The following summary describes the material Canadian federal income tax consequences under the Income Tax Act (Canada) (the “Act”) and Income Tax Regulations (the “Regulations”) in effect at the date hereof generally applicable to a holder of debt securities who acquires debt securities in the original offering, and who, at all relevant times and for purposes of the Act, is not resident and is not deemed to be resident in Canada and who does not use or hold and is not deemed to use or hold debt securities in or in the course of carrying on a business in Canada and is not an insurer carrying on an insurance business in Canada and elsewhere (a “Non-Resident Holder”). This section is the opinion of Ogilvy Renault, LLP, our Canadian federal income tax counsel.

This summary is based upon the provisions of the Act and the Regulations in force on the date hereof, proposals to amend the Act and the Regulations in a form publicly announced prior to the date hereof by or on behalf of the Minister of Finance (Canada) (included for this purpose in the reference to the Act and Regulations)
and the current administrative practices and policies published by the Canada Revenue Agency. This summary does not take into account or anticipate any other changes in law, whether by legislative, governmental or judicial action or interpretation, nor does it take into account provincial or foreign income tax legislation. Subsequent developments could have a material effect on the following description.

Canadian federal income tax considerations applicable to debt securities may be described particularly, when such debt securities are offered, in the pricing supplement related thereto. In the event the Canadian federal income tax considerations are described in such pricing supplement, the following description will be superseded by the description in the pricing supplement to the extent indicated therein.

Interest paid or credited or deemed for purposes of the Act to be paid or credited on a debt security (including accrued interest on the debt security in certain cases involving the assignment or other transfer of a debt security to a resident or deemed resident of Canada) to a Non-Resident Holder will not be subject to Canadian non-resident withholding tax where we deal at arm’s length for the purposes of the Act with the Non-Resident Holder at the time of such payment and:

(a) such interest is payable in a currency other than Canadian currency and such debt security is a deposit liability not repayable in Canadian currency;

(b) such interest is payable in Canadian currency and such debt security is a deposit liability denominated in Canadian currency and issued from one of our branches or offices in a country other than Canada;

or

(c) if such debt securities are not one described in (a) or (b) above, under the terms of debt securities or any agreement relating thereto the Issuer may not under any circumstances be obliged to repay more than 25% of the aggregate principal amount of a particular tranche of debt securities within five years from the date of issue of the particular tranche of such debt securities, except, generally, in the event of a failure or default under the terms of such debt securities or a related agreement;

unless all or any portion of such interest (other than on a “prescribed obligation” described below) is contingent or dependent on the use of or production from property in Canada or is computed by reference to revenue, profit, cash flow, commodity price or any other similar criterion or by reference to dividends paid or payable to shareholders of any class of shares of the capital stock of a corporation. A “prescribed obligation” is a debt obligation the terms or conditions of which provide for an adjustment to an amount payable in respect of the obligation for a period during which the obligation was outstanding which adjustment is determined by reference to a change in the purchasing power of money and no amount payable in respect thereof, other than an amount determined by reference to a change in the purchasing power of money, is contingent or dependent upon any of the criteria described in the preceding sentence. **IF ANY INTEREST PAYABLE ON A DEBT SECURITY, OR ANY PORTION OF THE PRINCIPAL AMOUNT OF A DEBT SECURITY IN EXCESS OF ITS ISSUE PRICE, IS TO BE CALCULATED BY REFERENCE TO AN INDEX OR FORMULA OR ANY DEBT SECURITY IS ISSUED AS PARTLY PAID, SUCH INTEREST OR PRINCIPAL, AS THE CASE MAY BE, MAY BE SUBJECT TO CANADIAN NON-RESIDENT WITHHOLDING TAX.**

In the event that a debt security is redeemed, cancelled, repurchased or purchased by us or any other person resident or deemed to be resident in Canada from a Non-Resident Holder or is otherwise assigned or transferred by a Non-Resident Holder to a person resident or deemed to be resident in Canada for an amount which exceeds, generally, the issue price thereof or in certain cases the price for which such debt security was assigned or transferred by a person resident or deemed to be resident in Canada to the Non-Resident Holder, the excess may, in certain circumstances, be deemed to be interest and may be subject to non-resident withholding tax if the debt security is not considered to be an “excluded obligation” for purposes of the Act and such interest is not otherwise exempt from non-resident withholding tax. A debt security described in (a) or (c) above (as well as certain debt securities issued at no discount on their principal amount, or at a “shallow” discount, as set out in the Act) will be an “excluded obligation” for this purpose.

Generally, there are no other taxes on income (including taxable capital gains) payable in respect of a debt security or interest, discount, or premium thereon by a Non-Resident Holder.
The foregoing summary is of a general nature only, and is not intended to be, nor should it be considered to be, legal or tax advice to any particular Non-Resident Holder. Non-Resident Holders are urged to consult their own tax advisors with respect to their particular circumstances.

**PLAN OF DISTRIBUTION**

We may sell any series of debt securities at any time after effectiveness of the Registration Statement of which this prospectus forms a part in one or more of the following ways from time to time:

- through underwriters or dealers;
- through agents; or
- directly to one or more purchasers.

Any of those underwriters, dealers or agents may include our affiliates, including RBC Dain Rauscher Inc. or RBC Capital Markets Corporation. Any affiliate that participates in a particular offering of securities will comply with the applicable requirements of Rule 2720 of the National Association of Securities Dealers, Inc. (the “NASD”). In compliance with guidelines of the NASD, the maximum commission or discount to be received by any NASD member or independent broker dealer may not exceed 8% of the aggregate principal amount of securities offered pursuant to this prospectus. We anticipate, however, that the maximum commission or discount to be received in any particular offering of securities will be significantly less than this amount. Neither RBC Dain Rauscher Inc., RBC Capital Markets Corporation, nor any other NASD member participating in an offering of these securities in which one of our affiliates is acting as an underwriter, dealer or agent will confirm initial sales to any discretionary accounts over which it has authority without the prior specific written approval of the customer. The offered securities may be distributed periodically in one or more transactions at:

- a fixed price or prices, which may be changed;
- market prices prevailing at the time of sale;
- prices related to the prevailing market prices; or
- negotiated prices.

The prospectus supplement will include:

- the initial public offering price;
- the names of any underwriters, dealers or agents;
- the purchase price of the securities;
- our proceeds from the sale of the securities;
- any underwriting discounts or agency fees and other underwriters’ or agents’ compensation;
- any discounts or concessions allowed or reallocated or paid to dealers;
- the place and time of delivery of the securities; and
- any securities exchange on which the securities may be listed.
If underwriters are used in the sale, they will buy the securities for their own account. The underwriters may then resell the securities in one or more transactions, at any time or times at a fixed public offering price or at varying prices. The underwriters may change from time to time any fixed public offering price and any discounts or commissions allowed or re-allowed or paid to dealers. If dealers are utilized in the sale of the securities, we will sell the securities to the dealers as principals. The dealers may then resell the securities to the public at varying prices to be determined by such dealers.

In connection with the offering of securities, we may grant to the underwriters an option to purchase additional securities to cover over-allotments, if any, at the initial public offering price (with an additional underwriting commission), as may be set forth in the prospectus supplement for such securities. If we grant any over-allotment option, the terms of the option will be set forth in the prospectus supplement for the securities.

This prospectus may be delivered by underwriters and dealers in connection with short sales undertaken to hedge exposures under commitments to acquire our securities to be issued on a delayed or contingent basis.

Underwriters, dealers and agents that participate in the distribution of the securities may be underwriters as defined in the U.S. Securities Act of 1933. Any discounts or commissions that we pay them and any profit they receive when they resell the securities may be treated as underwriting discounts and commissions under that Act. We may have agreements with underwriters, dealers and agents to indemnify them against certain civil liabilities, including liabilities under the U.S. Securities Act of 1933, to contribute with respect to payments which they may be required to make in respect of such liabilities and to reimburse them for certain expenses.

Underwriters, dealers and agents, and their affiliates or associates, may engage in transactions with us or perform services for us in the ordinary course of business and receive compensation from us.

Each series of offered securities will be a new issue of securities and will have no established trading market. Securities may or may not be listed on a national or foreign securities exchange or automated quotation system. Any underwriters or agents to whom securities are sold for public offering or sale may make, but are not required to make, a market in the securities, and the underwriters or agents may discontinue making a market in the securities at any time without notice. No assurance can be given as to the liquidity or the existence of trading markets for any securities.

Any underwriters utilized may engage in stabilizing transactions and syndicate covering transactions in accordance with Rule 104 of Regulation M under the Securities Exchange Act of 1934. Stabilizing transactions permit bids to purchase the offered securities or any underlying security so long as the stabilizing bids do not exceed a specified maximum. Syndicate covering transactions involve purchases of securities in the open market after the distribution has been completed in order to cover syndicate short positions. Such stabilizing transactions and syndicate covering transactions may cause the price of the offered securities to be higher than would be the case in the absence of such transactions.
BENEFIT PLAN INVESTOR CONSIDERATIONS

A fiduciary of a pension, profit-sharing or other employee benefit plan (a “plan”) subject to the Employee Retirement Income Security Act of 1974, as amended (“ERISA”), should consider the fiduciary standards of ERISA in the context of the plan’s particular circumstances before authorizing an investment in the debt securities. Accordingly, among other factors, the fiduciary should consider whether the investment would satisfy the prudence and diversification requirements of ERISA and would be consistent with the documents and instruments governing the plan, and whether the investment would involve a prohibited transaction under Section 406 of ERISA or Section 4975 of the Internal Revenue Code (the “Code”).

Section 406 of ERISA and Section 4975 of the Code prohibit plans, as well as individual retirement accounts and Keogh plans subject to Section 4975 of the Internal Revenue Code (also “plans”), from engaging in certain transactions involving “plan assets” with persons who are “parties in interest” under ERISA or “disqualified persons” under the Code (“parties in interest”) with respect to the plan. A violation of these prohibited transaction rules may result in civil penalties or other liabilities under ERISA and/or an excise tax under Section 4975 of the Code for those persons, unless exemptive relief is available under an applicable statutory, regulatory or administrative exemption. Certain employee benefit plans and arrangements including those that are governmental plans (as defined in section 3(32) of ERISA), certain church plans (as defined in Section 3(33) of ERISA) and foreign plans (as described in Section 4(b)(4) of ERISA) (“non-ERISA arrangements”) are not subject to the requirements of ERISA or Section 4975 of the Code but may be subject to similar provisions under applicable federal, state, local, foreign or other regulations, rules or laws (“similar laws”).

The acquisition or, if applicable, exchange of the debt securities by a plan with respect to which we or certain of our affiliates is or becomes a party in interest may constitute or result in a prohibited transaction under ERISA or Section 4975 of the Code, unless those notes are acquired pursuant to and in accordance with an applicable exemption. The U.S. Department of Labor has issued five prohibited transaction class exemptions, or “PTCEs”, that may provide exemptive relief if required for direct or indirect prohibited transactions that may arise from the purchase or holding of the notes. These exemptions are:

- PTCE 84-14, an exemption for certain transactions determined or effected by independent qualified professional asset managers;
- PTCE 90-1, an exemption for certain transactions involving insurance company pooled separate accounts;
- PTCE 91-38, an exemption for certain transactions involving bank collective investment funds;
- PTCE 95-60, an exemption for transactions involving certain insurance company general accounts; and
- PTCE 96-23, an exemption for plan asset transactions managed by in-house asset managers.

Any purchaser or holder of debt securities or any interest therein will be deemed to have represented by its purchase and holding of the debt securities that it either (1) is not a plan and is not purchasing those debt securities on behalf of or with “plan assets” of any plan or (2) with respect to the purchase or holding or, if applicable, exchange is eligible for the exemptive relief available under any of the PTCEs listed above or there is some other basis on which such purchase and holding is not prohibited. In addition, any purchaser or holder of debt securities or any interest therein which is a non-ERISA arrangement will be deemed to have represented by its purchase or holding or, if applicable, exchange of the debt securities that its purchase and holding will not violate the provisions of any similar law.

Due to the complexity of these rules and the penalties that may be imposed upon persons involved in non-exempt prohibited transactions, it is important that fiduciaries or other persons considering purchasing debt securities on behalf of or with “plan assets” of any plan or non-ERISA arrangement consult with their counsel regarding the availability of exemptive relief under any of the PTCEs listed above or some other basis on which such purchase and holding is not prohibited, or the potential consequences of any purchase, holding or exchange under similar laws, as applicable.
Each purchaser and holder of the debt securities has exclusive responsibility for ensuring that its purchase and holding of the debt securities does not violate the fiduciary or prohibited transaction rules of ERISA, the Code or any similar laws. The sale of any debt securities to any plan is in no respect a representation by us or any of our affiliates or representatives that such an investment meets all relevant legal requirements with respect to investments by plans generally or any particular plan, or that such an investment is appropriate for plans generally or any particular plan.

LIMITATIONS ON ENFORCEMENT OF U.S. LAWS AGAINST THE BANK, OUR MANAGEMENT AND OTHERS

We are a Canadian chartered bank. Many of our directors and executive officers, including many of the persons who signed the Registration Statement on Form F-3, of which this prospectus is a part, and some of the experts named in this document, reside outside the United States, and a substantial portion of our assets and all or a substantial portion of the assets of such persons are located outside the United States. As a result, it may be difficult for you to effect service of process within the United States upon such persons to enforce against them judgments of the courts of the United States predicated upon, among other things, the civil liability provisions of the federal securities laws of the United States. In addition, it may be difficult for you to enforce, in original actions brought in courts in jurisdictions located outside the United States, among other things, civil liabilities predicated upon such securities laws.

We have been advised by our Canadian counsel, Ogilvy Renault LLP, that a judgment of a United States court predicated solely upon civil liability under such laws would probably be enforceable in Canada if the United States court in which the judgment was obtained has a basis for jurisdiction in the matter that was recognized by a Canadian court for such purposes. We have also been advised by such counsel, however, that there is substantial doubt whether an original action could be brought successfully in Canada predicated solely upon such civil liabilities.

VALIDITY OF SECURITIES

The validity of the debt securities will be passed upon by Ogilvy Renault LLP, Toronto, Ontario, as to matters of Canadian law and applicable matters of Ontario law, and by Sullivan & Cromwell LLP, New York, New York, as to matters of New York law. Davis Polk & Wardwell, New York, New York will issue an opinion as to certain legal matters for the agents or underwriters.

EXPERTS

The consolidated financial statements and management’s report on the effectiveness of internal control over financial reporting incorporated by reference in this prospectus from the Bank’s Annual Report on Form 40-F for the year ended October 31, 2006 and the related supplemental financial statement schedule included elsewhere in this prospectus, have been audited by Deloitte & Touche LLP, Independent Registered Chartered Accountants, as stated in their reports, which are incorporated herein by reference and appearing elsewhere in this prospectus, and have been so incorporated or included in reliance upon the reports of such firm given upon their authority as experts in accounting and auditing.
SUPPLEMENTAL FINANCIAL STATEMENT SCHEDULE

The supplemental financial statement schedule in this section is not required to be included in the audited consolidated financial statements included in our Annual Report on Form 40-F incorporated by reference in this prospectus (the “40-F Financial Statements”), and is provided in response to SEC requirements for a Form F-3 registration statement that may be used to offer certain types of securities. The report of our independent registered chartered accountants on the supplemental financial statement schedule also appears below.

Report of Independent Registered Chartered Accountants on Supplemental Financial Statement Schedule

To the Board of Directors and Shareholders of Royal Bank of Canada

In our report to the Board of Directors and Shareholders of Royal Bank of Canada (the “Bank”) dated November 29, 2006, included in their Annual Report on Form 40-F, we reported on the consolidated balance sheets of the Bank as at October 31, 2006 and 2005 and the consolidated statements of income, changes in shareholders' equity and cash flows for each of the years in the three-year period ended October 31, 2006. In connection with our audits of the aforementioned consolidated financial statements, we also audited the related supplemental financial statement schedule entitled "Supplemental Financial Statement Schedule - Restricted Net Assets and Parent Company Information". This supplemental financial statement schedule is the responsibility of the Bank's management. Our responsibility is to express an opinion on this supplemental financial statement schedule, considered together with the above-referenced consolidated financial statements, based on our audits.

Our audits were conducted for the purpose of forming an opinion on the above-referenced consolidated financial statements taken as a whole. The supplemental financial statement schedule presents additional information and is not a required part of the above-referenced consolidated financial statements. Such schedule has been subjected to the auditing procedures applied in our audits of the above-referenced consolidated financial statements and, in our opinion, is fairly stated in all material respects when considered together with the above-referenced consolidated financial statements taken as a whole.

DELOITTE & TOUCHE LLP

Independent Registered Chartered Accountants

Toronto, Canada
December 14, 2006
Restricted Net Assets and Parent Company Information

Certain of our subsidiaries and joint ventures are subject to regulatory requirements of the jurisdictions in which they operate. When these subsidiaries and joint ventures are subject to such requirements, they may be restricted from transferring to us our share of their net assets in the form of cash dividends, loans or advances. At October 31, 2006, restricted net assets of these subsidiaries were $7.0 billion.

The following table presents information prepared in accordance with Canadian generally accepted accounting principles regarding the legal entity Royal Bank of Canada with its bank subsidiaries presented on an equity-accounted basis:

### Balance Sheets

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and interest bearing deposits with banks</td>
<td>5,862</td>
<td>5,083</td>
</tr>
<tr>
<td>Securities</td>
<td>90,076</td>
<td>77,130</td>
</tr>
<tr>
<td>Investments in bank subsidiaries and associated corporations (1)</td>
<td>12,018</td>
<td>11,052</td>
</tr>
<tr>
<td>Investments in other subsidiaries and associated corporations</td>
<td>23,255</td>
<td>18,787</td>
</tr>
<tr>
<td>Assets purchased under reverse repurchase agreements</td>
<td>9,221</td>
<td>8,833</td>
</tr>
<tr>
<td>Loans, net of allowances</td>
<td>166,528</td>
<td>157,254</td>
</tr>
<tr>
<td>Net balances due from bank subsidiaries (1)</td>
<td>37,323</td>
<td>25,245</td>
</tr>
<tr>
<td>Net balance due from other subsidiaries</td>
<td>53,762</td>
<td>51,060</td>
</tr>
<tr>
<td><strong>Liabilities and Shareholders’ Equity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deposits</td>
<td>285,898</td>
<td>256,909</td>
</tr>
<tr>
<td>Net balances due to other subsidiaries</td>
<td>4,061</td>
<td>-</td>
</tr>
<tr>
<td>Other liabilities</td>
<td>78,699</td>
<td>71,364</td>
</tr>
<tr>
<td><strong>Subordinated debentures</strong></td>
<td>6,966</td>
<td>8,015</td>
</tr>
<tr>
<td><strong>Preferred share liabilities</strong></td>
<td>298</td>
<td>300</td>
</tr>
<tr>
<td><strong>Shareholders’ equity</strong></td>
<td>22,123</td>
<td>19,847</td>
</tr>
<tr>
<td><strong>Total liabilities and shareholders’ equity</strong></td>
<td>398,045</td>
<td>356,435</td>
</tr>
</tbody>
</table>

### Statements of Income

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2005</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest income</td>
<td>13,990</td>
<td>11,596</td>
<td>9,947</td>
</tr>
<tr>
<td>Interest expense</td>
<td>10,351</td>
<td>6,867</td>
<td>4,960</td>
</tr>
<tr>
<td>Net interest income (2)</td>
<td>3,639</td>
<td>4,729</td>
<td>4,987</td>
</tr>
<tr>
<td>Non-interest income</td>
<td>3,935</td>
<td>3,412</td>
<td>3,030</td>
</tr>
<tr>
<td>Total revenue</td>
<td>7,574</td>
<td>8,141</td>
<td>8,017</td>
</tr>
<tr>
<td>Provision for credit losses</td>
<td>410</td>
<td>392</td>
<td>292</td>
</tr>
<tr>
<td>Non-interest expense</td>
<td>5,720</td>
<td>6,001</td>
<td>5,420</td>
</tr>
<tr>
<td>Business realignment charges</td>
<td>2</td>
<td>44</td>
<td>123</td>
</tr>
<tr>
<td>Income from continuing operations</td>
<td>1,442</td>
<td>1,704</td>
<td>2,182</td>
</tr>
<tr>
<td>Income taxes</td>
<td>424</td>
<td>528</td>
<td>727</td>
</tr>
<tr>
<td>Net income from continuing operations</td>
<td>1,018</td>
<td>1,176</td>
<td>1,455</td>
</tr>
</tbody>
</table>
Net income from subsidiaries 3,739 2,261 1,568
Net loss from subsidiary discontinued operations (29) (50) (220)
Net income 4,728 3,387 2,803

(1) Bank subsidiaries and associated corporations are deposit-taking institutions.

(2) Includes dividend income from investments in subsidiaries and associated corporations of $17 million, $20 million and $306 million for the years ended 2006, 2005 and 2004, respectively.
OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

The estimated expenses in connection with this offering, other than underwriting discounts and commissions, are as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration Statement filing fee</td>
<td>345,084.10</td>
</tr>
<tr>
<td>Trustees’ fees and expenses</td>
<td>1,197,500.00</td>
</tr>
<tr>
<td>Legal fees and expenses</td>
<td>1,160,000.00</td>
</tr>
<tr>
<td>NASD fees and expenses</td>
<td>75,500.00</td>
</tr>
<tr>
<td>Accounting fees and expenses</td>
<td>4,960,000.00</td>
</tr>
<tr>
<td>Printing costs</td>
<td>440,000.00</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1,650,000.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>U.S.$9,558,084.10</strong></td>
</tr>
</tbody>
</table>
No dealer, salesman or other person has been authorized to give any information or to make any representation not contained in this pricing supplement, the accompanying prospectus, prospectus supplement or product prospectus supplement and, if given or made, such information or representation must not be relied upon as having been authorized by Royal Bank of Canada or the Underwriter. This pricing supplement, the accompanying prospectus, prospectus supplement and product prospectus supplement do not constitute an offer to sell or a solicitation of an offer to buy any securities other than the securities described in this pricing supplement nor do they constitute an offer to sell or a solicitation of an offer to buy the securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. The delivery of this pricing supplement, the accompanying prospectus, prospectus supplement and product prospectus supplement at any time does not imply that the information they contain is correct as of any time subsequent to their respective dates.

$696,000

Royal Bank of Canada

Senior Global Medium-Term Notes, Series C

Principal Protected Notes

September 26, 2008