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EIOPA Sponsor Support Event

The Holistic Balance Sheet framework and its implications

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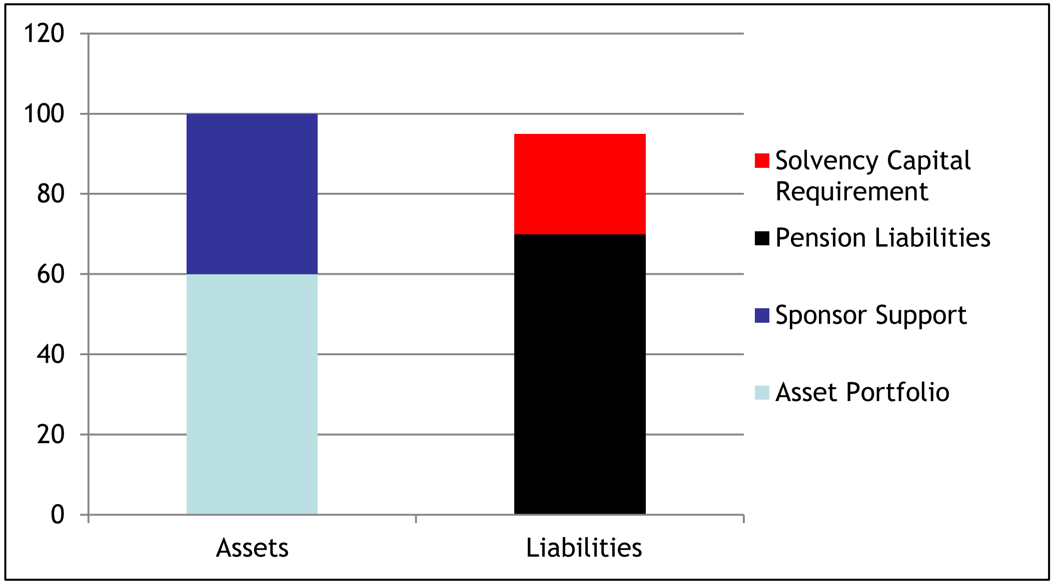
Overview of the economic concept of a Holistic Balance Sheet for Pension Funds

DB Pension Fund Market-Consistent 'Holistic Balance Sheet'



- Assets and liabilities valued on market-consistent basis
- Assets include value of sponsor support
  - Must reflect market value impact of sponsor credit risk
- Solvency capital requirement is defined as 1-year Value-at-Risk of (assets – liabilities) at 99.5% confidence level

Some high-level observations on holistic balance sheet framework

+ The proposed HBS framework shares many fundamental similarities with global regulatory developments in other financial sectors such as banking and insurance:

1. Market value based
   - Not actuarial funding calculation
2. Makes explicit use of probabilistic standards for capital adequacy
   - Not actuarial margin for prudence
3. Capital measure focused on managing short-term risk that assets are insufficient to fund transfer of liabilities to a third-party
   - Not on assets' ability to fund the liability cashflows as they fall due
4. Perhaps principle-based (e.g. could allow for sponsor-specific contribution strategies)

Valuing the Holistic Balance Sheet

1. Market value of asset portfolio
   - In principle straightforward

2. Market-consistent value of promised liability cashflows
   - In principle a straightforward present value, but market-consistent discount rate definition complicated by illiquid and very long-term nature of the cashflows...see Solvency II…

3. Market-consistent value of sponsor support
   - Defined as sponsor’s commitment to making future deficit-funding contributions required until pension liabilities are extinguished
   - The sponsor’s commitment to making deficit-funding future contributions can be a fairly complex form of cashflows:
     + Credit-risky and long-term
     + May be dynamic and path-dependent
     + Sponsor credit risk may be correlated with deficit size (‘wrong-way risk’)
     + Market-implied cost of sponsor credit risk may not be directly observable
   - Not so straightforward to value

Valuing the Sponsor Covenant

- If the sponsor's equity value significantly exceeds the market value of the deficit, why doesn't the market value of sponsor support = deficit?

- This WOULD be the case if the sponsor were to inject the cash required to fund the deficit into the pension fund immediately

- OR if the sponsor was risk-free

- Otherwise, the sponsor covenant will generally be worth less than the deficit and will reduce in value as a function of two key factors:
  - The speed at which deficit contributions will be paid into the fund
  - The credit quality of the sponsor

Some Specific Topics Relating to the EIOPA Discussion Paper

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Sponsor Credit Risk and Market-Consistent Valuation

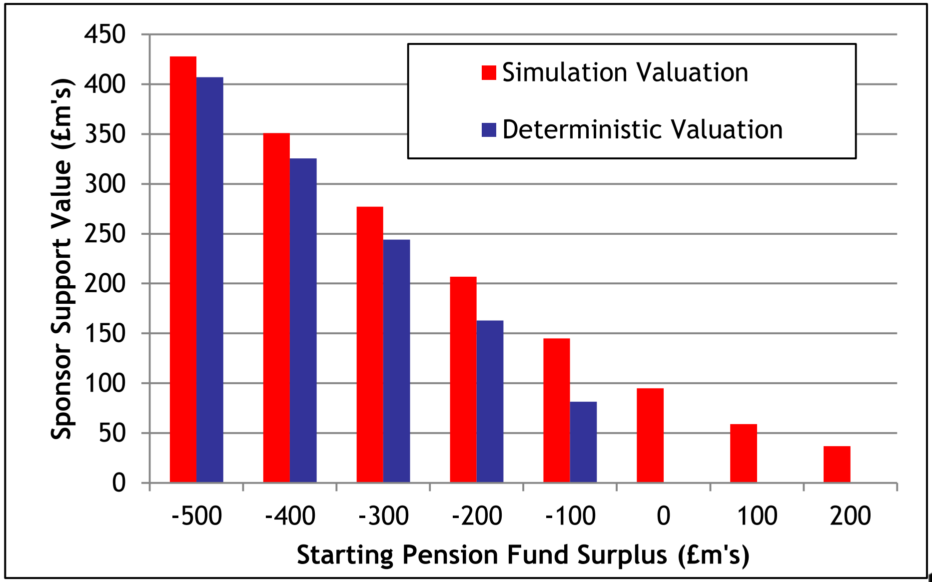
+ Two distinct issues:

1. How to assess the credit quality of the IORP sponsor?
   - Published credit rating
   - Credit score based on credit ratios formula
   - Etc.
2. How to set the default probability assumption for a given assessment of credit quality
   - EIOPA discussion paper suggests assumptions based on historical default rates

+ The use of historical (real-world) default rates in a risk-neutral valuation is **technically invalid**
  - **Either** risk-neutral default rates should be used (derived from market bond prices)
  - **Or** risk-adjusted (not risk-free) discount rates should be used in the valuation of the sponsor support

Stochastic & deterministic valuations

- The EIOPA discussion paper proposes an alternative (deterministic) method to a stochastic valuation
- This is likely to be important to smaller IORPs that do not have the means to develop complex stochastic models
- However, it should be noted that, all other things being equal, a deterministic approach will tend to under-value sponsor support, as it ignores the sponsor's legal obligation to make good on unexpected further shortfalls



Implications of the Holistic Balance Sheet in today's economic environment

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Current funding levels of DB pension funds

- Current funding levels of DB pension funds are at historical lows in some EU territories
  - Historically, UK pension fund investment and contribution strategies have been focused on long-term funding of liability cashflows rather than on ensuring assets are sufficient to fund short-term sponsor default risk

- For example, at end-March 2012, UK pension fund asset portfolios were around 60% of the market-consistent value of pension liabilities

- This is a £700bn deficit
  - Equivalent to 1/3rd of UK national debt
  - Or 3 x market cap of Apple
  - A very big number to extract from future corporate profits

Implications of the current funding levels of DB pension funds

- The current funding level makes the sponsor support valuation particularly important to HBS: it will likely represent a significant proportion of total assets

- The market-consistent valuation / 1-year VaR framework highlights the riskiness of having a substantial proportion of total assets of balance sheet exposed to a single credit counter-party
  - A unique feature of pension funds; this does not arise in banking or insurance

- The 1-year VaR risk-based capital framework heavily penalises this undiversified exposure, meaning **it is currently generally unlikely the pension fund's asset portfolio and sponsor support will collectively be sufficient to meet the solvency capital requirement for a credit-risky sponsor when a rigorous market-based approach to sponsor support valuation is applied**

Managing sponsor support risk

- The HBS / 1-year VaR framework highlights the obvious point that obtaining high levels of member security in the current economic and funding environment requires management of sponsor credit risk
- Can sponsor credit risk be pooled / diversified / hedged?

- Pension protection funds are an example of sponsor credit risk pooling / insurance
  - Though they may only insure part of the promised liability (e.g. as in UK)
- Current funding levels means these funds could be exposed to significant demands in the future
  - Do pension protection funds have credit risk?

- Are there other mechanisms by which pension funds can directly mitigate sponsor credit risk
  - Increasing the pace of deficit contribution funding is most obvious option
  - Market-based forms of sponsor credit risk insurance?

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