Insurance and financial stability

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- Insurance companies play an important role in supporting economic activity. But insurers are exposed to a number of risks and can become distressed or fail.
- This article considers a number of channels through which insurance companies could have adverse effects on financial stability, including: how insurer distress or failure might disrupt the provision of critical services to the real economy; and how their behaviours can propagate systemic risk in the financial system. The Financial Policy Committee has an ongoing workplan to assess the extent of risks to financial stability from insurance companies' activities.

Overview

In the United Kingdom, insurance companies operate on a large scale: their investment holdings stood at about £1.9 trillion at the end of last year — a figure broadly equivalent to nominal UK GDP. Insurance companies support the real economy, by enabling households and firms to transfer the risks they face as well as by helping to channel savings into investment.

By the nature of their business, insurance companies are exposed to risks. An insurance company's distress or failure can arise through inadequate provisions for claims or insufficient capital to withstand unexpected losses either from insured events or volatility in the assets they hold. The likelihood of distress or failure may be heightened through certain activities insurance companies can engage in. For instance, AIG nearly failed in 2008 as a result of losses arising from the sale of credit default swaps by one of its non-insurance affiliated entities and its securities lending business.

This article sets out two main ways in which insurance companies could have adverse effects on financial stability and focuses on the key channels for transmission of risks to financial stability rather than conjunctural risk assessment.

The first transmission channel relates to the risk that private and commercial policyholders face disruption in the critical financial services provided by insurance companies if one or several insurers fail. This might occur if resolution arrangements and guarantee protection schemes did not provide sufficient protection for policyholders against interruption to critical financial services, or if in the absence of alternative providers, the failure of an insurance company disrupted the provision of critical services to prospective policyholders. This risk is more likely to arise when a small number of insurance companies dominate supply in a sector. The second source of systemic risk stemming from the insurance sector involves activities that propagate or amplify shocks to financial counterparties or markets. There are several channels through which this could occur. Insurance companies could affect the resilience of their financial counterparties if, on a significant scale, they stopped funding them, stopped lending them securities, or were unable to meet claims following the occurrence of insured events. Evidence suggests that insurers can also behave in a procyclical way, exacerbating the credit cycle (for instance by extending guarantees) or the volatility of financial markets. In practice, it is the second source of systemic risk that is considered more important for the UK insurance sector.

In the United Kingdom, insurance companies are regulated by the Prudential Regulation Authority (PRA) and the Financial Conduct Authority. The PRA's objectives include promoting the safety and soundness of insurance companies and securing an appropriate degree of protection for those who are, or may become, insurance policyholders. The insurance sector is also an important consideration for the Financial Policy Committee, whose objectives include protecting and enhancing the resilience of the UK financial system. There are a number of regulatory measures in place to mitigate the risks discussed in this article and the Bank will continue to monitor systemic risks emanating from the insurance sector. The Bank also supports international efforts to strengthen the resilience of insurance companies operating cross-border. This includes ongoing work towards the development of a global Insurance Capital Standard and work to identify and address the potential risks posed by global systemically important insurers.

(1) The authors would like to thank Rupal Patel and Hamid Riaz for their help in producing this article.

The insurance sector plays an important role in the provision of critical financial services. First, insurance cover allows households, corporations and public sector entities to transfer risks. For example, general insurance companies help firms and households limit the financial costs associated with the occurrence of various risks to their physical property, legal liability and miscellaneous financial loss. Second, insurance companies channel savings into investment. Life insurance companies, for example, help individuals to cover risks arising from uncertainty about their health and lifespan, and one way that they do this is by gathering funds from policyholders and investing these in debt, equity and other assets.

To perform these services, insurance companies operate business models that differ from other financial institutions, including banks.(1) For instance, insurers collect premiums upfront from policyholders for services which might only be delivered several years later — the so-called 'inverted production cycle'.

Insurance companies' business models are exposed to a variety of risks on both sides of the balance sheet.(2) The value of the assets of an insurance company could decrease following a deterioration in financial market conditions. Meanwhile, the value of the liabilities of an insurance company could increase sharply if it had underestimated the losses that might arise from the occurrence of an insured event such as a natural disaster. The failure of an insurer can occur when the incidence of risks reduces its financial resources below a viable level and it is subsequently unable to recover its position.

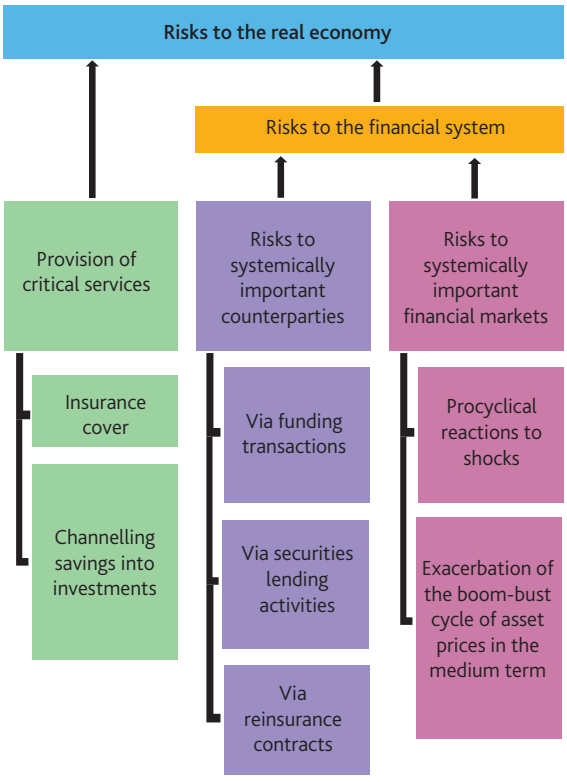
In the United Kingdom, the Prudential Regulation Authority's (PRA's) objectives include promoting the safety and soundness of insurance companies and contributing to the securing of an appropriate degree of protection for those who are, or may become, insurance policyholders. The Financial Policy Committee's (FPC's) primary objectives are to identify, monitor and take action to remove or reduce systemic risks with a view to protecting and enhancing the resilience of the UK financial system.(3)

Although the UK insurance sector is not as large as the UK banking sector, it is still large in relation to overall economic activity. There are currently about 600 insurance companies authorised by the PRA in the United Kingdom.(4) The investment holdings of UK insurance companies were valued at about £1.9 trillion at the end of 2014: this is about 40% of the value of the assets held by UK banks and is broadly equivalent to nominal UK GDP. The three largest insurance companies domiciled in the United Kingdom held total assets estimated at about £1 trillion at the end of 2014 (compared to £4 trillion for the three largest UK-domiciled banks).

This article describes the ways in which insurance companies could affect financial stability and contribute to systemic risk. The aim is to explain the key channels, rather than to provide a conjunctural assessment of systemic risks posed by the UK insurance sector today. The article draws on various sources of data to consider trends in insurance markets and the size of certain exposures and interconnections. It also uses historical examples to illustrate how some of these channels have operated in the past. The framework guiding the analysis of financial stability — based on sources of fragilities and channels of transmission of shocks — is consistent with the analytical framework previously developed by the Financial Stability Board (FSB).(5)

Figure 1 summarises some of the key channels explained in this article. The distress or failure of one or several insurance companies could affect financial stability if it led to a disruption to the critical services that insurance companies provide (**Figure 1**, column 1). This applies both to existing and prospective policyholders and is discussed in the first section of this article.

Figure 1 Potential transmission channels of risks from insurers to the real economy and financial stability



(1) See Thimann (2014).
(2) See Breckenridge, Farquharson and Hendon (2014).
(3) The Financial Conduct Authority (FCA), meanwhile, has responsibility for protecting customers, enhancing market integrity, promoting effective competition, enforcing rules and fighting financial crime.
(4) This includes life and general insurance companies as well as Lloyd's Syndicates. In addition, as of July 2015, there were about 800 European Economic Area (EEA) authorised insurers operating in the United Kingdom as a branch and/or on a freedom of services basis (Bank of England data, available at www.bankofengland.co.uk/pra/Pages/authorisations/fscs/insurance.aspx).
(5) See Bank of England (2015a), in particular Box 5.

Insurers could also contribute to systemic risks[1] if they behaved in ways which propagated shocks to the financial system.[2] This could occur if their actions threatened the resilience of a sufficient number of, or systemically important, financial counterparties (**Figure 1**, column 2) or if their actions contributed to the disruption of the functioning of systemically important financial markets (**Figure 1**, column 3). This channel is discussed in the second section of this article. The final section of the article provides an overview of current efforts by authorities to mitigate these risks.

Interruptions to the provision of critical services

The Bank of England's FPC has identified three critical financial services to the real economy performed by the financial system. These are: (i) payment services; (ii) channelling savings into investments; and (iii) insuring against and dispersing risk.[3] Disruptions to these critical services can have an adverse effect on financial stability.

The critical financial services provided by insurance companies support real economic activity. As a result, disruptions to their provision could affect output growth and financial stability. For instance, in the wake of the terrorist attacks of 11 September 2001, insurance companies stopped offering terrorism insurance and third-party insurance (protecting against damages caused to other parties) to airline carriers and businesses. Commercial aeroplanes cannot fly without the provision of third-party insurance — but air transport plays a critical role in facilitating economic activity. So in response, the UK Government set up a replacement insurance scheme called Troika, which operated for a year and prevented significant disruption both to the aviation industry and other businesses.

Existing policyholders might be at risk of disruption to their cover in the event of an insurance company's failure. As a result, UK authorities have at their disposal a number of options to manage the failure of a firm and protect existing policyholders. The measures available include placing a failed firm into 'run off', encouraging an administrator to transfer parts of the business to another insurer or, where necessary, safeguarding policyholders that are eligible for protection guarantees via the Financial Services Compensation Scheme (FSCS). These options are discussed in more detail in the box on pages 246–47.

The failure of an insurance company could also disrupt the provision of critical services to prospective policyholders in the absence of alternative insurance providers. This issue is more likely to arise when one or a few insurance companies dominate supply in a sector. This section discusses how high levels of market concentration and low substitutability between insurance providers could prevent prospective policyholders from accessing critical services. It focuses first on the provision of insurance cover and then on channelling savings into investment. The box on pages 248–50 discusses the main sources of fragility for insurance companies, including leverage and underreserving, imperfect risk transfer, maturity mismatches and liquidity mismatches.

Interruption to the provision of insurance cover

Several categories of general insurance cover offered by insurers (also referred to as lines of business) play an important role in supporting economic activity. Some forms of insurance, including motor and employer's liability insurance, are compulsory. Others, such as life, marine, aviation, goods in transit and property insurance are often necessary conditions to contracts underpinning economic transactions. When a bank offers a mortgage, for instance, it typically requires the homebuyer to have insurance on the property. So for many insurance markets, a lack of sufficient substitutability between providers due to high levels of concentration could amplify the effect of an insurance company's distress or failure on the real economy.

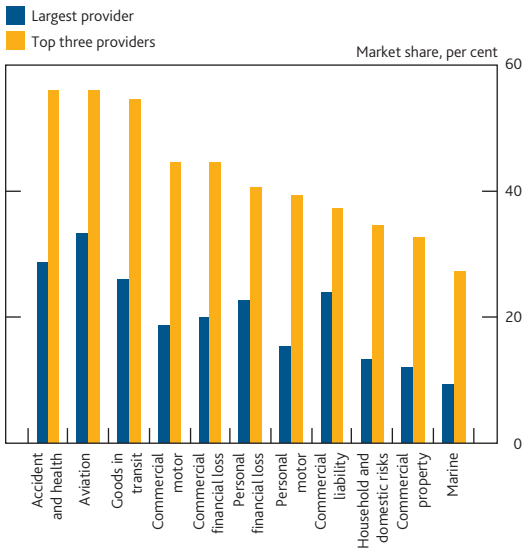
Concentration among insurance providers is one of the main factors that would affect prospective policyholders' ability to find alternative providers of insurance cover in the event of failure of an insurance company. Based on insurance premiums received in 2014, several lines of business managed by general insurers collectively displayed some signs of concentration in the United Kingdom. **Chart 1** shows that the three largest insurance companies per class of business had a market share of about 50% in several of those lines of business.

Another metric to assess concentration is the Hirsch-Herfindahl Index (HHI). The HHI is bounded between 0 (in highly competitive markets) and 10,000 (in the case of a monopoly).[4] If the HHI is between 1,500 and 2,500, concentration is thought to be moderately elevated but is not typically thought of as a source of major concern.[5] In 2014, the HHI was close to 1,500 for only three lines of business offered by UK general insurers: accident and health, aviation and goods in transit.[6]

These figures suggest that in the United Kingdom there is only a moderate degree of concentration in a few lines of general

(1) Systemic risk in the financial system refers to chains of failures due to interconnectedness between participants, either bilaterally or via financial markets. See Systemic Risk Centre, www.systemicrisk.ac.uk/systemic-risk.
(2) See Debbage and Dickinson (2013).
(3) See Bank of England (2013).
(4) The HHI is calculated by summing the squared value of market shares held by individual firms active in a market.
(5) See US Department of Justice and Federal Trade Commission (2010).
(6) Similarly, concentration is also relatively low in the market for life insurance companies' protection products. This includes products which provide cover against critical illnesses and loss of income, for instance.

Chart 1 Concentration of the main lines of business offered by general insurers



Source: PRA regulatory returns (December 2014).

insurance business at present. The absence of concentration should reduce the risk of discontinuity of cover in the event of failure of a single insurance company. The extent of any disruption will also depend on other insurance companies being willing and able to use their expertise to step in. In some of the more competitive segments (such as the UK motor insurance market) some insurance companies might be willing to increase their market share and therefore dedicate more capital to the activity. In addition, underwriting capacity in a specific line of business might also bounce back if a contraction in supply led to increases in premiums. This might also encourage new firms to enter the market as expected profits increase.

Although there seems to be sufficient availability of general insurance providers in the United Kingdom to deliver adequate substitutability in the sector, this issue has been a problem in other countries. For example, the failure of HIH Insurance Group in March 2001 severely disrupted the provision of mandatory builders' warranty insurance for a period of almost a year in Australia. HIH failed as a result of underpricing, underreserving and poor corporate governance.(1) Because HIH underpriced risks, concentration in the builders' warranty insurance market increased substantially.(2) Competitors exited the market and potential new market entrants were discouraged from entering the sector at the prevailing price level. As a result, there were few alternative providers of builders' warranty insurance left. At the time of its failure HIH was the second largest Australian insurer with the equivalent of nearly £3 billion of assets. This illustrates how underpricing of risk by an insurer can have spillover effects on the wider insurance market.

Although the risk of a lack of substitutability in the event of a potential distress or failure by a single UK general insurance company does not appear high, there is a possibility of contagion risk between firms with similar business models. For instance, recent research has found evidence that when an insurance company announces losses related to operational risks, this has a negative spillover effect on the value of the shares issued by other insurance companies.(3) This could have an adverse effect on financial stability if failure by several insurance companies led to disruptions to the provision of critical financial services to the real economy.

Interruption to the channelling of savings into investment

Life insurance companies channel savings into investment primarily by offering savings products to households and corporates and typically investing the funds they collect into debt or equity issued by firms and governments.(4) PRA data indicate that approximately 90% of all insurers' assets were held by life insurers and the remaining 10% by general insurers in 2014 — reflecting their distinct business models.

Life insurers offer 'accumulation' products, which enable policyholders to save, and 'decumulation' products, which provide a steady stream of income. Accumulation products include pensions and other savings funds. Decumulation products include annuities, which provide a pre-defined income stream for an agreed term. The sale of any of these products can create three broad categories of liabilities for life insurers: unit-linked liabilities (where the value of the liability tracks exactly the returns of the funds invested); 'with-profits' liabilities (where profits are added periodically to the fund and guaranteed by the insurer, so that liabilities are linked to but can differ from returns on invested funds); and non-participating liabilities (where the value of the liability does not relate to the performance of investments). **Table A** provides an overview of UK life insurance companies' liabilities by selected categories of accumulation and decumulation products in 2014.

Table A UK life insurance liabilities (in £ billions) by selected categories of products

Products	Unit-linked	Non-participating	With-profits	Total
Corporate pensions	572	0	20	592
Individual pensions	284	1	89	374
Savings and investments	183	4	84	271
Annuities	0	240	29	269
Total	1,040	246	221	1,506

Source: PRA regulatory returns (December 2014).

(1) See Royal Commission (2003).
(2) HIH held a market share of 90% meaning the Hirsch-Herfindahl Index in the builders' warranty market reached at least 8,100.
(3) See Cummins, Wei and Xie (2012).
(4) Both life and general insurers invest in a broad range of assets. But general insurers do not offer savings products and tend to invest in shorter-term assets than life insurers.

Managing firm failures

This box provides an overview of some of the options available to UK authorities to mitigate the risk of disruption of cover for policyholders when an insurance company is in distress or fails. It also discusses some challenges which could complicate the management of a failed insurance company. Policies to reduce the likelihood of insurance companies failing, including Solvency II, are discussed in the final section of this article.

What happens when a firm fails?

When an insurance company operating in the United Kingdom is no longer viable, authorities can intervene swiftly by removing its permission to enter into new contracts (the company cannot continue to write new business in such circumstances). This involves so-called 'run-off'. Run-off is part of a suite of possible recovery and resolution tools aiming at securing finality for policyholders with actual or potential claims.

There are two types of run-off: solvent run-off and insolvent run-off. Whether a run-off is solvent or insolvent will depend on whether an insurance company's reserves and capital are sufficient to pay expected claims to policyholders (typically, this will only be known *ex post*). If reserves and/or capital are sufficient, the run-off will be solvent and the aim of the run-off will be to settle all actual and potential policyholders' claims. Firms or individuals seeking new cover can do so, where available, through alternative insurance providers. As discussed in the main text of the article, this is easier when concentration is lower and alternative products or providers are readily available. There are currently over 100 insurance companies in solvent run-off in the United Kingdom.

Part VII transfer arrangements can also be utilised to transfer business to any UK or other European Economic Area (EEA) insurer. So if it is possible to find an insurance company willing to take on a failed insurer's business, existing policyholders might not face disruption to their cover. However there might be circumstances under which this might be difficult to achieve, for instance when the value of assets and liabilities of a failed insurer are highly uncertain.

What happens if the money runs out?

If a failed insurance company's liabilities exceed its available assets — or it is unable to meet policyholders' claims as they fall due — it may be placed into provisional liquidation or administration or may propose an insolvent scheme of arrangement under the Companies Act 2006 and enter 'insolvent run-off'. In the United Kingdom, there are currently 26 general insurers and two small life assurance firms in insolvent run-off with protected claims.

The Financial Services Compensation Scheme (FSCS) is the compensation fund of last resort for customers of authorised financial services firms in the United Kingdom. The FSCS will safeguard eligible policyholders if they have a protected claim under a contract of insurance issued by an authorised insurer through an establishment in the United Kingdom, another EEA state, the Channel Islands or the Isle of Man.

For claims relating to general insurance contracts, eligible policyholders include most private individuals and small businesses. For claims relating to long-term insurance contracts (for instance life insurance), eligible policyholders include most private individuals and businesses of all sizes. Provided the claim is made under a protected contract of insurance, there are no exclusions from FSCS eligibility for claims under a compulsory insurance contract (such as third-party motor and employers' liability for instance).

The FSCS compensates 100% of claims that arise under long-term insurance and compulsory insurance (motor and employers' liability) contracts, and since July 2015 has increased the compensation limit for professional indemnity claims (from 90% to 100%) and introduced a new category of claims covered at 100% (death and incapacity claims due to injury, sickness or infirmity). It compensates 90% for claims arising from other types of general insurance policies.(1) The FSCS provides an important safeguard to ensure continuity of insurance provision or compensation to eligible policyholders and, thereby, reduces risks to financial stability and to the real economy.

FSCS protection for insurance contracts is funded by levies on firms authorised by the Prudential Regulation Authority (PRA). Each insurer's contribution is calculated on a tariff basis and insurers contribute predominantly in proportion to their relevant net premium income. But there is an upper limit (set by the PRA) of funds available each year, so it is possible the FSCS could run out of funds in extreme circumstances. It may for example be a challenge for the FSCS to fully absorb the losses arising from the failure of a large life insurer if no other insurer were willing to take over its assets and liabilities. In these circumstances, there are provisions for the FSCS to borrow commercially or from the UK Government (under the National Loans Fund) and for the insurance industry (through the FSCS) to repay the loan over a long period.

Following the failure of HIH (see main text), the Australian government introduced a claims support scheme broadly equivalent to the United Kingdom's FSCS. The Australian scheme paid out claims worth more than £86 million between 2001 and 2003.(2) This illustrates the importance of such

(1) See FSCS webpage 'What we cover': www.fscs.org.uk/what-we-cover/eligibility-rules/compensation-limits/insurance-limits/.
(2) See http://archive.treasury.gov.au/content/hih_claims.asp?titl=HIH&ContentID=689.

schemes in order to prevent discontinuity in critical services for existing policyholders.

Are there outstanding challenges?

Unlike for deposit-takers, there is no statutory resolution regime in the United Kingdom for failed insurance companies as an alternative to ordinary insolvency. Even though the current regime to manage insurance companies' failures in the United Kingdom is generally robust, there remain some potential challenges.

For example, even though the FSCS covers compulsory insurance cover such as third-party motor and employers' liability, it does not cover reinsurance, marine, aviation, transport business and credit insurance. These are important lines of business for the real economy (see main text) and the failure of a large provider could therefore lead to disruptions for existing policyholders if no competitor were willing to acquire the portfolio of policies underwritten.

Also, a court-led insolvency process retains the risk that legal challenges may lead to disruption to the continuity of payments made to policyholders. Finally, entry into administration could trigger contractual rights for derivative counterparties to exercise early termination rights and close out contracts (including cross-default clauses affecting other group companies), which could lead to losses and require the insurer to find alternative ways to hedge its portfolios.

The Bank of England and other UK authorities are working with international partners to ascertain whether the current framework for dealing with insolvent insurance companies provides adequate protection or needs to be reviewed.

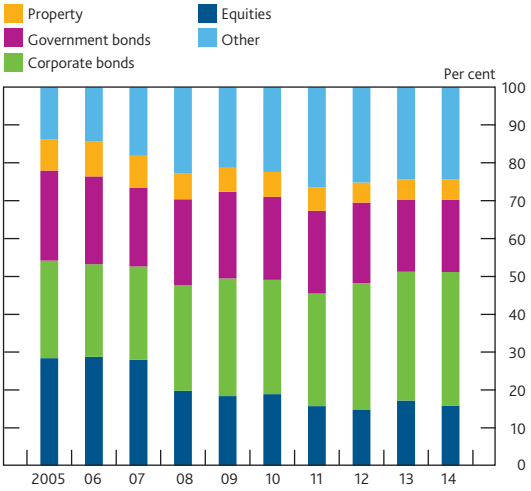
At the end of 2013, UK life insurers held £1.6 trillion of assets, or about 12% of the total assets held by all financial institutions operating in the United Kingdom. As a result, life insurance companies provide important intermediation services to the wider economy. By way of comparison UK banks held about £5 trillion of assets at the end of 2013, and pension funds held £1.4 trillion.(1)(2) In 2014, the PRA collected data on a subset of assets held by insurance companies; **Chart 2** shows these were invested in bonds, equities and other asset classes.(3)

Data from the Association of British Insurers on premium income indicate that concentration in the UK life insurance sector is relatively low in aggregate. Using data on net premium income across all accumulation and decumulation products by the top 20 life insurance companies, the estimated Hirsch-Herfindahl Index reached only about 800 at end-2013 (down from 850 the year before).(4)

Given the relatively low levels of concentration, the distress or failure of a life insurer is not likely to prevent potential new policyholders from finding alternative suppliers of savings or decumulation products within the insurance industry. In addition life insurers have retreated away from 'with-profits' products since the early 1990s and instead have focused on unit-linked products where policyholders own shares (or so-called 'units') of funds and bear the risks arising from the investment. The proportion of UK life insurers' long-term liabilities related to with-profits products decreased from 46% in 1991 to about 15% in 2014 (**Table A**).

The implication of this shift towards unit-linked products is that the savings products offered by life insurers are now more substitutable: they resemble products offered by other financial institutions including shares of funds managed by asset managers. Asset managers can compete with insurance companies in the savings products market and they offer unit-linked products which have attracted strong inflows. Between 2005 and 2014, asset managers' total assets under

Chart 2 UK life insurers' asset allocation(a)



Source: PRA Life Assets data collection (December 2014).

(a) This excludes assets related to unit-linked products.

(1) See Burrows, Cumming and Low (2015).
(2) In addition, UK life insurance companies held a larger proportion of their assets than banks in government and corporate bonds. For instance, corporate bonds represented 23% of insurance companies' investment holdings at the end of 2013, compared to 4% for major UK banks at the end of 2014 (PRA data). As a result, insurance companies are relatively more important investors in corporate bond markets.
(3) The data collection included assets valued at about £572 billion but did not include assets related to unit-linked products.
(4) This is the case despite insurance companies remaining the main providers of 'with-profits' products and annuities. Only life insurers can sell annuities, so concentration in this product is relatively higher, with Aviva, Legal & General and Prudential collectively holding a market share of about 45% in 2012. But 'with-profits' products represent a relatively small and decreasing proportion of life insurance companies' businesses.

Potential fragilities that can make insurers more likely to fail

This box identifies some key sources of fragility for insurance companies' resilience to shocks: leverage and underreserving; imperfect risk transfer; and maturity and liquidity mismatches. The Financial Policy Committee has asked Bank and Financial Conduct Authority staff to further assess the risks from a number of activities which give rise to some of the fragilities discussed in this box.

Leverage, underpricing and underreserving

Insurance companies typically issue little debt relative to the value of the assets on their balance sheet and their equity. For example, the debt to equity ratio of UK insurance companies, a measure of financial leverage, reached about 0.4 at the end of 2013.(1) For comparison, the same ratio for major UK banks decreased from about 3.1 at the end of 2010 to about 1.7 at the end of 2014.

However, insurance companies can achieve an effect analogous to leverage by underreserving for future liabilities. This enables insurers to write a greater volume of contracts than would otherwise be possible. But it reduces the amount of capital per unit of risk on the balance sheet and therefore renders insurance companies more vulnerable to shocks.

There have been several instances in the past where reserves were insufficient to withstand shocks and insurance companies failed. This issue typically arose when: insurance companies competed intensively on price and premiums became too compressed to accumulate reserves; or shocks were much larger than expected and existing reserves were eroded as a result of claims.

Fire, Auto and Marine (FAM) and Drake Insurance are examples of UK insurance companies which failed mainly as a result of underpricing leading to insufficient capital. The Japanese insurance company Taisei Marine and Fire failed due to a much greater-than-expected loss, underreserving, inadequate reinsurance and poor returns. These firms were relatively small and so their failure had a limited impact on financial stability or the aggregate level of real economic activity. But these examples show that underpricing and underreserving can cause insurance company failure.

Risks arising from imperfect risk transfer

Imperfect risk transfer refers to a situation where risks believed to have been transferred to another party still lead to losses for the party initially transferring the risks.

Exposures to intragroup entities

Insurance companies could be exposed to the risks supposedly borne by affiliated entities. This risk crystallises when the resources of the affiliated entities are insufficient to meet their liabilities. For instance, in the years prior to the financial crisis, the non-insurance subsidiaries of both AIG(2) and Swiss Re sold substantial amounts of protection on collateralised debt obligations. Following the defaults of many issuers of structured debt securities, both subsidiaries were unable to meet the obligations arising from the protection they sold and the losses then became a threat to the wider group membership. The US authorities saw the potential disorderly failure of AIG as a material threat to financial stability, in part because it was deeply interconnected with financial markets.(3) AIG had to be rescued and it benefited from almost £49 billion from the US Treasury (via the Troubled Asset Relief Program) and £78 billion committed by the Federal Reserve Bank of New York. Separately, Berkshire Hathaway acquired Swiss Re shares worth about £1.6 billion.

Risks posed by intragroup exposures are more complex and likely to be greater when subsidiaries and branches are domiciled across multiple jurisdictions, or when insurance companies are parts of larger groups such as bank-assurance groups.(4) For example insurance companies might enter into intragroup transactions such as reinsurance arrangements or parental guarantees, sometimes in order to improve capital and tax efficiency.(5)

Risks arising from maturity mismatches

The average expected maturity of insurance companies' assets may be shorter than their liabilities, giving rise to a maturity mismatch and the so-called positive 'duration gap'.(6) If insurance companies do match the duration of their assets and expected liabilities, both the stream of income yielded by the assets held and the maturing assets will become available when liabilities arise, which would also be consistent with Solvency II's Prudent Person Principle.(7) **Table 1** provides an overview of the average duration gap in the insurance sector of selected European countries.

(1) Annual reports data based on a sample of nine large firms.
(2) See McDonald and Paulson (2014).
(3) See www.treasury.gov/initiatives/financial-stability/TARP-Programs/aig/Pages/default.aspx.
(4) Losses could spill over and complex group structures could also make resolution more difficult.
(5) Insurers hold capital against intragroup exposures and counterparty risk, both under ICAS and Solvency II regimes, potentially mitigating these risks to some extent.
(6) There is a maturity mismatch when the maturity of assets is different from the maturity of liabilities. If the maturity of liabilities is greater than the maturity of assets, the duration gap is positive. If the maturity of liabilities is lower than the maturity of assets, the duration gap is negative. A negative duration gap can also give rise to risks, for instance liquidity risks.
(7) For instance, the pool of available long-dated assets may not be suitable from a risk/return perspective.

Table 1 Duration gap in selected major EU life insurance markets

Country	Duration gap[a]
Germany	>10 years
Sweden	>10 years
Austria	>10 years
Netherlands	5½ years
France	4¾ years
Denmark	4¾ years
Spain	<1 years
Italy	<1 years
Ireland	<0 years
United Kingdom	<0 years

Sources: European Insurance and Occupational Pensions Authority, Moody's Investors Service, Standard & Poor's Ratings Services (May 2014) and Bank calculations.

(a) Duration gap is the difference between the average duration of liabilities and assets.

Reinvestment risk in the presence of guaranteed returns

The presence of a positive 'duration gap' may not be an issue in isolation, but it means that insurance companies with long-term liabilities need to reinvest in new assets when investments mature. Threats to an insurance company's solvency can therefore arise if it has issued guaranteed returns on liabilities that are higher than the yield on assets available when the former investments mature. Equitable Life's failure partially illustrates this point.

The International Monetary Fund (2015) and the Bank of England (2015a) have highlighted that there are a number of countries where the domestic insurance sector as a whole is exposed to reinvestment risks due to a duration gap, guaranteed returns and low current yields, potentially giving rise to financial stability concerns.(1) For example, estimates from the Deutsche Bundesbank have shown that 12 out of 85 German life insurance companies would not be able to meet Solvency I 'own funds' requirements if returns on assets remained around 2.5% between 2015 and 2023. And 32 would be at risk of defaulting if yields progressively trended towards 1.5% over the same period.(2)

Risks arising from liquidity mismatches

Several of the activities insurance companies undertake — including securities lending activities, the sale of life insurance products with flexible redemption options, or reliance on short-term funding — can create liquidity mismatches and so could increase risks. A liquidity mismatch arises when the liquidity of assets differs from the liquidity of liabilities. Liquidity mismatches can give rise to illiquidity risk, which is the risk that a company cannot meet its short-term liabilities.

Securities lending activities

Insurance companies hold large portfolios of assets, often for long periods of time. In order to boost their revenues, insurance companies sometimes lend, for a fee, securities such as shares or bonds to selected counterparties. Securities lending transactions are typically collateralised (against cash or other securities) and agreed upon with open maturities. This means that the lender has the right to recall the securities on demand while the borrower has the right to return the securities borrowed at will.

These contractual features expose insurance companies to liquidity risks if borrowers return securities unexpectedly and in large amounts, for instance because they doubt the lender's creditworthiness.(3) Insurance companies would then have to return the cash collateral posted by securities borrowers at short notice, and might struggle to meet this demand for liquidity if the cash collateral had been invested in less liquid assets.(4) This situation reflects AIG's experience in 2008: it was unable to meet collateral calls arising from its nearly £40 billion securities lending program and experienced a material cash drawdown, totalling around £17 billion during the second half of September 2008.(5)

Flexible redemption options on life insurance products

Life insurance companies sometimes sell policies embedding flexible redemption options. For instance, some savings products enable policyholders to access their funds at short notice.

These products give policyholders some control over the maturity of insurance companies' liabilities, which increases liquidity risks.(6) For instance when the Asian currency crisis of 1997–98 affected the Republic of Korea, interest rates increased from 12% to 30% in December 1997. Holders of policies indexed on lower rates redeemed their policies so they could earn higher returns. These lapses forced Korean life insurance companies to fire sale assets and many firms faced shortages in liquidity.(7) And a recent paper has estimated that some German life insurance companies could be exposed to runs by policyholders following a sudden increase in interest rates of around 2 percentage points.(8)

(1) The International Association of Insurance Supervisors (IAIS) has recently described the low-yield environment insurance companies currently operate in. See IAIS (2014).
(2) See Kablau and Weiss (2014).
(3) Borrowers have an incentive to return the securities borrowed at short notice if they doubt the viability of counterparties. This is because borrowers provide collateral and the value of this collateral exceeds the value of the securities on loan. This gives rise to counterparty credit risk.
(4) Raising cash by lending securities and reinvesting this cash in other financial instruments also creates leverage risks.
(5) See Congressional Oversight Panel (2010).
(6) For a discussion of triggers of lapses, see Kiesenbauer (2011). Although an insurance company can charge a fee to policyholders redeeming their policies, this may not be sufficient to deter policyholders from early redemptions under extreme circumstances.
(7) Gross written premiums fell from US$47 billion in 1996 to US$35 billion in 1998.
(8) See Förstemann and Feodoria (2015).

Reliance on short-term funding

Like other financial institutions, insurance companies issue debt securities to fund part of their activities.(1) Supervisory intelligence suggests UK insurance companies typically issue long-term securities. Nevertheless, some insurance companies use short-term debt financing, including for the purpose of financing long-dated and illiquid assets. For instance, US life insurers relied upon the equivalent of £11.5 billion of 'extendible funding agreement' backed notes in 2007 (a type of security that converts into short-term paper on selected 'election dates' if investors opt not to extend the maturity of their holding). And a study conducted by the Financial Stability Board in 2013 showed that global insurance and pension firms had repo exposures totalling approximately £27 billion to 17 financial institutions as of year-end 2012.(2) As a result insurance companies could in theory face liquidity issues if short-term funding markets were to become impaired.

(1) At the end of 2014, the proportion of debt securities issued or loans represented 9.5% of the liabilities of UK insurance companies in aggregate, based on SNL Financials data for a sample of 42 firms. So this does not appear to be a material risk for UK insurers.
(2) Financial Stability Board (2013). This value is estimated based on 4% of US$1.1 trillion of reverse repo.

management increased from £350 billion to almost £850 billion.(1) And other financial institutions in the United Kingdom offer a range of substitutes for savings accumulation products.(2)

Nevertheless, existing policyholders could be at risk of discontinuities in cover or disruption in payments if a life insurer fails. The risk of disruption to payments of annuities is of particular concern. As an example, no firm acquired Equitable Life when it faced unexpected claims arising from guarantees attached to certain annuity products.(3) As a consequence Equitable Life closed to new business.(4) The values of certain policies were adjusted through a court-sanctioned compromise scheme and policyholders wishing to surrender their policies early faced administrative delays. The Government acknowledged that some policyholders had suffered financial losses as a result of Government maladministration and agreed to pay compensation as a consequence.(5)

Amplification of shocks to the financial system and systemic risk

To perform the critical services discussed in the previous section, insurance companies frequently engage in transactions with counterparties such as banks and other financial institutions. There are many types of financial contracts that insurance companies can enter into and securities they trade. Some, including securities lending contracts, usually give rise to short-term obligations. Others, such as investments in debt securities or some categories of derivatives contracts (for example long-dated interest rate swaps) can give rise to much longer exposures.

This means that insurers could propagate or amplify shocks to counterparties or markets through their individual and collective actions (columns 2 and 3 on **Figure 1**). This section describes the channels through which shocks could transmit from the insurance sector to systemically important financial counterparties, and then to markets.

Direct disruptions to systemically important financial counterparties

Insurance companies could have the potential to directly affect the resilience of systemically important financial counterparties if, on a significant scale: they stopped funding them; stopped lending them securities; or were unable to meet claims to them following the occurrence of insured events. In particular, banks are at the core of the financial system and so exposures between insurance companies and banks could be particularly important. Recent analysis by the European Systemic Risk Board has shown that there is a significant degree of interconnectedness between the banking sector and the insurance sector in Europe.(6)

Transmission via funding transactions

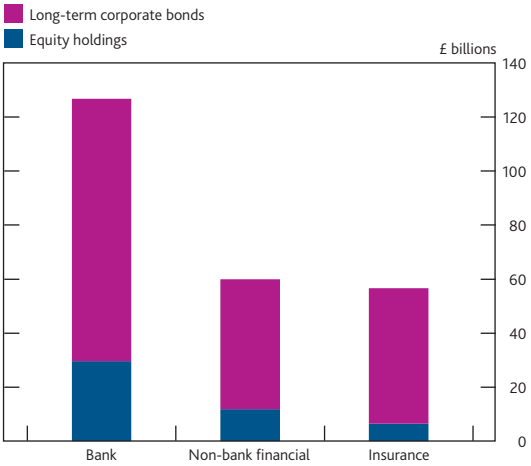
Banks and other major financial institutions typically raise funds by issuing shares and debt securities. They can also do so by entering into collateralised funding agreements such as repurchase agreements transactions ('repo'). In a repo, borrowers sell a security or basket of securities against cash and agree to repurchase these at an agreed date and price.

Insurance companies hold large amounts of debt securities and shares issued by financial institutions. For instance, the International Monetary Fund estimates that European insurers

(1) See Investment Association statistics. These figures can include the asset management arm of insurance companies: www.theinvestmentassociation.org/investment-industry-information/fund-statistics/funds-under-management.html?what=graph&show=3.
(2) Banks and building societies also offer savings accounts (including ISAs). A study by the FCA showed outstanding balances in these accounts reached over £700 billion at the end of 2013. See Financial Conduct Authority (2015).
(3) See Roberts (2012).
(4) See Parliamentary and Health Service Ombudsman (2008).
(5) As discussed in the box on pages 246–47, the FSCS is the compensation fund of last resort for customers of authorised financial services firms in the United Kingdom. The FSCS will safeguard eligible policyholders if they have a protected claim under a contract of insurance issued by an authorised insurer through an establishment in the United Kingdom, another EEA state, the Channel Islands or the Isle of Man. The policyholder protection rules place an obligation on FSCS to initially seek continuity of cover and to minimise the disruption in payments for eligible policyholders. As of 3 July 2015 protection is 100% for claims relating to long-term (life) insurance. In the case of Equitable Life, FSCS protection was not triggered because of the specific circumstances at the time leading to Equitable Life not being declared in default.
(6) See European Systemic Risk Board (2015).

hold around 30%–35% of bonds issued by European financial firms.(1) And in the United States, insurance companies held about £195 billion of corporate bonds issued by the financial sector, about 50% of which were issued by banks (**Chart 3**). Insurance companies also place deposits with banks and some insurers lend cash to banks via repo.(2)

Chart 3 US insurers' holdings of equities and bonds issued by financial institutions



Sources: National Association of Insurance Commissioners Capital Markets Bureau and Bank calculations (December 2013).

So there is a risk that if insurance companies allocated their equity and debt financing portfolios away from the financial sector, financial institutions could face significant funding difficulties. A quick reallocation would be more likely to reflect counterparty credit risk fears. In this case, banks would already be in difficulty and actions by insurers might exacerbate the problem. Insurance companies could also reallocate their assets away from the financial sector if they had concerns about the concentration of their exposure to financial counterparties. But this would more likely be a gradual transition process. Data collected by the PRA show that at year-end 2013 in the United Kingdom, the share of securities issued by banks represented 16% of life insurers' corporate bond portfolios and 10% of their equity portfolios. Importantly, these figures exclude investments through unit-linked investments funds, which represent about two thirds of life insurance companies' balance sheets (**Table A**), and so constitute a lower bound estimate.

Transmission via securities lending activities

Lending securities such as shares to counterparties for a fee is a valuable service, but it also significantly increases interconnectedness between financial counterparties.(3) Frequent borrowers of securities include banks, broker-dealers and investors such as hedge funds.

UK insurance companies are very significant participants in UK securities lending markets. They also have the capacity to increase the volume of securities they lend: in May 2015 only 10% of securities eligible for lending were on loan.(4) As a result, UK insurance companies could potentially propagate shocks to borrowers of securities if they collectively recalled securities on loan unexpectedly.(5)

Transmission via reinsurance contracts

Reinsurance companies are an important part of the insurance sector. They typically operate globally, with the total market for reinsurance reaching £367 billion in 2014 according to Swiss Re Sigma data. In comparison, total premium income was £3 trillion for insurance companies globally.(6)

Reinsurers offer insurance to general and life insurance companies. This helps insurance companies manage the risks that they underwrite and spreads their liabilities, for instance by sharing risks geographically or across product lines. For example, an insurance company selling storm protection in a given region can mitigate the concentration risk it is exposed to by purchasing reinsurance.

When an insurance company purchases reinsurance, it retains the obligation to pay claims on the contracts it has written. But the purchase of reinsurance also creates 'reinsurance assets' which pay-off when the insured event occurs. This compensates the original insurer for the loss and helps it meet its claims obligations. As a result the original insurance company is therefore exposed to the counterparty credit risk of its reinsurance companies.

The distress or failure of a large reinsurer could have material consequences for insurance firms. For instance, general insurance companies transferred about 20%–25% of the risk they underwrote to reinsurance providers in 2014. This could create risks if these exposures were concentrated. Good practice for insurance companies is to spread their reinsurance across several providers, and research indicates that the insurance sector in advanced economies appears to be resilient to the risk of reinsurance companies defaulting on their obligations.(7)

An alternative way to obtain reinsurance is by issuing insurance-linked securities (ILS). ILS are instruments which enable the transfer of specific catastrophe insurance risks via

(1) See International Monetary Fund (2015).
(2) Based on supervisory data, UK life insurance companies held deposits worth over £6 billion with banking counterparties included within their top ten counterparties in 2014. Large exposure data collected from banks show that a few insurance companies lent large enough amounts through repo markets to appear in banks top 20 counterparties. However insurers active in the Unites States were not typically lenders in repo markets: see National Association of Insurance Commissioners Capital Markets Bureau (2014a).
(3) See Financial Stability Board (2012).
(4) Source: Markit Group Limited.
(5) For instance, if recalling securities on loan forced securities borrowers to liquidate their positions, this could force the latter to recognise losses, thereby potentially affecting their resilience.
(6) See Swiss Re (2015).
(7) See van Lelyveld, Liedorp and Kampman (2009) and Park and Xie (2014).

capital markets.(1) Providers of so-called 'alternative capital' (because it is a source of funding from outside the conventional reinsurance market) include participants such as pension funds, hedge funds and institutional investors. These investors have been attracted to the potentially higher returns offered by ILS instruments as a consequence of limited claims and losses arising from severe natural catastrophe events in recent years. For instance around £40 billion of ILS were outstanding globally at the end of June 2015, distributing risk to other parts of the financial system.(2) This increases interconnectedness between the insurance sector and other financial intermediaries because investors holding ILS will be subject to the same risk of loss from catastrophic events as insurers. Insurance companies might also progressively become more dependent on alternative capital providers for reinsurance. The FPC has asked Bank and FCA staff to assess these risks in more detail over the course of 2015 and into early 2016.

Disruptions to systemically important financial markets

One of the main channels through which insurance companies — and other large investors — could potentially disrupt systemically important financial markets is procyclical behaviour. This refers to the tendency to act in a way that exacerbates observed changes in the prices of financial assets. Another channel includes providing services which might exacerbate the credit cycle in the medium to long run, for instance by extending financial guarantees.

Procyclical behaviour

Investors behave procyclically when they increase their exposure to an asset class when its value is rising. In aggregate, such behaviour might contribute to the formation of asset price 'bubbles' where prices of financial assets no longer accurately reflect their risks. As a consequence, a sudden reappraisal of risks could lead to sharp declines in asset prices. Reciprocally, investors behave procyclically if they sell assets when the prices of these assets are declining. This might occur because investors want to sell and invest in safer assets rather than risk further losses, or they may face liquidity constraints, forcing them to sell their assets (so-called 'fire sales').(3) Although not a behaviour that is unique to insurance and while such actions may reflect prudent risk management on the part of individual insurers, when a significant proportion of investors behave in such a way, it can amplify shocks.(4)

The procyclical behaviours described above could exacerbate the tendency for financial markets to experience 'booms' and 'busts'. For instance, marking-to-market of instruments on financial institutions' balance sheets can affect firms' capital positions; fluctuations in the value of collateral posted in securities financing and derivatives transactions can lead to collateral calls and propagate liquidity shocks; and 'flight-to-safety' behaviour (whereby market participants invest only in low-risk assets) can decrease the interest rate on risk-free assets used to value liabilities — thereby affecting the solvency of firms with long-term insurance liabilities.

Insurance companies typically hold long-term and mostly illiquid liabilities.(5) In principle this should enable them to look through short-term fluctuations in asset prices. One might therefore expect their behaviour to dampen — or at least not to amplify — shocks.(6) For instance, should asset prices deviate substantially from fundamentals as a result of fire sales by other investors, long-term, value-driven investors such as insurance companies could in theory seize the long-run profit opportunities that arise from such deviations, or at least not feel the pressure to sell.

There is some tentative evidence of procyclical behaviour by insurance companies, both internationally and in the United Kingdom.(7) In the United Kingdom, there was evidence of procyclical shifts in asset allocation away from equities and into fixed-income assets following the dotcom crash of the early 2000s. In the United States and France, there was some evidence of insurance companies changing their allocations to equities in correlation with the performance of the S&P 500. And the Nederlandsche Bank has found evidence of Dutch insurers selling their holdings of sovereign debt issued by 'peripheral' European governments after their yields increased sharply in 2012–13 due to increasing risks of default.(8)

There are a number of potential sources of procyclical behaviour and the box on page 253 discusses these further, focusing in turn on asset allocation strategies, risk management practices, potential 'runs' on insurers, the use of derivatives and some valuation techniques.

Regulators have taken a range of measures in the past to curb the risks of fire sales of assets by insurers and reduce the likelihood of procyclical behaviour. This might explain the relatively limited evidence available despite the number of potential sources of procyclical behaviour. Among others, these measures included: relaxing capital requirements (so that firms would not have to hold increasing amounts of capital when volatility increased); dampening volatility in valuation (enabling firms to temporarily value assets or liabilities differently to the market price); and introducing

(1) There are three main structures of ILS: collateralised reinsurance, catastrophe bonds (including sidecars) and industry loss warranties.
(2) Data source: Aon Benfield, Reinsurance market outlook (June and July 2015 update).
(3) See Shleifer and Vishny (2011).
(4) See Brunnermeier and Pedersen (2009).
(5) See, for instance, Box 1 in Breckenridge, Farquharson and Hendon (2014).
(6) Governor Carney recently highlighted the positive role insurance companies can play. See Carney (2014).
(7) See Bank of England and Procyclicality Working Group (2014).
(8) See Bijlsma and Vermeulen (2015).

Potential sources of procyclical behaviour

There are a number of factors that could incentivise insurers to behave procyclically. These include their own risk appetite and risk management practices, potential 'runs' on insurers, following benchmark-driven investment strategies, the use of derivatives as well as some valuation techniques.

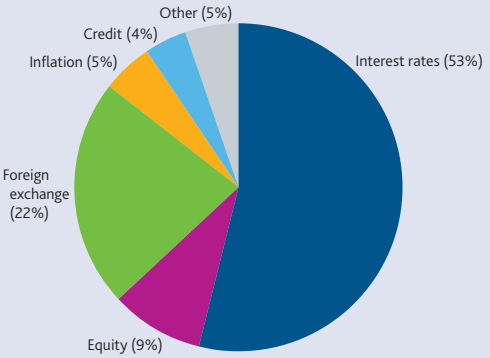
Some risk management practices could lead insurers to behave procyclically. For instance, there are some variable annuity products that give insurers the right to modify the composition of their portfolios from equities to bonds automatically when the prices of equities fall substantially and volatility increases. If insurers with similar portfolios all implement such risk management practices simultaneously, in aggregate this could further contribute to declines in asset prices. The extent to which this channel is likely to deliver sizable asset reallocations is difficult to estimate due to limited data, but supervisory intelligence suggests that there is the potential for this risk to crystallise.

Meanwhile, 'runs' on insurers can in principle arise when policyholders are able to cash out their policies at their own discretion (as is for instance the case for some variable annuity contracts even if this sometimes involves withdrawal fees).(1) This might especially be the case if holders of savings products collectively reacted to market stresses by withdrawing their funds. There have been instances of 'runs' on insurance firms induced by broader market stresses: Ethias, a Belgian insurer, required a capital injection of the equivalent of £1.1 billion from the Belgian government following a high number of cancellations of policies and withdrawals of savings during the market turmoil in 2008.(2) This did not affect UK insurers as they had not sold similar products, including in the United Kingdom.

If the insurance sector widely uses common investment strategies based on common benchmarks or indices, this could affect the value of the securities within the benchmarks or the components of indices. For instance, the International Monetary Fund has shown that there was increasing evidence of correlated trading (or 'herding') among equity and bond funds investing in emerging markets.(3) This behaviour was not directly linked to insurance companies but as discussed in the second section insurers are significant investors.

Finally, the insurance industry can use derivatives instruments in order to hedge risks, match assets and liabilities and manage their portfolios efficiently. For instance, foreign exchange derivatives enable insurance companies to protect against variations in exchange rates. The gross notional value of derivatives held by insurance entities with operations in the United Kingdom reached £400 billion at the end of 2014. The comparable figure for US insurance companies reached £1.12 trillion at the end of 2013.(4) **Chart A** shows the distribution of UK insurers' derivatives portfolios by type of derivatives instruments.

Chart A Types of derivatives instruments used by UK insurers



Source: PRA regulatory returns (December 2014).

Although using derivatives for risk reduction or efficient portfolio management purposes can be effective and prudent, it also creates a dependency on being able to access derivative markets. Insurers' ability to access derivatives could be impaired in times of wider market stress, for instance as a result of increasing concerns about counterparty credit risk.(5) And so a decline in the availability of derivatives used for hedging purposes could force insurers to reallocate some of their assets in times of market stress.

Solvency II seeks to mitigate the risk of insurance companies behaving procyclically via dampening mechanisms such as the equity symmetric adjustment, the matching adjustment and the volatility adjustment.(6) A recent study has suggested that the equity symmetric adjustment should be effective at reducing procyclicality of the standardised equity risk capital charge.(7) But further work and analysis will be necessary to judge the effectiveness of these mechanisms.

(1) The US Financial Stability Oversight Council designated MetLife and Prudential Financial as domestically systemic institutions partly based on this risk factor. See US Treasury (2013, 2014).
(2) See the European Commission press release, 'State aid: commission approves restructuring of Belgian insurance company Ethias': http://europa.eu/rapid/press-release_IP-10-592_en.htm?locale=en.
(3) See International Monetary Fund (2014).
(4) See National Association of Insurance Commissioners Capital Markets Bureau (2014b).
(5) As an illustration of this risk, the liquidity of equity derivatives declined following the 2007–08 crisis, especially for European and emerging market equities.
(6) See Swain and Swallow (2015).
(7) See Eling and Pankoke (2014).

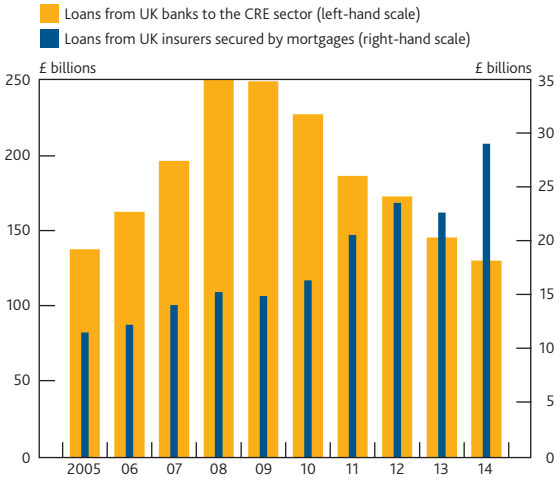
floors to discount rates (thereby preventing liabilities from increasing sharply as would happen if lower discount rates reflecting lower risk-free rates in times of stress were applied). These examples provide some evidence of potential procyclical behaviour, but further analysis would be required in order to be more conclusive.

Activities which might exacerbate the credit cycle in the medium to long run

Insurance companies can potentially contribute to swings in the cost and quantity of credit available in the medium to long run, the 'credit cycle'. The channels through which this can occur include direct lending, acting as financial guarantors, selling credit default swaps and purchasing some debt securities. This subsection discusses these in turn.

Like banks, life insurers can originate loans directly to households or the corporate sector. For example since 2005 insurance companies increased their exposure to the property sector, and at the end of 2014, UK life insurers had around £29 billion of loans secured by mortgages on their balance sheet. PRA data show that the loans secured by mortgages on UK life insurers' balance sheets predominantly included loans to the commercial real estate (CRE) sector (approximately 75%). In comparison, since 2008, banks have been reducing the size of their CRE book and at the end of 2014 held loans of about £129 billion to the CRE sector in aggregate (**Chart 4**).

Chart 4 UK insurers' loans secured by mortgages



Sources: PRA regulatory returns and Bank of England (December 2014).

Direct lending by insurance companies should contribute positively to economic growth and may not be an issue *per se*. But it could also exacerbate the credit cycle if increasing credit supply by insurance companies led to an increase in competition between lenders, and if this in turn led to a compression in the rates charged to borrowers that did not suitably reflect risks.

Monoline insurers(1) enable borrowers to raise funds where the borrower would otherwise be facing difficulties in doing so. They achieve this by issuing a financial guarantee to the borrower. This increases a security's creditworthiness — since the monoline insurer provides a guarantee making the borrower more attractive to a wider pool of investors. This can increase the supply of finance to the real economy.(2)

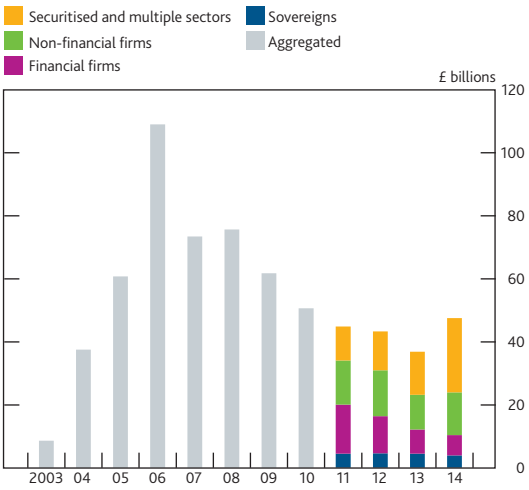
Issuing guarantees, however, could exacerbate the credit cycle if the guarantees were priced at a level that did not reflect the credit risk of the borrowers insured.(3) When monoline insurers were downgraded(4) in early 2008 in the United States and the EU, because of concerns about their capital adequacy, the loans they insured were also downgraded, contributing to large sell-offs of credit and loan assets. Empirical studies have shown that downgrades of monoline insurers had a significant negative impact on the value of the instruments insured.(5)

Insurance companies can also generate income by selling credit default swaps (CDS). Buyers of CDS purchase protection against the default of one or several reference borrowers, for an agreed term, in exchange for regular premium payments. CDS markets support the supply of finance by enabling buyers of CDS to better manage their credit risk. But if the premia charged by CDS sellers do not reflect the credit risk borne, this activity can exacerbate the credit cycle (by contributing to lower costs of funding in underlying credit markets).(6) Insurance and financial guarantee companies remain active sellers of CDS globally (**Chart 5**). The scale of this activity is currently small: at the end of December 2014, the notional value of the protection insurance and financial guarantee companies had sold reached £47.5 billion, relative to £7.62 trillion of protection sold in CDS markets in aggregate. But as AIG's near failure has shown, both the scale and the concentration of sold CDS can matter from a financial stability perspective.

Finally, insurance companies could also exacerbate the credit cycle if they purchased large volumes of securitised products such as asset-backed securities (ABS) backed by loans including mortgages, auto-loans or other receivables. Simple, transparent, high-quality ABS can have many benefits for both the real economy and financial market participants.(7) But di Iasio and Pozsar (2015) have recently shown that in a low interest rate yield environment, insurance companies and

(1) Financial guarantors are often referred to as monolines because they tend to specialise in their guarantee business.
(2) See Bergstresser, Cohen and Shenai (2010).
(3) This could occur either by mistake as a result of the complexity of the instruments insured, because of inadequate prudential standards, or due to competition between participants.
(4) See Geneva Association Systemic Risk Working Group (2010).
(5) See Chen *et al* (2013).
(6) See Shimy and Zhuz (2010).
(7) See Bank of England and European Central Bank (2014).

Chart 5 CDS sold globally by insurance and financial guarantee companies (by reference entity)



Source: Bank for International Settlements, detailed tables on semi-annual over-the-counter derivatives statistics (December 2014).

pension funds' demand for higher-yielding assets can increase.(1) This creates incentives for banks to 'manufacture' greater volumes of more complex, higher-yielding credit instruments, leaving the economy more prone to deep deleveraging in response to shocks.

Mitigating systemic risk and preserving financial stability

This section considers a number of regulatory initiatives that are currently under way that should help mitigate some of the risks to financial stability discussed in this article. It also highlights some outstanding issues. In addition, the box on pages 246–47 discusses some remaining challenges around the resolution of failed insurance companies.

First, Solvency II is a harmonised risk-based regime which will be implemented from 1 January 2016. The regime will enhance the resilience of insurance companies in the European Union, by: introducing improved governance and risk management requirements; enhancing the quality of capital; and introducing a rigorous approach to group supervision.(2) These measures should contribute to mitigating some of the fragilities discussed in the box on pages 248–50, increase the resilience of the European insurance sector to shocks and reduce insurers' probability of distress or failure. Though Solvency II contains measures to mitigate procyclicality, further work will be necessary to judge their effectiveness in the face of adverse market shocks (see the box on page 253).

Other jurisdictions across the world use different solvency regimes. In order to address the risks arising from inconsistent regulatory standards while encouraging the removal of barriers to cross-border activities of international groups, the International Association of Insurance Supervisors (IAIS) is developing a common framework for supervising internationally active insurance groups, known as ComFrame. The quantitative aspect of ComFrame — the Insurance Capital Standard (ICS) — will consist of a consolidated group-wide standard and a globally comparable risk-based measure of capital adequacy.

The Bank fully supports and contributes to the development of both ComFrame and the ICS. Their implementation will help supervisors collectively evaluate and if necessary address the risks arising from group-wide activities, so leading to more robust insurance groups. Both ComFrame and the ICS could support 'real markets'(3) by facilitating open capital flows, cross-border activities and enabling insurers to invest. This also encourages insurers to perform their stabilising role of providing long-term benefits to the real economy and policyholders.

The IAIS is also leading work to address the potential risks posed by global systemically important insurers (G-SIIs). First, it runs an annual exercise to identify G-SIIs, based on criteria including size and substitutability (as discussed in the first section of this article), interconnectedness with other significant financial institutions and markets (as discussed in the second section) as well as the extent of potentially systemically risky activities undertaken. And to mitigate the risks G-SIIs can pose, the IAIS has adopted and adapted the policy framework developed by the Financial Stability Board for addressing the risks posed by systemically important financial institutions.

This policy framework comprises three elements: enhanced supervision; removing barriers to recovery and resolution in the event of a G-SII's distress or failure; and higher loss-absorbency capacity (higher capital requirements). Together, these should reduce both the probability and the impact of failure of G-SIIs. The IAIS is in the process of reviewing its methodology for identifying G-SIIs and will publish its final specification for higher loss absorbency in due course. The Bank of England takes an active interest in this work, which is evolving in line with the changes under way in the insurance industry and the wider financial and regulatory environment. The Bank endorses and is involved in the IAIS's aim of improving global consolidated supervision, increasing transparency and harmonising the current disparate national approaches to valuation and solvency requirements.

(1) See di Iasio and Pozsar (2015).
(2) See Bulley (2015) and Swain and Swallow (2015).
(3) Real markets must be fair, resilient and effective, and have social licence to operate. See Bank of England (2015b).

Conclusion

Insurance companies are important providers of critical services to the real economy. They support output growth by helping businesses and households to manage their risks, and in the process channel savings into investments. But as this article has shown, the insurance sector can adversely affect financial stability.

The activities insurance companies engage in could contribute to the formation of fragilities, and if one or several firms failed or were in distress, this could lead to disruptions to critical services to the real economy. Furthermore, insurers' activities and behaviour could amplify shocks to the financial system, either via financial markets or directly through financial counterparties. Given that concentration of insurance services is not particularly high in the United Kingdom, it is this second source of systemic risk that it is more important to monitor in practice.

As part of its remit to identify, monitor and take action to reduce systemic risks and enhance the resilience of the UK financial system, the FPC will review some of the risks discussed in this article, including those arising from activities such as providing financial guarantees. The FPC also asked Bank and FCA staff to further assess the risks from activities such as cash collateral reinvestment programmes associated with securities lending, or writing credit default swaps, as these activities can increase fragilities through leverage or maturity transformation, and contribute to the propagation of shocks through interconnectedness.(1)

(1) Bank of England (2015c).

References

Bank of England (2013), 'The strategy for the Bank's Financial Stability mission 2013/14', available at www.bankofengland.co.uk/about/Documents/strategy1314.pdf.

Bank of England (2015a), *Financial Stability Report*, July, available at www.bankofengland.co.uk/publications/Documents/fsr/2015/fsrfull1507.pdf.

Bank of England (2015b), *Open Forum: building real markets for the good of the people*, available at www.bankofengland.co.uk/markets/Documents/openforum.pdf.

Bank of England (2015c), 'Record of the Financial Policy Committee Meeting: 24 June 2015', available at www.bankofengland.co.uk/publications/Documents/records/fpc/pdf/2015/record1507.pdf.

Bank of England and European Central Bank (2014), 'The case for a better functioning securitisation market in the European Union: A Discussion Paper', available at www.bankofengland.co.uk/publications/Documents/news/2014/paper300514.pdf.

Bank of England and Procyclicality Working Group (2014), 'Procyclicality and structural trends in investment allocation by insurance companies and pension funds: A Discussion Paper', available at www.bankofengland.co.uk/publications/Documents/news/2014/dp310714.pdf.

Bergstresser, D, Cohen, R and Shenai, S (2010), 'Financial guarantors and the 2007–2009 credit crisis', *Harvard Business School Working Paper 11-051*.

Bijlsma, M and Vermeulen, R (2015), 'Insurance companies' trading behaviour during the European sovereign debt crisis: flight home or flight to quality?', *De Nederlandsche Bank Working Paper No. 468*.

Breckenridge, J, Farquharson, J and Hendon, R (2014), 'The role of business model analysis in the supervision of insurers', *Bank of England Quarterly Bulletin*, Vol. 54, No. 1, pages 49–57, available at www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q105.pdf.

Brunnermeier, M and Pedersen, L (2009), 'Market liquidity and funding liquidity', *The Review of Financial Studies*, Vol. 22, No. 6, pages 2,201–38.

Bulley, A (2015), 'Reflecting on Solvency II: continuity and change', available at www.bankofengland.co.uk/publications/Documents/speeches/2015/speech819.pdf.

Burrows, O, Cumming, F and Low, K (2015), 'Mapping the UK financial system', *Bank of England Quarterly Bulletin*, Vol. 55, No. 2, pages 114–29, available at www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2015/q201.pdf.

Carney, M (2014), 'Regulating the insurance industry to support the real economy', available at www.bankofengland.co.uk/publications/Documents/speeches/2014/speech730.pdf.

Chen, F, Chen, X, Sun, Z, Yu, T and Zhong, M (2013), 'Systemic risk, financial crisis, and credit risk insurance', *The Financial Review*, Vol. 48, Issue 3, pages 417–42.

Congressional Oversight Panel (2010), 'The AIG rescue, its impact on markets, and the government's exit strategy', June Oversight Report, page 25.

Cummins, D, Wei, R and Xie, X (2012), 'Financial sector integration and information spillovers: Effects of operational risk events on US banks and insurers', *Working Paper*, Temple University, Philadelphia, PA.

Debbage, S and Dickinson, S (2013), 'The rationale for the prudential regulation and supervision of insurers', *Bank of England Quarterly Bulletin*, Vol. 53, No. 3, pages 216–22, available at www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2013/qb130303.pdf.

Eling, M and Pankoke, D (2014), 'Basis risk, procyclicality, and systemic risk in the Solvency II equity risk module', *Journal of Insurance Regulation*, Vol. 33, No. 1, pages 1–39.

European Systemic Risk Board (2015), 'Network analysis of the EU insurance sector', *European Systemic Risk Board Occasional Paper No. 7*.

Financial Conduct Authority (2015), 'Cash savings market study report: Part I: final findings, Part II: proposed remedies', *Market Study MS14/2.3*.

Financial Stability Board (2012), 'Report on securities lending and repos: market overview and financial stability issues'.

Financial Stability Board (2013), 'Strengthening oversight and regulation of shadow banking policy framework for addressing shadow banking risks in securities lending and repos'.

Förstemann, T and Feodoria, M (2015), 'Lethal lapses — how a positive interest rate shock might stress German life insurers', *Deutsche Bundesbank Discussion Paper No. 12/2015*.

Geneva Association Systemic Risk Working Group (2010), 'Systemic risk in insurance, an analysis of insurance and financial stability'.

di Iasio, G and Pozsar, Z (2015), 'A model of shadow banking: crises, central banks and regulation'.

International Association of Insurance Supervisors (2014), *Global Insurance Market Report (GIMAR)*.

International Monetary Fund (2014), *Global Financial Stability Report: Risk taking, liquidity, and shadow banking: curbing excess while promoting growth*, October.

International Monetary Fund (2015), *Global Financial Stability Report: Navigating monetary policy challenges and managing risks*, April.

Kablau, A and Weiss, M (2014), 'How is the low-interest-rate environment affecting the solvency of German life insurers?', *Deutsche Bundesbank Discussion Paper No. 27/2014*.

Kiesenbauer, D (2011), 'Main determinants of lapse in the German life insurance industry', *North American Actuarial Journal*, Vol. 16, No. 1, pages 52–73.

van Lelyveld, I, Liedorp, F and Kampman, M (2009), 'An empirical assessment of reinsurance risk', *Netherlands Central Bank DNB Working paper No. 201*.

McDonald, R and Paulson, A (2014), 'AIG in hindsight', *Federal Reserve Bank of Chicago Working Paper No. 2014-07*.

National Association of Insurance Commissioners Capital Markets Bureau (2014a), 'Update on US insurance industry exposure to securities lending and repurchase agreements'.

National Association of Insurance Commissioners Capital Markets Bureau (2014b), '2013 year-end update to the insurance industry's derivatives exposure'.

Park, S and Xie, X (2014), 'Reinsurance and systemic risk: the impact of reinsurer downgrading on property-casualty insurers', *Journal of Risk and Insurance*, Vol. 81, No. 3, pages 587–622.

Parliamentary and Health Service Ombudsman (2008), 'Equitable Life: a decade of regulatory failure'.

Roberts, R (2012), 'Did anyone learn anything from the Equitable Life? Lessons and learning from the financial crises', Kings College.

Royal Commission (2003), 'Report of the HIH Royal Commission'.

Shimy, I and Zhuz, H (2010), 'The impact of CDS trading on the bond market: evidence from Asia', *BIS Working Paper No. 332*.

Shleifer, A and Vishny, R (2011), 'Fire sales in finance and macroeconomics', *Journal of Economic Perspectives*, Vol. 25, No. 1, Winter, pages 29–48.

Swain, R and Swallow, D (2015), 'The prudential regulation of insurers under Solvency II', *Bank of England Quarterly Bulletin*, Vol. 55, No. 2, pages 139–52, available at www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2015/q203.pdf.

Swiss Re (2015), 'Sigma: world insurance in 2014: back to life'.

Thimann, C (2014), 'How insurers differ from banks: a primer on systemic regulation', *LSE Research Online Documents on Economics 61218*, London School of Economics and Political Science, LSE Library.

US Department of Justice and Federal Trade Commission (2010), 'Horizontal integration guidelines'.

US Treasury (2013), 'Basis for the Financial Stability Oversight Council's final determination regarding Prudential Financial'.

US Treasury (2014), 'Basis for the Financial Stability Oversight Council's final determination regarding MetLife, Inc'.