RBC Quantitative Investment Strategy

Weight Assignment

This document contains a description of the RBC Quantitative Investment Strategy "Weight Assignment" methodology.

RBC Capital Markets

RBC®

This page is intentionally left blank.

Contents

Description of the Methodology

The purpose of this document is to provide a detailed description of the Weight Assignment methodology used in RBC Quantitative Investment Strategies.[1]

Section 1. Terms and Notations

Term/Notation	Definition
Business Day	Any weekday that is not an NYSE holiday.
n	Denotes the number of Underlying Strategies and Strategy Commodities included in the customized basket.
UI^i	Denotes the ith **Underlying Strategy** or **Strategy Commodity** which is to be allocated an Assigned Target Weight. Note that $1 \leq i \leq n$.
$WA\ (\ )$	Denotes the most recent **Weight Assignment Calculation Day** before Business Day . This is the Business Day on which the Assigned Target Weights for all i are determined. Please refer to Section 3 of "Strategy Information" for the Weight Assignment Calculation Day of a specific strategy.
$_{WA\ (\ )}^{i}$	Denotes the **Base Target Weight** assigned to the UI^i on the most recent Rebalance Date before Business Day . Please refer to Section 3 of "Strategy Information" for the Base Target Weights of a specific strategy.
$\tilde{}\ _{WA\ (\ )}^{i}$	Denotes the **Assigned Target Weight** for i on Weight Assignment Calculation Day $WA\ (\ )$. If $_1$, $_2$ are consecutive Weight Assignment Calculation Dates then: • Any alterations to the Assignment Target Weights must be submitted prior to Business Day $_1$, 1. • $\tilde{}\ _{WA\ (_1)}^{i}$ will be effective for the Strategy level calculation from $_1 + 1$ to $_2$ inclusive. Please refer to Section 3 of "Strategy Information" for the Assigned Target Weights of a specific strategy.
$_{WA\ (\ )}^{i}$	Denotes the **Weight Assignment Signal** for i on the Weight Assignment Calculation Day $WA\ (\ )$. Please refer to Section 3 of "Strategy Information" for the Weight Assignment Signal used in a specific strategy.
$_{WA\ (\ )}$	Denotes the **Filtered Commodity Set** determined on Weight Assignment Calculation Day $WA\ (\ )$. The Filtered Commodity Set is a sub-collection of the Underlying Strategies that are selected based on their Weight Assignment Signals.
$_{WA\ (\ )}$	Denotes the **Order of the Filtered Commodity Set** on Weight Assignment Calculation Day $WA\ (\ )$. The Order of the Filtered Commodity Set is the number of Underlying Strategies included in the Filtered Commodity Set. Please refer to Section 3 of "Strategy Information" for the Order of the Filtered Commodity Set of a specific strategy.

---

[1] This document is issued as an addendum to each of the "RBC Quantitative Investment Strategy – Basket of Commodity Strategies Excess Return Strategy" dated May 8, 2017, and the "RBC Quantitative Investment Strategy – Excess Return and Total Return Strategy" dated Sep 26, 2018 (collectively, the "Strategy Methodology"). For greater certainty, the Disclaimer on page A of the Strategy Methodology applies equally to this document.

Section 2. Weight Assignment

On each Weight Assignment Calculation Day $WA\ (\ )$, the following steps are performed:

Step 1: Calculate Weight Assignment Signals

For the $\hbar^h$ Underlying strategy or Strategy Commodity, calculate the Weight Assignment Signal $s_{WA\ (\ )}$ by following the corresponding signal generation method.

Step 2: Rank Commodities based on Weight Assignment Signals

Rank all the $s_{WA\ (\ )}$ in descending order, breaking ties by following the tie breaking rules described in the "Strategy Description" document of a specific Strategy. Denote the rank for $_{WA\ (\ )}^i$ as $Rank_{WA\ (\ )}$.

Step 3: Determine the Filtered Commodity Set

The Filtered Commodity Set $_{WA\ (\ )}$ is determined as the top $_{WA\ (\ )}$ ranked commodities based on the ranks $Ran_{WA\ (\ )}$ of the commodities in the basket. The specific value of $_{AC(\ )}$ for determining the Filtered Commodity Set is given in Section 3 of "Strategy Information" of a specific Strategy.

Step 4: Weight Assignment

The Assigned Target Weight˜ $_{WA\ (\ )}$ for the $\hbar^h$ Underlying Strategy or Strategy Commodity UI^i is determined based on one of the following methods:

- **Method 1: Equal Weighting**

    In the Equal Weighting method, the sum of Base Target Weights are equally assigned over the commodities in the Filtered Commodity Set:

    $$\begin{cases} \tilde{}\ _{WA\ (\ )}^i = \dfrac{1}{_{WA\ (\ )}} \times \sum\nolimits_{=1}\ _{WA\ (\ )} & if\ UI^i \in \ _{WA\ (\ )}, \\ \tilde{}\ _{WA\ (\ )} = 0 & other\ \hbar\ . \end{cases}$$

- **Method 2: Ranking**

    In the Ranking method, the sum of the Base Target Weights is allocated to the commodities in the Filtered Commodity Set in proportion to the product of their rank and Base Target Weight.

    $$\begin{cases} \tilde{}\ _{WA\ (\ )}^i = \dfrac{Ran\ _{WA\ (\ )}^i \cdot\ _{WA\ (\ )}^i}{\sum_{\{\ |UI\ \in\ CS\ _{AC(\ )}\}} Ran\ _{WA\ (\ )}^j \cdot\ _{WA\ (\ )}^j} \times \sum\nolimits_{=1}\ _{WA\ (\ )} & if\ UI^i \in \ _{WA\ (\ )}, \\ \tilde{}\ _{WA\ (\ )} = 0 & other\ \hbar\ . \end{cases}$$

This page is intentionally left blank.