

Insurance sector investments and their impact on financial stability – an empirical study

Anna Maria D'Hulster
Secretary General

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Claims about the procyclicality of insurers' investment behaviour and systemic relevance

“The analysis [...] suggests that the behaviour of [life insurance companies]—whether as a result of liability characteristics, regulation, accounting and valuation methodologies, or industry practices (including the tendency for similar investment strategies or ‘herding’)—could have important consequences for the economy as a whole. [...] Although asset price volatility does not necessarily equate to financial instability, it can decrease the resilience of the financial system, and thereby potentially contribute to serious interruptions in the vital functions which the financial system as a whole performs in our economy [...].”

“Procyclicality and structural trends in investment allocation by insurance companies and pension funds: A discussion paper by the Bank of England and the Procyclicality Working Group,” July 2014

“Changes in the investment behavior of insurers may have contributed to higher systemic risk through various channels [...] the procyclicality in their investment behavior may have risen, increasing insurers' tendency to transmit shocks rather than absorb them.”

IMF, Global Financial Stability Report, Spring 2016

“The main finding [...] is that [Dutch] insurance companies engaged in procyclical investment behaviour during the height of the European sovereign debt crisis through the sale of southern European assets.”

Bijlsma and Vermeulen, “Insurance companies' trading behaviour during the European sovereign debt crisis” DNB WP, March 2015

Which led the IMF to recommend that supervisors should:

“Extend the application of [the] G-SII toolkit on a risk-based basis to other large groups [...].”

IMF, Financial Sector Assessment Program on Germany, June 2016

Project context / study motivation

- Growing concerns in supervisory bodies (BoE, ESRB, IMF) that insurance sector investments may impact markets and contribute to procyclicality
- Granular studies by academics and central bank research (BIS, DNB) seem to support procyclicality suspicion
- However, findings are not conclusive; more studies are needed

GA response

- Empirical study on insurers' investment behaviour and its impact on financial stability; special focus on hypothetical large-scale asset sales as extreme example of investor herding behaviour
- **Can common investment behaviour in the insurance sector generate market distortions with systemic implications?**

Project scope and limitations

In scope

- Aggregate behaviour of the whole sector
- Focus on the impact of insurance sector investment behaviour over time and relative to other large institutional investors
- Analysis of financial market stress periods
- Market impact of hypothetical large-scale asset sales

Out of scope

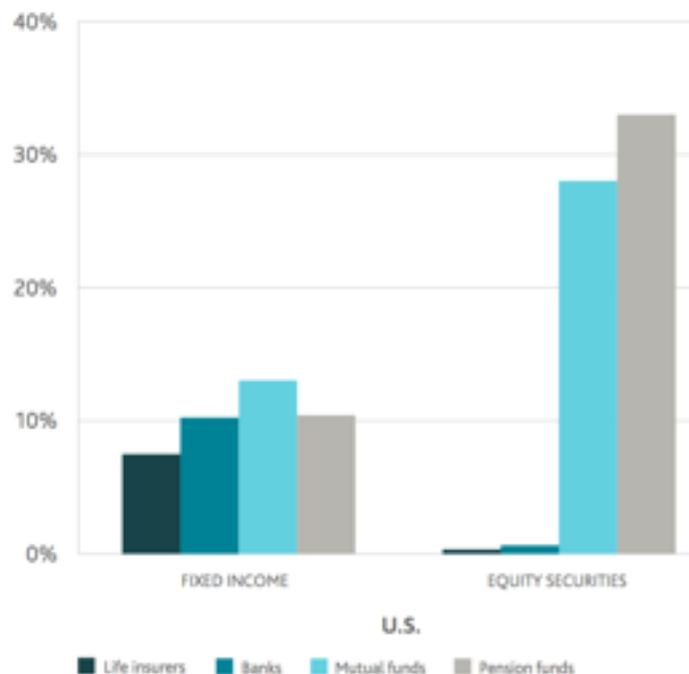
- No analysis of individual firms; no judgment on G-SII designation, no view on alleged procyclicality under risk-based capital requirements
- Data limitations constrain historical analysis to the U.S. and selected European markets
- In contrast, forward-looking stress tests were based on OECD data covering all European markets and the U.S.

OUR FINDINGS ON INSURERS AS MARKET PARTICIPANTS (STRUCTURAL)

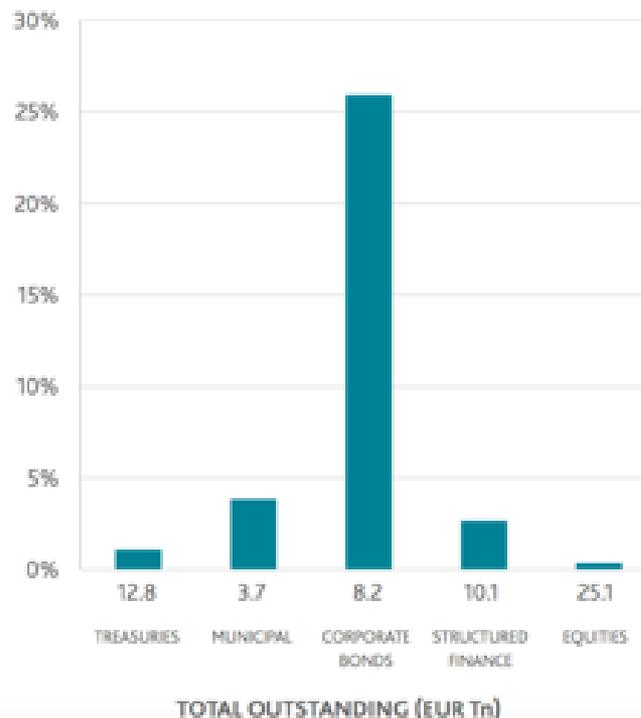


EXAMPLE

Assets held by investors as per cent of total outstanding market (U.S. only, Q4 2014)



Insurers' invested assets as per cent of total outstanding market (U.S. only, Q3 2015)



Sources: Federal Reserve, Oliver Wyman analysis.

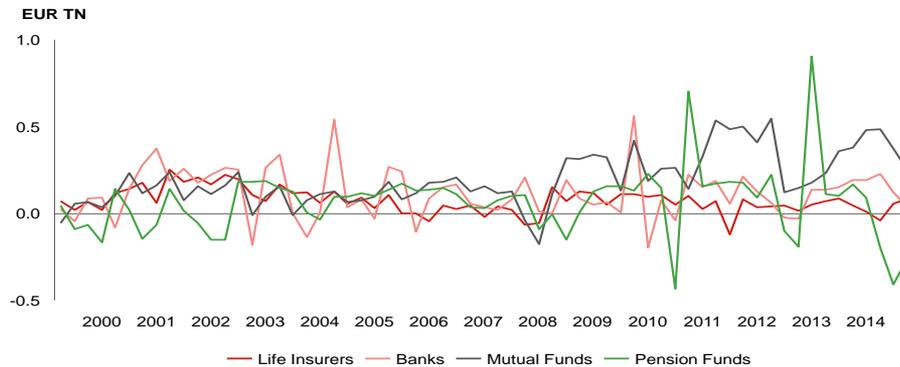
- Although insurers hold a significant portion of total outstanding financial assets in any given market, their **holdings represent a smaller proportion than those held by other financial services investors**
- Based on the industry's business model our presumption is that **the investment behaviour of insurers differs significantly from the behaviour of other financial services investors**. Insurers may therefore exhibit a stabilising impact on financial markets

OUR FINDINGS ON INSURERS AS MARKET PARTICIPANTS (ASSET ALLOCATION)

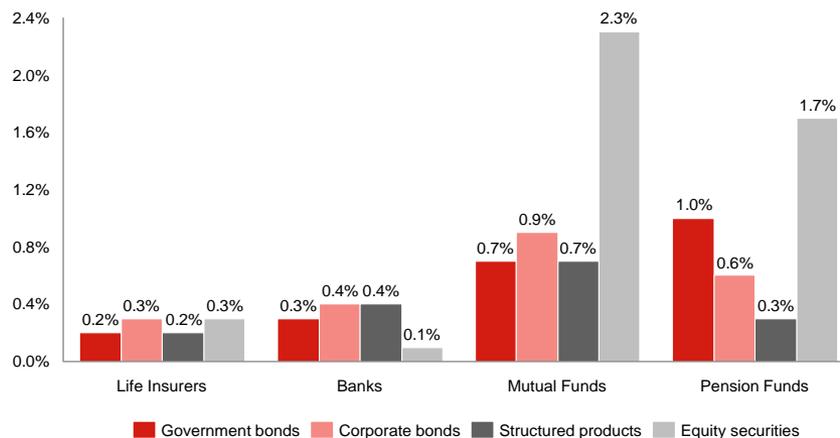


A LOOK AT TOTAL AND RELATIVE CHANGES

Quarterly change in invested fixed income securities by industry, U.S. market, annualized changes in book values



Standard deviation of quarterly changes of asset allocation percentage points by asset class; U.S.; Q1 1998 to Q3 2015



Total changes

- Between 2000 and 2015 average changes in the total value of life insurers' holdings of bonds are similar to that of pension funds and significantly smaller than those of banks or mutual funds
- A similar pattern is also seen when looking specifically at the periods **before**, **during** and **after** the Global Financial Crisis of 2007/08

Relative changes

- With respect to the **relative changes in asset allocation**¹, **life insurers have the lowest values** across all asset classes with the exception of equity securities: in general they are low in particular compared to mutual funds and pension funds
- Banks have similar values to life insurers

¹ Measured as standard deviation of quarterly changes

Why and how did we perform scenario analysis?

- Since the past may not be indicative of the future, we performed hypothetical extreme stress scenarios in which insurers dispose of large blocks of financial assets
- The scenarios are aggregated such that they do not rely on specific products or industry practices attributable to individual jurisdictions
- We use a range of absorption sensitivities to calibrate the likely price impact of hypothetical large-scale asset sales for the financial asset classes available in the sample
- Data were pulled from OECD insurance statistics, allowing for market completeness and comparisons across jurisdictions

General results

- ➔ Even under significant shocks, large-scale asset sales by insurers have a negligible impact on financial market prices
- ➔ Under very extreme conditions (such as the recent Global Financial Crisis) there could be discernible price impacts in certain asset classes. However, they do not have systemic implications, i.e. there is no need for market stabilising government intervention

Methodology

- Hypothetical large-scale asset sales as an extreme example of investment behaviour
- Build model to ascertain the price impact of such hypothetical large-scale sales
- Assess systemic importance of price impact

Database

- OECD data for U.S. and European life insurance assets considered separately
- Impact analysis over one month, i.e. 21 trading days

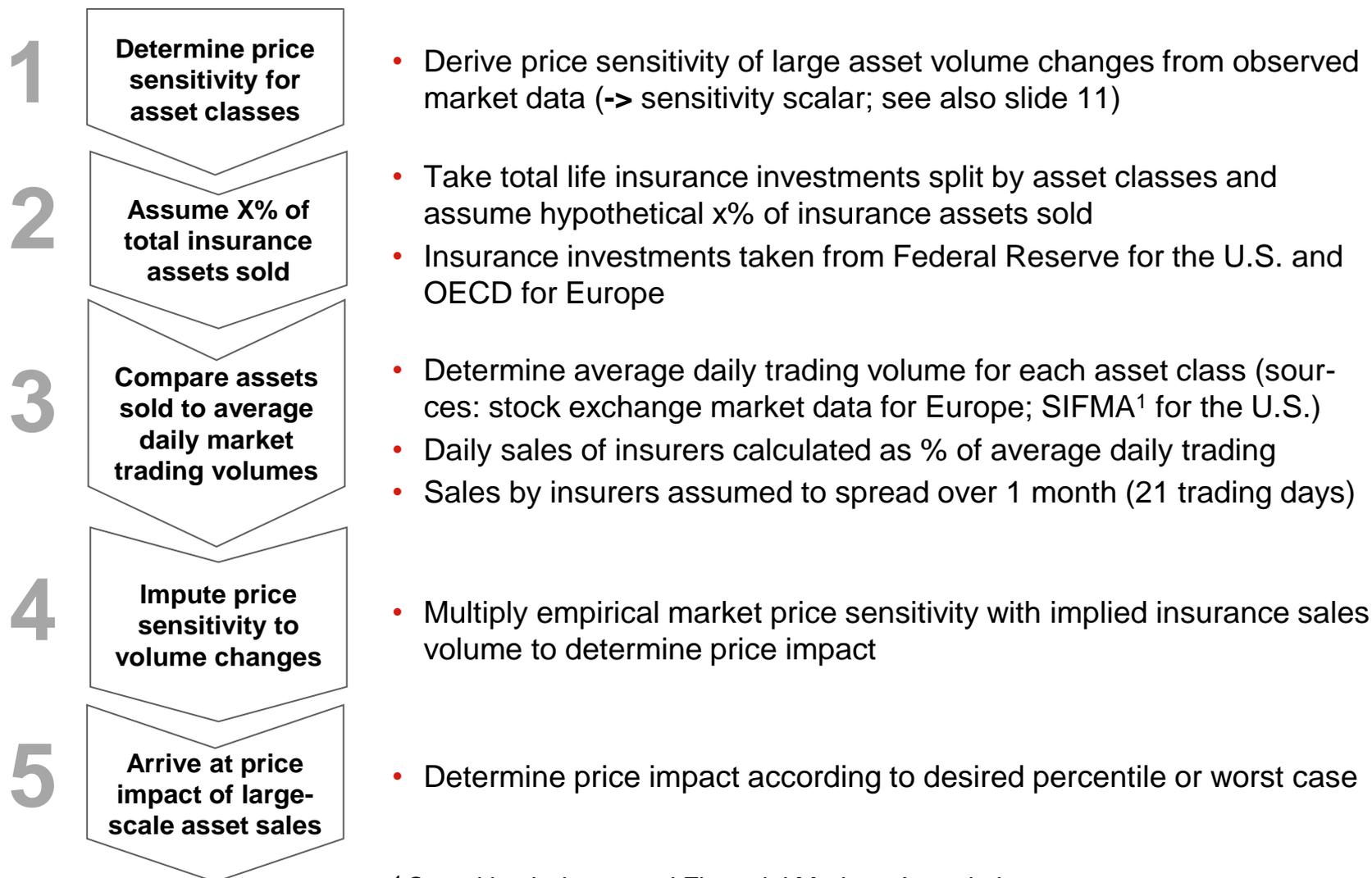
Three main scenarios; one very extreme scenario

- 1** Credit de-risking
 - Sale of 10% of corporate bonds
- 2** Equity de-risking
 - Sale of 100% of equity securities
- 3** Large surrenders
 - Three scenarios based on surrender rates varying from 2% to 27%
- 4** Worst case
 - Price sensitivity calibrated to the Global Financial Crisis, thereby capturing simultaneity of crisis affecting the whole financial sector

OUR APPROACH TO FORWARD LOOKING SCENARIO ANALYSIS (2/2)



FROM OBSERVED VOLUME-PRICE CHANGES TO INDUSTRY SPECIFIC PRICE SENSITIVITIES



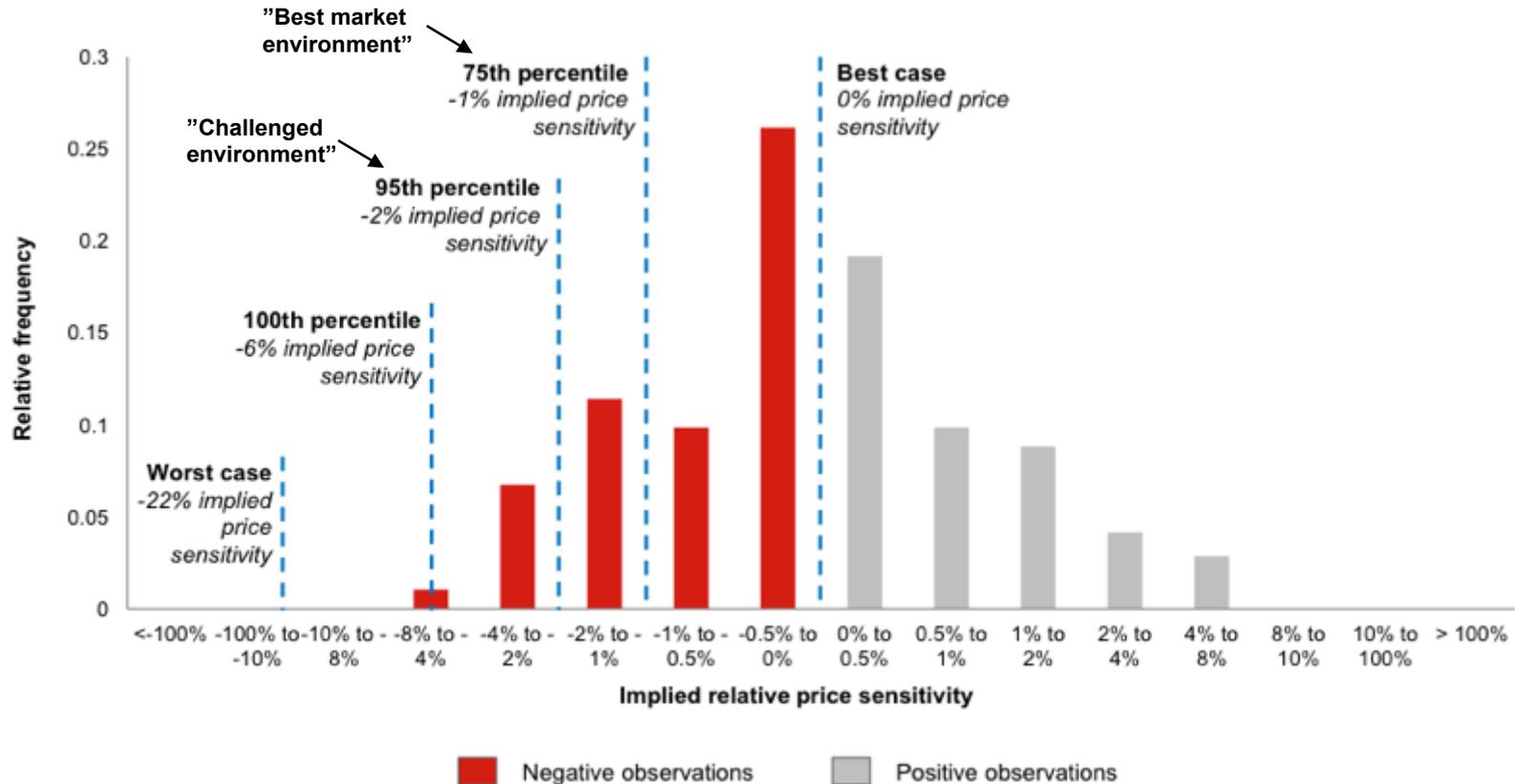
¹ Securities Industry and Financial Markets Association

CALIBRATION OF PRICE SENSITIVITY PARAMETERS (2/2)



EXAMPLE: FREQUENCY DISTRIBUTION OF CORPORATE BONDS

Implied price sensitivity of U.S. corporate bonds based on changes in volume and price



Sources: Bloomberg Market Breadth Investment Grade Bond Dollar Volume (NTMBIV) index; Barclays U.S. Corporate Investment Grade index

SUMMARY OF SCENARIO-BASED RESULTS



PRICE IMPACT OF LARGE-SCALE ASSET SALES UNDER VARIOUS SCENARIOS

	Europe		United States	
	“Best market environment”	“Challenged environment”	“Best market environment”	“Challenged environment”
Credit de-risking	-0.2%	-0.6%	-0.2%	-0.8%
Equity de-risking	-1.0%	-4.0%	-0.1%	-0.2%
Large surrenders				
• Equity securities		-0.1%		-0.05%
• Corporate bonds		-0.03%		-0.03%
• Agency bonds		n/a		-0.01%
• Government bonds		-0.03%		-0.25%
• Municipal securities		n/a		-0.25%
• Structured products		n/a		-0.11%
“Worst case” (Global Financial Crisis)				
• Credit de-risking		-7.1%	-8.0%	
• Equity de-risking		-19.2%	-1.1%	

“Best estimates” are based on the 75th percentile of the historic price / volume distribution; “very high” estimates are based on the 95th percentile

- 1 The business model of insurers does not trigger procyclical investment behaviour that's likely to cause systemic distortions.** Hence, there is no need for additional capital buffers to address potential investment herding behaviour
- 2 Policymakers should avoid creating incentives that weaken the ability of the insurance sector to absorb financial market distress.** Insurers functioned as shock absorbers during the Global Financial Crisis and were contributing to financial market stability
- 3 There is a need for further research into the implications of prudential regulatory regimes based on market adjusted valuations,** and whether they may influence or trigger procyclical behaviour
- 4 Policymakers should reflect about the potential for unintended consequences of regulation.** Solvency II foresees adjustment mechanisms designed to reduce procyclicality. That said, supervisors need to walk a fine line. They should recognise that procyclical behaviour is likely not systemically relevant, and they should be mindful not to impair the sector's shock-absorbing capacity