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# **FTSE UK DC Benchmark Series**

v1.5

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## Section 1

# Introduction

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### 1.0 Introduction

- 1.1 This document sets out the Ground Rules for the FTSE UK DC Benchmark Series calculated by FTSE International Limited (“FTSE”). Copies of these Ground Rules are available from FTSE Russell.
- 1.2 The FTSE UK DC Benchmark Series was developed in collaboration with Elston Consulting as a benchmark for use by pension funds at differing points of maturity in their life cycle.
- 1.3 The FTSE UK DC Benchmark Series progressively alters a target asset allocation to a risk asset class (global equities) and a risk free real income generating asset class (UK Index Linked Gilts). Each asset class is represented by a corresponding Reference Index.
- 1.4 These Ground Rules should be read in conjunction with the Ground Rules of each reference index. The FTSE UK DC Benchmark Series consists of the following Reference index series:
- FTSE All-World Index - FTSE Global Equity Index Series;
  - FTSE Actuaries UK Index Linked Gilts Index - FTSE Actuaries Gilt Index Series;
- Ground Rules are available at [www.ftserussell.com](http://www.ftserussell.com)
- 1.5 The FTSE UK DC Benchmark Series is calculated in GBP.
- 1.6 A Total Return Index will be calculated on an end of day basis only, based on the Total Return Value of each reference index.
- 1.7 The list of indexes included in FTSE UK DC Benchmark Series as of July 2015 is:
- FTSE UK DC 100% Benchmark Series
- FTSE UK DC 100% Benchmark 2010
  - FTSE UK DC 100% Benchmark 2015
  - FTSE UK DC 100% Benchmark 2020
  - FTSE UK DC 100% Benchmark 2025
  - FTSE UK DC 100% Benchmark 2030
  - FTSE UK DC 100% Benchmark 2035
  - FTSE UK DC 100% Benchmark 2040
  - FTSE UK DC 100% Benchmark 2045
  - FTSE UK DC 100% Benchmark 2050
  - FTSE UK DC 100% Benchmark 2055

- FTSE UK DC 100% Benchmark 2060

#### FTSE UK DC 80% Benchmark Series

- FTSE UK DC 80% Benchmark 2010
- FTSE UK DC 80% Benchmark 2015
- FTSE UK DC 80% Benchmark 2020
- FTSE UK DC 80% Benchmark 2025
- FTSE UK DC 80% Benchmark 2030
- FTSE UK DC 80% Benchmark 2035
- FTSE UK DC 80% Benchmark 2040
- FTSE UK DC 80% Benchmark 2045
- FTSE UK DC 80% Benchmark 2050
- FTSE UK DC 80% Benchmark 2055
- FTSE UK DC 80% Benchmark 2060

#### FTSE UK DC 60% Benchmark Series

- FTSE UK DC 60% Benchmark 2010
- FTSE UK DC 60% Benchmark 2015
- FTSE UK DC 60% Benchmark 2020
- FTSE UK DC 60% Benchmark 2025
- FTSE UK DC 60% Benchmark 2030
- FTSE UK DC 60% Benchmark 2035
- FTSE UK DC 60% Benchmark 2040
- FTSE UK DC 60% Benchmark 2045
- FTSE UK DC 60% Benchmark 2050
- FTSE UK DC 60% Benchmark 2055
- FTSE UK DC 60% Benchmark 2060

### 1.8 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 MTSNext Limited), Mergent, Inc., FTSE Fixed Income LLC and The Yield Book Inc.

1.9 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.

1.10 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 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 errors or 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 errors or inaccuracies in the compilation of the index series or any constituent data.



## Section 2

# Management Responsibilities

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### **2.0 Management Responsibilities**

#### **2.1 FTSE International Limited (FTSE)**

2.1.1 FTSE is the benchmark administrator.

2.1.2 FTSE is responsible for the daily calculation, production and operation of the FTSE UK DC Benchmark Series and will:

- carry out the periodic index reviews of the index and apply the changes resulting from the reviews as required by the Ground Rules;
- changes to reference index weightings will be made by FTSE in accordance with the Ground Rules;
- publish changes to the Reference Index weightings resulting from their ongoing maintenance and the periodic reviews;
- disseminate the indexes..

#### **2.2 Elston Consulting**

2.2.1 Elston Consulting is an investment research and advisory firm based in London, UK specialising in asset allocation strategy as well as product development for asset managers and intermediaries. For more information, see [www.elstonconsulting.co.uk](http://www.elstonconsulting.co.uk).

#### **2.3 Status of Ground Rules**

2.3.1 These Ground Rules are a guide to the policies and procedures applying at the date of publication to the operation and maintenance of the FTSE UK DC Benchmark Series.

#### **2.4 Amendments to These Ground Rules**

2.4.1 These Ground Rules 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 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 Product Governance Board before approval is granted.



## Section 3

# FTSE Russell Index Policies

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### 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, Complaints and Appeals

- 3.1.1 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 indexes from different organisations acting in their professional capacity may appeal against decisions taken by FTSE Russell.

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

[Benchmark Determination Complaints Handling Policy.pdf](#)

FTSE Russell's Appeal Process can be accessed using the following link:

[Appeals Against Decisions.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 FTSE UK DC Benchmark Series is recalculated whenever errors or distortions occur that are deemed to be significant, including, but not limited to, weighting errors or recalculations of the reference indexes. Users of the FTSE UK DC Benchmark Series are 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 using the link below or by contacting [info@ftserussell.com](mailto: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

# Eligible Asset Classes

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### 4.0 Eligible Asset Classes

#### 4.1 Reference Indexes

4.1.1 The FTSE UK DC Benchmark Series consists of a risk asset class (global equities) and a risk free real income generating asset class (UK Index Linked Gilts). Each asset class is represented by a corresponding reference index.

4.1.2 The reference indexes in the FTSE UK DC Benchmark Series are:

- Global Equities: FTSE All-World Index, Total Return, GBP denominated
- UK Index Linked Gilts: FTSE Actuaries Government Securities Index-Linked All Stocks, Total Return, GBP denominated

4.1.3 Unless stated in these rules, all aspects of the management of the reference indexes are as described in the relevant index series Ground Rules, namely the FTSE Global Equity Index Series Ground Rules and FTSE Actuaries UK Gilts Index Series Ground Rules.



## Section 5

# Index Construction

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### 5.0 Index Construction

#### 5.1 Index Structure

5.1.1 Each FTSE UK DC Benchmark index is defined by two properties: the Glide Path and Target Date. A family of indexes may be generated for each Glide Path with different Target Dates, reflecting a common asset allocation, but differing expected retirement dates of hypothetical scheme members.

5.1.2 The index series consists of three asset allocation profiles, known as Glide Paths. Eleven different target date horizons are monitored for each Glide Path.

5.1.3 Each target date horizon spans a period of 55 years and consists of three distinct phases:

- A 25-year pre-retirement phase during which a full Allocation Profile is made to the risk asset class (global equities).
- A 20-year de-risking phase during which the Allocation Profile to the risk asset class (global equities) is reduced to zero, with a corresponding increase to the risk free income generating asset class (UK Index Linked Gilts ) – the Glide Path.
- A 10-year post-retirement phase during which the allocation to the risk free income generating asset class (UK Index Linked Gilts) is 100%.

#### 5.2 Glide Paths for Differing Risk Preferences

5.2.1 The Maximum 100% Equity Glide Path consists of a 100% allocation to the risk asset class (global equities) during the 25-year pre-retirement period.

5.2.2 The Maximum 80% Equity Glide Path consists of an 80% allocation to the risk asset class (global equities) during the 25-year pre-retirement period.

5.2.3 The Maximum 60% Equity Glide Path consists of a 60% allocation to the risk asset class (global equities) during the 25-year pre-retirement period.

5.2.4 Each Glide Path, defines the asset allocation mix through time.

5.2.5 Each Glide Path has the following characteristics:

- An asset allocation to two reference indexes representing the risk and risk free income generating asset classes respectively.

A life span of 55 years consisting of three phases; a 25-year pre-retirement phase (T-45 years to T-20 years); a 20-year de-risking phase (T-20 years to T=0) and a 10-year post-retirement

phase (T=0 to T+9). The Target Date of each Glide Path is defined to coincide with an expected retirement date (or 'target date') at T=0.

- Asset allocation weights are defined for each Reference Index (asset class) for each annual period running from the 1 July to 30 June of each year between T-45 and T+9 of the Glide Path.

5.2.6 The post-retirement phase of 10 years from T+0 to T+9 runs from 1-Jul of the Year T+0 to 30-June of T+9.

Assuming the retirement date of 30-June-2005 the post-retirement phase will be

Year	Period
T+0	01-Jul-2005 to 30-Jun-2006
T+1	01-Jul-2006 to 30-Jun-2007
T+2	01-Jul-2007 to 30-Jun-2008
T+3	01-Jul-2008 to 30-Jun-2009
T+4	01-Jul-2009 to 30-Jun-2010
T+5	01-Jul-2010 to 30-Jun-2011
T+6	01-Jul-2011 to 30-Jun-2012
T+7	01-Jul-2012 to 30-Jun-2013
T+8	01-Jul-2013 to 30-Jun-2014
T+9	01-Jul-2014 to 30-Jun-2015

5.2.7 As of July 2015, the FTSE UK DC Benchmark Series indexes with the following Target and Maturity dates exist for each Glide Path:

5.2.8 FTSE UK DC 100% Benchmark Series

	Target Date (T=0)	Maturity Date
FTSE UK DC 100% Benchmark 2010	30 June 2010	30 June 2020
FTSE UK DC 100% Benchmark 2015	30 June 2015	30 June 2025
FTSE UK DC 100% Benchmark 2020	30 June 2020	30 June 2030
FTSE UK DC 100% Benchmark 2025	30 June 2025	30 June 2035
FTSE UK DC 100% Benchmark 2030	30 June 2030	30 June 2040
FTSE UK DC 100% Benchmark 2035	30 June 2035	30 June 2045
FTSE UK DC 100% Benchmark 2040	30 June 2040	30 June 2050
FTSE UK DC 100% Benchmark 2045	30 June 2045	30 June 2055
FTSE UK DC 100% Benchmark 2050	30 June 2050	30 June 2060
FTSE UK DC 100% Benchmark 2055	30 June 2055	30 June 2065
FTSE UK DC 100% Benchmark 2060	30 June 2060	30 June 2070

5.2.9 FTSE UK DC 80% Benchmark Series

	Target Date (T=0)	Maturity Date
FTSE UK DC 80% Benchmark 2010	30 June 2010	30 June 2020
FTSE UK DC 80% Benchmark 2015	30 June 2015	30 June 2025
FTSE UK DC 80% Benchmark 2020	30 June 2020	30 June 2030
FTSE UK DC 80% Benchmark 2025	30 June 2025	30 June 2035
FTSE UK DC 80% Benchmark 2030	30 June 2030	30 June 2040

	Target Date (T=0)	Maturity Date
FTSE UK DC 80% Benchmark 2035	30 June 2035	30 June 2045
FTSE UK DC 80% Benchmark 2040	30 June 2040	30 June 2050
FTSE UK DC 80% Benchmark 2045	30 June 2045	30 June 2055
FTSE UK DC 80% Benchmark 2050	30 June 2050	30 June 2060
FTSE UK DC 80% Benchmark 2055	30 June 2055	30 June 2065
FTSE UK DC 80% Benchmark 2060	30 June 2060	30 June 2070

#### 5.2.10 FTSE UK DC 60% Benchmark Series

	Target Date (T=0)	Maturity Date
FTSE UK DC 60% Benchmark 2010	30 June 2010	30 June 2020
FTSE UK DC 60% Benchmark 2015	30 June 2015	30 June 2025
FTSE UK DC 60% Benchmark 2020	30 June 2020	30 June 2030
FTSE UK DC 60% Benchmark 2025	30 June 2025	30 June 2035
FTSE UK DC 60% Benchmark 2030	30 June 2030	30 June 2040
FTSE UK DC 60% Benchmark 2035	30 June 2035	30 June 2045
FTSE UK DC 60% Benchmark 2040	30 June 2040	30 June 2050
FTSE UK DC 60% Benchmark 2045	30 June 2045	30 June 2055
FTSE UK DC 60% Benchmark 2050	30 June 2050	30 June 2060
FTSE UK DC 60% Benchmark 2055	30 June 2055	30 June 2065
FTSE UK DC 60% Benchmark 2060	30 June 2060	30 June 2070

### 5.3 Target Date, Maturity Date and New Indexes

- 5.3.1 The Target Date associated with each index coincides with the end of the de-risking phase, at which point each index consists of a 100% allocation to the risk free real income generating asset. The Target Date is not the Maturity Date.
- 5.3.2 The Maturity Date of each index is 10 years after the relevant Target Date, at which point the index is dis-continued.
- 5.3.3 The life span of each index is 55 years consisting of a 25-year pre-retirement phase (T-45 years to T-20 years), a 20-year de-risking phase (T-20 years to T=0) and a 10-year post-retirement phase (T=0 to T+9). The Target Date of each Glide Path is defined to coincide with retirement at T=0.
- 5.3.4 A new FTSE UK DC Benchmark index for each Glide Path is initiated every five years on the 30 June to replace the maturing index. For example, on the 30 June 2015, FTSE UK DC Benchmark indexes with the target date of 30 June 2060 and maturity date of 30 June 2070 is initiated to replace the FTSE UK DC Benchmark indexes with the target date of 30 June 2005 and the maturity date of 30 June 2015.



## Section 6

# Periodic Review

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### **6.0 Periodic Review**

#### **6.1 Rebalance**

- 6.1.1 Each index in the index series is rebalanced on the last business day of each month to the monthly interpolated asset allocation weights derived from the relevant Index Glide Path as detailed in Rule 5.2.
- 6.1.2 Changes to the asset allocation weights will be published after the close of business on the last working day of the month and are effective from the market open on the next business day.

#### **6.2 Glide Path Interpolation**

- 6.2.1 The annual asset allocation weights as of 30 June each year define each Glide Path. Annual weights are linearly interpolated to derive a set of monthly asset allocation weights for each twelve-month period between the 1 July and 30 June each year.

6.2.2 Table 1 illustrates the derivation of the monthly asset allocation weights.

Glide Path Time	Calendar	Annual Asset Allocation (%)		Monthly Asset Allocation (%)	
		Equity	Index Linked	Equity	Index Linked
T-21	30 June 2013	100.0	0.0	100.0	0.0
	31 July 2013			100.0	0.0
	31 August 2013			100.0	0.0
	30 Sept 2013			100.0	0.0
	31 October 2013			100.0	0.0
	30 November 2013			100.0	0.0
	31 December 2013			100.0	0.0
	31 January 2014			100.0	0.0
	28 February 2014			100.0	0.0
	31 March 2014			100.0	0.0
	30 April 2014			100.0	0.0
	31 May 2014			100.0	0.0
	T-20	30 June 2014	95.00	5.00	100.0
31 July 2014				99.58	0.42
31 August 2014				99.17	0.83
30 September 2014				98.75	1.25
31 October 2014				98.33	1.67
30 November 2014				97.92	2.08
31 December 2014				97.50	2.50
31 January 2015				97.08	2.92
28 February 2015				96.67	3.33
31 March 2015				96.25	3.75
30 April 2015				95.83	4.17
31 May 2015				95.42	4.58
T-19		30 June 2015	90.00	10.00	95.00

6.2.3 Asset allocation weights are derived using the following formula:

$$MAX \left[ 0, MIN \left( A_m \%, \frac{Months\ to\ Target\ Date}{240} * A_m \% \right) \right]$$

where,

A<sub>m</sub>% is the Maximum weight of the risk asset which can be either 100%, 80% or 60% based on the Glide Path

6.2.4 The annual asset allocation mix through time for each of the three Glide Paths is shown in Appendix A.

Section 7

# Index Calculation Methodology

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## 7.0 Index Calculation Methodology

7.1 The FTSE UK DC Benchmark indexes are calculated on an end of day basis.

7.2 The FTSE UK DC Benchmark indexes are calculated using the following formula:

$$TRI_t = TRI_{t-1} \times \sum_{i=1}^2 [w_{i,t-1} \times (1+r_{i,t})]$$

where

- $TRI_t$  is the Total Return Index on day t
- $r_{i,t}$  is the GBP denominated total return of reference index i on day t
- $w_{i,t-1}$  is the asset allocation weight of reference index i at the close of day t-1

where

$$w_{i,t} = \begin{cases} w_{i,t}^{\#} & \text{if t+1 is an asset allocation weight review effective day} \\ \frac{w_{i,t-1} \times (1+r_{i,t})}{\frac{TRI_t}{TRI_{t-1}}} & \text{if t+1 is not an asset allocation weight review effective day} \end{cases}$$

$w_{i,t-1}$  is the asset allocation review weight of reference index i, effective at the open on day t+1.



## Appendix A: Glide Paths

### FTSE UK DC Benchmark Series – 100% Maximum Equity Glide Path

	FTSE All-World Index	FTSE Actuaries Government Securities UK Index Linked Index
T-45 to T-20	100%	0%
T-19	95%	5%
T-18	90%	10%
T-17	85%	15%
T-16	80%	20%
T-15	75%	25%
T-14	70%	30%
T-13	65%	35%
T-12	60%	40%
T-11	55%	45%
T-10	50%	50%
T-9	45%	55%
T-8	40%	60%
T-7	35%	65%
T-6	30%	70%
T-5	25%	75%
T-4	20%	80%
T-3	15%	85%
T-2	10%	90%
T-1	5%	95%
T=0 (Target Date)	0%	100%
T+1 to T+9	0%	100%

### FTSE UK DC Benchmark Series – 80% Maximum Equity Glide Path

	FTSE All-World Index	FTSE Actuaries Government Securities UK Index Linked Index
T-45 to T-20	80%	20%
T-19	76%	24%
T-18	72%	28%
T-17	68%	32%
T-16	64%	36%
T-15	60%	40%
T-14	56%	44%
T-13	52%	48%
T-12	48%	52%
T-11	44%	56%
T-10	40%	60%
T-9	36%	64%
T-8	32%	68%
T-7	28%	72%
T-6	24%	76%
T-5	20%	80%
T-4	16%	84%
T-3	12%	88%
T-2	8%	92%
T-1	4%	96%
T=0 (Target Date)	0%	100%
T+1 to T+9	0%	100%

### FTSE UK DC Benchmark Series – 60% Maximum Equity Glide Path

	FTSE All-World Index	FTSE Actuaries Government Securities UK Index Linked Index
T-45 to T-20	60%	40%
T-19	57%	43%
T-18	54%	46%
T-17	51%	49%
T-16	48%	52%
T-15	45%	55%
T-14	42%	58%
T-13	39%	61%
T-12	36%	64%
T-11	33%	67%
T-10	30%	70%
T-9	27%	73%
T-8	24%	76%
T-7	21%	79%
T-6	18%	82%
T-5	15%	85%
T-4	12%	88%
T-3	9%	91%
T-2	6%	94%
T-1	3%	97%
T=0 (Target Date)	0%	100%
T+1 to T+9	0%	100%





## Appendix B: Further Information

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

[Glossary.pdf](#)

Further information on the FTSE UK DC Benchmark Series 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.ftserussell.com](http://www.ftserussell.com)

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