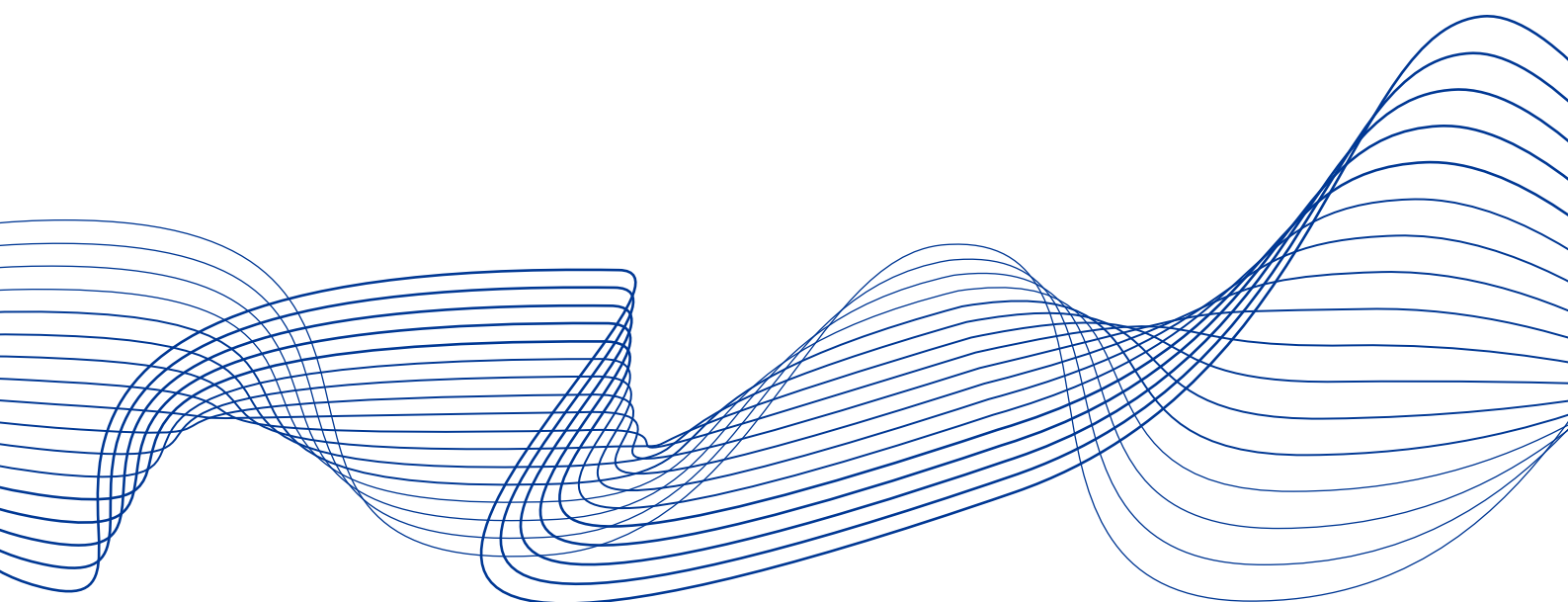


**Report on systemic risks
in the EU insurance
sector**

December 2015



ESRB
European Systemic Risk Board
European System of Financial Supervision

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Executive summary

Insurance fulfils an important role in the economy by taking on risks and mobilising savings. It contributes to economic growth and financial stability if it functions well. With assets worth two thirds of EU GDP, the EU insurance sector is a significant part of the financial sector. With liabilities comprising one third of European households' wealth, consumers depend on the insurance sector for their future income.

Liquidity risk or an "insurer run" is not considered a great risk or a likely event, but this cannot be taken for granted in all circumstances. On the one hand the maturity of liabilities of EU life insurers is on average four years longer than the maturity of assets, they receive upfront periodic payments and their assets are relatively liquid. On the other hand 50% of the liabilities of large EU life insurers can be surrendered without penalty and another 40% with a penalty lower than 15% of the policy value. There are currently cases of life insurers facing structural net cash outflows, for instance in Belgium.

In some markets, insurers are an important source of funding. Insurers in the euro area hold market shares of more than 10% in the markets for long-term bank debt and home sovereign debt. Dispersion between countries is large. For instance in France insurers account for one third of bank funding through debt or equity and two thirds of the covered bond market. Direct loans by insurers are not large, but in some countries such as Germany and the Netherlands still significant. Other banking-like activities by insurers are not large at present with the exception of securities lending, where insurers hold a market share of one third.

Given this role in the economy and the financial sector, the ESRB Insurance Expert Group (IEG)¹ has identified four main ways in which insurers can be the source of systemic risks or amplify these.

First, in line with literature to date, insurers may amplify shocks due to their involvement in so-called non-traditional and non-insurance activities. These activities imply liquidity and maturity transformation, leverage, complexity and interconnectedness and include variable annuities, certain types of guarantees and speculative derivative transactions. A prime example for such risks is AIG in the financial crisis. A rough estimate of the amount of non-traditional insurance products in the EU is at least EUR 125 billion. Due to insufficient reporting the number is probably understated; the quality of reporting will improve under Solvency II.

Second, procyclicality can arise. There is some evidence, although limited to a couple of studies in a few countries so far (United Kingdom, the Netherlands and outside Europe the US)², that insurers have acted procyclically with their asset allocation. This regards both portfolio shifts in upswings by "searching for yield" and in downturns by asset sales. In addition, insurers could act procyclically in the pricing and writing of insurance related to economic activities such as credit and mortgage insurance.

Third, life insurers in parts of Europe could create disruption by failing collectively under a scenario with prolonged low risk-free rates and suddenly falling asset prices (i.e. "the double hit"). In Japan this scenario has caused seven defaults in four years. Insurance guarantee schemes and recovery and resolution arrangements, currently in place at national level, are unlikely to be fit to handle such

¹ For further details on the IEG, please consult the Section Acknowledgements.

² For further details and references, see Section 3.2..



scenario. Given the nature of the liabilities, there could be strong impact on consumers' confidence in the financial sector and pressure to bail out a large life insurer rather than let it enter insolvency.

Fourth, underpricing by an insurer, if left unnoticed in microprudential supervision, could lead to a lack of substitutes in certain classes of insurance vital to economic activity. The failure of HIH, the largest insurer in Australia, is the most prominent example here. Insurance classes which are considered vital to economic activity include marine, aviation and transport insurance, liability insurance and in some cases property insurance.

The ways in which reinsurers and primary insurers can pose systemic risks are similar. In addition, there are a few specific features of the reinsurance markets which call for close monitoring. Most notable at this stage is the emergence of the transfer of risks to capital markets, which creates additional links between (re)insurance and financial markets, and the use of "captive reinsurers" for regulatory arbitrage, as experienced in the US. The latter risk is driven by the possible recognition of the regulatory regimes outside the EU being equivalent to Solvency II.

The IEG has also analysed incentives in prudential regulation, in particular Solvency II. The application of Solvency II as of 1 January 2016 marks a major step forward in modernising and harmonising European insurance regulation. It will generally increase capital and reserving requirements. There may, however, be some other effects which the IEG investigated. While informed predictions are already possible and in some cases the effects can be anticipated, some IEG members believe that it is too early to conclude on the incentives in Solvency II, as it first needs to be seen working in practice. Others, however, prefer a pro-active approach in order to avoid systemic turbulences. The discussions related to the following (possible) incentives are the following:

First, measures in Solvency II which intend to reduce volatility of balance sheets and prevent fire sales, the so-called long-term guarantee (LTG) measures, reduce reserving requirements in downturns in Pillar 1 without requiring the build-up of additional resilience (above regulatory requirements) in upswings. This is expected to lead to a reduction of technical provisions in downturns and may under specific circumstances incentivise insurers to take on more risks in upturns. Second, some other features in Solvency II may in some cases raise concerns about insurers' ability to meet their liabilities. Examples include an ultimate forward rate set at 4.2% and recent reductions of capital charges for certain investments to stimulate those investments. Third, Solvency II is a complex framework which requires coordination and cooperation between NSAs, improved reporting and public disclosure of information. Otherwise, market discipline may be hampered. Finally, there may also be opportunities for regulatory arbitrage; for instance, the application of macroprudential buffers to banks may move certain activities from banks to insurers. In some cases such migration may be desirable; in others it may frustrate macroprudential objectives in the banking sector.

Some measures in Pillar 2 and 3 may help to counteract unintended consequences of the reductions in capitalisation. For instance, supervisors can encourage insurers to hold more capital following insurers' Own Risk and Solvency Assessment (ORSA, Pillar 2). Unlike the Pillar 1 capital requirements, in the ORSA insurers must demonstrate their continuous sufficient capitalization in a forward-looking manner and taking into account all possible risks. Also, insurers are required to publicly disclose the impact of the measures applied to prevent volatility and fire sales (Pillar 3). Finally there is some scope for supervisory approval of the application of the long-term guarantee and transitional measures.

Given these possible systemic risks and the incentives in Solvency II, the question arises as to whether authorities have sufficient tools to address macroprudential concerns. Many national supervisors currently have powers, tools and flexibility which can help limit risks to financial stability and have actually used these in the past decade. Some of these tools will still be fully applicable



under Solvency II (e.g. a national cap on guaranteed returns), some will be institutionalised in Solvency II, but with much less flexibility (e.g. change of discount rates in times of distress) and others will not be available anymore (e.g. direct limits to certain asset classes).

In Solvency II the risk-sensitive capital requirement may help to mitigate some of the systemic risks identified by IEG. In addition Solvency II contains measures that aim to reduce procyclicality, mostly in periods of distress. These are likely to stave off fire sales. However, neither Pillar 1, nor Pillar 2 explicitly allows authorities to raise reserving requirements for pure macroprudential reasons. At a global level the IAIS addresses the systemic risks of the nine largest insurers (G-SII), five of which are domiciled in the EU. Thus, supervisors will have some tools to deal with the systemic risks of these insurers. However, the IAIS does not address any other macroprudential risks at this stage.

According to some members of the IEG, additional tools may be needed for macroprudential authorities to deal with systemic risks of the EU insurance sector. The most important ones are enhanced liquidity monitoring, a recovery and resolution framework for European (re)insurers and the flexibility to require the build-up of resilience (e.g. capital or reserve add-ons). As regards the last instrument, most members believe that it is important to make progress in that direction, taking national legal specificities into account. Other members believe it is too early to conclude on the necessity of such capital add-ons, let alone their application, because of uncertainties on the probability and impact of the possible systemic risks identified and on the impact of Solvency II. Nevertheless, it is recommended to analyse these instruments and attempt to determine their effectiveness as an input in future discussions on the legal framework.

From a shorter-term, immediate perspective, the common vulnerability to a “double hit” in combination with possible insufficient loss absorption capacity, also under Solvency II, is at the current economic conjuncture the most imminent systemic risk. This may require a quicker response from European supervisors in the triggering of the new Pillar 2 tools at their disposal within the Solvency II framework.



Introduction

This report is the synthesis of the analysis of the ESRB Insurance Expert Group on systemic risks in the EU insurance sector. First the role of insurance in the economy is discussed (section 1), then the financial links of insurers with other parts of the economy (section 2). Section 3 identifies the main sources of systemic risks in the EU insurance sector, while section 4 looks at possible systemic risks in the EU reinsurance sector. The incentives in prudential regulation of insurers, relevant from a macroprudential perspective, are discussed in section 5. The last section outlines existing and possible other macroprudential tools to address the systemic risks.

The notes with more elaborate analyses are included in the subsequent Annexes.



Section 1

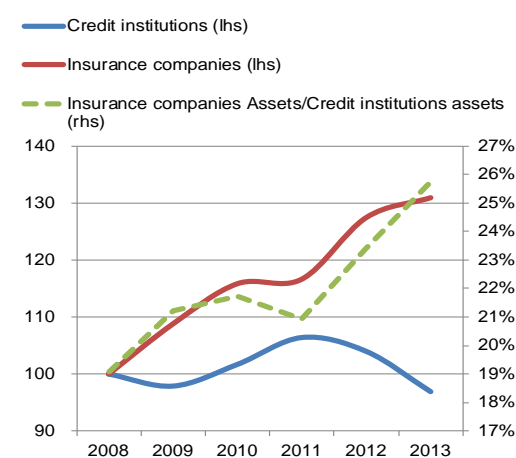
The role of insurance in the economy

The insurance sector's main function is to provide protection against risks. It pools idiosyncratic risks and smoothens aggregate risks over time and/or through international transfers. Yet, the insurance sector is not a major provider of protection against economic, let alone macroeconomic risks. These risks therefore indirectly affect insurance companies, i.e. through their investments.

The provision of insurance by non-life insurance companies enhances the efficiency and growth of the economy generally. For example, entrepreneurs can transfer non-commercial risk and the risks of exogenous calamity. This facilitates funding of businesses and reduces or avoids the need for expensive loan workout and bankruptcy procedures, in the event that an enterprise is affected by these risks. Insurers also aggregate and disseminate aggregate information on the price of risk, which should lead to more efficient resource allocation.

Life insurers offer protection against mortality, morbidity or longevity risk and they mobilise and invest savings of households. Life insurers offer products that bundle characteristics that are

Chart 1
Growth of total assets of insurers compared with banks in the euro area (2008 indexed at 100)

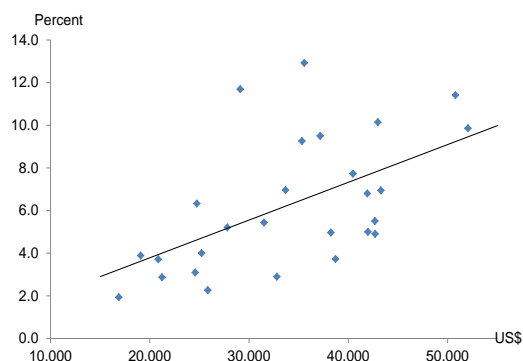


Source: ECB and European Commission

attractive to households, such as regular contribution schedules, guarantees of principal, and protection against mortality, morbidity or longevity risk. The mobilised savings, together with insurers' own resources, make them major players in financial markets. The extent to which the insurance sector plays these roles depends in large measure on the extent to which substitutes are offered by financial markets, other financial institutions such as pension funds, and the public sector. The balance between these substitutes in any one country often reflects the history of institutional development in that country, and policy choices regarding, for example, taxation, state pensions and the health system. Insurers' assets have grown steadily since the financial crisis, filling some of the void left by deleveraging banks (Chart 1).



Chart 2
Insurance penetration and GDP per head in the OECD (2011)



Source: OECD Factbook 2014 and ESRB calculations.
 Notes: Insurance penetration (y-axis) is measured as direct gross insurance premiums (life and non-life) as a percentage of gross domestic product. Dots are OECD countries. Ireland, Luxembourg and Norway are not depicted.

Table 1
Size of the insurance sector in Europe (2013)

	Life	Non-life
Gross written premia		
EUR m	666,615	450,303
% GDP	5.1%	3.4%
Total assets		
EUR m	6,948,333	1,519,842
% GDP	53.1%	11.6%

Source: Insurance Europe

Insurance premiums amount to 8 percent of European GDP and its assets to 65 percent of GDP (Table 1). The value added by the insurance sector is estimated at 1–2 percent of GDP.³ The insurance sector tends to be larger in mature economies (Chart 2), but there is no clear, unidirectional causation. For example

insurance may contribute to development of banks and organised financial markets, but the latter also enable and encourage the former to grow. Some studies suggest that a strong insurance sector is associated with stronger growth, but again the direction of causation is unclear.⁴

³ Hess, Thomas (2006), "The Underestimated Link between Insurance and the Real Economy—Its Effect on Sustainable Growth and Competitiveness," Geneva Association working paper No. 328.

⁴ See for instance Outreville, J. François (2013), "The Relationship between Insurance and Economic Development: 85 Empirical Papers for a Review of the Literature." Risk Management and Insurance Review, Vol. 16(1), pp. 71-122.



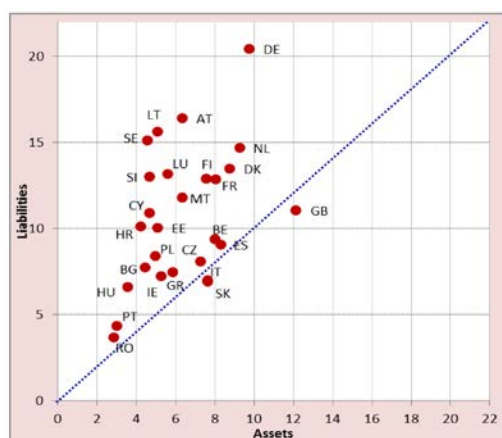
Section 2

Interconnectedness of the EU insurance sector

A well-functioning insurance sector is important for financial stability. This is the basis for the further analysis of possible systemic risks. From the primary functions, highlighted above, we follow the insurance sector's linkages with the financial system and the rest of the economy. The following sections provide the mapping of the exposures of the EU insurance sector to other sectors, partial analysis on the interconnectedness at firm level and the analysis of risks for the stability of the European financial markets following these linkages. Several data sources have been used.⁵

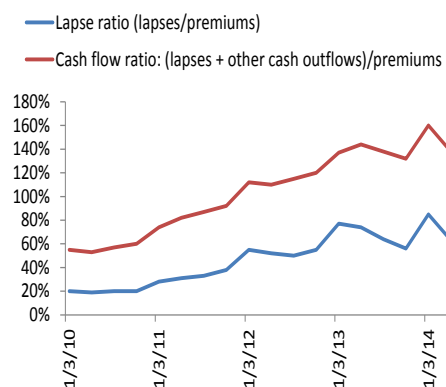
More than three quarters of insurers' liabilities in the euro area are technical provisions, i.e. contractual obligations to policyholders. These future obligations constitute 32% of households' assets in 2012.⁶ Thus insurers and households are mutually dependent: households rely on insurers paying out their promised policy payments, while, although not common, insurers may suffer liquidity risk in the event of mass lapses and surrenders. Liabilities of life insurers in the EU have in general a long expected duration of on average more than four years longer than their assets (Chart 3). In addition, insurers receive periodic insurance premiums for old and new policies. This makes funding liquidity risk much less of a risk for insurers than, for instance, banks, while market liquidity risk is partly mitigated by their investments in liquid asset classes like sovereign bonds.⁷

Chart 3
Duration of EU insurers' liabilities (expected values) and assets (years, 2013)



Source: EIOPA stress test report (2014)

Chart 4
Lapse rates and net cash flows in Belgium



Source: NBB.

Notes: Aggregation of seven largest Belgian insurance undertakings/groups. The figures are not representative for the entire Belgian market.

⁵ The sectoral analysis relies mostly on the insurance statistics of the ECB database. As the ECB database is limited to the euro-area countries, data from the Riksbank on Swedish firms and in some instances data from the Bank of England on UK firms have been included. In addition – in an attempt to fill data gaps – the ESRB has received from EIOPA data on exposures, products and activities of EU insurance groups at firm level and at sectoral level.

⁶ Source: Eurostat, 2014.

⁷ Funding liquidity risk is the risk of no access to new funding (on the liability side); market liquidity risk is the risk of not being able to sell assets at current market prices or without moving market prices.

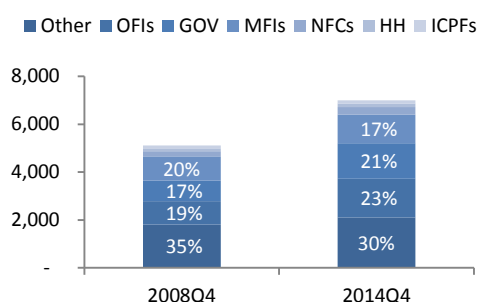


However, where there is a possibility for policyholders to surrender or lapse their insurance contract, liquidity risks may arise – for instance, in the event that interest rates suddenly rise.

The main prevention against this is the contractual penalty which policyholders need to pay in case they lapse or surrender. These penalties are not always applied, though. More than 50% of the technical provisions of 19 large EU life insurers do not contain these penalty clauses, whereas more than 90% have penalties of less than 15% of the contractual obligation.⁸ Two large insurers reported lapses which were higher than their net premium income. In Belgium some large insurers currently face net cash outflows on their life portfolio due to high lapse rates as a result of the low-yield environment, a shift of clients to other saving products and the abolishment of certain tax advantages for life insurance policies (Chart 4).

On the asset side, insurers (euro area and Sweden) are mainly exposed to investment funds, governments and banks (Chart 5). Approximately half of total assets held by euro-area insurers exposes them directly to the financial sector of the euro area. The non-financial sector (households and non-financial corporations) represents only a low share (7%) of insurers' total assets.

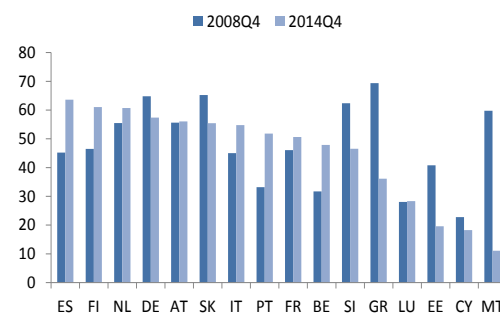
Chart 5
Assets of insurers in the euro area and Sweden: breakdown by sector (EUR bn)



Source: ECB and Riksbank.

Notes: The percentages refer to the relevant shares of the counterparties on the balance sheets of insurers. Data are market values and therefore are not only affected by changes in investment behaviour but also by changes in market values. Data exclude Ireland. OFI = other financial institutions, GOV = governments, MFI = banks, ICPF = insurers and pension funds, NFC = non-financial corporations, HH = households.

Chart 6
Home bias of insurers in the euro area (domestic financial assets as percentage of total financial assets)



Source: ECB and Riksbank.

Notes: The percentages refer to the relevant shares of the counterparties on the balance sheets of insurers. Data are market values and therefore are not only affected by changes in investment behaviour but also by changes in market values. Data exclude Ireland. OFI = other financial institutions, GOV = governments, MFI = banks, ICPF = insurers and pension funds, NFC = non-financial corporations, HH = households.

In the past five years, insurers have increasingly invested in debt of their home sovereign.⁹

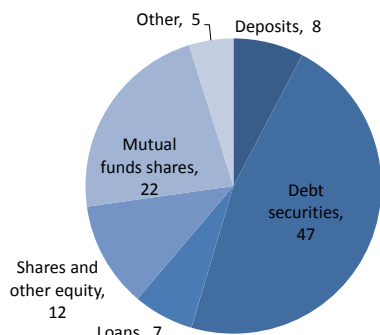
Comparing 2008 and 2013 data three changes can be identified: an increase in government debt from 17% to 21% of insurers' total assets (i.e. an increase of around EUR 620 billion), a decrease in counterparties outside the euro area from 35% to 30% and an increase in the link between insurers and their home sovereign. Traditionally the home bias as regards insurers' largest asset classes of sovereign bonds, bank debt and corporate debt has always been strong. This is true in core countries and in periphery countries. For many countries this home bias has been aggravated during the crisis (Chart 6). It may lead to systemic risks arising from overinvestment in government debt, crowding-out of lending to the economy and the reinforcement of the bank-sovereign link.

⁸ Source: ESRB data collection (2014).

⁹ ESRB report on regulatory treatment of sovereign exposures (2015).



Chart 7
Assets of insurers in the euro area, Sweden and the UK: breakdown (%) by asset class



Sources: ECB (Q4 2014), Riksbank (Q3 2013) and Bank of England/PRA (Q3 2013).

European Insurers largely invest in debt securities and mutual funds, while in some countries a trend from equity to fixed income can be observed.

Debt securities are dominant and have increased their share to 47% (from 42% in 2008). The share of mutual funds also increased (to 22% from 19% in 2008). Equity, deposits and loans, though slightly declining in share, are less important asset classes of insurers (chart 7). Although on average investment shifts may be small, over time and in some countries they can be large. Particularly striking for instance is the divestment of equity by UK insurance companies and pension funds from over 50% of their portfolio in the early 1990s to just over 10% in 2012.¹⁰

Insurers play a significant role in the funding of governments and banks. The market share of insurers in the funding of counterparties gives a hint of the importance of insurers in this funding and possible vulnerabilities to shocks in the insurance sector. Insurers' funding of banks represents 4% of total bank funding in 2014 (euro area).¹¹ This is a lower bound and most likely an underestimation, since insurers also invest in bank debt and equity through investment funds.¹² Similarly insurers' investments in government bonds represent 12% of outstanding government debt of the euro zone.

Insurers' importance for bank debt funding is in some countries significant, whereas for funding through deposits and equity it is small. The 4% market share in bank funding is an average of all securities and deposits. The market share in bank debt funding is higher: 13% in 2014. This comprises mostly long-term debt, as 97% of bank debt held by insurers has a maturity of more than 2 years.¹³ The market share in bank deposits and bank equity in 2013 is 2% and 1% respectively.

Dispersion across countries and across debt instruments is large. For some countries, such as France and Belgium, insurers account for one third of bank funding. In other countries such as Italy and Germany, insurers account for a much lower share. Insurers have a high share in the covered bank bond market in some countries (Chart 8).

¹⁰ "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).

¹¹ Source: ECB.

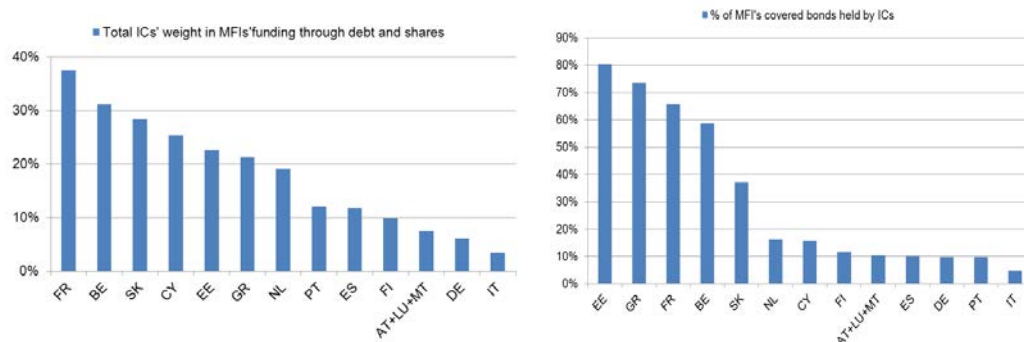
¹² The data available was not sufficiently detailed to have a look-through perspective of these investment funds.

¹³ Source: ECB.



Chart 8

Insurers' market share in banks' debt and equity (left hand chart) and in banks' covered bonds (right hand chart): breakdown by country (2013, euro area)



Source: ECB database on securities holdings.

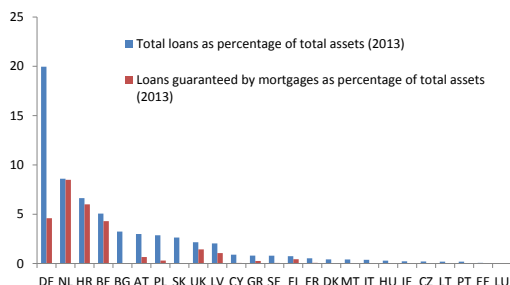
Notes: As these statistics are for "solo" insurance companies, intragroup positions are included. Holdings through mutual funds are excluded (i.e. not a look-through approach).

Loans by insurers in the EU are not large, but in some countries and taken together not insignificant. Loans to households and corporates are more than 5% of total assets in Germany, the Netherlands, Croatia and Belgium (Chart 9). These loans, however, are much less significant

when compared with total credit in these countries. In Germany the loans are mostly of a hybrid type between direct credit and a bond. In the other three countries the majority of the loans are mortgages.

Chart 9

Loans held by insurers as a percentage of total assets (2013)



Source: EIOPA.

Notes: The data for Germany deviate significantly because loans in Germany include *Schuldscheindarlehen* (borrower's notes) and *Namenschuldverschreibungen* (registered bonds).

for 3% of assets of EU insurance groups at end-2013.

Other banking-like activities in insurance are small with the exception of securities

lending. The numbers of Chart 9 do not include investments in asset and mortgage-backed securities. It is estimated that in 2012 a sample of 13 large European insurance groups held less than 4% of total outstanding European securitisations, which was less than 2% of their total assets.¹⁴ Insurers and pension funds account for 37% (EUR 477 billion) of the assets available for securities lending in the EU.¹⁵ A stock take of EIOPA showed that CDS account

The ESRB Insurance Expert Group has mapped the network of the 29 largest EU insurers with banks and simulated stress.¹⁶ The aim of this network analysis is to understand the network

of connections between EU insurance groups among themselves and with banks and to understand how shocks can propagate within this network of direct connections.¹⁷ Large European insurers in general display low interconnectivity to each other and to banks with a few exceptions. The density

¹⁴ Insurance Europe and Oliver Wyman, "Funding the future, Insurers' role as institutional investors", June 2013.

¹⁵ ESRB, Securities financing transactions and the (re)use of collateral in Europe, Occasional paper No 6, September 2014.

¹⁶ Network analysis of the EU insurance sector (2015), ESRB Occasional Paper No. 7, July 2015.

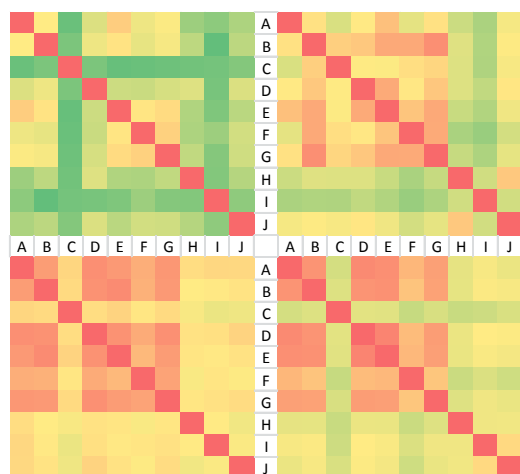
¹⁷ Exposures of banks to insurers have not been collected.



of the network is low compared with, for instance, the interbank debt market, but few insurers have significant exposures to bank counterparts. These network characteristics suggest that credit and funding events cannot be expected to easily spread from banks to insurers through direct contagion, because there are not many large exposures held by insurers. Simulation of stress at a single insurance counterpart or single banking counterpart does not lead to a default of one of the large EU insurance groups.¹⁸ The simulation of default and/or distress in the network shows that solvency positions are sufficiently large and concentration of exposures is sufficiently low to avoid direct contagion of a counterparty default. For the vast majority of insurance groups this is also true for the exposure to the entire banking sector: a severe banking crisis pushes two insurance groups into default, whereas nine groups are pushed below their SCR levels. This would trigger recovery requirements, but not a default. It can be concluded that these direct contagion channels are limited for the largest EU insurance groups.

There are a few limitations attached to this network analysis. First, there is no data on banks' exposure to insurers. Therefore, the analysis does not preclude contagion from insurers to banks.

Chart 10
Correlation between the changes in CDS spreads of large EU insurers



Sources: ESRB Secretariat and Bank of England.
 Notes: A = Aegon; B = Generali; C = SCOR; D = Aviva; E = AXA; F = Munich Re.; G = Allianz; H = Legal & General; I = Old Mutual; J = Prudential. Red (green) squares indicate high (low) correlation between the changes in insurers' CDS spreads. Note that part of the changes in correlations may be related to changes in the common risk premium (see Berndt, 2014)

Second, a banking crisis is usually accompanied by losses on other markets, such as corporate bond, sovereign bond and equity markets, in which insurers also have large stakes. Third, this analysis assumes no second-round effects due to insurers' investment behaviour. Insurers may sell bank bonds in response to a shock in that market, exacerbating the shock. This indirect contagion channel has not been analysed here.

The insurance sector is also indirectly linked to other sectors through information spillovers (reputational risks) and common exposures.¹⁹ One way of assessing the degree of both direct and indirect linkages is the analysis of market prices, assuming that markets internalise these linkages in prices. Empirical studies using market data show that insurers transmit systemic risks through direct and indirect linkages to a much lesser extent than banks, although their contribution is not absent.²⁰

¹⁸ In this analysis a default is defined as a breach of the minimum capital requirement (Solvency II).

¹⁹ ESRB note on indirect contagion channels, 2015.

²⁰ Bilio M. e.a, Econometric Measures of Connectedness and Systemic Risk in the Finance and Insurance Sectors, University Ca' Foscari of Venice, Dept. of Economics Research Paper Series No. 21; Engle, E. Jondeau and M. Rockinger, Systemic Risk in Europe, Swiss Finance Institute Research, Paper No 12 – 45, December 2012; H. Chen, J. D. Cummins, K. S. Viswanathan and M. A. Weiss, Systemic Risk and the Interconnectedness between Banks and Insurers: An Econometric Analysis, online publication, March 2013, intended for publication in The Journal of Risk and Insurance; N. Podlich and M. Wedow, Are insurers SIFs? A MGARCH model to measure interconnectedness, Applied Economics Letters, Vol 20, pp 677- 681, May 2013; K. Minderhoud, Extreme Stock Return Co-movements of Financial Institutions: Contagion or Interdependence, December 2003, DNB.



The indirect interlinkages between insurers have been perceived to increase over time.

Correlation of CDS price movements have increased from pre-crisis (2005-2006) to the financial crisis (2007-2008) and especially to the euro crisis (2010-2012) (Chart 10). They now stand at a lower level than during the euro crisis but are still higher than before. These links must be mostly indirect, due to common exposures or common business models, as the above firm-level analysis shows limited direct exposures between insurers. This implies a higher potential of indirect contagion.



Section 3

Sources of systemic risks in the insurance sector²¹

A possible systemic impact of the EU insurance sector can be on the financial system or the real economy. The above interconnectedness analysis shows that insurers are to a large degree exposed to the financial sector on their asset side, while their liabilities are mostly held by counterparties outside the financial sector. The following analysis on possible systemic risks therefore considers both systemic contagion channels: to the financial sector (and consequently the wider economy) and directly to the real economy without affecting the financial system. It considers the possible systemic impact of insurers when they fail, but also on a going-concern basis.

The analysis of cases of actual insurance company failures worldwide shows a broad range of possible causes for failure. The most common ones are: expansion into new areas and non-core activities; too high a tolerance for investment risk; stressed assets in combination with surrender outflows; interest rate risk and a difficult macroeconomic environment; under-reserving and under-pricing; unforeseen claims and catastrophes; management and governance issues; group support to distressed group members, as well as rapid and unprofitable growth. In many cases more than one cause is at play.

Academic literature to date considers non-core activities and size (some studies) of insurance companies to be the most likely drivers for insurers potentially becoming systemically important for the rest of the financial sector in the sense of “too big to fail”.²²

One example is the case of American International Group (AIG), then the largest insurer worldwide, which failed during the financial crisis due to its intense involvement in credit derivatives. Non-traditional and non-insurance (NTNI) activities and interconnectedness have also been the focus of the IAIS work so far, while size plays only a minor role in the IAIS framework.

The analysis in this report goes beyond a limited number of systemically important institutions and is not limited to size and non-core activities. It considers the potential systemic impact of the sector as a whole for the real economy by virtue of vital insurance activities. It also takes into account the systemic impact which insurers may have due to common investment behaviour and common vulnerabilities. In sum, the role of insurers in financial distress can be twofold: first, insurers may amplify or mitigate an external shock; they can amplify by reacting procyclically or by failing. Second, insurers may themselves be a source of systemic risk because of some of their activities. Based on literature²³ and case studies, four main scenarios are identified in which the EU insurance sector may have a systemic impact.

3.1 NTNI activities

First, insurers may amplify an external shock due to their involvement in so-called non-traditional and non-insurance activities (NTNI). These include variable annuities, certain types of guarantees and speculative derivatives transactions. NTNI activities imply material liquidity

²¹ While the Insurance Expert Group has considered possible sources of systemic risk in the insurance sector from an analytical point view, it has not been in a position to empirically assess the systemicness of insurers and the insurance sector. This analysis is based on a wide range of data sources, but the IEG acknowledges that further work needs to be undertaken to empirically assess the systemic importance of insurers.

²² See for an overview of literature to date: Eling, Pankoke, “Systemic risk in the insurance sector – what do we know?”, January 2014.

²³ See e.g. Förstermann and Feodoria (2015) for an analysis of the German market.



transformation, maturity mismatch, leverage, complex risks and financial-system interconnectedness. Such activities render insurers particularly procyclical and vulnerable to financial risks. As a consequence, insurers may face correlated and larger-than-expected losses during financial crises and be confronted with liquidity pressures, which could increase the scale of disruption.

At the moment, NTNI by EU insurance companies is not regularly monitored and data on the size and composition of these activities are absent or incomplete. The dedicated ESRB data collection (directed to national supervisors) produced data from 14 EU countries on their outstanding life insurance products. Of the EUR 3.7 trillion technical provisions reported, less than 4% have been classified by supervisors as non-traditional products such as separate accounts with portfolio choice and guarantees. This, however, only covers the non-traditional insurance on the liability side; it does not include the non-insurance activities and the non-traditional activities on the asset side, which are unlikely to be very small. From next year, Solvency II will give a much better picture of NTNI through its reporting requirements.

3.2 Procyclicality in asset allocation

Second, there is some, although limited, evidence that insurers may act procyclically with their asset allocation. As mapped in section 3.1, this is particularly relevant for sovereign bonds, corporate bonds and to a lesser extent equity markets. Analyses by the Bank of England²⁴ and De Nederlandsche Bank (DNB)²⁵ show some evidence of procyclical investment behaviour by insurers after the dotcom bubble, the financial crisis and the euro sovereign debt crisis. In order to stave off fire sales, authorities in Denmark, Germany, Italy, the Netherlands, Sweden and the UK have introduced specific measures during the last 15 years. Similarly, both the EIOPA²⁶ and the ECB²⁷ in 2014 observed some tendencies towards “search for yield” by EU insurers. These tendencies contribute to the current compression of risk spreads in corporate bond markets. Anecdotal evidence suggests that EU insurers have extended the duration of their bond portfolios in response to the current low-yield environment, thereby further pushing down low yields at the long end of the curves. US insurers are shown to have a propensity to choose higher-risk, higher-yielding bonds within the same credit rating category.²⁸

Several factors can drive this possible procyclical investment behaviour. Explanations are herding behaviour due to common exposures and business models, increased use of asset managers, benchmarks and mechanical investment rules and regulation.

²⁴ Bank of England, “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. The paper finds some evidence of procyclical investment behaviour by insurance companies both internationally and in the UK. In the UK, there is some evidence of procyclical shifts in asset allocation following the dotcom crash of the early 2000s, and to a lesser extent during the recent financial crisis. There also appear to be important structural shifts in asset allocation occurring during this period, which make identifying procyclical behaviour more difficult.

²⁵ DNB working paper, Melle Bijlsma and Robert Vermeulen, “Insurance companies’ trading behaviour during the European sovereign debt crisis: Flight home or flight to quality”, No. 468 / March 2015.

²⁶ EIOPA, Financial Stability Report, May 2014.

²⁷ ECB, Financial Stability Review, November 2014.

²⁸ Becker and Ivashina, “Reaching for yield in the bond market”, NBER Working Paper No. 18909, issued in March 2013.



3.3 Procyclicality in the pricing and writing of insurance

Third, insurers could act procyclically in the pricing and writing of insurance related to economic activities such as credit and mortgage insurance. This seems particularly relevant for trade credit insurance. The European trade credit insurance market is rather concentrated and the probability of multiple, simultaneous failures is high given the correlation of trade credit insurance with the economic cycle. Indeed, there is evidence of a material reduction in provision during the recent financial crisis.²⁹

3.4 Common vulnerability to a double-hit scenario

Fourth, life insurers could create significant disruption by failing collectively under a “double-hit” scenario. Such a shock could arise from a financial-market stress combined with a prolonged low interest rate environment. The failure of seven Japanese life insurers in the late 90s is a prime example.³⁰ Common business models, asset allocation in risky investments (“search for yield”), maturity mismatch, liquidity pressure due to lapses and NTNI activities could increase the scale of the disruption. In Europe, the EIOPA 2014 stress test shows that 44% of the life insurers would need to adjust their balance sheets in a “double-hit” scenario.

At the current juncture, common vulnerabilities to low interest rates lead to solvency problems in the medium term. EIOPA³¹ has calculated by when the low interest rates at end-2013 would become an urgent problem for life insurers, should they prove sustainable (i.e. a so-called Japanese scenario). EIOPA’s analysis shows negative net cash flows in approximately 8-11 years for insurers in Austria, Germany, the Netherlands and Sweden. It should be noted, however, that current interest rates are far below the ones tested and EIOPA assumed lapses and surrenders to be constant. The findings for Germany are in essence confirmed by the separate analysis of the Bundesbank.³²

Also, a sudden rise in interest rates after a prolonged period of low rates may jeopardise the stability of insurers. Policyholders can be inclined to lapse and surrender their policies in this scenario. The interdependence between risks, in this case interest rate risk and lapse risk, can change in crises. This would call for a joint modelling of these risks, in risk management and stress tests, to avoid underestimation.

The insurance guarantee schemes and recovery and resolution arrangements currently in place are unlikely to be fit to handle all of the above scenarios. An orderly resolution could minimise any impact on financial stability, ensure the continuity of critical functions, and avoid exposing taxpayers to loss. There are, however, significant differences between resolution powers and tools available to national authorities.³³ An important element of resolution is provided by current national insurance guarantee schemes (IGS). In Japan, for instance, the IGS has proven to

²⁹ Van der Veer, “Private Trade Credit Insurers during the Crisis: The Invisible Banks”, taken from World Bank (2011) “Trade Finance during the Great Trade Collapse” edited by J-P Chauffour, J-P and M Malouche.

³⁰ The Geneva Association, “US and Japan Life Insurers Insolvencies Case Studies”, January 2015.

³¹ EIOPA, Insurance Stress Test Report (2014).

³² Deutsche Bundesbank (Anke Kablau and Matthias Weiß), “How is the low-interest-rate environment affecting the solvency of German life insurers?”, Discussion Paper No 27/2014. In a severe stress scenario, 32 out of 85 German life insurers would not meet their Solvency I requirement. Measures taken in 2014 through the German Life Insurance Reform Act have – when viewing the change to policyholders’ participation in the valuation reserves implemented in the LVRG in isolation – reduced the number of insurance companies that can no longer meet the regulatory own funds requirements from 32 to 13.

³³ EIOPA, opinion on sound principles for crisis prevention, management and resolution (2014).



contribute positively to financial stability. In the EU, current schemes have been proven to function in the event of failures of small insurers, also because the winding-up of an insurer can span several years given their long-term liabilities (so-called run-off). But the resolution of a large life insurer in the EU has been untested so far. IGS may not be able to take the losses in the event of simultaneous failure of several large insurance companies.

Given the nature of the liabilities, there could be political pressure to bail out a large life insurer rather than let it enter insolvency. Without a resolution regime and a credible loss allocation mechanism, there might be no alternative but to bail out, because in some countries citizens rely on the payments from insurance policies as a primary source of income. An EU recovery and resolution regime, for insurance, is currently on the agenda of the EU Commission, although without concrete proposals yet. During the financial crisis, European insurers received public support qualifying as state aid under EU law totalling more than EUR 6.5 billion.³⁴ This is a significant absolute amount, but still not much compared with approximately EUR 590 billion of public capital support to European banks.³⁵

3.5 Lack of substitutes in vital lines of insurance business

Underpricing by an insurer, left unnoticed in microprudential supervision, could lead to a lack of substitutes in certain vital lines of business. Aggressive pricing and uncontrolled growth of an insurer can endanger the continuity of insurance coverage provision by driving competitors out of business and diminishing the natural substitutability across the different providers of insurance. Aggressive pricing can lead to under-reserving building up unnoticed over time. Lack of transparency of reserving assumptions makes supervisory examination hard. When a failure finally occurs, there are potentially no competitors to ensure the continuity of insurance coverage provision, leaving policyholders without cover. The failure of HIH, the largest insurer in Australia, in 2001 is the most prominent example of this scenario.

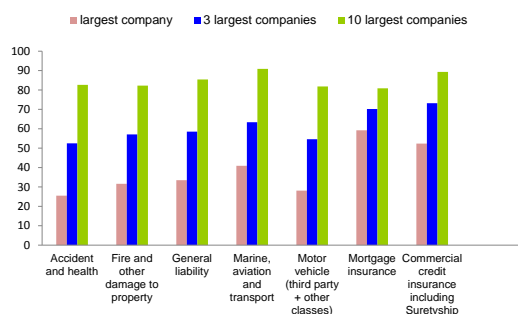
Material disruption to particular classes of commercial insurance could have significant impacts on real economic activity. Such classes include marine, aviation and transport insurance, general and specific liability insurance, and in some cases property insurance. Loss of cover in these areas is particularly critical for economic activities, because lenders require insurance (e.g. of commercial property), or insurance is mandatory (e.g. aviation or construction). Without it, some activities cease altogether. However, whether or not such a disruption can occur depends on the level of substitutability.

³⁴ European Commission Note for discussion by Expert Group on Banking, Payments and Insurance (EGBPI) meeting on 5 March 2015, available at <https://www.eduskunta.fi/FI/vaski/Liiteasiakirja/Documents/EDK-2015-AK-3427.pdf>.

³⁵ Between October 2008 and 31 December 2012, according to the Commission (http://europa.eu/rapid/press-release_IP-13-1301_en.htm).



Chart 11
Concentration levels in non-life insurance in the EU



Source: ESRB.
 Note: concentration levels are for the unweighted average of domestic markets of the EU at end-2013.

Some specialised lines of non-life insurance, vital for economic activity, show relatively high concentration levels. Current concentration levels on domestic markets are relatively large for mortgage insurance, commercial credit insurance and marine aviation and transport insurance (Chart 11). It should be noted that these are domestic levels. In the event of the failure of the largest player, another one from abroad may step in. Also, data shows significant differences between countries.

There is little evidence that these markets are not sufficiently substitutable in the short run.³⁶ Substitutability is hitherto widely assumed as given. However, one of the assumptions supporting this is the moderate

concentration of most insurance markets, which is not the case for some business lines in the EU, as shown above. Substitutability in such cases is determined by the speed and ease with which competitors can pick up the business of a failed peer, which – according to the IAIS – is usually high due to capital fungibility, low set-up costs and few information asymmetries. However, there is little empirical research on this topic beyond the IAIS analyses. Even though it is possible for insurers to enter the market, they may not wish to do so, e.g. because of temporarily low profitability in the sector. This might to an extent be offset by a high demand for insurance products, e.g. because of mandatory cover.

³⁶ IAIS, Insurers and Financial Stability, 2014



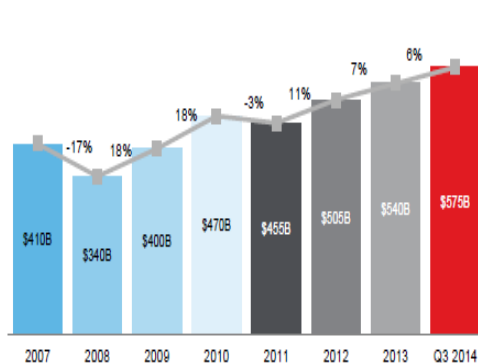
Section 4 Reinsurance

Reinsurance provides economic benefit and helps financial stability by covering risks which primary insurers do not want or cannot take. The ways in which reinsurers and primary insurers can pose systemic risks are similar. In addition, there are a few specific features of and developments in the reinsurance market which call for close monitoring and further analysis.

Firstly, reinsurance creates links between primary insurers and reinsurers and between reinsurers and other reinsurers (so-called retrocession). Potentially this can lead to contagion from reinsurers in the event of a default. However, insurers typically reinsure only parts of their liabilities and diversify their providers of reinsurance over a set of reinsurers.³⁷ In addition, reinsurance contracts are regularly settled and/or collateralised. Studies suggest that failure of a reinsurer can have an impact on individual insurers but not across the sector or beyond that to the financial system.³⁸

Second, reinsurance is a global business with a few large reinsurers in the EU and in offshore centres dominating the market (Table 2). Some of the largest reinsurers are domiciled in the EU, covering risks around the globe. Other reinsurers often operate in so-called offshore centres, covering risks of European insurers. The high concentration levels in certain product segments generally increase the risk that substitutes of reinsurance capacity in those segments may not be available at short hand in the event of the failure of a large reinsurer. The degree of competition in this international market is, however, considered high and in the past years new capital has entered the reinsurance market (Chart 12) driven by both search for yield and the reinsurance cycle. This dampens concerns on substitutability.

Chart 12
Continuous capital influx into global reinsurance



Source: Aon Benfield, "Reinsurance Market Outlook 2015".
Note: total capital (USD billion).

Table 2
Reinsurance is dominated by a few (EU) players

Rank in top 10 Global Reinsurers (2012)	Company	Domicile	Estimated market share in 2012	Estimated market share in 2011
1	Munich Re	Germany	19.3%	18.6%
2	Swiss Re	Switzerland	13.6%	13.3%
3	Hannover Re	Germany	8.8%	8.3%
5	Lloyd's	United Kingdom	6.1%	6.2%
6	SCOR	France	6.0%	5.1%
Total			53.8%	51.5%

Source: S&P, "Global Reinsurance Highlights 2013"

Third, an alternative way of reinsurance is emerging: insurance-linked securities transfer insurance risks to investors. This broadens the scope for risk transferral, but it also creates additional links between (re)insurers and financial markets. These links may make the reinsurance market more vulnerable to investors' procyclical

³⁷ IAIS (2012), "Reinsurance and Financial Stability".

³⁸ Park and Xie (2014), "Reinsurance and Systemic Risk: The Impact of Reinsurer Downgrading on Property-Casualty Insurers"; Lelyveld e.a. (2009), "An empirical assessment of reinsurance risk".



behaviour. For instance, the ongoing search for yield in the current environment attracts investors in catastrophe bonds, which in turn drives down the price of risks insured (even though the risks themselves may not have changed materially). In addition insurance-linked securities may lead to the build-up of tail risk for investors, who are not familiar with (let alone appropriately managing) this risk. For instance, longevity risk transfer exposes these investors to relatively unknown risks. The absolute volumes, though sharply increasing, are still modest for now: annual issuance of catastrophe bonds stands at around USD 5 billion and the total outstanding is around USD 25 billion.³⁹

Finally, insurers may set up reinsurance subsidiaries and move risks to these entities. In the event that the regulatory regime differs between insurers and such reinsurers, this may result in regulatory arbitrage. This is mostly a risk identified in the US.⁴⁰ In the EU, group supervision and rules for equivalence of supervisory regimes outside the EU should prevent regulatory arbitrage. However, EU insurance groups with subsidiaries in the US can benefit from shifting risks to reinsurance captive of that US subsidiary, if the solvency regime of the US is considered equivalent for the next decade.

³⁹ AON Benfield, "Insurance-linked securities", September 2014

⁴⁰ FSOC, Annual Report 2014



Section 5

Incentives in prudential regulation⁴¹

The start of Solvency II next year marks a major step forward in modernising and harmonising European insurance regulation. Solvency II applies a common risk-sensitive and market consistent regime to European insurers. It replaces Solvency I, a relatively risk-insensitive framework under which a patchwork of different regulatory regimes has developed. Given the micro and macroprudential benefits of a harmonised, market consistent and risk-sensitive regime, a quick and efficient implementation of Solvency II is essential.

The main objective of Solvency II is the adequate protection of policyholders and beneficiaries. Financial stability is another objective which should also be taken into account but should not undermine the main objective.⁴² Although in many cases these objectives are aligned, Solvency II has thus not been specifically designed to tackle risks to financial stability.

Pure mark-to-market valuation and risk sensitivity may lead to volatility of insurers' balance sheets and might imply incentives for procyclical investment behaviour.⁴³ Because of their long-term liabilities, life insurers have long-term investment horizons. If insurers do not face the risk of forced asset sales in stresses, short-term volatility in market prices is not justified to affect them from an economic perspective. Pure mark-to-market valuation, although preferred over historic costs-based approaches, therefore has distorting effects in the event of extreme short-term market moves such as those witnessed in the recent crisis. In sharp downturns insurers may need to sell off assets with a high capital requirement in order to remain solvent and during asset-price bubbles they may have large capital surpluses which they could be incentivised to use to further drive up asset prices.

There are a number of measures included in Solvency II which intend to tackle these effects and such behaviour. First, the capital charge for equity holdings tightens and loosens in periods of relatively high and low equity prices respectively. Second, the so-called long-term guarantees package has been introduced.

Measures in this long-term guarantee package are largely designed to reduce "artificial" volatility in solvency balance sheets and to tackle fire sales in periods of stress.⁴⁴ The volatility adjustment lowers reserving requirements, depending on the spreads in the markets, for all liabilities compared with valuation of liabilities using the risk-free rate. In addition, in the event of financial market distress and a breach of the SCR, supervisors can extend the recovery period up to seven years provided that there is a recovery plan in place. This is consistent with recent evidence on the regulatory flexibility applied by national authorities in the crisis, which appears likely to have been successful in staving off fire sales. A further long-term guarantee measure, the matching adjustment, might also lower reserving requirements according to spreads but does not explicitly target fire sales. Instead, it reflects that for certain eligible, matched assets and liabilities insurers can hold these assets without the risk of forced sales.

⁴¹ The IEG has not further analysed the incentives of the preferential treatment of sovereign risk in Solvency II. See for this analysis: ESRB, "Report on the regulatory treatment of sovereign exposures", March 2015.

⁴² Recital 16 of the Solvency II Directive

⁴³ Bank of England and the Procyclicality Working Group, "Procyclicality and structural trends in investment allocation by insurance companies and pension funds: A Discussion Paper", July 2014, box 1.

⁴⁴ Omnibus II Directive, Recital 32



Solvency II does not contain requirements to build up resilience in upturns on top of regulatory requirements for pure macroprudential purposes via capital buffers or add-ons to reserving requirements, if that is deemed necessary.⁴⁵ This is different from the buffers in

banking regulation, where CRD4 requires banks to build up macroprudential buffers on top of microprudential requirements. To better reflect the business model of insurers, Solvency II instead temporarily alleviates reserving requirements to avoid “artificial” volatility of balance sheets and fire sales. Because insurers expect that requirements will be lowered in periods of stress, they could, under certain conditions, be incentivised to take on more risks in upturns. This might in turn create additional potential for procyclical behaviour. However, this argument and the efficacy of the long-term guarantee measures rely heavily on the behaviour of insurers, which at this stage is hard to predict. For instance, in the event of a breach of the SCR insurers face the risk that this extension of the recovery period is not granted by the supervisor.

The application of the long-term guarantee measures is largely expected to reduce technical provisions and increase available own funds. Only in very rare market conditions, when spreads are lower than the credit risks (expressed as the “fundamental spread”), could the volatility adjustment and matching adjustment increase technical provisions and reduce available own funds. In the current environment of very compressed spreads, the VA is slightly positive for all but one currency.⁴⁶ The VA for the euro would have been only slightly negative in 2000 and 2007.⁴⁷

This reduction of capital can be substantial and may pose risks. The 2014 EIOPA stress-test results show that the long-term guarantee measures would have decreased the surplus of assets over liabilities of participating insurers with EUR 195 billion at year-end 2013.⁴⁸ In the event that they are forced to sell assets in stresses at prices lower than the value of the liabilities they are being sold to meet, insurers would suffer losses; reductions in capitalisation might make insurers less able to absorb this and other risks. Examples of such cases include liquidity pressure because of surrenders (note that Solvency II does contain a lapse module in its capital requirement) and persistence of temporarily perceived financial market distress.

Measures have been added in Solvency II that may help to counteract unintended consequences of the reductions in capitalisation. First, insurers assess in their Own Risk and Solvency Assessment their current and future capital needs given the risks they run and given potentially changing financial conditions. Supervisors can use this to encourage but not directly require insurers to hold more capital. Second, insurers that use the long-term guarantee measures are required to disclose to supervisors and the public the impact of these measures on their solvency positions. Third, insurers using the matching adjustment or volatility adjustment are required to have a liquidity plan. Fourth, there is some scope for supervisory approval and discretion over the application of some long-term guarantee measures. Fifth, insurers breaching their capital requirement, if these measures were not in place, are required to provide a plan to restore this breach. Finally, supervisors can apply a capital add-on, on the condition that the risk profile of the firm deviates significantly from the assumptions underlying those measures. In combination, these measures could help discourage any inappropriate risk-taking or emergence of financial-stability risks from reductions in capitalisation arising from the long-term guarantee

⁴⁵ We have so far identified only one possible exception to this, in case the insurer engages in procyclical asset liquidation and this can be considered as a violation of the assumptions underlying the VA (see annex 5).

⁴⁶ EIOPA, Technical Document for the Calculation of the Risk-Free Rate, February 2015.

⁴⁷ ESRB calculations.

⁴⁸ EIOPA, Insurance Stress Test Report, 2014; the number takes into account the loss-absorption capacities of deferred taxes and technical provisions.



measures. However, as noted above, Solvency II does not contain the flexibility for supervisors to require building resilience for macroprudential purposes.

Some other features in Solvency II may raise concerns about insurers' ability to meet or transfer their liabilities. For instance, the risk-free rate to discount liabilities is assumed to have an ultimate forward rate, which has been set by EIOPA at 4.2%. This assumption helps to stabilise this risk-free rate, but its level is currently well above market expectations.⁴⁹ Further, a number of recent revisions to the standard formula to calculate the capital requirement are intended to stimulate long-term investments by insurers, while still properly capturing the risks. From a macroprudential perspective, the favourable changes for certain markets should be accompanied by the ability to tighten them if risks start to build or the need for a stimulus disappears. Finally, for many large insurance groups Solvency II application will rely heavily on internal models. The use and supervision of these internal models should be informed by the lessons in the banking sector in this regard.

Solvency II is a complex framework. This was underlined by EIOPA's Quantitative Impact Assessment, number 5.⁵⁰ Since then, complexity has only increased with the introduction of the long-term guarantee package. Complexity mostly regards the liability side of insurers' balance sheet. For instance the calculation of technical provisions, including the assessment of contract boundaries and the calculations of loss absorbency of technical provisions and deferred taxes does require the application of actuarial standards and expert knowledge and judgment. The EIOPA 2014 stress test shows these elements have a large impact on solvency positions. Lack of comprehensibility may lead to a lack of credibility and of market discipline. There is currently no simple backstop requirement in Solvency II, which could counter this.

Incentives to move risks, especially within financial conglomerates, cannot be ruled out due to differences between Solvency II and CRD4. It is difficult to compare capital charges between both regimes, given their completely different approaches. Different academic studies arrive at different conclusions. The exclusion of diversification benefits and loss absorption effects seems to lead to higher capital charges for insurers, but inclusion of these elements seems to imply lower charges. In addition, the quality requirements for capital are lower in Solvency II.⁵¹

Arbitrage may also occur in the application of macroprudential tools in the banking sector. There may be cases where activities and risks being targeted by the use of such tools in the banking sector could migrate to insurers either directly or indirectly via funding or credit instruments. Such migration may be a problem if it frustrates attempts to reduce systemic risk, such as imprudent lending or the build-up of indebtedness in the housing market. However, there may also be cases where such migration is beneficial – for example if it allows the activity to continue with less maturity/liquidity mismatch, or if it decreases particular fragilities in the banking sector.

⁴⁹ A further discussion on the comparability of the UFR and the market rates is provided in annex 5.

⁵⁰ EIOPA, EIOPA Report on the Fifth Quantitative Impact Study (QIS5) for Solvency II, 2011

⁵¹ A. Thibeault, M. Wambeke, "Regulatory impact on banks' and insurers' investments", September 2014.



Section 6

Macroprudential policies and measures

To detect systemic risks in the EU insurance sector several monitoring tools are in place, most notably risk dashboards and stress tests. Both the EIOPA⁵² and the ESRB⁵³ include in their risk dashboards indicators relevant for financial stability, such as solvency, profitability, premium growth, lapses, counterparties by sector and a measure for insurers' contribution to systemic risks. In addition the upcoming ESRB heat map links these indicators to the ESRB intermediate objectives. The EIOPA EU-wide stress tests apply scenarios, developed in co-operation with the ESRB, which capture key systemic risks in the EU and vulnerabilities of the insurance sector.⁵⁴ The questionnaire on second-round effects of the stress scenarios, for the first time included in the 2014 test, aims to reveal potential transmission mechanisms of systemic risks. Finally Solvency II will improve the reporting of exposures and risks considerably.

Currently, many national supervisors have powers, tools and flexibility which can limit risks to financial stability and have actually used these in the past decade. This includes the restrictions on non-insurance activities, the restrictions on certain assets, the prohibition on paying out dividends, the requirement to build up additional provisions, a cap on guaranteed returns, a reduction in discount rates, the changing of solvency requirements, recovery periods and valuation methods. Although mostly microprudential in nature, they are often applied to mitigate risks to financial stability as well (Table 3).

Table 3
Selected national measures

Country	Year	Measure	Aim
Denmark	2008 and 2012	Changes to the discount rate	Prevent large scale sale of mortgage bonds, alleviate pressure on sovereign bonds and manage low interest rates.
Germany	2011-now	Obligation to build-up provisions	Protection against a prolonged period of low interest rates
Italy	2013-2016	Changes to valuation methods (optional and conditional)	Cope with artificial volatility due to exaggerated bond spreads in the market.
Netherlands	2012	Changes to the discount rate	Reduce fluctuations in solvency positions.
Sweden	2001-2012	Changes to discount rates and extension of recovery period	Reduce the impact of low rates and falling equity prices on asset allocation.
UK	2001-2004 2008-2009	Changes to solvency requirements (both periods), changes to valuation methods and discount rates (2001-2004)	Avoid the sale of assets and manage temporary volatility of capital resources. To reduce the sale of equities.

Source: Bank of England and ESRB/IEG

Some of these current national powers and measures will be transferred to and institutionalised in Solvency II, though with much less flexibility. National discretion will be replaced by common application and a level playing field. The "prudent person principle" replaces current quantitative limitations on certain investments. The long-term guarantee measures replace

⁵² Available at: https://eiopa.europa.eu/Publications/Standards/EIOPA-FS-15-209-PUBLIC_20032015.pdf.

⁵³ Available at: https://www.esrb.europa.eu/pub/pdf/dashboard/150326_ESRB_risk_dashboard.pdf?8a7c3b84042cf9bdc21c958171cbbad3.

⁵⁴ ESRB, Adverse stress-test scenarios for EU-wide stress test of insurance firms carried out by EIOPA in 2014, 30 April 2014.



most measures listed in Table 3, but the volatility adjustment and the matching adjustment work on a more automatic basis: once approved by the supervisor their levels are prescribed by the delegated acts of Solvency II with no national discretion. Although this is welcome from the perspective of a level playing field in the internal market, it may reduce the flexibility of supervisory authorities to react to financial stability risks, as these risks may materialise in specific companies to different degrees.

The risk-sensitive capital requirement, incentives to match assets and liabilities and higher reserving requirements in Solvency II may help to mitigate some of the sources of systemic risks identified.

The interest rate risk module in the capital requirement incentivises insurers to match the duration of their assets and liabilities such that they decrease the risk of (downward) shifts in the interest rates, which makes insurers less vulnerable to the risk of a double hit. The concentration risk module incentivises insurers to reduce concentration of exposures to specific counterparties, decreasing firm-level interlinkages, but not exposures to sectors and countries. The matching adjustment incentivises insurers to match their cash flows of assets and liabilities. The ORSA gives supervisors more information on risks. Moreover, Solvency II is expected to result in higher capital and reserving requirements than Solvency I.

In addition Solvency II contains instruments some of which aim to reduce procyclicality, mostly in periods of financial distress.

The symmetric adjustment in the equity risk module raises (reduces) capital requirements when equity markets increase more (less) in value than approximately 5% per annum. The volatility adjustment mainly reduces reserving requirements, especially in times of financial distress.⁵⁵ There is also the possibility for supervisors to extend the recovery period up to seven years in the case of exceptional adverse conditions. Both the VA and the extension of recovery period are likely to stave off fire sales.

However, neither pillar 1 nor pillar 2 allows authorities to raise reserving requirements for pure macroprudential reasons.⁵⁶ The pillar 2 capital add-on⁵⁷ can only be applied where the risk profile of the insurer deviates significantly from the assumptions of the standard formula of the capital requirement or the assumptions of the long-term guarantee measures, or if the governance of the undertaking fails to appropriately deal with risks that it is or could be exposed to, but not in the case of pure macroprudential concerns.

The IAIS addresses the “too-big-to-fail” risk of the largest globally active insurers. The IAIS has designated nine global systemically important insurers, of which five are headquartered in the EU. It addresses systemic risks posed primarily by their NTNI activities and interconnectedness, with enhanced supervision (a systemic risk management plan and a liquidity management plan), effective resolution, higher loss absorbency, including capital surcharges. The IAIS measures will benefit the stability of the EU insurance market, but do not address activities which are small on a global scale but large on a national scale. Nor do they currently address other potential macroprudential risks such as procyclical investment behaviour except for measures addressed to the global systemically important insurers.

These together potentially leave macroprudential authorities with a few gaps when dealing with the systemic risks of the EU insurance sector. As noted above, Solvency II does not have

⁵⁵ It can theoretically also raise reserving requirements, but according to calculations for the period 2000 to 2015 this would have only occurred twice. Thus, the equity dampener is the only countercyclical element in Solvency II which is symmetric in terms of outcome.

⁵⁶ Recital 36 and article 45 of the Solvency II Directive.

⁵⁷ Article 37 (1) of the Solvency II Directive distinguishes between four main scenarios when a capital add-on may be applied; pure macroprudential concerns are not among these.



the flexibility to raise and loosen reserving and capital requirements relative to the microprudential requirements in the case of macroprudential concerns with specific companies, activities or exposures. NTNI is monitored, but authorities have few tools to limit them. NTNI and procyclicality of investments are addressed by IAIS specifically only for global systemically important insurers, but not for the sector at large.

The insurance guarantee schemes and recovery and resolution arrangements currently in place at national level are unlikely to be fit to handle all of the scenarios. An orderly resolution could minimise any impact on financial stability, ensure the continuity of critical functions and avoid exposing taxpayers to loss. Currently there is no Europe-wide recovery and resolution framework for insurers. Powers and schemes currently vary between countries and in many cases face shortcomings which could be remedied by adoption of a resolution regime for insurers that is compliant with the FSB's Key Attributes.⁵⁸ An insurance recovery and resolution directive and an insurance guarantee scheme directive would form a holistic framework for dealing with insurer failure. It is currently on the agenda of the European Commission, but without a concrete proposal yet.

There are a number of instruments that may address the possible systemic risks identified in different ways:

- The possibility to ring-fence and limit or restrict NTNI;
- Application of measures (e.g. capital surcharge, limits, or enhanced supervision) for activities which are not systemically important at a global scale, but nevertheless systemically important at an EU or national scale.
- Enhanced liquidity supervision (NTNI and lapses).
- The possibility to raise reserving and/or capital requirements above the microprudential requirement in upturns.
- The possibility to increase or decrease capital charges for certain types of assets, counterparties or insurance liabilities to address macroprudential externalities and regulatory leakage from/to the banking sector.
- An effective recovery and resolution regime and insurance guarantee scheme.

These measures are currently not part of the Solvency II framework which is due to be reviewed in 2018. The IAIS standards to be finalised at international level by 2019 will have to be reviewed and, if implemented in the EU, may mitigate the identified systemic risks to an extent.

It is recommended to analyse these instruments for possible future introduction in the legal framework. While these measures are considered likely to mitigate the risks identified, the IEG has not assessed whether the probability or the impact of the systemic risks discussed in this paper are large enough to require actual responses by macroprudential authorities. Such analysis would need to be undertaken, considering also the deadweight loss and costs of any of the measures, before any recommendation on the application of these measures can be made.

In the meantime, authorities should address the most imminent systemic risk within the Solvency II framework. Of the risks identified in this report, the common vulnerability of life insurance to low yields and a sudden repricing of risks (i.e. "the double hit") in combination with the risk of insufficient loss absorption capacity, also under Solvency II, are at the current economic

⁵⁸ FSB Key Attributes of Effective Resolution Regimes for Financial Institutions, 15 October 2014 (update).



conjunction the most imminent ones. The need for life insurers to adapt to a period of low yields and high volatility is widely recognised.⁵⁹ EIOPA and national supervisors are already taking action.⁶⁰

Authorities can decide on the timing of life insurers' adaptation. They can either allow for more time, which would smoothen the adaptation process but risks inaction and the build-up of hidden losses. They can also decide to front load the adaptation by requiring the build-up of resilience now. This would decrease any inaction bias, but risk losses in the insurance sector with potential spillovers. In the absence of an adequate resolution framework, authorities should consider who could bear losses and what the systemic impact could be.

⁵⁹ IMF, Global Financial Stability Report, April 2015, pp 22-24 or DNB, Overview of Financial Stability, Spring 2015, pp 17-18.

⁶⁰ EIOPA, Opinion of the European Insurance and Occupational Pensions Authority of 28 February 2013 on Supervisory Response to a Prolonged Low Interest Rate Environment.



Table 4

Summary of possible systemic risks, intermediate objectives of macroprudential policy, available measures and other possible measures

Possible systemic risks	Intermediate objective	Measures available	Macroprudential tool box, not available ⁶¹
NTNI activities	Excessive credit growth and leverage Maturity mismatch and market illiquidity Direct and indirect exposure concentrations Too big to fail/moral hazard	G-SII measures Own Risk and Solvency Assessment, governance requirements, prudent person principle in Solvency II Reporting requirements in Solvency II	Liquidity monitoring Adequate recovery and resolution as well as insurance guarantee schemes Any national measures to address NTNI (e.g. O-SII measures) Limits to and separation tools for NTNI Capital requirement for NTNI
Common vulnerability of life insurance to double hit	Maturity mismatch and market illiquidity Direct and indirect exposure concentrations Too big to fail/moral hazard Loss of consumer confidence	Interest-rate capital requirement Long-term guarantee measures Power to cap guaranteed returns Own Risk and Solvency Assessment Stress test Additional interest-rate risk provisioning ("Zinszusatzreserve")	Liquidity monitoring Adequate recovery and resolution as well as insurance guarantee schemes Add-ons for macroprudential externalities
Procyclicality in asset allocation	Excessive credit growth and leverage Maturity mismatch and market illiquidity Direct and indirect exposure concentrations Too big to fail/moral hazard	Long-term guarantee measures Symmetric adjustment for equity charge Recovery periods and possibility for extension Interest-rate capital requirement	Minimum liquidity requirements (that can be released in stresses) Additional buffers in upturns and on specific assets and liabilities Loosening of capital requirements for certain assets and liabilities
Procyclicality in commercial insurance provision	Excessive credit growth and leverage	Own Risk and Solvency Assessment	Adequate recovery and resolution as well as insurance guarantee schemes
Concentration issues in commercial insurance (non-life)	Direct and indirect exposure concentrations Too big to fail/moral hazard Disruption of economic activity	Own Risk and Solvency Assessment Supervisory (prudential and conduct) monitoring	Adequate recovery and resolution as well as insurance guarantee schemes
Systemic risks in reinsurance markets	Maturity mismatch and market illiquidity Direct and indirect exposure concentrations Too big to fail/moral hazard Regulatory arbitrage	Equivalence requirements and assessment Own Risk and Solvency Assessment Stress test	G-SII (if reinsurers are designated as such) and/or O-SII measures at national level Disclosure of alternative risk transfer Adequate recovery and resolution as well as insurance guarantee schemes
Potentially insufficient loss-absorption capacity arising from calibrations SII and LTG package design	Maturity mismatch and market illiquidity Direct and indirect exposure concentrations Disruption to real economy and household including confidence impacts	Own Risk and Solvency Assessment Disclosure requirements of impact of long-term guarantee measures Liquidity plan in the case of long-term guarantee measures Capital add-on under some strict circumstances Supervisory discretion on the approval of long-term guarantee measures and transitionals	Prudential remuneration and dividend distribution policy Possibility to add measures to the recovery plan and the liquidity plan Flexibility to change calibrations for macroprudential purposes. Additional buffers in upturns (to enable loosening with greater resilience) Additional discretion in the LTG package for macroprudential purposes.
Regulatory arbitrage	Excessive credit growth and leverage Direct and indirect exposure concentration	Group supervision Reporting of intra-group transactions of financial conglomerates (FICOD)	Tightening and loosening capital requirements on specific activities/assets Equal treatment of equal risks in the banking and insurance sector

⁶¹ The possible macroprudential tools in this column have been put in a specific order, starting with measures which can possibly be implemented without a change to the Solvency II framework and ending with measures which would require a change of this framework.



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