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ESRB
European Systemic Risk Board
European System of Financial Supervision
ESRB Secretariat

Issues note on risks and vulnerabilities in the EU financial system[1]

Summary of main financial stability risks and issues for discussion

Table A: ESRB Secretariat's main risks for EU financial stability

Main risks for EU financial stability	
Risks to EU financial stability are assessed to have *increased* since the March 2015 ESRB General Board meeting, in particular regarding a possible re-pricing in financial markets (risk 1) and weakening of financial institutions' balance sheet positions (risk 2). Increasing risks are due to the low interest rate environment and uncertainties regarding domestic policies in Greece.	
1	**Re-pricing of risk premia in global financial markets, amplified by low market liquidity** *Vulnerabilities: mispricing of risks and excessive risk taking amid historically low and even negative cost of funding/low returns on household savings and search for yield of financial investors* *Potential triggers: shocks to risk-free rates (e.g. amid developments in growth outlook/monetary policy in the US), shocks to risk premia (e.g. in euro area sovereign markets amid political developments), shocks to oil prices*
2	**Further weakening of insurers' and banks' balance sheets** *Vulnerabilities: lack of profitable financial investment opportunities (low risk compensation/more restrictive regulation), low yields increasing insurers' liabilities, slow progress in resolving banks' problem assets, lack of profitable credit intermediation opportunities (weak growth/high private sector indebtedness/low household income/problem assets weighting on banks' balance sheets)* *Potential triggers: revaluation of liabilities at low interest rates (life insurers), weak returns on financial investments, losses on problem assets (banks)*
3	**Deterioration of debt sustainability in sovereign, corporate and household sectors** *Vulnerabilities: high indebtedness in public and private sectors, weak growth and low inflation* *Potential triggers: deterioration of macroeconomic outlook, geopolitical shocks, re-pricing in financial markets*
4	**Shocks and contagion from the shadow banking sectors to the financial system** *Vulnerabilities: rapidly increasing size and complexity of the shadow banking sectors, lack of transparency, comprehensive risk monitoring, prudential regulation and supervision of the shadow banking sectors, strong direct and indirect linkages with bank/insurance as well as household/corporate sectors* *Potential triggers: re-pricing in financial markets with fire sales and liquidity squeeze*

Note: Key risks up to three year horizon based on qualitative assessment of the risks. Yellow denotes risk, orange denotes medium-level risk and red denotes high risk. The ESRB Secretariat's risk assessment is based on the ESRB Bottom-Up Survey (May 2015) as well as other inputs received from the ESRB Member Institutions. The key findings of the Bottom-Up Survey are summarised in the Annex to this document.

Since the March 2015 ESRB General Board meeting, risks to EU financial stability are assessed to have increased, in particular with regard to re-pricing in financial markets and financial institutions' balance sheet positions. During the review period yields in many European money and bond market segments reached unprecedented low and even negative levels, reflecting **accommodative monetary policy stances** of the major central banks, and **low pricing of risks** (i.e., low credit, liquidity and term premia).[2] Beyond fixed income markets, prices and valuations of other asset prices in most economies and across sectors have also increased rapidly, substantially faster than the economic fundamentals have improved. Given low valuations of risks, a number of factors, e.g., surprises in macroeconomic developments, political events or changes in monetary policy stances by

[1] This document provides the quarterly assessment of key risks and vulnerabilities in the EU financial system, based on the analysis by the ESRB Secretariat with inputs from the ESRB member institutions, in particular the ECB and the three ESAs, also including discussions at the Advisory Technical Committee. The analysis has particularly benefitted from the works of the ESRB Insurance Expert Group, the Joint Expert Group on Shadow Banking and the Analysis Working Group. This note has been prepared by M. Grothe (coordinator), E. Bengtsson, J. Brinkhoff, and L. Grillet-Aubert with comments by T. Konecny, S. Langfield, F. Piamonte, S. Stolz and O. Weeken and data support by O. Klečka, P. Kuśmierczyk and A. Ventula Veghazy (all ESRB Secretariat). Comments and approval: F. Mazzaferro and T. Peltonen.

[2] While the euro area swap curve is close to zero for maturities up to 10 years, sovereign markets trade at negative yields in some EU countries. In primary markets, several longer-term issues were already priced at negative yields. Covered bonds also trade near zero for many banks, in some recent cases even negative.

major central banks[3], could act as a trigger of the **re-pricing of risks (risk 1 in Table A)**, leading to sharp increases in market volatility and asset price changes exacerbated by low market liquidity. In fact, increased bond market volatility observed since May indicates that the risk of re-pricing becomes increasingly likely. Furthermore, the developments in **Greece** and **Ukraine/Russia** (but also instability in **Middle East** and **North Africa**) pose the main institutional and geopolitical risks to EU financial stability. In the case of Greece, while market-price based contagion indicators have risen only moderately[4], potential consequences of unprecedented events, like a country leaving the euro area, remain largely unknown. Additionally, the **low interest rate** environment poses **risks to insurers' and banks' balance sheet positions (risk 2 in Table A)**, in particular in the case of future weak returns on financial investments (both, banks and insurers affected) and a revaluation of liabilities at low interest rates (mainly life insurers affected).

Risks of a more medium-term nature are related to debt sustainability (public and private) and potential shocks from the shadow banking sectors to the rest of the EU financial system. Persistent environment of **weak nominal growth in the EU countries with a globally lower growth outlook,**[5] frequently stressed by the respondents of the latest ESRB bottom-up survey, **can impinge on debt sustainability (risk 3 in Table A)** across all sectors in the medium term, in particular given high level of debt in many EU countries. On the structural side, rapidly **increasing size and activities** in the shadow banking sectors (in particular **asset management**) are widely observed **(risk 4 in Table A)**.[6] Given it can pose substantial risks to financial stability, not least due to strong direct and indirect linkages with bank/insurance as well as household/corporate sectors, its risks need to be comprehensively monitored as well as significant institutions regulated and supervised.

Related to the key risks identified, this Issue Note focuses on vulnerabilities in the EU life insurance and asset management sectors that warrant attention from macro-prudential perspective (Table B).

Table B: Key issues for discussion

	Issues for discussion	Main points	Relevant macro-prudential policy tools for discussion
Issue 1	Systemic risks in the EU life insurance sector in the low interest rate environment	* "Double hit scenario" (assets decline and liabilities increase) partly materialising due to low yields * Assumptions / adjustments on the EIOPA discount curves disguise the real size of liabilities of insurers, in particular for life insurers	***Immediate possible actions*** (1) Top-down repetition of 2014 stress test/low yield exercise (2) Revise ultimate forward rate down (implying bringing down the discount rates for long-term liabilities, increasing the present value of liabilities) (3) Use supervisory discretion to not adjust the risk-free curve up (4) Strengthen capital requirements in internal models (5) Capital add-on in standard formula ***Medium-term priorities*** (A) Ensure better resolution to reduce impact of defaults
Issue 2	Systemic risks related to the size and structure of the EU asset management sector	* Asset management large, growing, concentrated * Exposure to risks of runs and market re-pricing * Interconnectedness with banks and insurances	***Immediate possible actions*** (1) Data reporting and sharing (2) Stress tests ***Medium-term priorities*** (A) Designate systemically important asset managers (supervision/regulatory requirements: exposure/liquidity/capital) (B) Increase SIFI capital/liquidity requirements for parent companies

[3] In particular, a source of uncertainty is related to the start and pace of removal of the accommodative stance of US monetary policy.
[4] Potentially reflecting contagion risk backstops that are in place (in particular, the ESM and the ECB's OMT).
[5] See also April 2015 IMF World Economic Outlook, Chapter 3.
[6] See also April 2015 IMF Global Financial Stability Review, Chapter 3.

Issue 1: Systemic risks in the EU life insurance sector in the low interest rate environment and potential policy responses[7]

Given the current prolonged environment of low interest rates, the liabilities of life insurance companies are likely to be materially higher than implied by the recent EIOPA stress test, while the asset side of life insurance companies' balance sheets is likely to yield low returns in the future. Evidently, the "double hit scenario" of the EIOPA 2014 stress test is already partially materialising, and therefore macro-prudential policy considerations are called for to account for the rising sector-wide vulnerabilities. Immediate action should start with further assessing the level of vulnerabilities faced by the EU life insurers, in particular assessing the size of liabilities and capital. Consequently, strengthening of capital buffers may be needed to increase their resilience. Over the medium term, an important policy priority would be to ensure resolvability with an EU wide resolution framework, reducing the impact of potential defaults.

Analysis of risks and vulnerabilities

The prolonged low interest rate environment has been recognised by the EIOPA as a major vulnerability for European life insurers already in 2013. The EIOPA 2014 stress test found that 24% European insurers would not meet the solvency capital ratios (SCR) under the "Japanese-like" scenario, while 44% companies would not meet the SCR in the "double hit" scenario. The EIOPA identified as most vulnerable to low interest rate environment i) insurers with a significant mismatch in duration; and ii) life insurers which issued high long-term guarantees. The currently prevailing yields, which are significantly below those in the EIOPA stress test scenarios, are likely to **increase the number of insurers breaching their SRC requirements, as well as reduce the time** in which insurers are exposed to negative net cash flows.

Table 1.1: Risk metrics of the major EU life insurance markets

Country	Average guaranteed rate in force (%)	Share of products with guarantees (%)	Current sovereign 10 yr bond yield (%)	Investment spread	Duration gap	Size of industry (€bn)
Germany	3.1	75	0.85	-0.4	>10 yrs	847
Sweden	3.0	70	1.00	-0.5	>10 yrs	334
Austria	3.0	58	1.00	0.9	>10 yrs	6
Netherlands	3.6	40	1.04	0.2	5 ½ yrs	277
France	1.0	-	1.20	-0.6	4 ¾ yrs	1,474
Denmark	2.6	74	1.00	0.1	<2 yrs	262
Spain	3.5	-	2.24	1.1	<1 yrs	162
Italy	2.5	-	2.25	0.6	0-1 yrs	458
Ireland	1.5	-	1.65	1.3	0-1 yrs	181
United Kingdom	0 - 1.0	19	2.08	-0.1	<0 yrs	1,787

Source: EIOPA, Eurostat, Moody's Investors Service and Standard and Poor's.
Note: Investment spread is the difference between the average guaranteed rate of return on assets, and the average return on liabilities. Duration gap is the difference between the average maturities of liabilities compared to assets. Countries in red are those identified by the EIOPA as the most vulnerable countries. Remaining countries are ranked based on their investment spread and duration gap. Latest observation: 5 June 2015.

Markets seem less concerned about EU life insurers. The vulnerability of European life insurers to low yields has become so evident that it has recently received a lot of attention not only from public authorities, but also from a wider society.[8] Yet financial markets[9] seem less concerned: The share prices of insurance companies have outperformed both the shares of banks and other stocks (ESRB

[7] Authors: J. Brinkhoff and M. Grothe.
[8] See, for example, Dutch Central Bank FSR 2015, IMF GFSR (April 2015), Die Welt (23 April 2015), Commerzbank and Goldman Sachs (both 30 April 2015), Barclays (5 May 2015), Handelsblatt (6 May 2015), as well as questions from MEPs in the regular hearings of President Draghi at the European Parliament.
[9] This is also confirmed by the recent ECB market intelligence.

Risk Dashboard, Chart 5.3a). There are two potential reasons for this dichotomy between market analysts' and public authorities' perception: First markets focus on large, global and listed insurance firms, whereas the vulnerabilities concentrate at smaller, often unlisted companies. Second, markets might believe that supervisors would give flexibility in applying Solvency II rules, and would not require capital raising or dividend cuts.[10]

The industry wide vulnerability raises the concern from a systemic risk perspective. Loss of confidence in the solvency of life insurers at the side of policy holders or financial markets may trigger early surrenders by policy holders[11] and de-risking by insurers. Given the size of the life insurance sector (assets are worth 53% of EU GDP)[12] and its interconnectedness with the financial system (e.g. insurers have hold ⅓ of outstanding financial bonds in the EU)[13] large scale assets sales of life insurers likely have **systemic consequences**. It may lead to material price effects on markets and on funding costs for other sectors, with financial stability impacts, particularly if disorderly. In addition loss of consumer confidence may lead to bail-outs, given the nature of the liabilities at stake (on average ⅓ households' assets are claims on insurers)[14].

Insurers' assets: likely to yield low returns in future. Insurers' **profitability as measured by return on equity has been relatively high** (ESRB Risk Dashboard, Chart 6.4a), especially compared with banks, mostly due to buoyant financial markets and good underwriting results (ECB FSR, May 2015). On average, the median investment return of life and non-life insurers in the EU in 2014 was 4.1% (EIOPA FSR, May 2015), while returns on some financial asset classes reached 15%-20% (Chart 1.1).[15] **However, this is unlikely to hold**, as expected returns on currently re-invested assets are close to zero.[16]

Insurers' liabilities: materially higher than implied by the EIOPA 2014 stress test. A stylised illustration of the average impact of lower discount curves (currently vs. discount curve at the beginning of 2014, the evaluation period at the EIOPA stress test) on the size of liabilities can be estimated based on duration of liabilities.[17] As shown in Chart 1.2, the current Solvency II discount curve implies **increases in liabilities above those implied by the EIOPA stress test**, with differences among countries reflecting the differences in median duration of liabilities. As shown in the EIOPA 2014 stress test report, durations in most countries are not matched, with material mismatches (of ca. 10-11 years) in Austria, Germany, Lithuania and Sweden.[18]

[10] JP Morgan/Cazenove (European insurance, Solvency II - an uncertain risk but looks manageable, 12 January 2015): "we believe that Solvency II has been watered down to such an extent that the risk of any capital raising or dividend cuts looks limited."

[11] As the insurance expert group notes, an insurance run is not likely but not completely implausible either. ESRB data on penalties imposed by 19 large European insurance groups show that 90% of life policies, wort Euro 2,5 tn., contains penalties of less than 15% of the value of the policy in case of early surrender.

[12] Insurance Europe, Statistics N°50: European Insurance in Figures dataset (2013), 6 Jan 2015

[13] IMF, Global Financial Stability Report, April 2015, Figure 1.13.3.

[14] Eurostat.

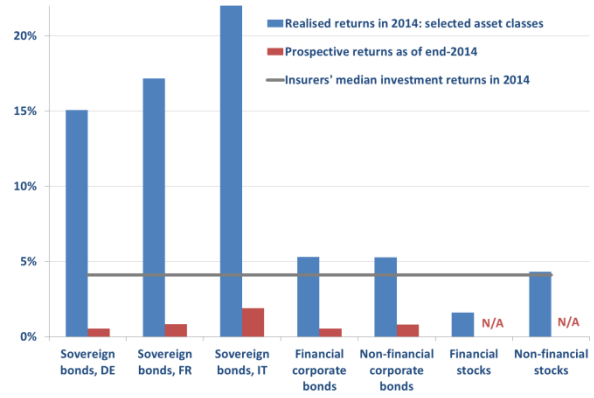
[15] Shares of asset classes in insurance companies' investment portfolio in 2014: government bonds (29%), financial corporate bonds (17%), non-financial corporate bonds (15%) and **equity (14%)** as reported in EIOPA Financial Stability Report, May 2015.

[16] Expected returns on bonds assume investing today and holding to maturity, i.e. the price change only reflects the "pool to par" effect without accounting for possible short-term price movements. In addition, given that recent returns have been partially boosted by a compression of risk premia, expected returns should be lower as well (due to lower risk compensation).

[17] Due to the lack of information available to the ESRB secretariat on the maturity distribution of insurance companies' liabilities, the precise impact of falling discount curves on the size of liabilities can only be approximated.

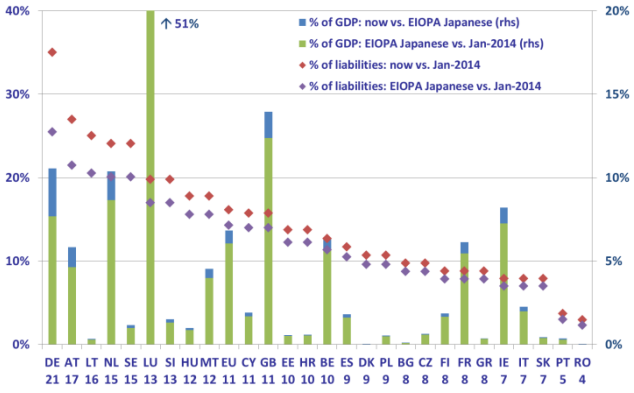
[18] See EIOPA 2014 stress test report, Table 2, page 17.

Chart 1.1: EU insurers' assets: realised and expected returns on main asset classes *(% p.a.)*



Source: Datastream, Reuters data and ESRB Secretariat calculations.
Note: Realised returns during 2014. Asset classes: 10-year sovereign bonds (selected countries), 5-year corporate bonds and stocks (both latter based on euro area indices). Bond return computation assumes continuous compounding and no duration adjustment. Prospective returns refer to the annualised expected return, assuming buying the asset at the end of 2014 and holding it to maturity. Expected price changes reflect only the "pool to par" effect, without accounting for possible short-term price movements. Horizontal line denotes median investment returns of life and non-life insurers in 2014.

Chart 1.2: Increase in EU insurers' liabilities due to the change in discount rate on liabilities *(dots, lhs, % change in liabilities; columns, rhs, change in liabilities as % of GDP)*



Source: EIOPA, Reuters data and ESRB Secretariat calculations.
Note: Markers denote the % change in the size of liabilities, as compared to the level of Solvency I values of liabilities on 1 Jan 2014. The change results from the discounting with the market curve as of end-May 2015 (red), and one of the curves in EIOPA 2014 stress test (purple). The corresponding change in the size of liabilities as percentage of GDP (2013) is shown by columns (right-hand scale). Stylised calculation of changes in liabilities is based on duration of liabilities in each country (median for insurers within the country, depicted below country labels, in years, countries sorted by duration).

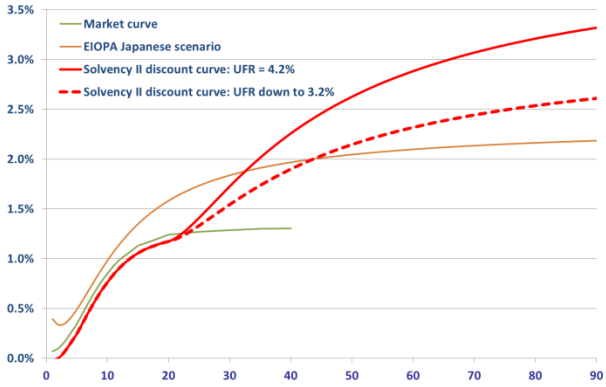
Assumptions in the Solvency II discount curve disguise the true size of liabilities of life insurers. Chart 1.3 shows the recent Solvency II discount curve (red). This curve is constructed based on three key elements, developed before the most recent sharp declines in risk-free rates: (a) the **market curve** (short-end, **up to 20 years**), (b) the **assumed ultimate forward rate (UFR) of 4.2%** (which corresponds to the long-end of the forward curve, not depicted), and (c) **the assumed interpolation** (medium-term, **most relevant for maturities of 20-60 years**).[19] The assumption (b), the long-end of the ultimate forward curve at 4.2%, **is likely too high, and thus artificially decreases the value of liabilities**, particularly the longer-term ones. The UFR is calculated by assuming that in a steady state long-term interest rates equal the long-term nominal growth rate, which will be composed of 2% inflation and 2.2% real interest rate. Current market expectations and recent academic research suggest that **assuming long-term real interest rate of 2.2% is likely to be too optimistic by as much as 0.5-1.0 percentage points**.[20]

[19] For more details, see EIOPA technical documentation for the risk-free interest rate term structure. Market discount curve is assumed until the last liquid point (20 years for the euro area, which might vary depending on the bond market in a given country). The calibration of the ultimate forward rate to 4.2% is discussed in Annex 6.D, pp. 108-114. The interpolation of the forward curve between the maturities of 20y to 60y, when the ultimate forward rate is reached, uses the Smith-Wilson method. The shape of the interpolated curve depends on the maturity when the UFR is reached and the interpolation parameter alpha, determining the speed of convergence. The interpolated forward curve is translated to the discount curve, which is used for discounting insurers' liabilities and calculating provisions.

[20] Recent market valuations suggest that long-term risk-free rates are around 3% (such as the recent primary market issuance of the EUR-denominated 100-year Mexican bond at 4.2%, after subtracting the Mexican CDS spread of 1.2%pt, or secondary market valuations of some longer-term UK bonds. The latest long-term growth and inflation forecasts published by Consensus Economics for the euro area imply a level of long-term risk-free rate at around 3%. Recent academic research also suggests that long-term real growth in the EU is likely to be lower than 2.2%. Antolin-Diaz, Drechsel and Petrella (2015) calculate long-term real growth at 1.1%. Estimates in the IMF's latest World Economic Outlook (Apr 2015, Chapter 3) show that the potential growth for the euro area fell recently (to ca. 0.7% estimated currently).

For illustrative purposes, Chart 1.3 shows the Solvency II discount curve with an assumption of UFR lower by 100 basis points, i.e. 3.2%. The assumed interpolation (c), which is most relevant for the maturities of 20-60 years, causes **a peculiar kink in the discount curve that raises the discount rates much higher than market rates**, further decreasing the present value of liabilities.

Chart 1.3: The current Solvency II discount curve and a possible alternative discount curve *(% p.a.)*



Source: Solvency II curve published by EIOPA, Reuters data and ESRB Secretariat calculations.
Note: The chart shows the discount curve in the "Japanese" scenario of the 2014-EIOPA stress test, the Solvency II discount curve (May 2015) and the market swap curve (end-May 2015). The impact on the Solvency II discount curve of lowering the ultimate forward rate (UFR) by 100 bps is shown as the bold red dashed line ("Revised Solvency II curve").

Misaligned incentives and loopholes: The calibration of the discount curve at an artificially high level creates an incentive for insurers to take on long-term liabilities and hold relatively low reserves for them. One result is that, as discussed above, the value of liabilities reported by insurance companies is underestimated (and even more so for longer maturities). This issue is aggravated by the possibility in Solvency II to allow insurers to partly use **higher Solvency I discount curves for the next 16 years** as a transitional measure. In some counties like the Netherlands, Sweden and the UK, the Solvency I discount curve is already closer to the market rates, but in other countries the Solvency I discount curve is still much higher than current market rates. In addition, the **Solvency II discount curve can be further shifted upwards** in times of distress by the so-called volatility adjustment.

Possible macro-prudential policies

Given the sector-wide vulnerabilities of EU life insurers to the current prolonged environment of low interest rates, a consideration of macro-prudential policy actions is warranted given the sector wide vulnerabilities.[21] There is consensus that many life insurers need to adapt to the low yield environment. Although insurers are cutting the guaranteed returns on new policies, in many cases the bulk of their liabilities consist of old policies with high guaranteed returns (Table 1.1). But additional measures may be needed. By postponing necessary measures to further increase insurers' resilience to the identified vulnerabilities, there is a risk that imbalances in insurers' balance sheets will further build up. However, requiring too stringent adjustments could potentially lead to a number of failures in the EU insurance sector potentially impacting the wider financial system. Thus, the measures should be carefully considered and implemented. In this context, it is important to recall that the transition from Solvency I to Solvency II will raise insurers' reserving and capital requirements leading to higher resilience. Moreover, Solvency II incentivises matching of assets and liabilities, which reduces the identified vulnerability.

Potential immediate actions

The following measures could be considered by relevant authorities to better understand the vulnerabilities and to increase life insurers' resilience:

[21] "Risks in the EU life insurance sector - open letter from the Head of the ESRB Secretariat" to the members of the Instruments Working Group, 23 April 2015. See also Thematic Article 2 of the EIOPA May 2015 Financial Stability Report for an initial discussion on macro-prudential policy for insurance.

1. In order to better understand the vulnerabilities, life insurers can be required to perform a **stress test**, capturing the risk of a "double hit", in their Own Risk and Solvency Assessment. In addition, the EIOPA can repeat its 2014 low yield exercise "top-down" using current (or even lower) interest rate curves, and possibly also incorporating stressed asset values to the assessment.
2. A **downward revision of the ultimate forward rate and an interpolation that is closer to market rates** would **increase insurers' reserve requirements** for long-term liabilities.
3. **Supervisors have discretion over the application of transitional measures**, which allow the insurers to apply the Solvency I calculations until 2032, discretion over the use of the extension of recovery period, and over the use of the volatility adjustment. Thus, **Solvency II offers the possibility to extend the necessary adaptation of life insurers to the low yield environment, but also to speed it up.**
4. **Capital requirements in internal models can be strengthened** to address the risk of a "double hit". This would force insurers to stop paying-out dividends, and instead retain capital to increase resilience.
5. It could be explored whether the **capital add-on** can be applied to those insurers which use the standard formula for the calculation of the capital requirement, and which are identified as particularly vulnerable to the risk of "double hit".

Medium-term priorities

Better resolution. Another important policy priority would be to **ensure resolvability of insurers to reduce the impact of potential defaults**. The current national insurance resolution and insurance guarantee schemes (which are not even place in some EU countries) seem unfit to handle the potential failures of large life insurers or the simultaneous defaults of several medium sized life insurers. Thus, a framework for an EU wide insurance resolution should be planned and brought forward.[22]

[22] Currently, as described in the report of the ESRB Insurance Expert Group (Annex 3, Section 5.1), the agenda for resolution mainly includes FSB work on G-SIIs (consultation paper by FSB Oct 2014, and planned G-SIIs assessment methodology by IAIS by Nov 2015). At the EU level, the European Commission has put it on its agenda. See also the ESRB Response to the European Commission Consultation on a possible recovery and resolution framework for financial institutions other than banks, published on 20 Dec 2012.

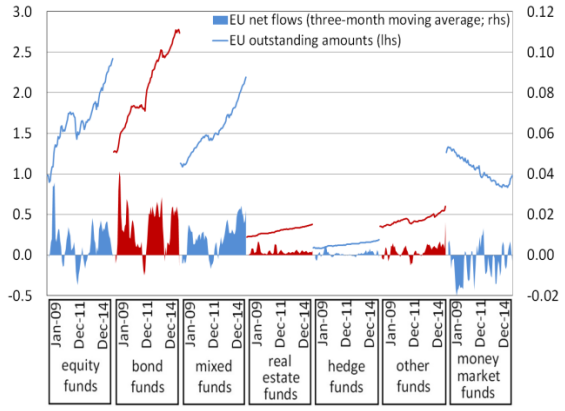
Issue 2: Systemic risks related to the size and structure of the EU asset management sector and potential policy responses[23]

The increasing size and concentrated structure of the EU asset management sector, particularly in the current low interest rate and low market liquidity environment, may pose systemic risk through various channels, particularly due to its strong links to insurance companies and banks. Most relevant policies to consider include designating systemically important asset managers, subject to increased regulation and supervision, as well as increasing capital and liquidity requirements for parent companies (banks and insurers) for their direct exposures and off-balance sheet commitments to asset management subsidiaries.

Analysis of risks and vulnerabilities

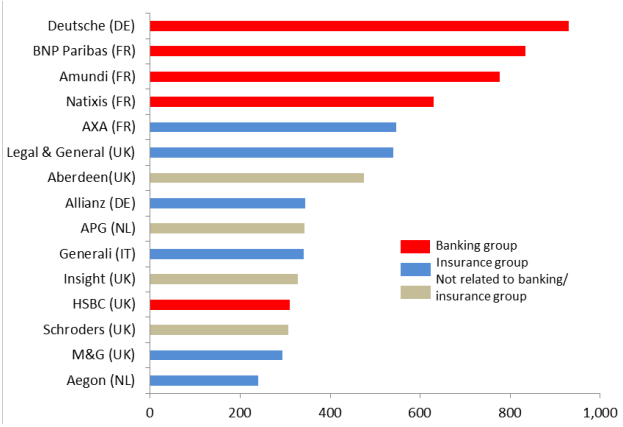
The increasing size and concentrated structure of the EU asset management sector may give rise to misaligned incentives and foster excessive risk taking. The EU asset management sector is already **large and its size continues to grow** (Chart 2.1).[24] It is an important provider of intermediation services and funding to the real and financial sectors,[25] and contributes to price discovery and liquidity in financial markets. As a result, significant shifts in asset management activity may have a significant impact on the financial system and/or the real economy. The growing systemic importance of asset managers may, in turn, give rise to **misaligned incentives** and foster **excessive risk taking, in particular in the environment of low risk premia and search for yield, potentially leading to crowded positions**.[26] This is likely to be reinforced by the **strong links between asset managers and large systemically important banking and insurance groups** in the EU (Chart 2.2).

Chart 2.1: EU investment funds: assets under management and net inflows *(EUR trn)*



Source: ECB, from ESRB 2015 Annual Report. Note: this chart is based on available EU data and does not include Bulgaria, Croatia, Denmark, Sweden and the UK.

Chart 2.2: Affiliation of top 15 European asset managers to banks and insurances *(EUR bn)*

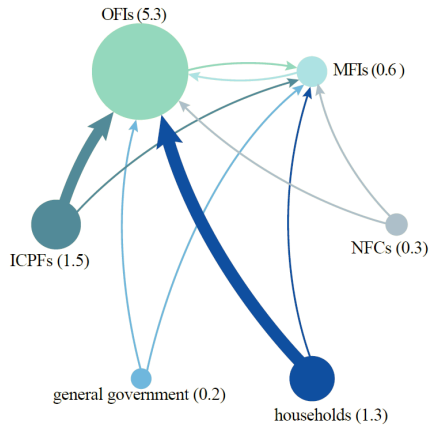


Source: IPE Research.
Note: Assets under management as of end-2014. Data covers asset managers headquartered in the EU. Asset managers, which form part of business groups with dominant activities in banking/insurance are reported as affiliated.

[23] Authors: E. Bengtsson, L. Grillet-Aubert and M. Grothe.
[24] See also ESRB 2014 Annual Report and the ESRB Shadow Banking Workshop Issues Note for the 1st ESRB annual shadow banking workshop on 19 May 2015.
[25] See 1st report on Shadow Banking Risk Metrics presented to the May 2014 ATC meeting, currently being updated.
[26] Examples of excessive risk taking may not only relate to asset managers themselves, but also to their clients or counterparts, e.g. through rational herding of investors.

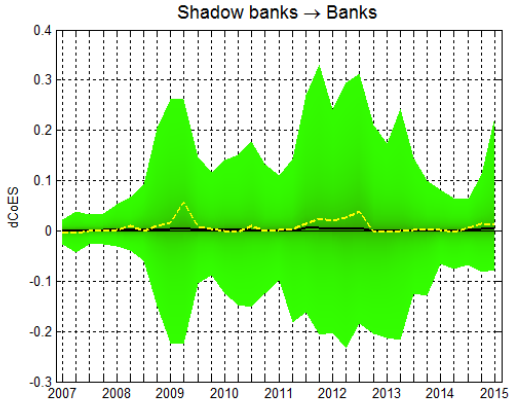
Event risk and search for yield behaviour among asset managers may lead to disruptive redemption pressures. Risk events, including manifestation of **conduct risk**, loss of key staff, or significant losses on exposures, may lead investors to withdraw their investments to asset managers on a large scale.[27] **Maturity and liquidity mismatches** in asset managers' portfolios raise the need to sell assets to meet such redemptions.[28] If a sufficient amount of liquid assets cannot be attained, asset managers may be forced to impose restrictions ("gates") on or even **close for redemptions.** This can provide incentives for investors to redeem early ("first mover advantages") to ensure that their redemption requests are met and to avoid lower realizable values. In effect, this can lead to a classic **run** on the asset manager, generating self-reinforcing spirals of additional asset reallocations and potential for fire sales. Run risk has increased in the current environment of search for yield and due to commonalities in portfolio allocations, in particular as exposures to illiquid assets have increased.[29]

Chart 2.3: Investment fund shares: Interconnectedness of euro area sectors



Source: ECB Economic Bulletin, Feb 2015 and ECB calculations. Note: Nodes stand for one euro area sector (MFI: monetary financial institutions, OFI: other financial institutions, ICPF: insurance corporations & pension funds, NFC: non-financial corporations, Households: households & non-profit institutions serving households). Arrows show the holdings by a sector of fund shares issued by another euro area sector. Their thickness is proportional to these holdings. Node size is proportional to the sum of (i) the market value of holdings by the respective sector of fund shares issued by euro area residents and (ii) the value of fund shares issued by the respective sector and held by euro area investors. This sum is also reported in brackets (EUR trillion).

Chart 2.4: Evolution of the distribution of spill-over potential between individual shadow banks and banks



Source: Groß, M., C. Pancaro, D. Zochowski (2015, ECB mimeo): Assessing cross-sector spillover potential among banks, shadow banks and insurance companies.
Note: Green shaded area: distribution of tail dependence estimates between all pairs of institutions in the underlying sample at each point in time since 2007. The estimates are based on a nonparametric variant of delta-Conditional Expected Shortfall (dCoES, probability of default in percentage points). A wider shaded area means a larger portion of banks being susceptible to stress arising in shadow banks. The analysis uses a database of probabilities of default (PD) at daily frequency for a sample of about 2,000 financial institutions from 20 EU countries in the period from Jan 2007 to Feb 2015. dCoES in PD percentage points. Yellow line: market value of assets-based aggregate; black line: median.

[27] There is a range of empirical and anecdotal evidence. See, for example, Klaus, Rzepkowski (2009) on the role of redemptions in spill-overs among hedge funds, or "Pimco Total Return has worst ever year of redemptions"; Bloomberg; Jan. 3, 2015, on investor the record USD105bn redemptions from PIMCO's flagship fund in 2014, and following the Bill Gross' and Mohamed El-Erian's departures from the asset management firm.

[28] Such risks may also manifest through the increased reliance on Securities Financing Transactions (SFTs), e.g. securities lending to enhance fund returns. See ESRB (2014) Occasional Paper on SFTs and the (re)use of collateral in the EU for detail on asset managers' exposures. Brunnermeier, Pedersen (2010), and more recent references, stress the relation between funding and market liquidity.

[29] The share of liquid assets in fund portfolios dropped from 40% in 2010 to ca. 30% in 2014 (Source: ECB DG-MF, within the work of ESRB Market Liquidity Expert Group).

Rising interconnectedness increases the risk of systemic consequences.[30] Risk transmission from such redemption pressures may occur through a range of direct and indirect channels, which are particularly pronounced for systemically important asset managers:

- **Banks and other entities in the EU rely on funding from asset managers**. The supply of this funding could contract when asset managers are forced to sell assets.[31]
- **Clients of an asset manager** (Chart 2.3) may face liquidity constraints due to redemption restrictions, which may have repercussions across the financial system as they may drain their other pools of liquid assets (deposits, etc.).
- Asset **liquidations may affect market prices** and put pressure on the balance sheets of banks and other entities. De-leveraging and market liquidity scarcities (in a context of structural reduction in liquidity provision)[32] may amplify this impact and trigger negative self-reinforcing spirals of further sales and price drops.
- Second round effects can be amplified by **commonalities in portfolio allocations** (e.g. of index-linked strategies) or "herding", typically if fire sales raise correlations across asset classes or induce contagion effects across financial markets.[33]

While the evidence to thoroughly assess interconnectedness among asset managers and other financial entities remains limited, a measure of spill-over potential across banks, insurance companies and shadow banks developed by the ECB shows that **the probability of spill-overs between individual shadow banks and individual banks has increased** recently (Chart 2.4). The results for other sectors also suggest a **significant increase in the spill-over potential** between insurance companies and shadow banks (not shown in the chart).

Implicit guarantees and backstops may contain systemic consequences, but can lead to moral hazard and puts taxpayers' money at risk. There are numerous examples of asset management **parent companies extending off-balance sheet commitments to asset management subsidiaries** in periods of stress (including liquidity lines and various implicit guarantees)[34]. While this may contain the systemic consequences of asset reallocations and redemption restrictions, it can put pressure on the capital and liquidity position of the parent company. From a macro-prudential perspective, this problem is particularly pronounced since many of the largest **EU asset managers are owned by banks or insurance companies that themselves often are systemically important** (and thus benefitting from explicit and implicit public backstops). Similarly, there are cases when public

[30] Risk assessments in this field are subject to ongoing initiatives at global (IMF, FSB) level, as well as in the EU.
[31] See, in particular, footnote 14 on exposures in (secured) funding markets and Düwel (2013) on evidence on fund management upon shocks to the parent bank's refinancing possibilities during the crisis.
[32] See CGFS (2014) report on market making and proprietary trading. Setup in the summer of 2014, and ESRB Expert Group on Market Liquidity currently review policy options in this area. Nota Bene: reflecting order flow imbalances, liquidity issues, may arise even when footprints in asset markets are small, as shown in an analysis of leveraged/bear ETF rebalancing by Grillet-Aubert, Sow (2010).
[33] Herding typically results from information asymmetries (e.g. third-party delegation of asset management, fragmented fund processing – e.g. registration, (risk) management, custody, fund/client administration, distribution – chains across entities and jurisdictions) (see Chapter 3 of April 2015 IMF Global Financial Stability Review, and Jones (2015)) Amini, Cont, Minca (2012) and Cont, Santos, Moussa (2013) highlight (diversified) portfolio manager vulnerabilities in financial networks. Wurgler (2010) shows pro-cyclical effects of index-linked portfolio management. Evidence of a "polarisation" is noted, e.g. of a rise in the importance of both passive management/index-tracking funds, and complex/leveraged alternative investment strategies, to the detriment of traditional, active management (see BCG (2014)). The latter adds to the previous point on de-leveraging.
[34] See, for example, Bouveret (2011) on support to US hedge fund during the crisis, Bengtsson (2014) on MMF support ratings by credit rating agencies.

backstops have been announced to prevent trouble in asset managers from becoming systemic.[35] However, such guarantees and backstops can foster moral hazard and put taxpayers' money at risk.

Possible macro-prudential policies

A number of potential macro-prudential policy tools could serve to reduce systemic risk associated with large and interconnected asset managers in the EU.

Potential immediate actions

1. Enhance **data reporting and sharing** to allow monitoring of associated risks and interconnectedness.
2. Conduct regular **stress tests** on asset managers' liquidity positions.

Medium-term priorities

A. Designate **systemically important asset managers** and make them subject to additional regulatory requirements and supervision:[36]
   - Increase **reporting requirements**
   - Impose **additional exposure limits, liquidity buffers, capital requirements**, **limits on maturity and liquidity mismatches**, etc.

B. **Increase capital and liquidity requirements among parent companies** (i.e. banks and insurers) for their direct exposures and off-balance sheet commitments to asset management subsidiaries.

[35] The notion of systemic importance of asset managers is likely to have been reinforced in recent years through numerous instances of public backstops put in place. Examples of those include various facilities, operational both during and after the global financial crisis, like the US funding and liquidity facilities (AMLF, MMIF, TALF, etc.), the UK dealer liquidity facility and the blanket guarantees for MMFs in Luxembourg and Germany.

[36] Such designation could be based on their assets under management, market footprint in specific markets, affiliation with banks or insurers, etc. See further FSB work on non-bank non-insurer systemically important financial institutions (NBNI G-SIFIs).

ANNEX: Overview of the ESRB bottom-up survey results (May 2015)

The main EU-wide financial stability risks, as indicated by several ESRB Member Institutions, include the risks related to the growth outlook, abrupt reassessment of risk premia, excessive risk taking in the low interest rate environment, geopolitical risk, renewed tensions in the euro area sovereign debt markets, and persistent weak bank profitability (Table A.1).

Table A.1: ESRB bottom-up survey: assessment of main EU-wide risks

Risk Category Name	Number of answers	Average severity
Macro risks/ weak growth	18	5.5
Abrupt reassessment of risk premia in global markets, amplified by low market liquidity	12	5.3
Excessive risk taking and formation of asset price bubbles in the low-yield environment	10	5.8
Geopolitical risk	9	5.6
Renewed tensions in the euro area sovereign debt markets	8	5.1
Persistent weak bank profitability and asset quality owing to a weak macro-financial environment	5	5.4
Other bank-related risks	4	6.3
Structural risks/lack of fiscal coordination	4	6.0
Financial infrastructure risk (incl. CCP risk)	3	6.7
A rise of debt sustainability concerns in the real economy in an environment of low nominal growth and inflation	3	6.0
Rising vulnerabilities in insurance sector related to low-yield environment	3	6.0
Risks related to real estate market (valuation, financing, collateral) risks (incl. for sub-sectors – e.g. housing, commercial real-estate, etc.)	2	5.0
Legal/ regulatory risks	2	5.0
Rise in oli prices	1	6.0
Fragilities within the shadow banking sector that can propagate to the wider financial system, amplified by potential liquidity spirals	1	5.0

Note: ESRB bottom-up survey (May 2015). The table summarises the assessment of main EU-wide risks, based on answers of ESRB Member Institutions. Severity combines the probability of a risk materialising and its impact once it materializes, discounting for the ability to mitigate such risk. The risks are sorted by number of answers (second column). Overall, 44 responses were received for the May 2015 bottom-up survey of which 30 institutions listed at least one EU-wide risk.

Regarding country-specific risks (Table A.2), the risks identified as most severe relate to debt sustainability in the environment of weak growth, renewed tensions in the euro area sovereign debt markets, abrupt reassessment of risk premia and excessive risk taking in the low yield environment. The risks in the insurance sector, as discussed in detail in Issue 1, were identified in some countries as severe as well. Among the risks potentially affecting asset management sector, as discussed in Issue 2, the severity of market re-pricing seems to be the most frequently mentioned problem, while the fragilities in the shadow banking sector were as an issue only in a few countries.

Table A.2: ESRB bottom-up survey: assessment of main risks for individual countries

	Risk	Country Averages					Individual assessment of severity																														
		Severity	Expected Likelihood	Potential impact	Ability to mitigate	Policy priority	AT	BE	BG	CY	CZ	DE	DK	EE	ES	EU	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	UK
1	A rise of debt sustainability concerns in the real economy in an environment of low nominal growth and inflation	5.5	4.7	5.5	5.6	2.1	5	5	5	7	6	4.5	.	.	7	5.5	6	6	7	6	7	5	6	3	5	.	4	5	5	5	5.5	6	6	4.5	6	6
2	Renewed tensions in the euro area sovereign debt markets	5.4	5.2	5.4	6	1.9	6	6	5	5	6	6	4	4	7	5.5	5.5	6	6	4	6	5	6	5	4.5	4	3.5	6	5	5	5.75	6	4	5.5	6	6
3	Persistent weak bank profitability and asset quality owing to a weak macro-financial environment	5.4	5.3	5.5	5.7	2.3	6	5	6	7	5	5	5	5	6	6	6	6	7	5	7	5	6	4	4	.	4.5	5	4	5	5.75	5	3	5	7	5
4	Abrupt reassessment of risk premia in global markets, amplified by low market liquidity	5.2	5.3	5.2	6	2.1	5.5	4	2	5	6	5	5	.	6.5	7	7	6	4	4	6	5	6	4	6	4	3.5	6.5	6	4.5	5.75	6	4.5	6	4	6
5	Excessive risk taking and formation of asset price bubbles in the low-yield environment	4.9	5.2	5.1	5.4	2.2	5.5	4	2	3	6	5	4.5	.	5.5	6.5	6.5	5	4	4	5	5	6	4	4	.	4	6	5	5	5.75	5	5	3.5	7	5
6	Geopolitical risk	4.7	4.7	4.7	6.3	1.7	5.5	5	5	5	5	5	3	.	5	4	6	5	4	.	6	4	5	5	3	5	3.5	4.5	5	5.5	5.25	5	4.5	2	6	5
7	Risks related to real estate market (valuation, financing, collateral) risks (incl. for sub-sectors – e.g. housing, commercial real-estate, etc.)	4.7	4.5	5	4.9	2.4	4	5	4	6	4	4.5	5	4	6	6	5	5	4	4	6	6	4	4	4.5	.	4	4.5	5	3.5	4.5	4	5.5	4	6	5
8	Risk taking among systemically important institutions and their counterparts due to misaligned incentives	4.5	4	4.9	4.7	2	4	5	1	4	5	4	4	.	7	6	4	5	3	5	5	4	6	.	4.5	.	4	5	6	3.5	5.25	5	3.5	3.5	6	6
9	Rising vulnerabilities in insurance sector related to low-yield environment	4.3	4.8	4.2	5.2	2	4.5	5	2	3	4	4	4.5	4	6	5	6	4	6	.	4	3	5	3	3	.	3.5	6	3	2.5	5.75	3	3	6	6	5
10	Financial infrastructure risk (incl. CCP risk)	4.1	3.2	4	4.5	1.5	4.5	5	1	2	2	4	4	.	6	5	4	5	2	4	5	4	5	.	5	.	3.5	6.5	3	2.5	4.5	4	4	3.5	5	7
11	IT operational risk and cyber risk	4.0	3.7	3.9	4.8	1.8	3.5	5	1	2	2	4.5	4	.	7	4.5	5	6	2	2	5	4	5	4	4	.	3.5	6	4	3	4.25	4	4	2	5	7
12	Business conduct risk	3.8	3.7	3.9	4.8	1.8	3	4	1	2	3	4	3	.	5	5	4	6	2	3	5	4	4	.	2.5	.	3.5	4	3	3.5	5.25	5	2	5	4	7
13	Fragilities within the shadow banking sector that can propagate to the wider financial system, amplified by potential liquidity spirals	3.6	3.6	3.8	5.1	1.6	5.5	4	1	2	2	4.5	3	.	5	5.5	4.5	5	2	2	4	3	5	.	3.5	.	2.5	6	2	3.5	4.5	3	3	2.5	3	6
14	Lending in foreign exchange currency (incl. both households and non-financial corporations)	3.1	3.1	3.2	3.9	1.4	5.5	3	1	3	2	3	2.5	.	3	4	2.5	5	4	5	5	3	3	.	2	.	2.5	2	3	4.5	2	4	2.5	1.5	3	.

Note: ESRB bottom-up survey (May 2015). The table shows the relevance of 14 pre-defined risks for individual countries, as assessed by Member Institutions. Averages (computed across all countries) of severity, expected likelihood, impact, ability to mitigate and policy priority are reported in the left panel. The right panel reports assessments of severity in each country. The risks are sorted by average severity (second column). Severity combines the probability of a risk materialising and its impact once it materializes, discounting for the ability to mitigate such risk. Overall, 44 responses were received for the May 2015 bottom-up survey.