



FTSE Pension Liability Index

The growing adoption of Liability Driven Investment (LDI) strategies in the pension funds world is evidence of plan sponsors' need to focus on liabilities and how these are impacted by changes in market factors such as rates and spreads. The FTSE Pension Liability Index reflects the discount rate that can be used to value liabilities for GAAP reporting purposes. Created in 1994, it is a trusted source for plan sponsors and actuaries to value defined-benefit pension liabilities in compliance with the SEC's and FASB's requirements on the establishment of a discount rate. The index also provides an investment performance benchmark for asset-liability management. By monitoring the index returns over time, investors can gauge changes in the value of pension liabilities.

The FTSE Pension Liability Index is derived from the FTSE Pension Discount Curve.

FTSE Pension Discount Curve

A set of yields on hypothetical AA zero coupon bonds whose maturities range from 6 months up to 30 years. The yields of the FTSE Pension Discount Curve are used to discount pension liabilities.

The FTSE Pension Discount Curve is calculated based on a universe of AA rated corporate bonds from the FTSE US Broad Investment-Grade Bond Index (USBIG®) and the yields of FTSE Russell's Treasury model curve.

FTSE Pension Liability Index

The FTSE Pension Liability Index represents the single discount rate that would produce the same present value as calculated by discounting a standardized set of liabilities using the FTSE Pension Discount Curve.

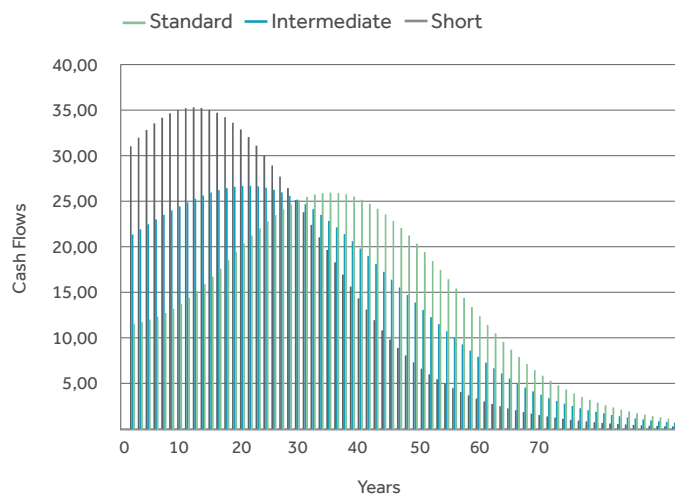
Along with the rate, monthly returns and durations for the FTSE Pension Liability Index liabilities are also made available.

A FAMILY OF INDEXES

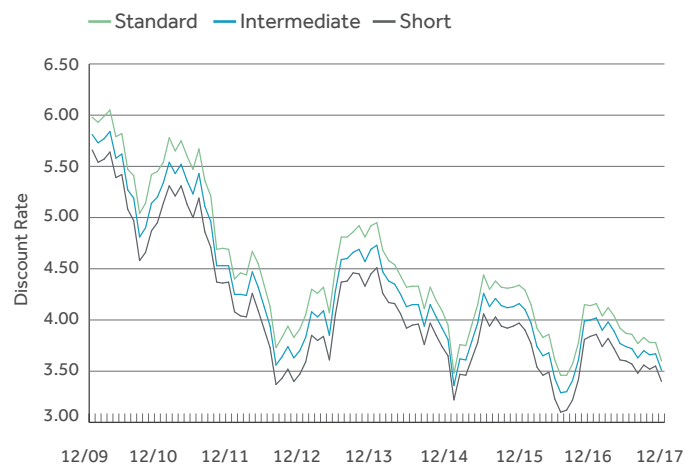
Rigorously adapting to the evolution of the pension world, with more pension plans closed to some or new entrants, the FTSE Pension Liability Index family was enlarged in 2010 with two additional discount rates calculated for pensions with shorter liabilities.

- Short FTSE Pension Liability Index: with a weighted average life (WAL) of 16.8 years, the index represents a fully-closed plan
- Intermediate FTSE Pension Liability Index: with a weighted average life (WAL) of 21.2 years, the index represents a plan that is closed to new entrants
- Standard FTSE Pension Liability Index: with a weighted average life (WAL) of 26.9 years, the index represents a fully-open plan

Relative liabilities used to calculate the three FTSE Pension Liability Indexes



The three FTSE Pension Liability Indexes through time



CASE STUDY USES OF FTSE PENSION DISCOUNT CURVE

Client: Pension Asset Manager

Objective: Attribute asset-liability performance to liability-specific factors

Our Solution: Liability returns are affected by factors that are specific to liability discounting methods. To better understand the impact of these factors on asset-liability performance differences, a set of custom pension discount curves is produced that enables the client to attribute the returns of their liabilities to market factors, carry, credit rating changes, and discount curve rules.

Client: Pension Asset Manager

Objective: Evaluate the impact of credit rating changes on liability returns

Our Solution: Rating drift, especially issuers downgrading out of double-A, is one of the many factors that can impact liability levels. To help the client isolate the impact of upgrades or downgrades, a custom discount curve is produced using ratings unchanged from the previous month and compared with the official pension discount curve.

Client: Pension LDI Advisor

Objective: Determine the timing of asset allocation changes for a glide-path strategy

Our Solution: In a glide-path strategy, pensions shift allocations from more return-seeking assets to more liability-hedging assets as they become better funded. There are funding level triggers at which the investment mix will change. By monitoring liability values on a daily basis, using the daily pension discount curves, pensions and their advisors will know when the trigger funding levels have been reached in order to adjust their investment mix accordingly.

Client: Pension Asset Manager

Objective: Evaluate the spread exposure of pension liabilities to issuers and sectors

Our Solution: Understanding the sensitivity of liabilities to spreads of issuers and the liability exposure to sectors is important to better management of asset portfolios. The bespoke analysis can determine the exact exposure of pension liabilities to industry sectors and each issuer in the universe of bonds used to generate the discount curve.

© 2018 London Stock Exchange Group plc and its applicable group undertakings (the "LSE Group"). The LSE Group includes (1) FTSE International Limited ("FTSE"), (2) Frank Russell Company ("Russell"), (3) FTSE TMX Global Debt Capital Markets Inc. and FTSE TMX Global Debt Capital Markets Limited (together, "FTSE TMX"), (4) MTSNext Limited ("MTSNext"), (5) Mergent, Inc. ("Mergent"), (6) FTSE Fixed Income LLC ("FTSE FI") and (7) The Yield Book Inc. ("YB"). All rights reserved.

FTSE Russell® is a trading name of FTSE, Russell, FTSE TMX and MTS Next. "FTSE®", "Russell®", "FTSE Russell®", "MTS®", "FTSE4Good®", "ICB®", "Mergent®", "WorldBIG®", "USBIG®", "EuroBIG®", "AusBIG®", "The Yield Book®" and all other trademarks and service marks used herein (whether registered or unregistered) are trade marks and/or service marks owned or licensed by the applicable member of the LSE Group or their respective licensors and are owned, or used under licence, by FTSE, Russell, MTSNext, FTSE TMX, Mergent, FTSE FI or YB. "TMX®" is a registered trademark of TSX Inc. FTSE International Limited is authorised and regulated by the Financial Conduct Authority as a benchmark administrator.

All information is provided for information purposes only. All information and data contained in this publication is obtained by the LSE Group, from sources believed by it to be accurate and reliable. Because of the possibility of human and mechanical error as well as other factors, however, such information and data is provided "as is" without warranty of any kind. No member of the LSE Group nor their respective directors, officers, employees, partners or licensors make any claim, prediction, warranty or representation whatsoever, expressly or impliedly, either as to the accuracy, timeliness, completeness, merchantability of any information or of results to be obtained from the use of the FTSE Russell Indexes or the fitness or suitability of the FTSE Russell Indexes for any particular purpose to which they might be put. Any representation of historical data accessible through FTSE Russell Indexes is provided for information purposes only and is not a reliable indicator of future performance.

No responsibility or liability can be accepted by any member of the LSE Group nor their respective directors, officers, employees, partners or licensors for (a) any loss or damage in whole or in part caused by, resulting from, or relating to any error (negligent or otherwise) or other circumstance involved in procuring, collecting, compiling, interpreting, analyzing, editing, transcribing, transmitting, communicating or delivering any such information or data or from use of this document or links to this document or (b) any direct, indirect, special, consequential or incidental damages whatsoever, even if any member of the LSE Group is advised in advance of the possibility of such damages, resulting from the use of, or inability to use, such information.

No member of the LSE Group nor their respective directors, officers, employees, partners or licensors provide investment advice and nothing contained in this document or accessible through FTSE Russell Indexes, including statistical data and industry reports, should be taken as constituting financial or investment advice or a financial promotion.

Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

No part of this information may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the applicable member of the LSE Group. Use and distribution of the LSE Group data requires a license from FTSE, Russell, FTSE TMX, MTSNext, Mergent, FTSE FI, YB and/or their respective licensors.