RiskSave

Liability-Driven Investment

An overview

@RiskSaveTech www.risksave.com

LDI with Dan Tammas-Hastings CFA

- Background in Fixed Income Risk Management
- Hedge Fund Manager – Structured Credit Exotics
- Interest Rate Trader/MarketMaker – Sterling Interest Rates
- FinTech Founder & CEO RiskSave -

<u>Author</u>

- **Liability Driven Investment**: Pensions, Regulation and RoboAdvice – Wiley Finance book on LDI published 2018.

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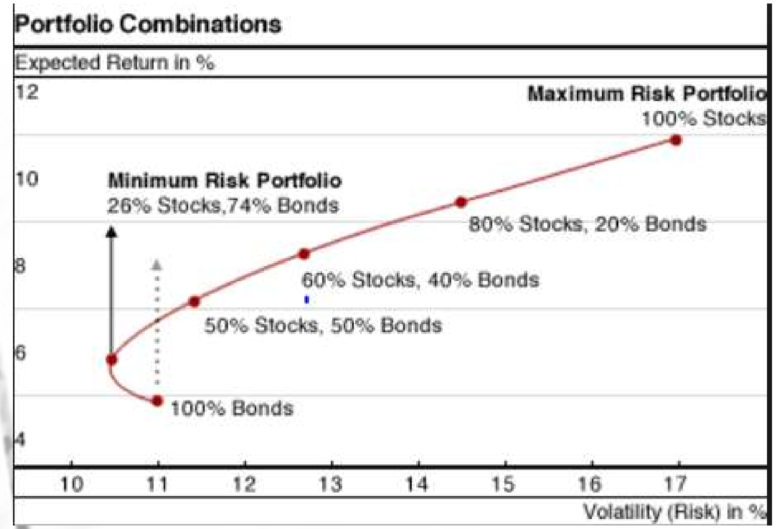
Liability Driven Investment Usage

- Large Pension Schemes: nearly total; 90%+
- Medium-Sized schemes: gaining traction; approx 50%
- Smaller schemes: SME schemes <£25mm, some pooled funds

- Personal Schemes, IFAs or Robo-Advisors: Essentially zero

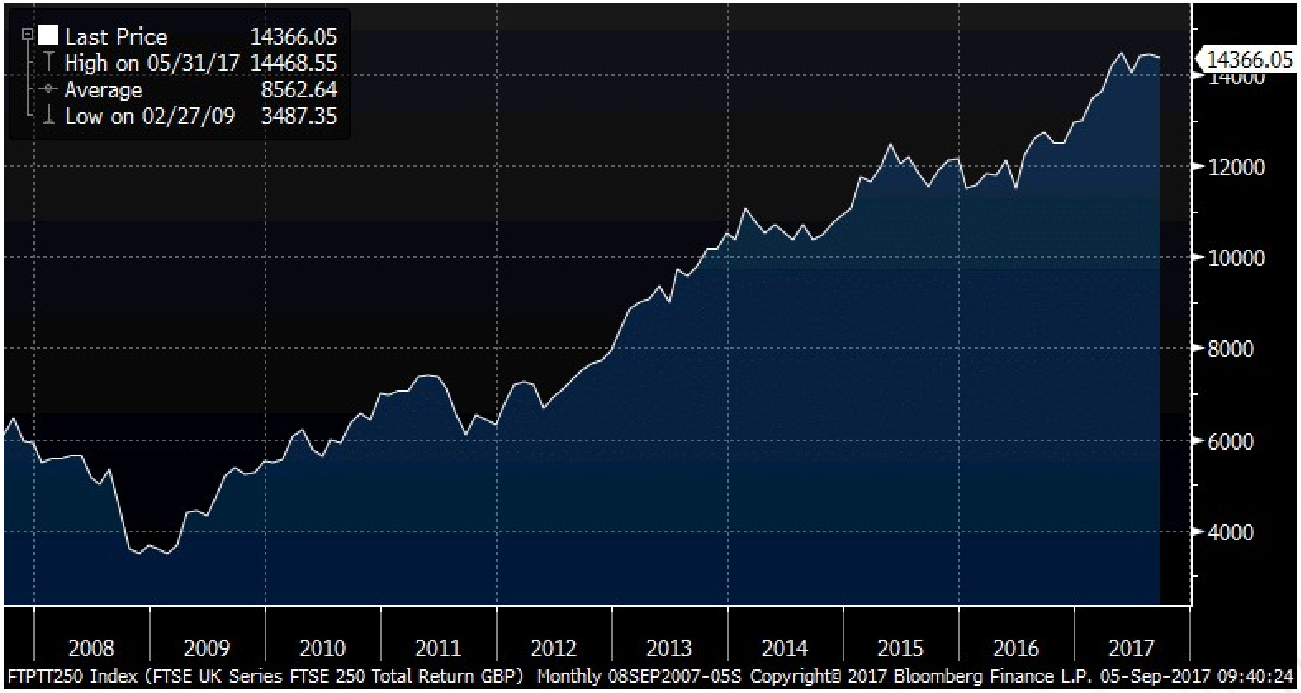
Modern Portfolio Theory (1952)



- Focuses only on Assets
- Problem is maximise assets given a risk budget
- Alternatively minimise risk for a desired return

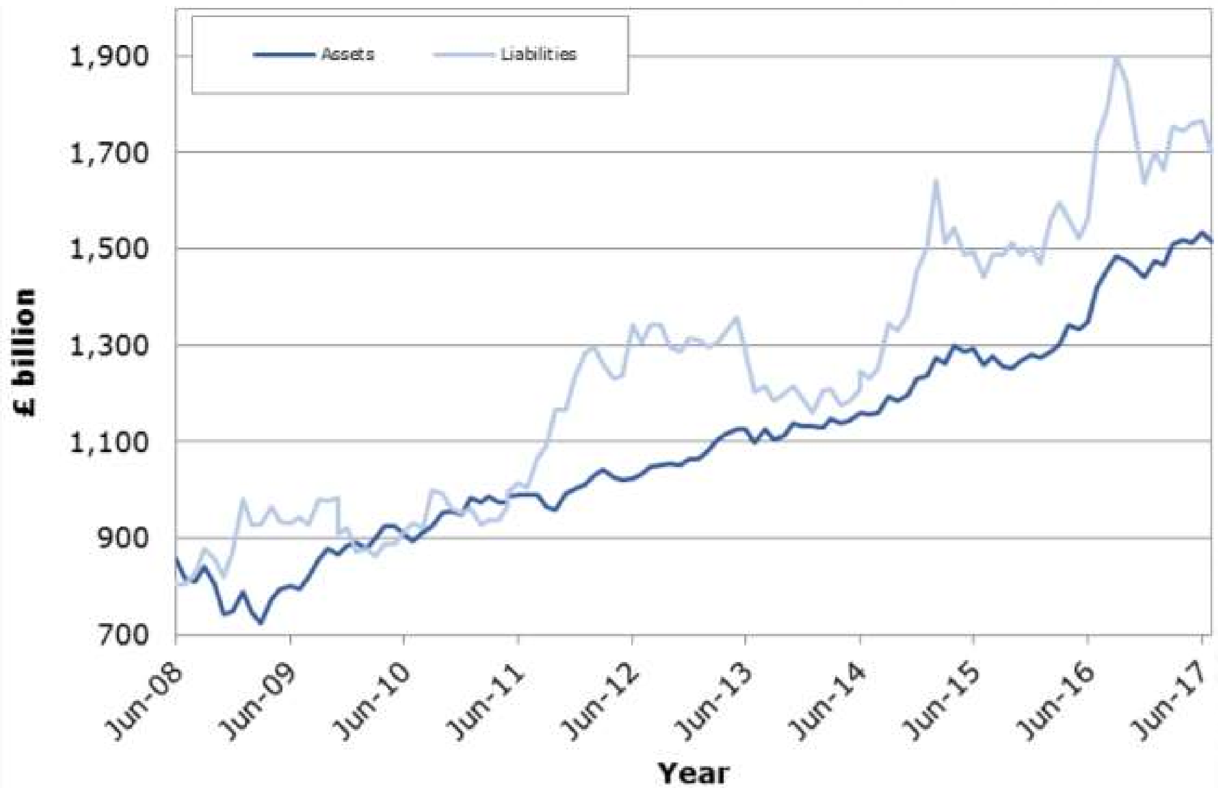
- Investors needs in the 1950s were very different
- Healthcare costs were lower
- Life expectancy at 65 has doubled
- MPT is 65, time for retirement!

Why not just buy Equity?



Here's Why!

UK Pension Protection Fund: Assets vs Liabilities



Goals

For a Pension Fund (DB)

The goal of a pension fund and of the trustees, is to pay the obligations. If the pensions get paid then the fund has succeeded.

For an Individual, Trickier.

- Guaranteed Retirement Income
- Eliminate mortgage
- Legacy or Bequest

For a Defined Contribution Fund

Traditionally, we've seen risk-return optimization under MPT

But Beneficiaries have implicit Liabilities ie Retirement Income

LDI can still apply

Liabilities

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<u>**For a Trust**</u>

Fixed payment – cashflows that do not depend on inflation levels

Retail Price Inflation (RPI) – benefits linked to inflation without a cap but might have a floor of 0%

Limited Price Indexation (**LPI**) [0,5%] – benefits are linked to inflation subject to a floor of 0% (accruals won't be reduced) and cap of 5%

(Pensions will be increased with inflation up to 5% but if, for example, inflation is 10% for a particular year, increase is capped at 5%.)

For an individual

Defined Goals – Mortgage, School Fees, Annuities, Bequest etc

How to Value Liabilities

Unfortunately – the Liabilities are usually estimates

Early retirement, changes in mortality, early buyouts, erratic inflation, mean that hedging is often guesswork.

The Question – what are our liabilities how can we value them?

Some Approaches

Buyout value

Gilts or Swaps (Real or Nominal)

Pension Protection Fund (PPF) – AKA a Section 179 valuation. Trustee values a pension fund's liabilities assuming it enters the PPF

Statutory Funding Objective –requires that schemes have enough assets to meet the value of their liabilities (or 'technical provisions')

Instruments

Crude (Late 90s) - Equity and Long Dated Gilts

Sophisticated (2017)

Gilts - Credit Linked Bonds, Gilt TRS, Repurchase Agreements

Swaps – Nominal, Inflation and Zero Coupon.

Swaptions – Caps and Floors

Equity – Equity Futures, Synthetic Equity, Stock Futures, Structured Vol

Longevity Swaps – remove mortality risk with swap agreement.

Commodities – and commodity derivatives

Property as a Real Asset

Insights

- In the real world we have both Assets and Liabilities, hence Modern Portfolio Theory sees less than half the picture
- Liabilities are only estimates
- At buyout valuations the UK pension sector is chronically underfunded
- Risk Management of Funding (Assets minus Liabilities) is more important than simple asset optimization.
- LDI frameworks are appropriate for Defined Contribution schemes and individual investing.