Construction and Methodology

Russell High Efficiency™ Defensive Index® Series
v2.2
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Section 1

Introduction

1.0 Introduction

1.0 Russell High Efficiency Defensive Indexes

1.1.1 The Russell High Efficiency Defensive Indexes deliver an efficient, transparent and turnover-controlled capture of the Low Volatility and Quality variables from the Russell Stability Indexes® targeting two levels of tracking error.

1.1.2 The Russell High Efficiency Defensive indexes are created using Russell parent indexes including the Russell 1000®, Russell 2000® and Russell 3000® indexes as the starting universe. The methodology then applies the Russell Stability Indexes® low volatility and quality factors and Westpeak’s ActiveBeta® approach to factor tilting and tracking-error targeting to create the resulting Russell High Efficiency Defensive indexes.

1.1.3 The purpose of the Russell High Efficiency Defensive indexes is to offer information-efficient exposure to defensive stocks at targeted levels of tracking error relative to an underlying parent benchmark index, using a transparent and rules-based construction methodology.

1.1.4 The Russell High Efficiency Defensive Indexes are available as both price and total return indexes.

1.2 FTSE Russell

1.2.1 FTSE Russell is a trading name of FTSE International Limited, Frank Russell Company, FTSE Global Debt Capital Markets Limited (and its subsidiaries FTSE Global Debt Capital Markets Inc. and MTSNext Limited), Mergent, Inc., FTSE Fixed Income LLC and The Yield Book Inc.

1.2.2 FTSE Russell hereby notifies users of the index series that it is possible that circumstances, including external events beyond the control of FTSE Russell, may necessitate changes to, or the cessation of, the index series and therefore, any financial contracts or other financial instruments that reference the index series or investment funds which use the index series to measure their performance should be able to withstand, or otherwise address the possibility of changes to, or cessation of, the index.

1.2.3 Index users who choose to follow this index series or to buy products that claim to follow this index series should assess the merits of the index’s rules-based methodology and take independent investment advice.

Information-efficient exposure is created by using a stock’s Defensive/Dynamic rank to determine each stock’s active weight (overweight/underweight) relative to a benchmark index as opposed to using traditional market capitalization weighting.
before investing their own or client funds. No liability whether as a result of negligence or otherwise is accepted by FTSE Russell for any losses, damages, claims and expenses suffered by any person as a result of:

- any reliance on this Construction and Methodology, and/or
- any errors or inaccuracies in these Construction and Methodology, and/or
- any non-application or misapplication of the policies or procedures described in these Construction and Methodology, and/or
- any errors or inaccuracies in the compilation of the index or any constituent data.
Section 2

Management Responsibilities

2.0 Management Responsibilities

2.1 FTSE International Limited

2.1.1 FTSE is the benchmark administrator.

2.1.2 FTSE Russell is responsible for the daily calculation, production and operation of the index series and will:

- maintain records of the index weightings of all constituents;
- make changes to the constituents and their weightings in accordance with the Ground Rules;
- carry out the periodic index reviews of the index series and apply the changes resulting from the reviews as required by the Ground Rules;
- publish changes to the constituent weightings resulting from their ongoing maintenance and the periodic reviews;
- disseminate the indexes.

2.2 Amendments to the Methodology

2.2.1 This Methodology shall be subject to regular review by FTSE Russell to ensure that they continue to meet the current and future requirements of investors and other index users. Any proposals for significant amendments to this Methodology will be subject to consultation with FTSE Russell advisory committees and other stakeholders if appropriate. The feedback from these consultations will be considered by the FTSE Russell Product Governance Board before approval is granted.
Section 3

FTSE Russell Index Policies

3.0 FTSE Russell Index Policies

These Ground Rules should be read in conjunction with the following policy documents which can be accessed using the links below:

3.1 Queries and Complaints

3.1.1 FTSE Russell’s complaints procedure can be accessed using the following link:

Benchmark_Determination_Complaints_Handling_Policy.pdf

3.2 Index Policy for Trading Halts and Market Closures

3.2.1 Guidance for the treatment of index changes in the event of trading halts or market closures can be found using the following link:

Index_Policy_for_Trading_Halts_and_Market_Closures.pdf

3.3 Index Policy in the Event Clients are Unable to Trade a Market

3.3.1 Details of FTSE Russell’s treatment can be accessed using the following link:

Index_Policy_in_the_Event_Clients_are_Unable_to_Trade_a_Market.pdf

3.4 Recalculation Policy and Guidelines

3.4.1 The Russell High Efficiency Defensive indexes is recalculated whenever errors or distortions occur that are deemed to be significant. Users of the Index are notified through appropriate media.

3.4.2 For further information refer to the FTSE Russell Recalculation Policy and Guidelines document which is available from the FTSE Russell website using the link below or by contacting info@ftserussell.com.

Recalculation_Policy_and_Guidelines_Equity_Indexes.pdf

3.5 Policy for Benchmark Methodology Changes

3.5.1 Details of FTSE Russell’s policy for making benchmark methodology changes can be accessed using the following link:

Policy_for_Benchmark_Methodology_Changes.pdf
Section 4

Constructing the Russell High Efficiency Defensive Indexes

4.0 Constructing the Russell High Efficiency Defensive Indexes

4.1 Eligible securities

4.1.1 The Russell High Efficiency Defensive indexes are derived from the stocks of the underlying Russell 3000 indexes, including the Russell 1000 and Russell 2000 indexes. Please see the Russell U.S. indexes construction and methodology for complete rules used to define the total stock universe on which the Russell High Efficiency Defensive indexes are based.

4.2 Index construction overview

- Specify a parent index such as the Russell 1000 Index.
- Assign each stock a probability score based on Russell’s Stability indexes methodology.
- Create the Russell High Efficiency Defensive indexes by overweighting and underweighting stocks in proportion to their stability probability scores.

4.3 Detailed construction and methodology

Step 1 Select a parent Index, for example, such as the Russell 1000 Index

Step 2a Rank and score all stocks in the Russell 1000 on each descriptive variable independently

Volatility factors

60-mo total return volatility 50%
52-wk total return volatility 50%

Rank & score

Volatility score 50%

Quality factors

Earnings variability 33%
Leverage 33%
Return on assets 33%

Rank & score

Rank & score

Quality score 50%
**Ranking process** – Rank the stocks in the Russell 1000 Index on each of the volatility and quality variables with the lowest rank stock for a given variable receiving a rank of 0 and increasing accordingly. Stocks with identical values will be assigned the same rank and the next stock will receive the next contiguous rank. For example, if two stocks have the same earnings variability at rank order 500, the two stocks will be ranked 500 and the next stock will be ranked 501.

**Scoring process** – The ranks for each descriptive variable are converted into scores ranging from -1.0 to +1.0. Weight the volatility variables by 50% each to create a composite volatility score. Weight the quality variables by 33% each to create a composite quality score.

**Step 2b**  Equally weight the volatility and quality scores to create rescaled stability score

![Volatility score](50\%)

![Quality score](50\%)

**Final stability score**

-1.0 = Dynamic to +1.0 = Defensive

**Step 3**  Select a cut-off score at a point between -1.0 to +1.0. For example, select a cut-off score of 0

- The cut-off score is the pivot point that determines which stocks will be overweighted or underweighted.
- Stocks below the cut-off score of 0 (more dynamic) are underweighted and stocks above the cut-off score of 0 are overweighted (more defensive)

![Graph showing stability score % vs. active weight]

**Step 4**  Select a maximum stock underweight relative to the Russell 1000 index. For example, select a maximum stock underweight of 30bps

- If a stock is held at 20bps in the parent index and the desired underweight is 30bps, then the stock will not be held in the resulting index.
• Because of the long-only constraint, stocks can't be held at a negative weight.

**Step 5**  
**Calculate the underweight for each stock**  
Stock Underweight = Minimum (Rescaled Stability Score x Maximum stock underweight, Benchmark weight)

**Step 6**  
**Calculate the total stock underweights**  
Calculate the total stock underweights by adding up all of the individual stock underweights

**Step 7**  
**Allocate the individual stock overweights**  
Use the sum of the Total stock underweights and allocate as individual stock overweights in proportion to the Rescaled Stability Scores.

**Step 8**  
**Investment capacity**  
In order to maintain investment capacity, a stock’s weight in the index is capped. Capacity is defined as the total amount that can theoretically be invested in a company. For a stock whose shares are 100% freely available, the maximum capacity is defined as the total market capitalization of that security.

A stock’s index weight cannot exceed 5% of the float-adjusted shares of a company assuming a notional portfolio amount of $5 billion.
Section 5

Quarterly rebalance

5.0 Quarterly rebalance

5.1.1 During each quarterly rebalance, all steps detailed in Section 4 will be repeated using the same descriptive variables for volatility and quality. New target stock weights for the Russell High Efficiency Defensive indexes are calculated relative to the weights of the parent index.

5.1.2 In order to minimize turnover, new stock target weights are determined using Westpeak’s turnover minimization process. This process defines a new stock target weight and then minimizes the turnover required in moving from the existing portfolio to the new portfolio.

5.2 New stock target weights with buffers

5.2.1 Once a new stock target weight has been calculated, an allowable trade zone is established which defines upper and lower bound targets for a stock’s new weight.

5.2.2 If a stock’s starting weight is within the allowable trade zone, then no weight change will be made unless required to further minimize turnover for other stocks.

5.2.3 If a stock’s starting weight is outside of the allowable trade zone, then the minimum weight change necessary will be applied to bring the stock’s weight to either the top or the bottom of the allowable trade zone.
5.3 **Turnover minimization**

5.3.1 Once all stocks have been moved within the allowable trade zone, a further step can be taken in order to minimize turnover.

5.3.2 Turnover is minimized by conducting offsetting pair trades to decrease difference between starting weight and the target weight. The result is that each stock is allowed to move within the allowable trade zone if doing so will result in lower overall turnover.

5.3.3 In the example below, Stock A’s starting weight was too high meaning that it was above the allowable trade zone. As a result, Stock A’s weight has to be reduced by selling off the necessary shares so that it can move to the top of allowable trade zone.

5.3.4 Meanwhile, Stock B’s New Target Weight was at the midpoint of the allowable trade zone. In order to reduce turnover, Stock B’s New Target weight can be moved from the midpoint to the top of allowable trade zone.

5.3.5 As a result of these changes, the sale transaction necessary to lower Stock A’s starting weight, was offset by shifting Stock B’s New Target Weight to the top of the allowable trade zone.
Section 6

Maintaining the Russell High Efficiency Defensive Indexes

6.0 Maintaining the Russell High Efficiency Defensive Indexes

6.1 Quarterly index rebalance and annual reconstitution

6.1.1 The Russell High Efficiency Defensive indexes are rebalanced quarterly at the close of the third Friday of March, September and December. June’s rebalance is completed at the same time as the annual reconstitution of the parent index. Rebalance related index changes are announced four trading days prior to each rebalance date.

6.2 Index maintenance / corporate action-driven changes

6.2.1 Full details of changes to constituent companies due to corporate actions and events can be accessed in the Corporate Actions and Events Guide for Non Market Cap Weighted Indexes using the following link:

Corporate_Actions_and_Events_Guide_Non_Market_Cap_Weighted_Indices.pdf

6.3 Classification – sector, country, size

- Sector classification changes will take effect simultaneously with the Russell 3000 Index reconstitution in June.
- Country classification changes will take effect simultaneously with Russell 3000 index country classification changes at reconstitution in June.
## 2.0 Index product breakdown

<table>
<thead>
<tr>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russell 1000® High Efficiency™ Defensive Index® – Low Target Tracking Error</td>
</tr>
<tr>
<td>Russell 2000® High Efficiency™ Defensive Index® – Low Target Tracking Error</td>
</tr>
<tr>
<td>Russell 3000® High Efficiency™ Defensive Index® – Low Target Tracking Error</td>
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<tr>
<td>Russell 1000® High Efficiency™ Defensive Index® – Moderate Target Tracking Error</td>
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<td>Russell 2000® High Efficiency™ Defensive Index® – Moderate Target Tracking Error</td>
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<tr>
<td>Russell 3000® High Efficiency™ Defensive Index® – Moderate Target Tracking Error</td>
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Appendix A: Further Information

A Glossary of Terms used in FTSE Russell’s Ground Rule documents can be found using the following link:

Glossary.pdf

For further information on the Russell High Efficiency Defensive Index Series visit www.ftserussell.com or e-mail info@ftserussell.com. Contact details can also be found on this website.

For more information about our indexes, please visit ftserussell.com.


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The Russell High Efficiency Defensive Indexes™ make use of Westpeak Global Advisors, LLC and Goldman Sachs Asset Management, L.P. patented AdtiveBeta™ portfolio construction techniques (Methods and Systems for Building and Managing Portfolios based on Ordinal Ranks of Securities (U.S. Patent Numbers 8,285,620 and 8,473,298)).

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