Index Insight

FTSE Actuaries UK Gilts Index Series

FTSE Russell

It is now a year since Tradeweb and FTSE Russell assumed responsibility for the publication of end-of-day Gilt reference prices. These prices form the basis of the FTSE Actuaries UK Gilts Index Series, one of the financial industry's most widely used set of benchmarks for the UK government bond market.

For example of the eleven ETFs listed on the London Stock Exchange that follow gilt bond benchmarks, five use the FTSE Actuaries UK Gilt indexes, including the two largest which constitute a total size of £2.8 billion.[1] In all, the five ETFs make up £3.3 billion or 68% of the aggregated size of the eleven funds.

In the following pages this paper provides an overview of the Index Series, discusses the types of gilts available in the market, provides some historical context by explaining the growth of the gilt market, explains the gilt issuance process and market appetite, explains the methodology of the fitted daily yield curves and the governance and oversight of the Index Series.

Index Series Overview

As with all FTSE Russell indexes, the FTSE Actuaries UK Gilts Index Series benefits from using the highest quality prices. Throughout its history the Index Series has taken the official end-of-day gilt reference prices as the basis for its valuation. Until July 2017 these prices were published by the UK Debt Management Office (DMO). Responsibility for producing these prices then transferred to Tradeweb, which today produces the reference prices under the oversight of FTSE Russell.

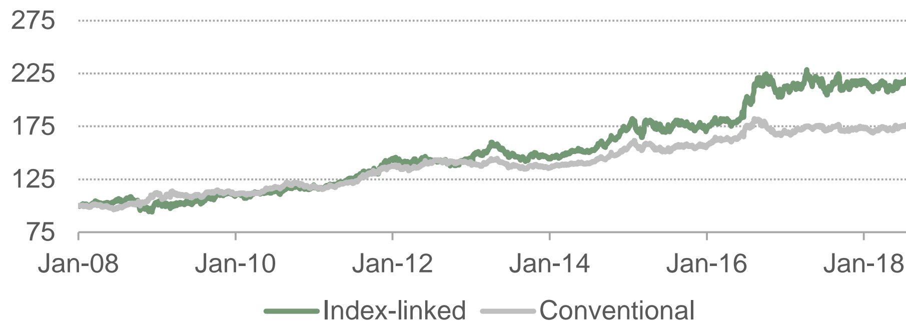
The Index Series is one of the most widely used benchmarks of the UK gilt market and uses official end-of-day reference prices.

The Tradeweb FTSE Gilt Closing Prices are based on executable quotations from UK Gilt market makers published on the Tradeweb system which have been collected over a two-minute window centred on the notional market close of 4.15pm each day. Tradeweb and FTSE Russell are similarly responsible for the reference prices of UK government strips and UK Treasury bills.

[1] Source: Morningstar, July 2018

Chart 1. Gilt market performance - January 2008 to July 2018

Index level, rebased to 100 on January 2, 2008



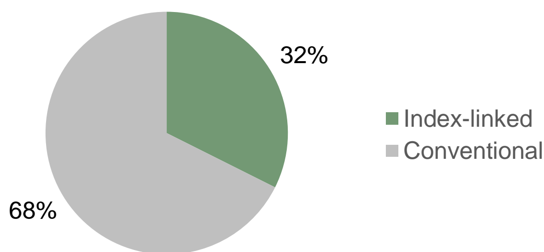
Source: FTSE Russell as at July 2018. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

Types Of Gilts

The majority of the market is made up of conventional gilts – fixed-interest bonds paying a coupon every six months. Currently gilt maturities at issue range from 2 to 55 years – a record maturity among existing bonds. As of late July 2018, there were 44 conventional gilts outstanding and 30 index-linked gilts. The relative sizes of the two markets has remained steady over recent years, with the conventional market size representing about 2.2 times that of the index-linked market.

The relative sizes of the conventional and index-linked gilt markets have remained stable in recent years.

Chart 2. Market Size Breakdown – July 2018



Source: FTSE Russell, UK Debt Management Office

Index-linked gilts were first issued in the UK in the early 1980s, with coupons paid every six months based on the previous eight-month value of the RPI (Retail Price Index). However since 2005 index-linked gilts have been issued with a three-month time lag, in line with inflation-linked markets of some other countries such as Canada. Of the 30 index-linked gilts in circulation at the end of July 2018, only four remain with an eight-month time lag. Whether the lag is three or eight months, the future value of an index-linked bond will depend on how the rate of inflation evolves. As a result, FTSE Russell assumes illustrative constant annual inflation rates of 0%, 3% and 5% when it publishes the yields and durations for its index-linked gilts.

In 2011 the DMO launched a consultation on the market's appetite for issuing gilts linked to the Consumer Price Index (CPI) rather than the Retail Price Index. At the time it was decided not to issue CPI-linked gilts due to uncertainty over demand and cost-effectiveness, but the possibility of re-examining this issue in the medium or long-term was left open.

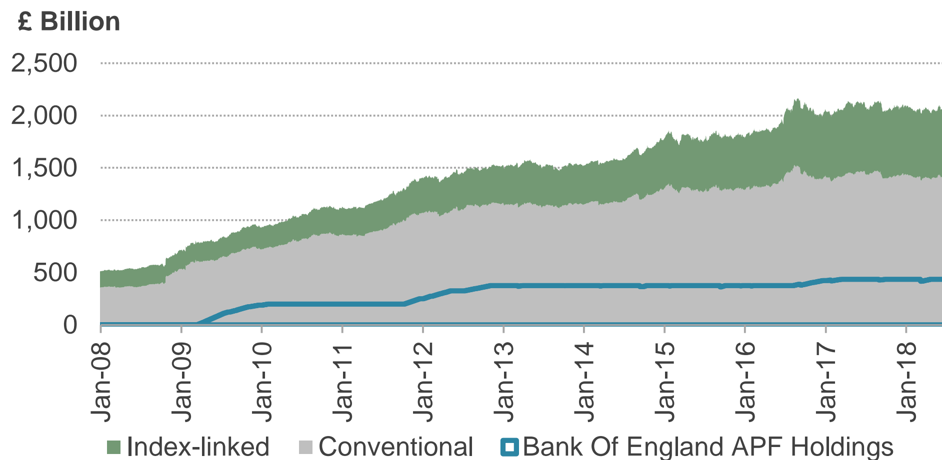
"Rump" gilts are excluded from the FTSE Russell indexes due to illiquidity. These are conventional gilts whose amount outstanding has been reduced below £850 million, usually as a result of a voluntary buyback program instigated by the DMO. Today there are no such gilts in existence. The last perpetual, or "undated" gilt was called in 2015 and the last time a perpetual gilt was issued was in 1946.

The Growth Of The Gilt Market

The UK gilt market is the sixth largest of the world's major domestic fixed-rate government bond markets, and the longest in duration.

The conventional gilt market is the world's sixth largest domestic fixed-rate government bond market. The FTSE Actuaries UK Gilt Index Series includes all liquid conventional gilts but also encompasses UK index-linked bonds. In addition, there are 20 other standard sub-indexes which show the performance of different maturity sub-sectors. As the indexes rebalance daily, newly-issued bonds enter the index at close-of-business on the day of issue. Bonds are held to maturity – unlike many other indexes a bond is not excluded in the final year of its life. The indexes follow the market convention of T+1 settlement, therefore maturing bonds leave the index at close-of-business on the final business day prior to maturity.

Chart 3. The growth in the size of the gilt market since 2008



Source: FTSE Russell, Bank of England as at July 2018.

The size of the gilt market has grown considerably since the financial crisis. In the ten years from January 2008 to July 2018, the value of the conventional and index-linked markets grew from £514 billion to £2,077 billion – an increase of some 304%. (In the same period, UK GDP grew by about 11%.)

Today, the Bank of England (BoE) is the largest holder of gilts. Since the introduction of quantitative easing (QE) shortly after the global financial crisis, the gilt holdings (as part of the "Asset Purchase Facility" through which QE is

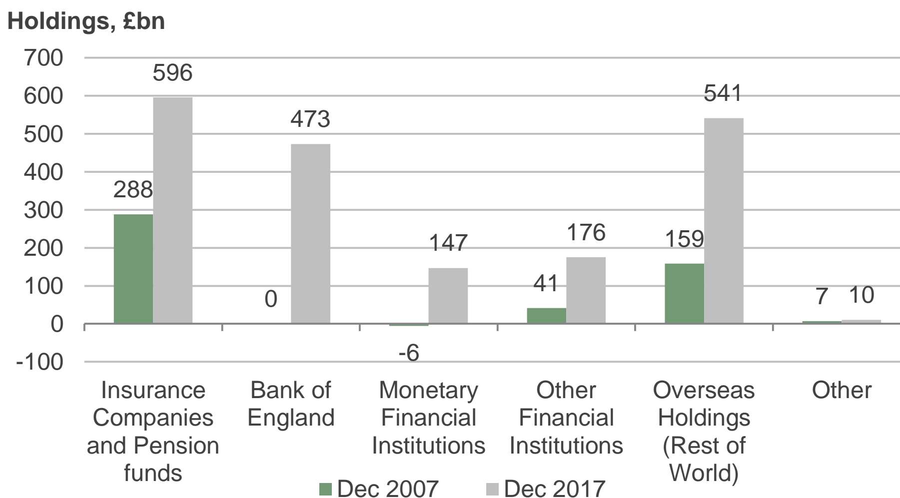
implemented) have grown from zero to £435 billion in July 2018. In the wake of the financial crisis, the BoE bought gilts and smaller amounts of other bonds to drive down yields and create greater incentives for money to be utilised in ways which would stimulate the economy and drive inflation towards the Bank's target rate of 2%. In February 2017 inflation rose above the 2% target reaching an inflation level of 2.8% in the autumn of that year.

Still, the BoE has not reduced its gilt holdings due to concerns over the fragility of markets, particularly over the terms of Brexit. Instead the BoE has indicated by its actions its preference to use interest rates to manage inflation and increased the bank rate by 25 basis points to 0.5% in November 2017. Potentially three further rises expected by the market are mentioned in the Bank's Inflation Report of May 2018, which would take the rate to an estimated 1.25% in 2021.

Besides the Bank of England, there are other large holders of gilts. Life insurance companies and pension funds are keen buyers of index-linked bonds as they seek protection against inflation risks, and also of long-dated conventional gilts, whose cashflows would be used to meet their long-term liabilities.

An ageing population coupled with increasing life expectancy points to a sustained long-term future demand for such assets. One consequence of this is that the duration of the gilt market (currently at over 11 years) has become the longest of all major government bond markets.

Chart 4. Holdings of gilts: par value by sector, Dec 2007 v. Dec 2017



Source: UK Debt Management Office as at December 2017.

Gilt Issuance

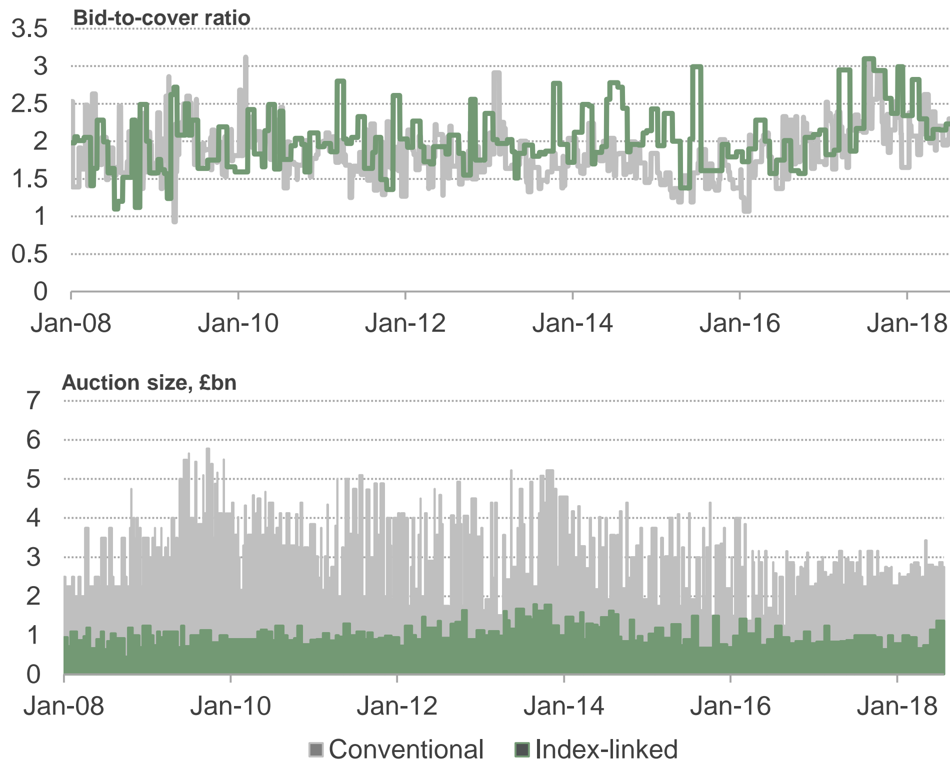
Each March the DMO publishes an annual issuance calendar for conventional and index-linked gilts. For most months in 2017 and each month in 2018 to date[2], three conventional gilts and one index-linked gilt have been issued. Average issue sizes have been £2.6bn for conventional gilts and £0.9bn for index-linked.

The market maintains a healthy appetite for new gilts but there are risks this could change in extreme circumstances.

[2] July 2018.

In January 2016 the £4bn auction of a 5-year gilt was over-subscribed by only 7%, the lowest figure since shortly after the financial crisis. The Financial Times[3] ascribed this low number to volatility in global markets. In the following months the "bid-to-cover" ratio at auctions of both conventional and index-linked gilts trended upwards to a high of 3.1 in July 2017 (i.e. an over-subscription of 210%). Since then the ratio has fallen to a value typically between 2 and 2.5.

Chart 5. Auction size and bid-to-cover ratio, January 2008 – July 2018



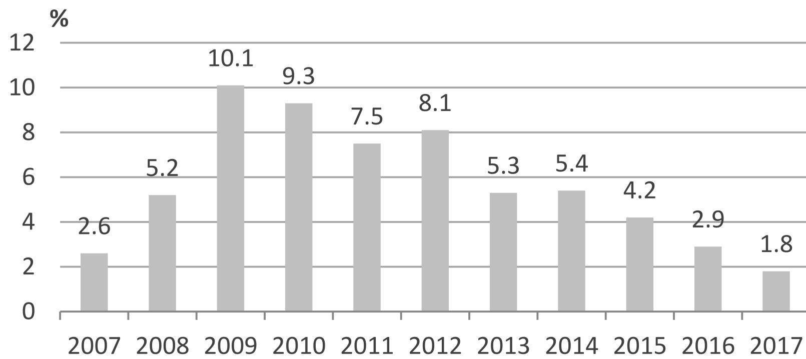
Source: UK Debt Management Office as at July 2018.

The market seems to be showing no loss of appetite for gilt issuance, according to the Financial Times, which remarked on the lack of impact on yields when the Chancellor announced a £59 billion increase in gilt issuance over five years in his November 2017 budget statement[4]. However, the FT added that the situation could change. It explained that the opposition Labour party could greatly extend public spending should it gains power. If this were to occur against a backdrop of a 'hard' or 'no-deal' Brexit accompanied by fears of rising inflation and of the budget deficit climbing back towards the levels it reached following the 2008 crash (see Chart 6 below), then the risk of falling demand for gilts would likely increase.

[3] Source: Financial Times, January 20, 2016 https://www.ft.com/content/30f6e9af-7471-357a-84c5-d67b8a17edc7

[4] Source: Financial Times, January 9, 2018 https://www.ft.com/content/2130f4d6-ebef-11e7-bd17-521324c81e23

Chart 6. Net borrowing as a percentage of GDP, by calendar year



Source: Office for National Statistics as at July 2018.

A much smaller risk to demand levels could arise if the BOE were to unwind its gilt holdings(accumulated through QE) at a greater pace than the market could comfortably absorb.

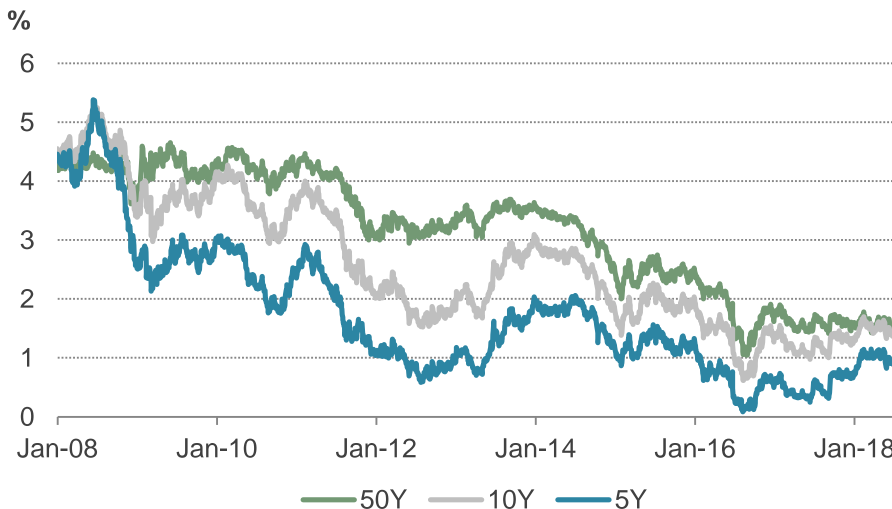
As the FTSE Actuaries UK Gilt indexes rebalance daily and new gilts and taps – new issuance of existing gilts – enter the indexes at close-of-business on the day of auction/syndication, the indexes always represent a timely and up-to-date record of the state of the market.

Daily Yield Curves

Fitted yield curves are calculated and published daily.

FTSE Russell produces a daily yield curve for the conventional market which is published in the Financial Times. The methodology used in calculating the curves was formulated by the UK Institute of Actuaries, in common with other measures of value used in the index series. The index yield is derived from breaking each gilt into its component cashflows, rather than following the usual practice of calculating a weighted average yield of individual securities. Data from the model can be used to show the secular fall in yields since the 2008 crisis to the time of the interest rate rise at the end of 2017.

Chart 7. FTSE model gilt yields, January 2008 – July 2018



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Governance and Regulatory Considerations

In these days of heightened scrutiny it is important to index users that their chosen benchmarks are compliant with market regulations. FTSE International Limited is authorised as a benchmark administrator under the European benchmark regulation and is regulated by the FCA.

The FTSE Actuaries UK Gilts Index Series is designed to meet the requirements of EU benchmark regulation and meet the standards set out in the IOSCO Principles. The production of the Index Series is overseen internally and by an advisory committee of external market stakeholders, including representatives from many large UK asset managers, which report to the FTSE Russell Product Governance Board.

The same committee is also responsible for overseeing the process by which Tradeweb provides the end-of-day gilt reference prices to the market. Representatives of Tradeweb and of the DMO attend meetings of the advisory committee as observers.

Index characteristics

	Maturity	-- 10y Annualised --			Yield	Mod Dur	Value	No. of
Index	**Years**	**Rtn**	**Vol**	**IR**	**%**	**Years**	**£ bn**	**Bonds**
Conventional								
BG01	< 5	2.23	1.73	1.29	0.83	2.43	424.1	13
BG02	5-15	5.22	5.82	0.90	1.32	7.84	358.8	12
BG03	> 15	7.96	11.80	0.67	1.66	19.69	620.9	19
BG05	ALL	5.19	6.55	0.79	1.55	11.65	1,403.8	44
BG06	5-10	4.86	5.16	0.94	1.18	6.59	226.0	8
BG07	10-15	6.23	7.66	0.81	1.48	9.89	132.8	4
BG08	< 15	3.67	3.60	1.02	1.19	4.94	782.9	25
BG09	< 20	4.04	4.27	0.95	1.31	5.93	885.1	28
BG0A	15-25	7.26	10.23	0.71	1.69	14.65	252.3	7
BG0B	> 25	8.46	13.20	0.64	1.65	23.16	368.6	12
BG0C	> 5	6.70	9.01	0.74	1.60	15.48	979.7	31
BG0D	> 10	7.65	10.96	0.70	1.64	18.00	753.7	23
Index-linked								
IL01	ALL	6.63	9.57	0.69	-1.59	22.68	670.6	30
IL02	< 5	2.23	2.94	0.76	-1.79	2.74	58.8	3
IL03	> 5	7.27	10.91	0.67	-1.59	24.55	611.8	27
IL04	5-15	4.92	7.15	0.69	-1.64	9.06	153.3	8
IL05	> 15	8.31	13.24	0.63	-1.58	29.63	458.6	19
IL06	15-25	6.44	10.01	0.64	-1.59	18.69	155.7	7
IL07	5-25	5.60	8.16	0.69	-1.61	13.95	309.0	15
IL08	> 25	9.35	15.73	0.59	-1.58	35.19	302.8	12
IL09	> 10	7.94	12.17	0.65	-1.59	27.42	523.9	23
IL10	< 15	4.09	5.44	0.75	-1.65	7.33	212.1	11

Source: FTSE Russell as at July 2018.Past performance is no guarantee of future results. Please see the end for important legal disclosure.

Notes

1. Return and volatility are % figures based on 120 monthly returns from July 2008 to June 2018
2. IL10 commenced Aug 2008: earlier performance estimated from IL01 and IL05
3. IR: Information Ratio = Return/Volatility
4. Values in four right-most columns as at close of business 26th July 2018
5. Index-linked yields and durations calculated

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email info@ftserussell.com;
or call your regional Client Service Team office:

EMEA
+44 (0) 20 7866 1810

North America
+1 877 503 6437

Asia-Pacific
Hong Kong +852 2164 3333
Tokyo +81 3 4563 6346
Sydney +61 (0) 2 8823 3521