

# FTSE Volatility Target Index Series

v2.0



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## Section 1

# Introduction

## 1. Introduction

- 1.1 This document sets out the Ground Rules for the construction and management of the FTSE Volatility Target Index Series. Copies of the Ground Rules are available from **FTSE Russell**.
- 1.2 The FTSE Volatility Target Index Series represents the performance of an investment strategy that seeks to manage expected volatility close to a specific targeted level.
- 1.3 The FTSE Volatility Target Index Series deleverages (leverages) i.e. decreases (increases) the allocation to the underlying equity index and increases (decreases) exposure to a risk-free cash return component, as the volatility of the underlying index increases (decreases), in order to target a pre-specified level of volatility. The total return and the excess return indices include a cash return component.
- 1.4 The base currency of the benchmark is US Dollars. Index values may also be published in other currencies.
- 1.5 For more information on the underlying indices, please refer to the relevant FTSE Russell Ground Rules at [www.lseg.com/en/ftse-russell/](http://www.lseg.com/en/ftse-russell/). Details of the indices included in the FTSE Volatility Target Index Series are shown in Appendices A-D.
- 1.6 The FTSE Volatility Target Index Series does not take account of ESG factors in its index design.
- 1.7 FTSE Russell**
- 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 FTSE Fixed Income Europe Limited), FTSE Fixed Income LLC, FTSE (Beijing) Consulting Limited, Refinitiv Benchmark Services (UK) Limited, Refinitiv Limited and Beyond Ratings.
- 1.8 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 series.
- 1.9 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 series' rules-based methodology and take independent investment advice 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 these Ground Rules, and/or
  - any inaccuracies in these Ground Rules, and/or
  - any non-application or misapplication of the policies or procedures described in these Ground Rules, and/or
  - any inaccuracies in the compilation of the index series or any constituent data.
- 1.10 This index series is published at the end of each working day. The total return indices are based on ex dividend adjustments.

## Section 2

# Management responsibilities

## 2. Management responsibilities

### 2.1 FTSE International Limited (FTSE)

2.1.1 FTSE is the benchmark administrator of the index series<sup>1</sup>.

2.1.2 FTSE is responsible for the daily calculation, production and operation of the FTSE Volatility Target Index Series and will:

- carry out the periodic index reviews of the index series and apply the changes resulting from the reviews as required by the Ground Rules;
- disseminate the indices.

### 2.2 Status of these Ground Rules

2.2.1 These Ground Rules set out the methodology and provide information about the publication of the FTSE Volatility Target Index Series.

### 2.3 Amendments to these Ground Rules

2.3.1 These Ground Rules shall be subject to regular review (at least once a year) by FTSE Russell to ensure that they continue to best reflect the aims of the index series. Any proposals for significant amendments to these Ground Rules 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 Index Governance Board before approval is granted.

2.3.2 As provided for in the statement of principles for FTSE Russell Equity Indices, where FTSE Russell determines that the Ground Rules are silent or do not specifically and unambiguously apply to the subject matter of any decision, any decision shall be based as far as practical on the statement of principles. After making any such determination, FTSE Russell shall advise the market of its decision at the earliest opportunity. Any such treatment will not be considered as an exception or change to the Ground Rules, or to set a precedent for future action, but FTSE Russell will consider whether the Ground Rules should subsequently be updated to provide greater clarity.

<sup>1</sup> The term administrator is used in this document in the same sense as it is defined in [Regulation \(EU\) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds](#) (the European Benchmark Regulation) and [The Benchmarks \(Amendment and Transitional Provision\) \(EU Exit\) Regulations 2019](#) (the UK Benchmark Regulation).

## Section 3

# FTSE Russell Index policies

### 3. FTSE Russell Index policies

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

#### 3.1 **Statement of Principles for FTSE Russell Equity Indices (the Statement of Principles)**

Indices need to keep abreast of changing markets and the Ground Rules cannot anticipate every eventuality. Where the Ground Rules do not fully cover a specific event or development, FTSE Russell will determine the appropriate treatment by reference to the statement of principles which summarises the ethos underlying FTSE Russell's approach to index construction. The statement of principles is reviewed annually and any changes proposed by FTSE Russell are presented to the FTSE Russell Policy Advisory Board for discussion before approval by the FTSE Russell Index Governance Board.

The statement of principles can be accessed through the following link:

[Statement\\_of\\_Principles.pdf](#)

#### 3.2 **Queries, Complaints and Appeals**

3.3 A constituent or prospective constituent company (or professional advisor acting on behalf of the company), a national organisation or a group of no fewer than ten users of the indices from different organisations acting in their professional capacity may appeal against decisions taken by FTSE Russell.

FTSE Russell's complaints procedure can be accessed through the following link:

[Benchmark\\_Determination\\_Complaints\\_Handling\\_Policy.pdf](#)

3.4 FTSE Russell's appeal process can be accessed through the following link:

[Appeals\\_Against\\_Decisions.pdf](#)

#### 3.5 **Index Policy for Trading Halts and Market Closures**

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

[Index\\_Policy\\_for\\_Trading\\_Halts\\_and\\_Market\\_Closures.pdf](#)

#### 3.6 **Index Policy in the Event Clients are Unable to Trade a Market or a Security**

Details of FTSE Russell's treatment can be accessed through the following link:

[Index\\_Policy\\_in\\_the\\_Event\\_Clients\\_are\\_Unable\\_to\\_Trade\\_a\\_Market\\_or\\_a\\_Security.pdf](#)

### **3.7 Recalculation Policy and Guidelines**

- 3.7.1 Where an inaccuracy is identified, FTSE Russell will follow the steps set out in the FTSE Russell Index recalculation guidelines when determining whether an index or index series should be recalculated and/or associated data products reissued. Users of the FTSE Volatility Target Index Series will be notified through appropriate media.

For further information, refer to the FTSE Russell recalculation policy and guidelines document which is available from the FTSE Russell website through the link below or by contacting [info@ftserussell.com](mailto:info@ftserussell.com).

[Recalculation Policy and Guidelines Equity Indices.pdf](#)

### **3.8 Policy for Benchmark Methodology Changes**

- 3.8.1 Details of FTSE Russell's policy for making benchmark methodology changes can be accessed through the following link:

[Policy for Benchmark Methodology Changes.pdf](#)

### **3.9 FTSE Russell Governance Framework**

- 3.9.1 To oversee its indices, FTSE Russell employs a governance framework that encompasses product, service and technology governance. The framework incorporates the London Stock Exchange Group's three lines of defence risk management framework and is designed to meet the requirements of the IOSCO Principles for Financial Benchmarks<sup>2</sup>, the European benchmark regulation<sup>3</sup> and the UK benchmark regulation<sup>4</sup>. The FTSE Russell Governance framework can be accessed through the following link:

[FTSE Russell Governance Framework.pdf](#)

### **3.10 Real Time Status Definitions**

- 3.10.1 Please refer to the following guide for details of real time status definitions for indices which are calculated in real time.

[Real Time Status Definitions.pdf](#)

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<sup>2</sup> IOSCO Principles for Financial Benchmarks Final Report, FR07/13 July 2013.

<sup>3</sup> Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds.

<sup>4</sup> The Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019.

## Section 4

# Target risk exposure and return on cash

## 4. Target risk exposure and return on cash

### 4.1 Target risk exposure

4.1.1 FTSE Volatility Target Index Series controls the risk exposure to the underlying index from the volatility of that index.

4.1.2 The volatility of the underlying index is calculated using an exponential weighted moving average based on daily underlying index returns.

4.1.3 Two volatility estimates; a short period and a long period estimate,  $\sigma_S$  and  $\sigma_L$  respectively, are calculated over the volatility calculation period of  $K$  days at time:

$$\sigma_S(t) = \sqrt{252 \sum_{k=t-K+1}^t \frac{\alpha_S(t-k+1)}{\sum_{k=1}^K \alpha_S(k)} \times \left( \ln \frac{S(k)}{S(k-1)} \right)^2} \quad (1)$$

$$\sigma_L(t) = \sqrt{252 \sum_{k=t-K+1}^t \frac{\alpha_L(t-k+1)}{\sum_{k=1}^K \alpha_L(k)} \times \left( \ln \frac{S(k)}{S(k-1)} \right)^2} \quad (2)$$

Where,

- $S(k)$  is the underlying index value at time  $k$ ;
- $K$  is the number of days over which volatility is calculated;
- $\alpha_L(k) = (1 - \lambda_L) \times \lambda_L^{k-1}$  is the long period exponential weighting factor at time  $k$  where  $\lambda_L \leq 1$  is the long period decay factor;
- $\alpha_S(k) = (1 - \lambda_S) \times \lambda_S^{k-1}$  is the short period exponential weighting factor at time  $k$  where  $\lambda_S \leq 1$ ,  $\lambda_S < \lambda_L$  is the short period decay factor.

4.1.4  $\sigma_S(t)$  and  $\sigma_L(t)$  are calculated each day for  $T$  days. The larger of the short and long horizon volatility estimates over the  $T$  days and  $\sigma_{MAX}(t)$ , is used to determine the target level of risk exposure.

4.1.5 On any business day  $t$ , the target level of risk exposure of FTSE Volatility Target Indices to the underlying index is calculated as:

$$E(t) = \min \left( L_M, \frac{\alpha_T}{\sigma_{MAX}(t-1)} \right) \quad (3)$$

Where:

- $L_M$  is maximum leverage;
- $\alpha_T$  is the volatility target.

4.1.6 The parameters used in 4.1.3 to 4.1.5 are detailed in Appendix D for each index of FTSE Volatility Target Index Series.

## 4.2 Cash return

4.2.1 FTSE Volatility Target Index Series uses the relevant overnight interbank rate as the return on cash.

$$r_c(t) = r(t-1) \times \frac{d(t,t-1)}{DayCount} \quad (4)$$

Where,

- $r(t-1)$  is the overnight interbank rate. The rate applicable to each index is detailed in Appendix C;
- $d(t,t-1)$  is the number of calendar days between  $t-1$  and  $t$ ;
- $DayCount$  is the number of days in a year used in the convention of the corresponding interest rate.



## Section 5

# Calculation of index

## 5. Calculation of index

### 5.1 Price return indices

5.1.1 The FTSE Volatility Target price return indices are calculated as follows:

$$PI(t) = PI(t - 1) \times (1 + E(t) \times r_U(t)) \quad (5)$$

Where

- $PI(t)$  is the price return index;
- $E(t)$  is the target level of risk exposure;
- $r_U(t)$  is the underlying index return.

### 5.2 Total return indices

5.2.1 The FTSE Volatility Target total return indices are calculated as follows:

$$TRI(t) = TRI(t - 1) \times [E(t) \times r_U(t) + (1 - E(t)) \times r_C(t) + 1] \quad (6)$$

Where,

- $TRI(t)$  is the total return index;
- $E(t)$  is the target level of risk exposure;
- $r_U(t)$  is the underlying index return;
- $r_C(t)$  is the return on cash on day  $t$ .

### 5.3 Excess return indices

5.3.1 The FTSE Volatility Target excess return indices are calculated as follows:

$$EI(t) = EI(t - 1) \times [1 + E(t) \times (r_U(t) - r_C(t))] \quad (7)$$

Where,

- $EI(t)$  is the excess return index;
- $E(t)$  is the target level of risk exposure;
- $r_U(t)$  is the underlying index return;
- $r_C(t)$  is the return on cash on day  $t$ .

### 5.4 Calculation frequency

5.4.1 The FTSE Volatility Target Index Series is calculated end-of-day (EOD) after the close of the underlying index.

## Section 6

# Periodic rebalancing

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## 6. Periodic rebalancing

### 6.1 Periodic rebalancing

- 6.1.1 The target level risk exposure is re-estimated at a fixed frequency detailed in Appendix A for each index comprising the FTSE Volatility Target Index Series.

## Appendix A

# List of volatility target indices

Index name	Index code	Volatility target	Rebalancing
FTSE/JSE Top 40 10% Risk Target Price Return Index	J10P	10%	Daily
FTSE/JSE Top 40 15% Risk Target Price Return Index	J15P	15%	Daily
FTSE/JSE Top 40 20% Risk Target Price Return Index	J20P	20%	Daily
FTSE/JSE Top 40 Net 10% Volatility Target Total Return Index	J10T	10%	Daily
FTSE/JSE Top 40 Net 15% Volatility Target Total Return Index	J15T	15%	Daily
FTSE/JSE Top 40 Net 20% Volatility Target Total Return Index	J20T	20%	Daily
FTSE/JSE Top 40 Net 10% Volatility Target Excess Return Index	J10E	10%	Daily
FTSE/JSE Top 40 Net 15% Volatility Target Excess Return Index	J15E	15%	Daily
FTSE/JSE Top 40 Net 20% Volatility Target Excess Return Index	J20E	20%	Daily

### Back history

Back history for the FTSE/JSE Top 40 Total Return Index is available from 31 December 2002. Prior to 30 March 2012, the back history was calculated using the FTSE/JSE Top 40 Total Return Index. The/JSE Top 40 Net Total Return Index started calculation on 30 March 2012 and has been used in the calculation from that date forwards.

## Appendix B

# Cash return for FTSE JSE Volatility Target Indices

There is no overnight interbank rate available for FTSE JSE Volatility Target Indices. The FTSE JSE Volatility Target indices estimate the cash return by interpolating a discount rate from the 1-month and 3-month interbank rates — South Africa Johannesburg Interbank Agreed Rate (ZAR JIBAR).

The annualized discount rate on day  $t$  is interpolated from 1-month and 3-month interbank rates as follows:

$$IR(t) = \left[ r_{1m}(t) + \frac{r_{3m}(t) - r_{1m}(t)}{D_{3m}(t) - D_{1m}(t)} \times (D_{3m}(t-1) - D_{1m}(t)) \right] \quad (8)$$

Where,

- $IR(t)$  is the interpolated rate on business day  $t$ ;
- $r_{1m}(t)$  is the 1-month rate on business day  $t$ ;
- $r_{3m}(t)$  is the 3-month rate on business day  $t$ ;
- $D_{1m}(t)$  is the 1-month maturity date from business day  $t$ ;
- $D_{3m}(t)$  is the 3-month maturity date from business day  $t$ .

Maturity dates  $D_{1m}(t)$  and  $D_{3m}(t)$  are calculated on a calendar basis. For example, if today is the 29<sup>th</sup> of November and next year is a leap year, the maturity date for the three-month rate is calculated to fall on the 29<sup>th</sup> of February next year. However, if next year is not a leap year, the maturity date for the three-month rate will fall on the 1<sup>st</sup> of March next year. A similar logic applies to the determination of maturity dates for the one-month rates.

The return on cash for FTSE JSE Volatility Target indices are:

$$r_c(t) = \frac{FV(t-1)}{1 + \frac{1}{365} \times (D_{3m}(t-1) - t) \times IR(t)} - 1 \quad (9)$$

Where,

- $FV(t-1) = 1 + \frac{1}{365} \times (D_{3m}(t-1) - t + 1) \times r_{3m}(t-1)$  is the future value of the 3-month deposit;
- $D_{3m}(t-1) - t$  is the number of calendar days between previous business day's 3-month maturity date and today.

$IR(t)$  is the discount rate on day  $t$ .

## Appendix C

# Underlying indices and cash rates

Index name	Underlying	Cash rate	Day count basis
FTSE/JSE Top 40 10% Risk Target Price Return Index	FTSE/JSE Top 40 Price Return Index	Not applicable	Not applicable
FTSE/JSE Top 40 15% Risk Target Price Return Index			
FTSE/JSE Top 40 20% Risk Target Price Return Index			
FTSE/JSE Top 40 Net 10% Volatility Target Total Return Index	FTSE/JSE TOP 40 Net Total Return Index	ZAR 1M JIBAR ZAR 3M JIBAR	365
FTSE/JSE Top 40 Net 15% Volatility Target Total Return Index			
FTSE/JSE Top 40 Net 20% Volatility Target Total Return Index			
FTSE/JSE Top 40 Net 10% Volatility Target Excess Return Index	FTSE/JSE Top 40 Net Total Return Index	ZAR 1M JIBAR ZAR 3M JIBAR	365
FTSE/JSE Top 40 Net 15% Volatility Target Excess Return Index			
FTSE/JSE Top 40 Net 20% Volatility Target Excess Return Index			

## Appendix D

# Index parameters

Index name	Short period decay	Half life of the short decay	Long period decay	Half life of the long decay	Volatility period (days)	Max Volatility Window (days)	Max risk exposure
	$\lambda_S$	days	$\lambda_L$	days	<b>K</b>	<b>T</b>	<b>L<sub>m</sub></b>
FTSE/JSE Top 40 10% Risk Target Price Return Index	0.95	13.51	0.98	34.31	120	5	1.5
FTSE/JSE Top 40 15% Risk Target Price Return Index	0.95	13.51	0.98	34.31	120	5	1.5
FTSE/JSE Top 40 20% Risk Target Price Return Index	0.95	13.51	0.98	34.31	120	5	1.5
FTSE/JSE Top 40 Net 10% Volatility Target Total Return Index	0.95	13.51	0.98	34.31	120	5	1.5
FTSE/JSE Top 40 Net 15% Volatility Target Total Return Index	0.95	13.51	0.98	34.31	120	5	1.5
FTSE/JSE Top 40 Net 20% Volatility Target Total Return Index	0.95	13.51	0.98	34.31	120	5	1.5
FTSE/JSE Top 40 Net 10% Volatility Target Excess Return Index	0.95	13.51	0.98	34.31	120	5	1.5
FTSE/JSE Top 40 Net 15% Volatility Target Excess Return Index	0.95	13.51	0.98	34.31	120	5	1.5
FTSE/JSE Top 40 Net 20% Volatility Target Excess Return Index	0.95	13.51	0.98	34.31	120	5	1.5

## Appendix E

# Glossary

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### **Zar Jibar**

Official name:	South Africa Johannesburg Interbank Agreed Rate
Source:	South African Futures Exchange (SAFEX)
Quote type:	Yield/Ask
Currency:	South African Rand (ZAR)
Day count basis:	Act/365
Fix time:	10:30am Johannesburg time

## Appendix F

# Further information

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A glossary of terms used in FTSE Russell's Ground Rule documents can be found through the following link:

[Glossary.pdf](#)

Further information on the FTSE Volatility Target Indices is available from FTSE Russell.

For contact details, please visit the FTSE Russell website or contact FTSE Russell client services at [info@ftserussell.com](mailto:info@ftserussell.com).

**Website:** [www.lseg.com/en/ftse-russell/](http://www.lseg.com/en/ftse-russell/)



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