Society of Actuaries in Ireland

Investing to meet Liabilities - Current Issues for Insurance Companies and Pension Schemes

26th January 2017

Disclaimer

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Current Issues – Life Insurance

Dave O'Shea

Agenda

- Life Assurance Liabilities – Regulation
- Regulatory Actions
- What are Life companies investing in?
- What *can* Life Companies invest in?

Solvency I Regime

- Prudent assumptions employed
- Valuation interest derived from asset yield:

  Discount Rate = Asset Yield

  - 2.5% of Asset Yield

  - Allowance for Credit Risk
- Direct link between asset and liability values
  - Regime encouraged close asset liability matching
- Additional buffer - Solvency Margin
  - Formulaic additional requirement
  - Function of basic reserves and gross sum at risk
- Restrictions on asset types/amounts

"I suppose I'll be the one
to mention the elephant in the room."

Solvency II

- New European-wide regulatory regime
- Risk based
  - Capital held based on risk profile of the undertaking
- Key aims:
  - Modernise supervision – focus on risk, not compliance
  - Deepen EU market integration
  - Improve consumer protection

Solvency II – Base Liability

- “Best Estimate Liability” or “BEL”
  - Cashflows projected on best estimate assumptions
  - Discount resulting cashflows at a prescribed risk-free curve
  - Prescribed curve discussed later

Solvency II – Capital Requirement

- "Solvency Capital Requirement" or "SCR"
- Subject assets and BEL to a series of prescribed shocks
  - Represent "1-in-200" event over a one-year horizon
  - Examples:
    - Market – Equity price, interest rates up/down, property prices fall
    - Life Underwriting – Pandemic, Catastrophe, Longevity Improvement
- Impacts from each stress assessed individually
  - Individual stressed then aggregated in a prescribed way
  - Aggregation allows for correlations and diversification across risks
- Total capital required to be held is the sum of:
  - BEL
  - SCR
  - Risk Margin (allowance for cost of capital of holding the SCR)

Prescribed Risk-Free Curve

- Derived from market swap rates
- Swap curve taken up to “last liquid point” (“LLP”)
  - Last point at which market deemed to be active
- Market swap curve adjusted downwards
  - Allowance for credit risk
- Extrapolate resulting curve from LLP to the ultimate long-term interest rate
  - This is an assumed rate
  - Referred to as the “ultimate forward rate” or “UFR”

Risk-Free Curve – Euro Characteristics

- For the Euro denominated curve, the following characteristics apply:
  - LLP = 20 years
  - Convergence period to UFR = 40 years
  - UFR = 4.2%
- So, at a term of 60 years, one-year discount rate is 4.2%
- Does this exist?
- Long-term liabilities:
  - BEL may be lower than true view of capital required
  - Does create issues for some companies
  - Creates need to establish additional reserve beyond regulatory requirements

SCR – Capital Charges

- SCR assigns different charges to different asset types
- Important to know
  - Solvency I link between asset value and liability discount rate gone
- Now, perhaps, more flexibility to structure portfolio:
  - Maximise expected returns
  - Minimise overall capital
  - Optimise risk-return trade-off
  - Manage Capital to a non-regulatory basis

SCR – Capital Charges

- Equity
  - 39% or 49%, depending on type
  - Also add a "symmetric adjustment"
    - Adjustment to reflect current market level versus average level
    - Big shock less likely when a big shock has just occurred?
- Interest Rates – risk-free rates
  - Discount curve is adjusted up/down
  - Risk-free component of yield on bonds also shifted up/down
- Interest Rates – spreads
  - Sovereign bonds not stressed
  - Spreads on non-sovereigns increase
  - Formulaic adjustment based on duration and credit rating

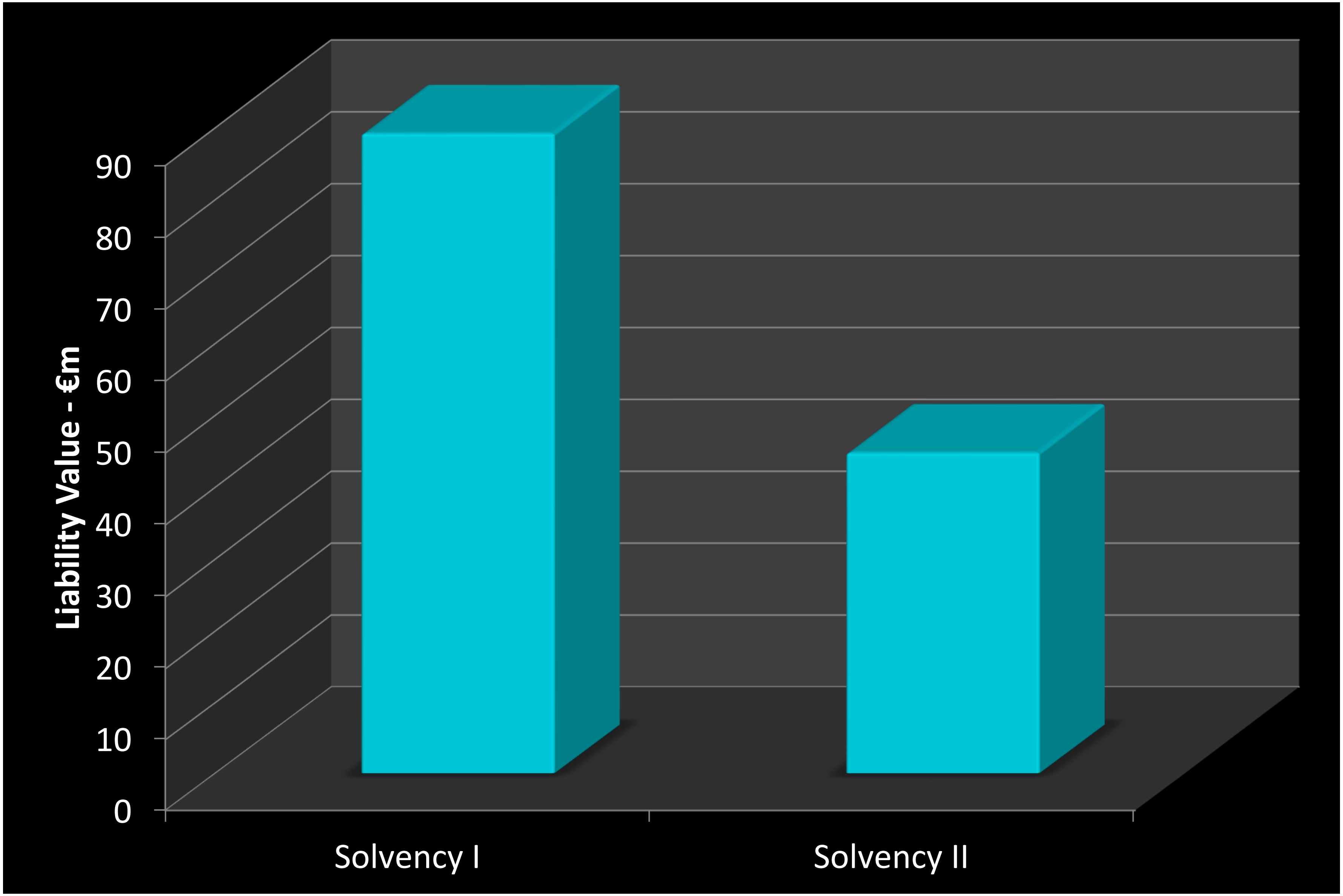
SCR – Capital Charges

- Property
  - Shock is 25% of property value
- Infrastructure
  - Originally, grouped with other investments:
    - Unlisted equity – attracting 49% charge
    - Infrastructure debt – treated as bonds
  - Regulation revised in 2016
    - Aim was to recognise that life insurers played role in long-term investment
    - Could invest in long term investments without short term liquidity
    - Capital charges for infrastructure reduced:
      - Infrastructure equity – 30% charge, plus 77% symmetric adjustment
      - Infrastructure debt – spread tests narrowed by up to 40%

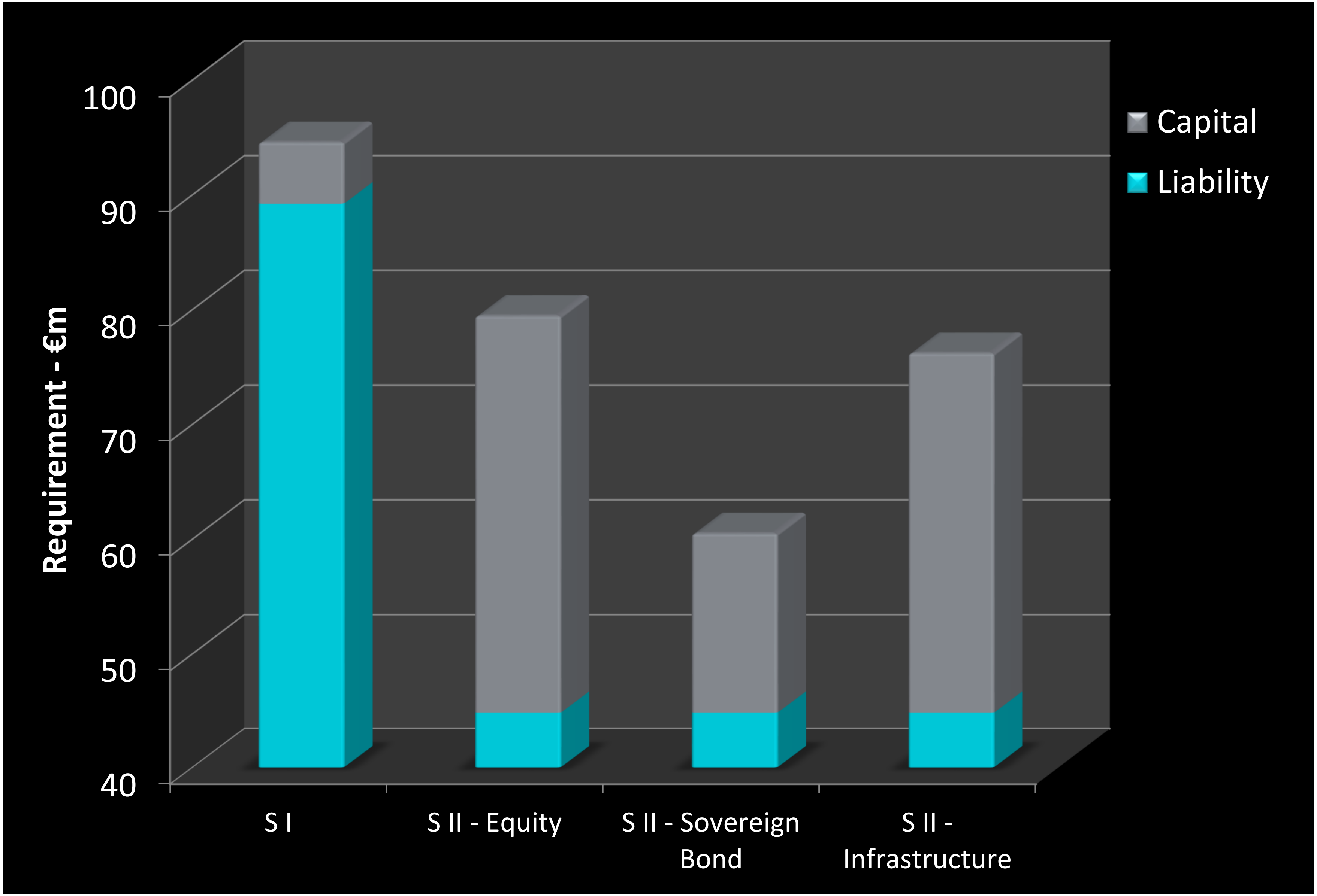
Illustrative Example

- Simple Case.
- €250m payable in 60 years
  - Assume no demographic risks => only market risk considered
- Demonstrate impacts of different investments
  - Only one asset used at a time
  - **REALLY SIMPLE CASE,** but not an implausible one
- Using data at 31/12/2016
  - Solvency II discount curve (source – EIOPA)
  - Yield on France 2060 4% coupon bearing bond (*source – borsaitaliana.it)*

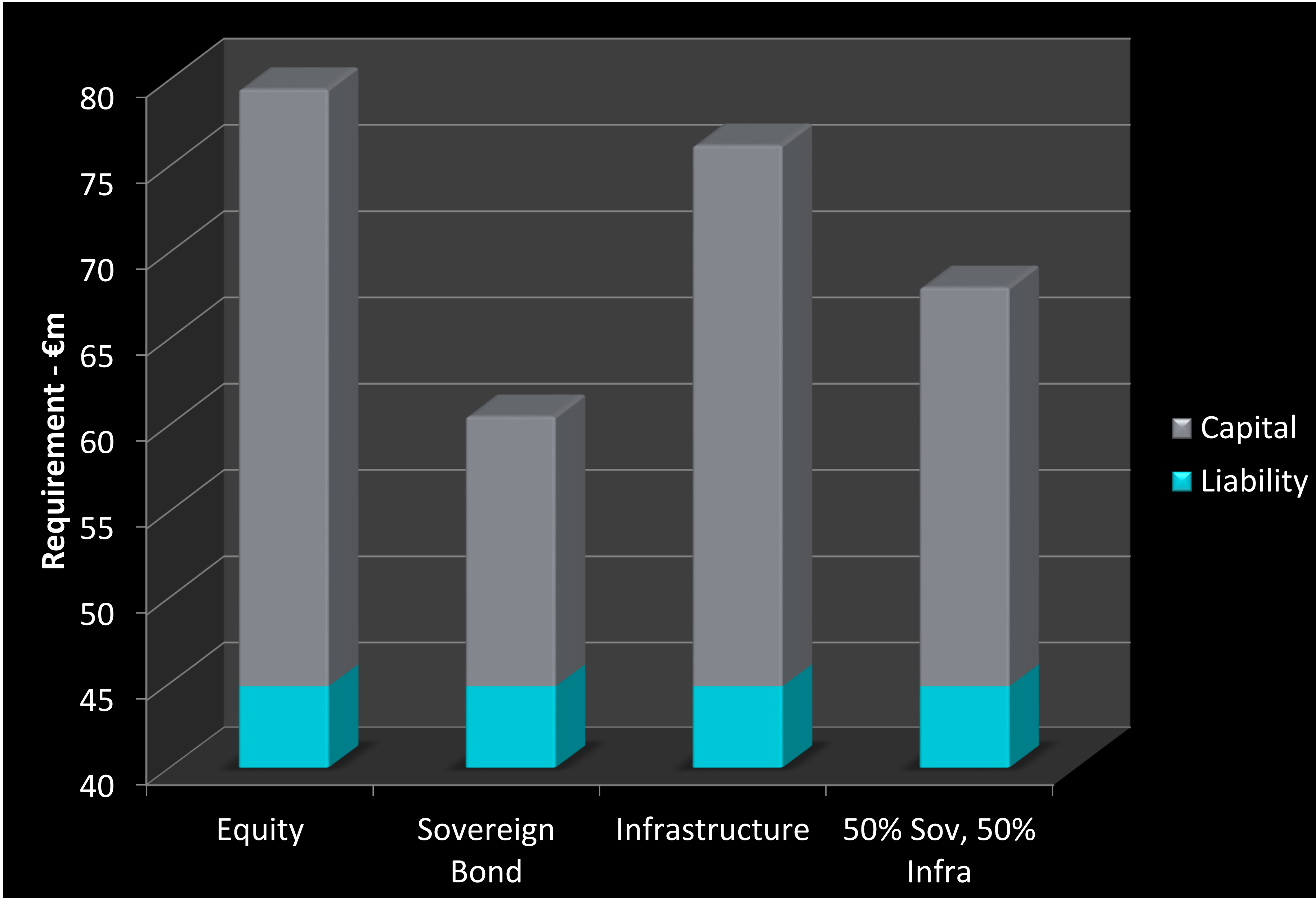
Basic Liability – Solvency I vs Solvency II



Base Liability – Capital Requirements

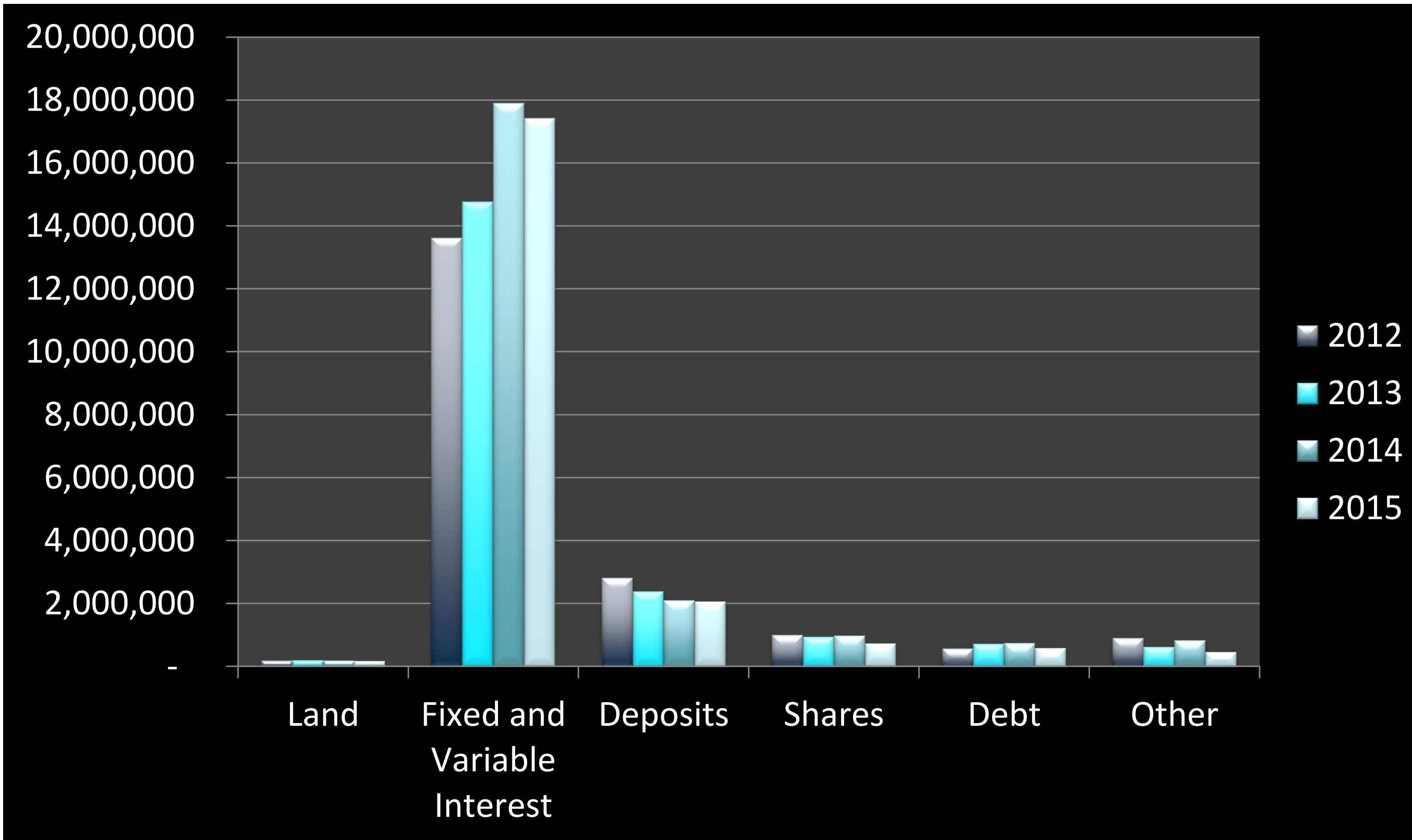


Base Liability – Capital Requirements – SII Only



What are Irish life insurers invested in?

CBI Insurance Statistics, 2012-2015, Table 12
Figures in €000s



2016 EIOPA Stress Tests

- European Insurance and Occupational Pensions Authority
- Carried out a stress test over 2016. Per EIOPA:

  *"The 2016 exercise is tailored to assess the insurance sectors' vulnerabilities to a combination of **market risk adverse scenarios**. It will be based on a sample of solo undertakings **most vulnerable** in a low interest rate environment."*
- 77% coverage of the sector
- Two stresses:
  - "low for long" – sustained low rates, with UFR of 2%
  - "double hit" – low swap rates and asset price fall

2016 EIOPA Stress Tests

- Report published December 2016
- Key points:
  - Stresses indicated significant vulnerabilities
  - Undertakings need to consider risk of prolonged low rates
  - Regulators to assess viability of more vulnerable business models
  - For participants:
    - Bonds accounted for largest share of assets
    - Large sovereign holdings, with a tendency for “home country bias”
    - Corporate bond exposures focused on AAA to A ratings

Options for Insurers

- Pricing – refer to asset comfortable investing in
- Data indicates – insurers not moving from “traditional”
- Existing holdings may be dictated by existing business
  - Can restructure portfolios
  - Can invest for new business
- Options are available
  - Alter allocations across existing holdings
  - Alternatives:
    - Infrastructure, now less punitive
    - Forestry etc

Options for Insurers

- Why not switch?
  - Too focused on SII implementation
  - Status quo bias
  - Experience of traditional – none of alternatives
  - Long lead in times, particularly for infrastructure
  - Liquidity concerns
    - Easy to invest €20m in bonds if sell a €20m annuity
    - Difficult to do the same for e.g. roads

Summary

- World has changed
- Need to be mindful of this – change with it?

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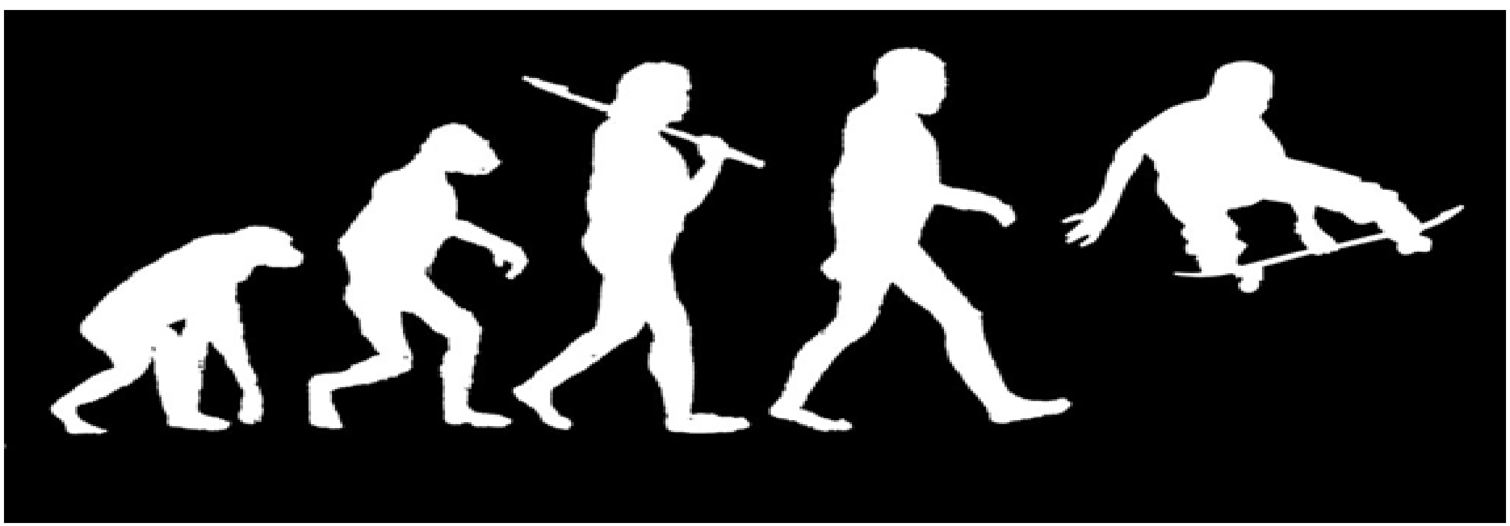
Investing to meet Liabilities - Current Issues for Pension Schemes

Denis Lyons

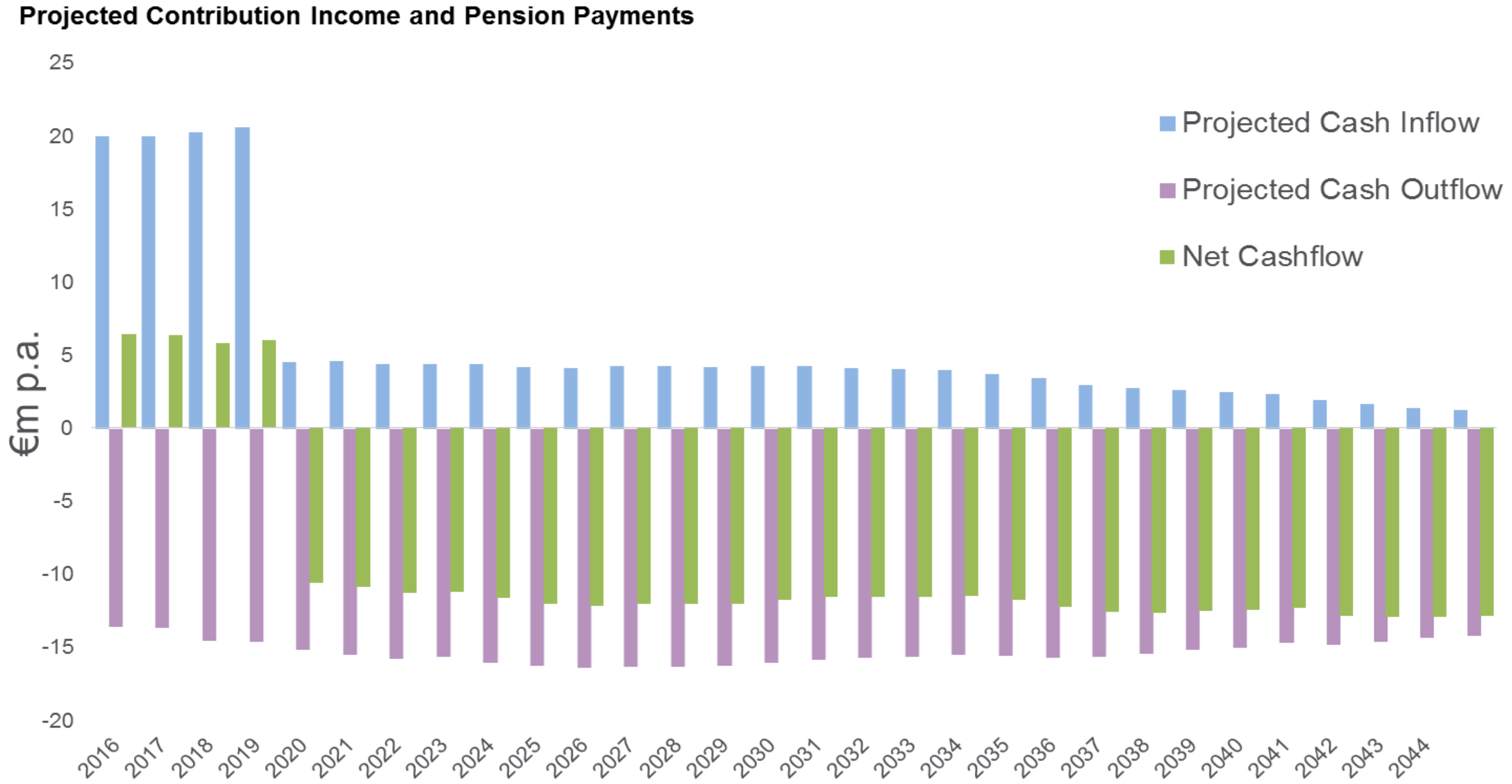
Evolution of Defined Benefit Investment Strategy

Accumulation Stage	Stability Stage	Decumulation Stage
→ 2000	↔ 2020	→
Asset Driven Investing	Liability Driven Investing	Cashflow Driven Investing



Why Cashflow Driven Investing?

The Cashflow Cliff for a Maturing Scheme…

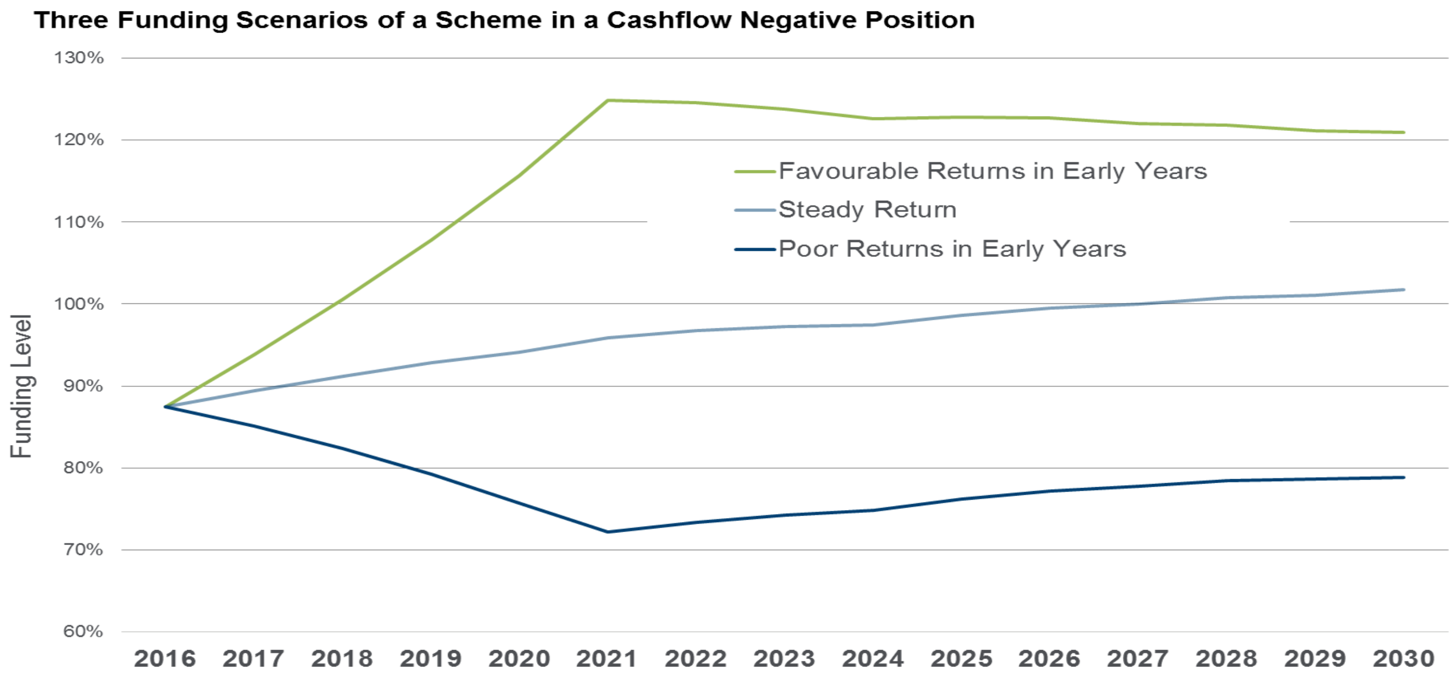


Schemes starting to move to a Cashflow negative position, and Income Gap will grow over time

How to Meet the Cashflows?
1) Sell Assets as Required (Reactive)

However;

- Risk of Selling Assets in a Down Market (Sequencing of Returns Risk)



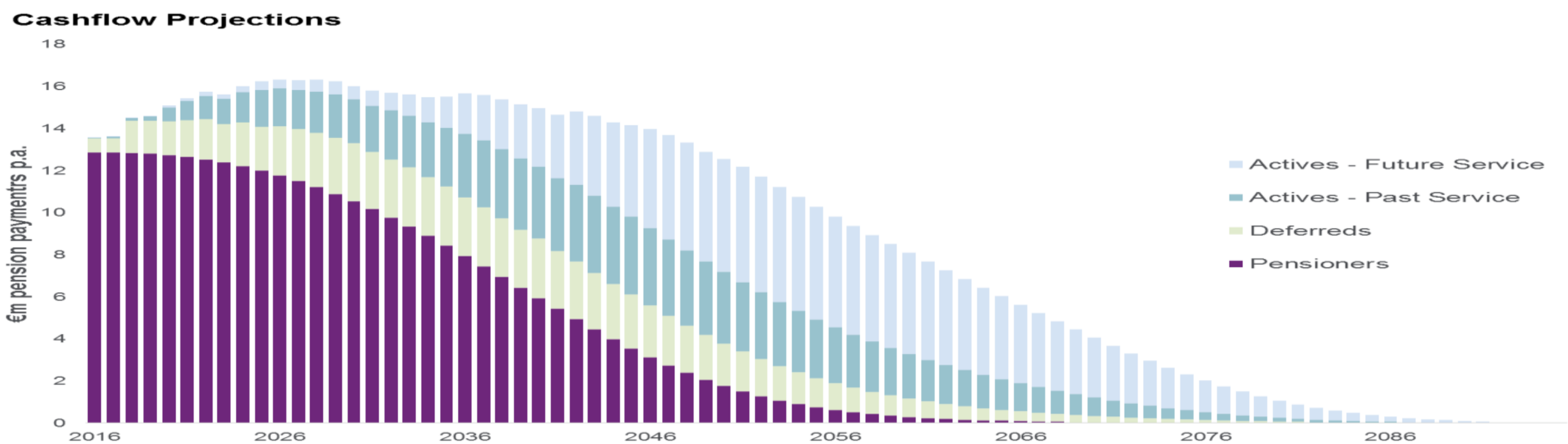
Note: Three funding scenarios have same annual return of 5% p.a., but different sequencing of returns

- Liquidity
- Transaction Costs
- Governance Burden

How to Meet the Cashflows?

2) Use Income from the Asset Portfolio (Proactive)

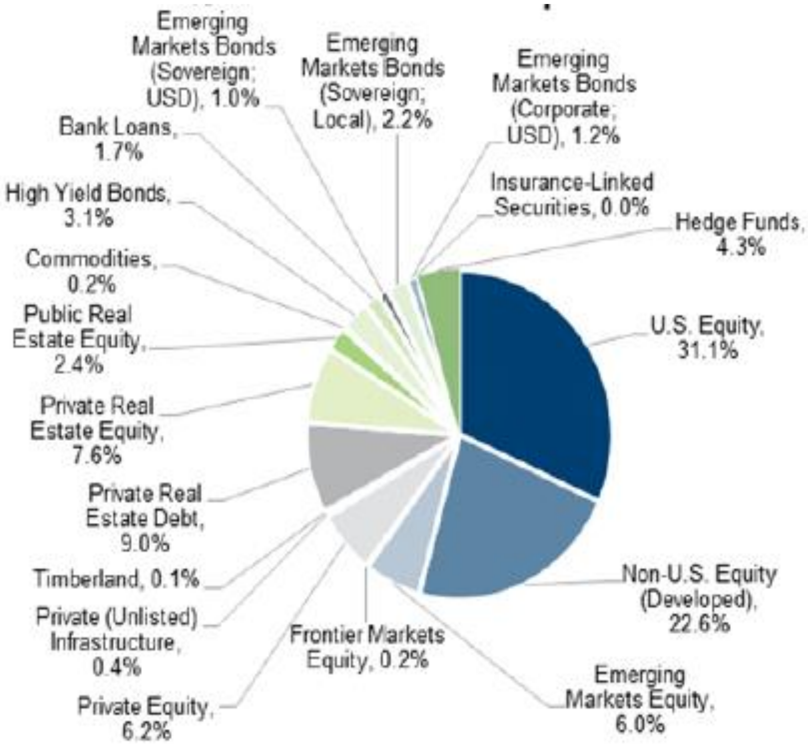
In a World of Unpredictability…



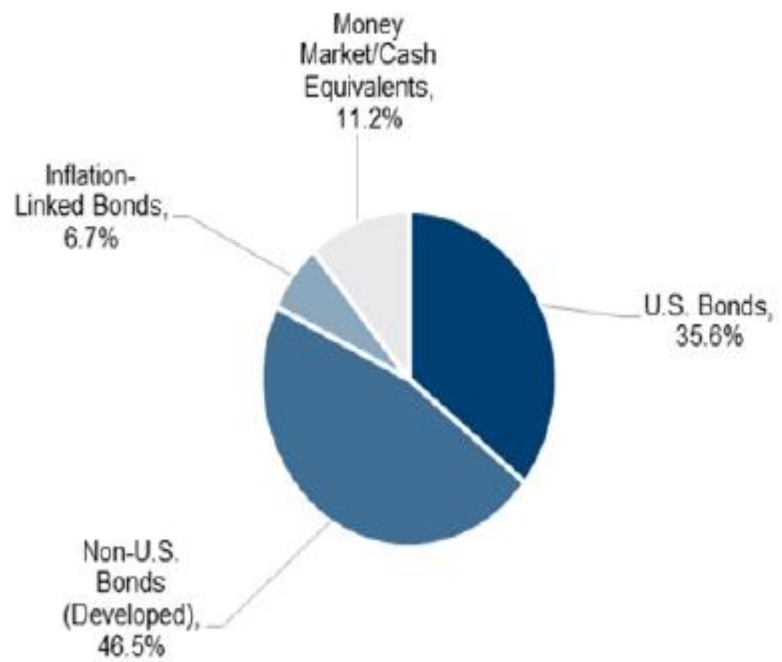
…Payments to current Pensioners and Income from Defensive assets are predictable

What is the available opportunity set?

Growth Assets
(59%) of Global Capital Market Portfolio



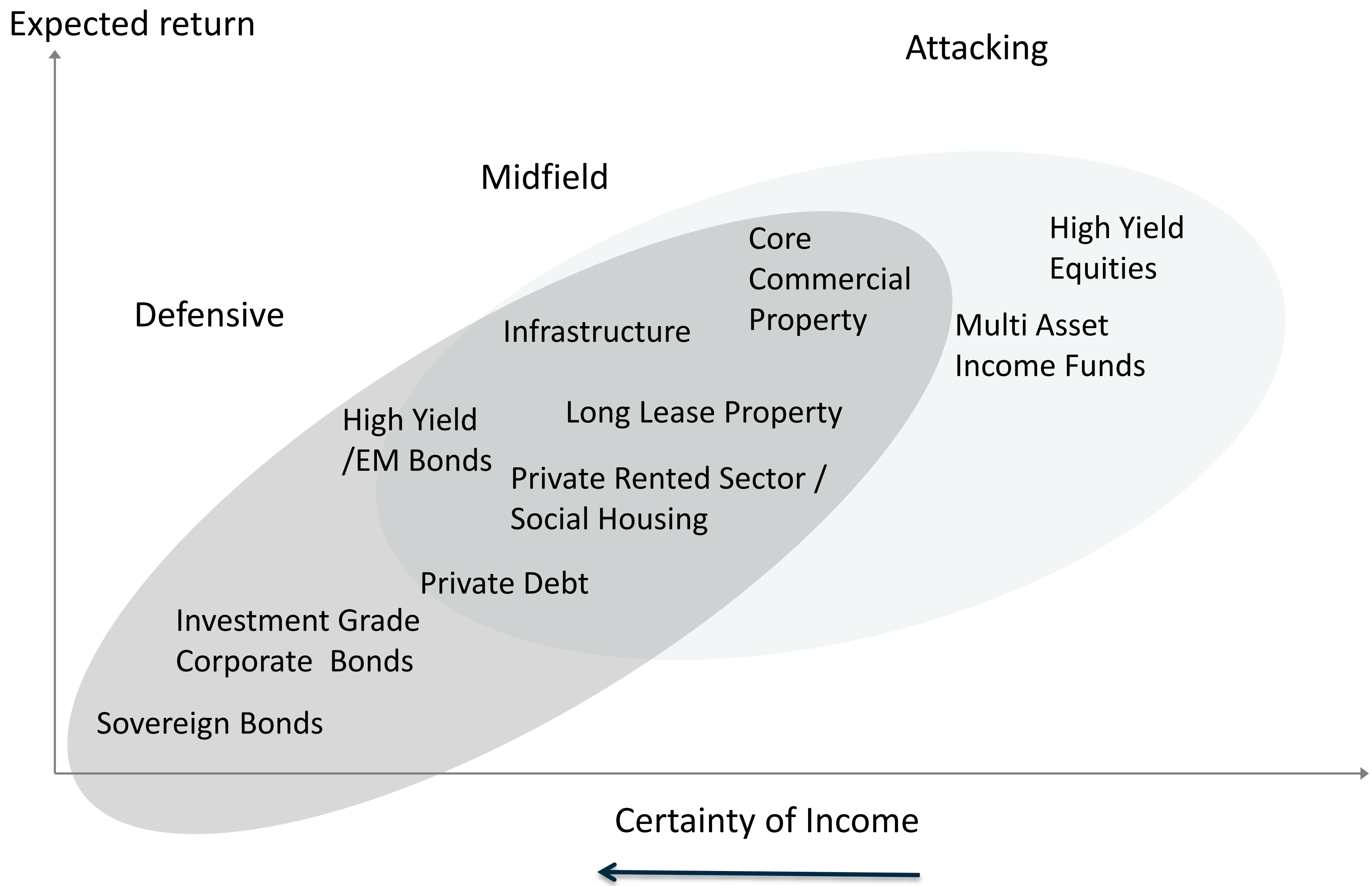
Defensive Assets
(41%) of Global Capital Market Portfolio



Source: Aon Hewitt Global Invested Capital Market Publication July 2016

- Total Market Value of Global Investable Assets = $112 trillion as at 31.12.2015
- Equity allocation – 39.7%, Bond allocation – 40.5%, Property – 11.3%, Cash – 4.5%, Others – 4.0%

Types of Incoming Producing Assets



How to Construct an Income Portfolio?

This will be client specific, but will depend on;

- Income Required / Scheme Maturity
- Governance / Scheme Size
- Capacity for illiquidity
- Regulation – e.g. Risk Reserves, Funding Proposal bond target
- Return Requirements. Where is income producing assets funded from – existing Growth and/or Defensive Portfolio?
- Target – Buy Out or Run-Off?

How to develop a Cashflow Driven Investment Strategy?

Option 1 – Integrate into existing Investment Strategy

Growth Assets

Defensive Assets

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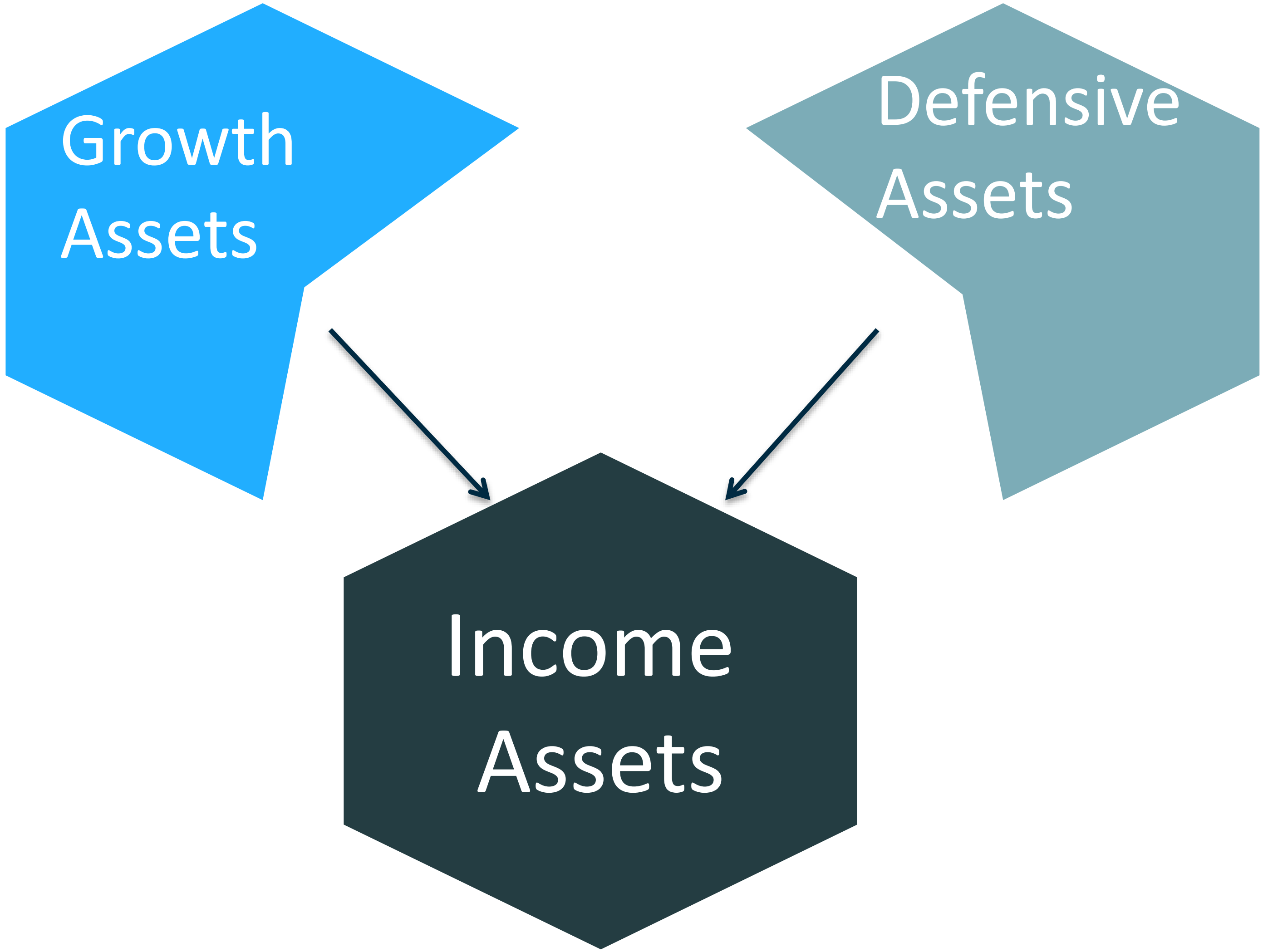
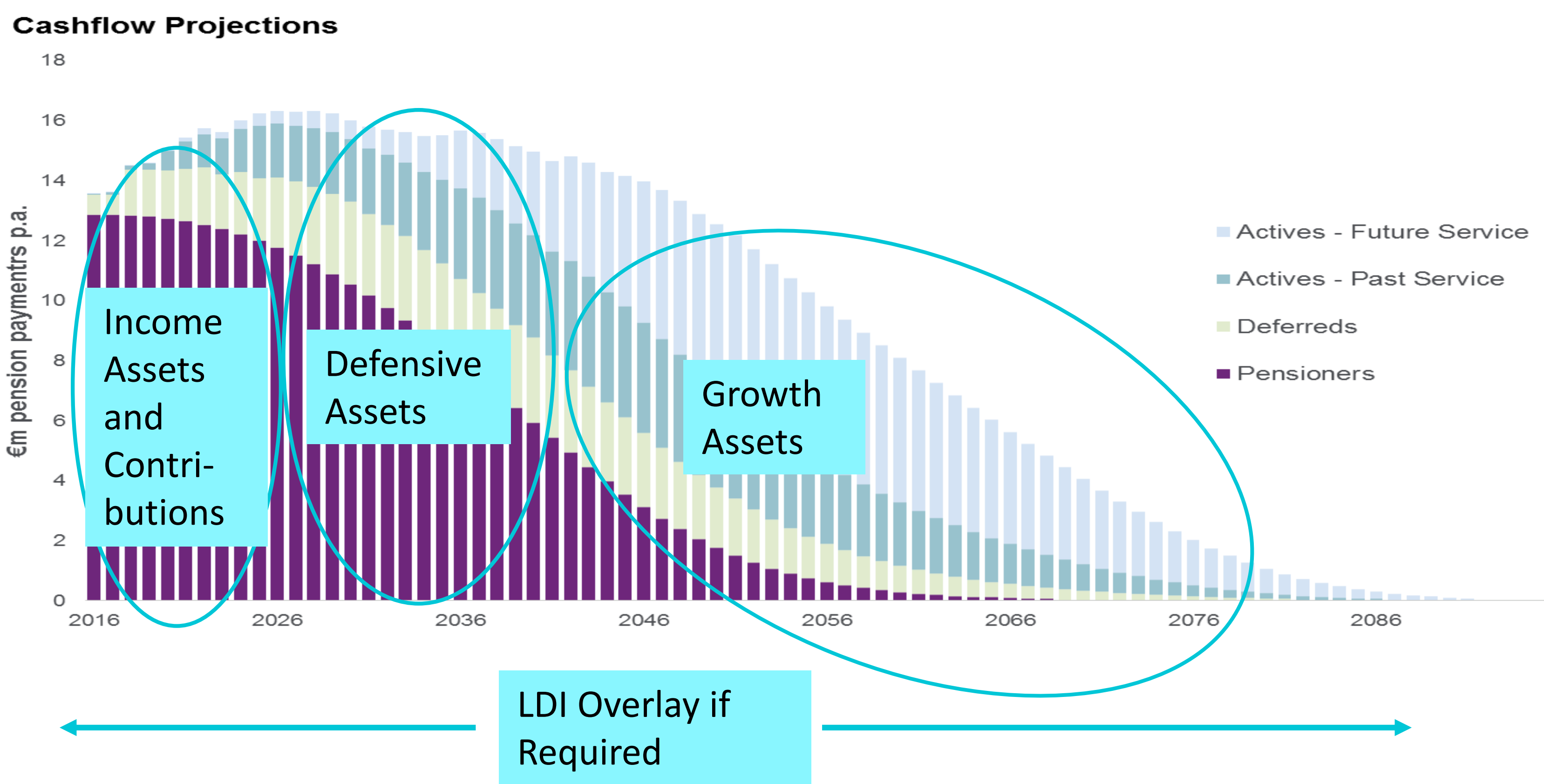
Option 1 – Integrate into existing Investment Strategy



Option 2 – Construct a Fully Integrated Cashflow Investment and Valuation Strategy



Difference between LDI and CDI

Liability Driven Investment	Cashflow Driven Investment
• Balance Sheet Focused	• Cashflow Focused
• Match the Present Value of the Liabilities	• Match the projected benefit payments of the liabilities
• Reduce Interest Rate Risk and Inflation Risk	• Reduce Risk of not being able to meet benefit payment as it falls due
• Focus on Bonds / Swaps	• Focus on all income generating asset classes

LDI should evolve into CDI over time as Schemes matures

The Discount Rate Problem

"..using realistic future investment returns, UK DB pension funds have never been better funded and have an aggregate **surplus of around £358bn** and an overall funding level of 133%."

First Actuarial Press Release, October 2016

"New figures released today from PwC's Skyval Index show the deficit of defined benefit (DB) pension funds improved by £60bn in October 2016, bringing the total **deficit down to £630bn** from a record high of £710bn in August."

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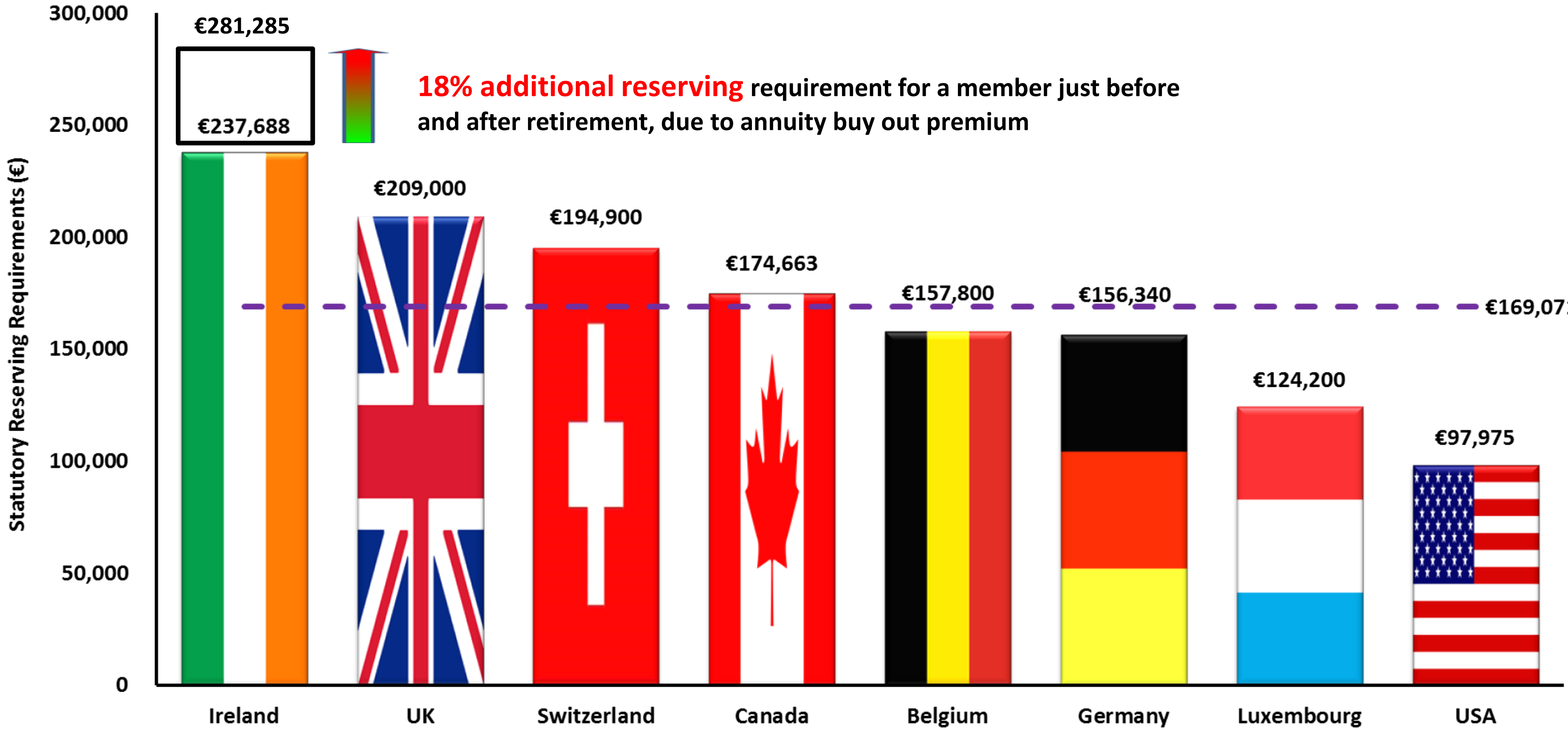
Some "Going Concern" Valuation Methods

- Expected Return on Assets Minus
- Bonds +
- Cashflow Driven

Integration with Statutory Funding Standard

Country Statutory Reserving Requirements for a married man aged 65 with €10,000 p.a. pension



Source: Aon Hewitt as at October 2016

Full CDI approach very challenging with current regulation

Summary

- DB Pension Schemes maturing rapidly
- Along with achieving sufficient growth and minimising funding level volatility, Trustees also now need to think about meeting near term pension payments - Cashflow Management Plans should be put in place
- Many income producing asset strategies available to pension schemes
- Investment Strategy (and valuation approach) needs to evolve to meet new Scheme circumstances…
- …however, current onerous funding standard prevents a fully integrated Cashflow Driven Investment / Valuation financing approach