

# **The Interplay between Market-Based Finance and the Credit Cycle**

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Third ESRB Annual Conference: Panel on “Identifying and assessing  
risks in the shadow banking system”

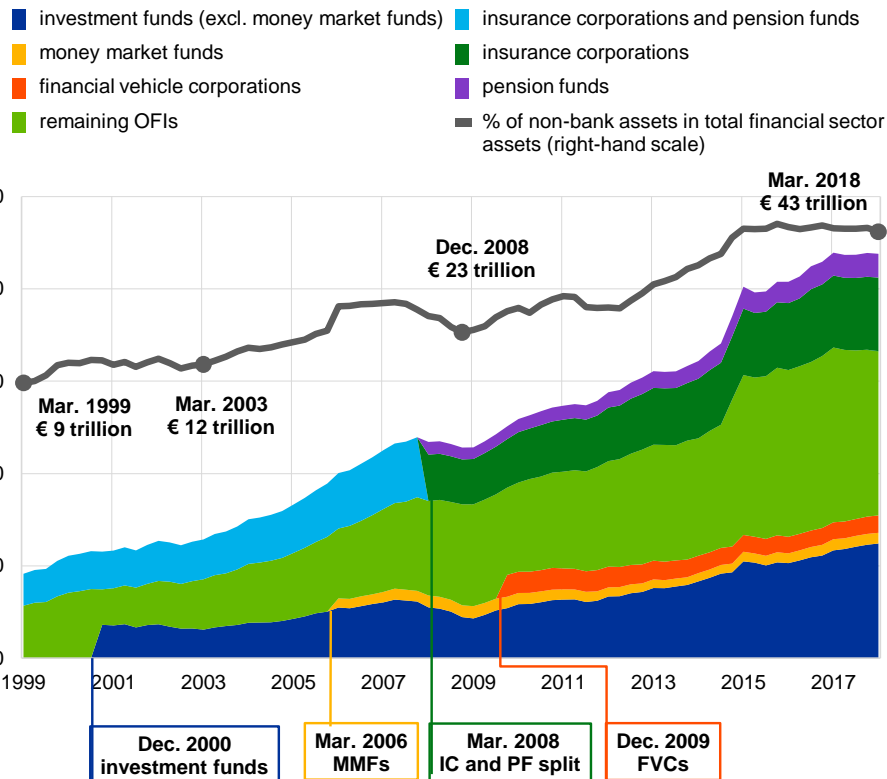
Frankfurt, 28 September 2018

# Increasing importance of the non-bank financial sector

- Medium-term growth reflects its role in financing the euro area economy

## Assets of the non-bank financial sector

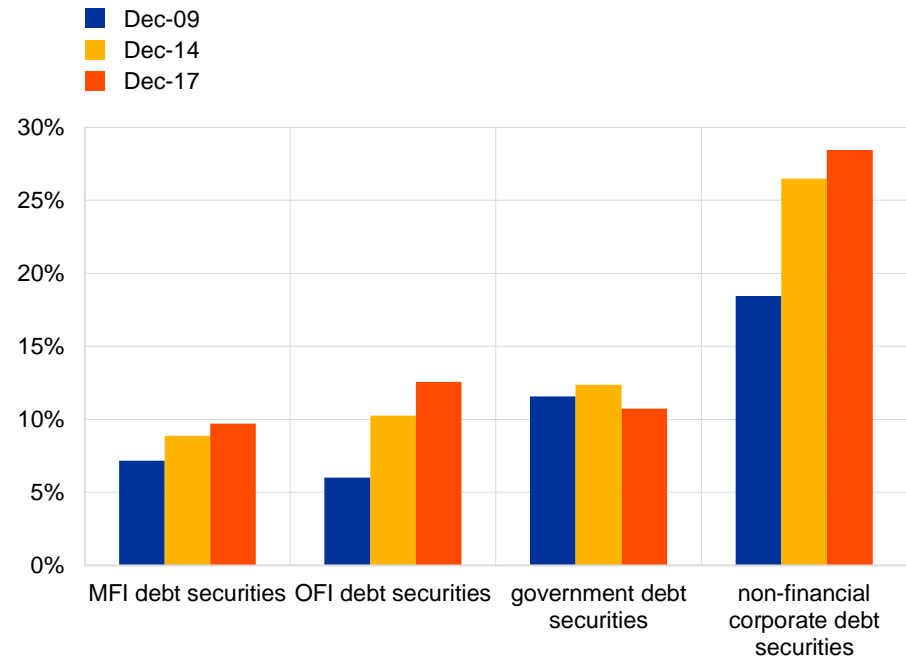
Q1 1999 – Q1 2018; EUR trillion, percentage of total assets of the financial sector



Source: ECB (euro area accounts and balance sheet data of individual sectors) and ECB calculations.

## EA investment funds' holdings of EA debt securities

Dec 2009, Dec 2014, Dec 2017; percentage of the outstanding stock of debt securities issued



Sources: ECB and ECB calculations.

Note: Debt securities issued by the MFI, government and NFC sectors are measured as nominal amounts outstanding, while the holdings by funds are based on market value. The change in ratios over time thus partly reflects valuation effects.

# Key financial stability vulnerabilities from market-based finance

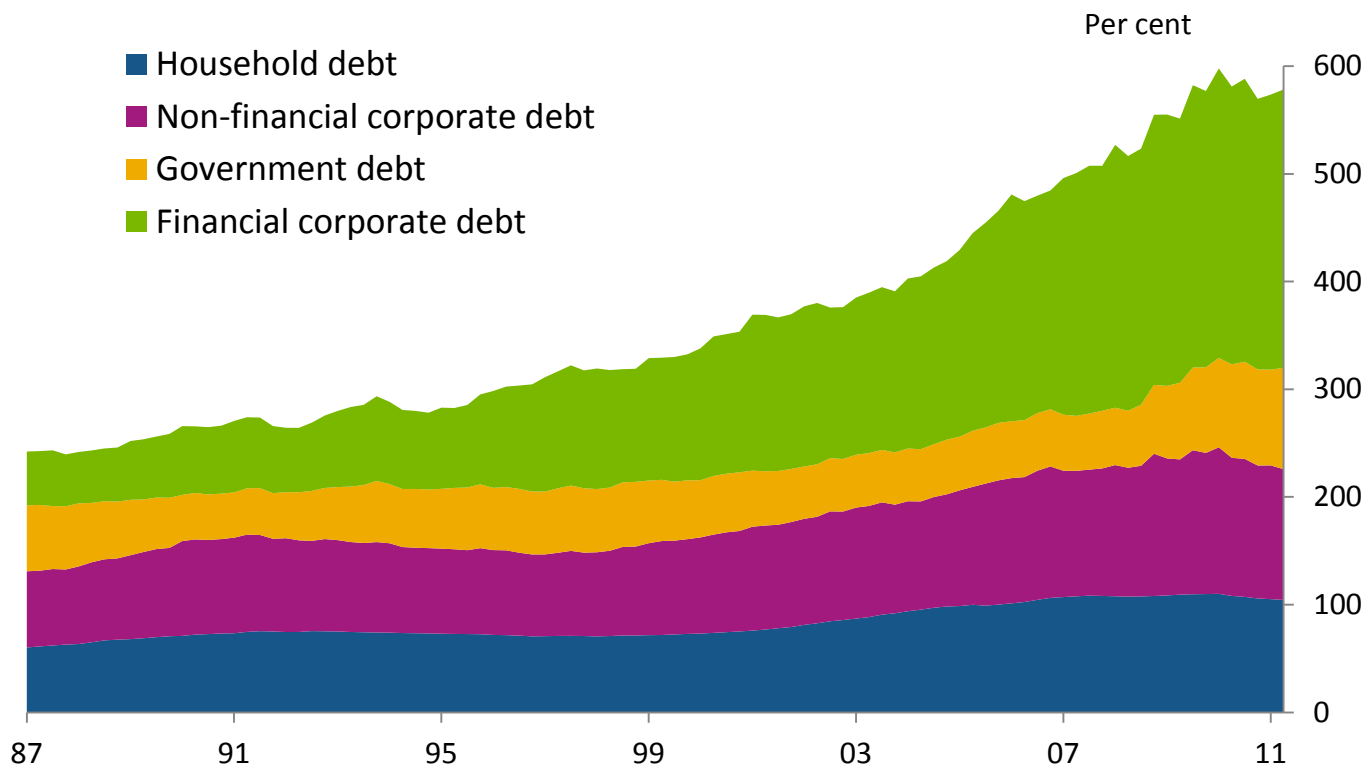
- **Interconnectedness**
  - Direct exposures on the asset and liabilities side of funds and ICPFs (e.g. EIOPA, 2017; Abad. et al. 2017; FSB, 2017)
  - Common exposures across types of institutions (e.g. IMF, 2016; ECB, 2018)
  - Ownership links of asset managers with banks and ICs (e.g. ECB, 2016)
- **Liquidity and maturity risks** (e.g. ECB, 2016; ESRB, 2016; EIOPA, 2017)
  - Liquidity mismatch in some parts of the investment funds sector
  - Maturity mismatch of assets and liabilities at ICs, guaranteed products
  - Amplification of (market) liquidity shocks
- **Solvency risk and leverage** (e.g. ESRB, 2017; ECB, 2016; EIOPA, 2017)
  - Excessive risk taking can undermine the solvency position of ICPFs
  - Leverage and leverage-like exposures may add to pro-cyclicality at IFs
  - Synthetic exposures can be *leverage-like*
- **Less emphasis on interplays between market-based finance, the wider credit cycle and the real economy**

- **Interplay of market-based finance with the credit cycle: different dimensions**
  - supply of wholesale funding to banking sector
  - direct financing of the real economy
  - terms and conditions in wholesale markets which may set the tone of the financial cycle
  - links to wider debate on the global financial cycle (see also Rey, 2018)
- **ECB research on micro behaviours linked to non-banks which might contribute to procyclicality**
- **Policy thoughts and open issues**

# Wholesale funding (1): procyclical intra-financial system activity

## Sectoral breakdown of UK debt, proportion of GDP

Q1 1987 – Q1 2011; per cent

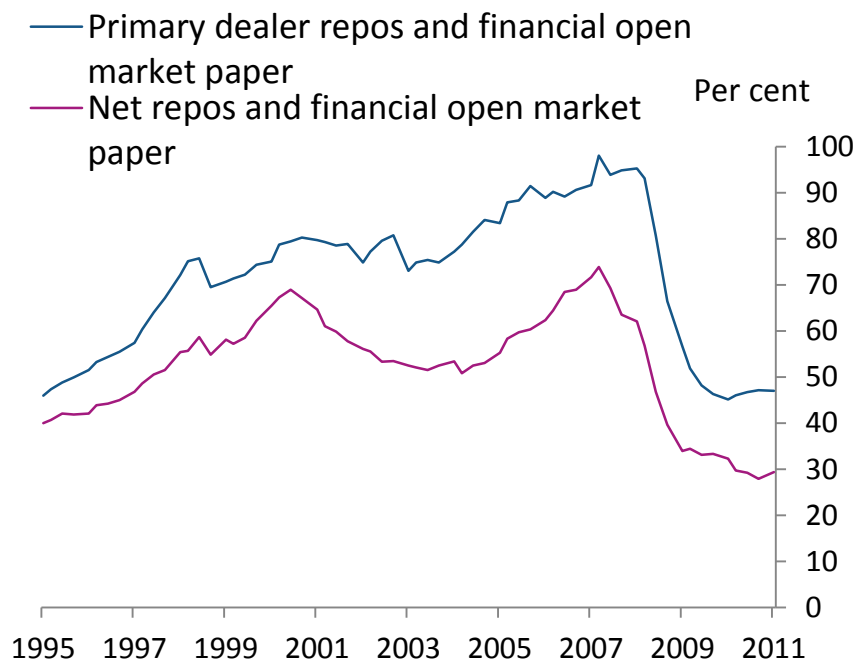


Source: ONS.

# Wholesale funding (2): procyclicality in repo market activity

## Repos & financial market open paper as a % of retail deposits in the US

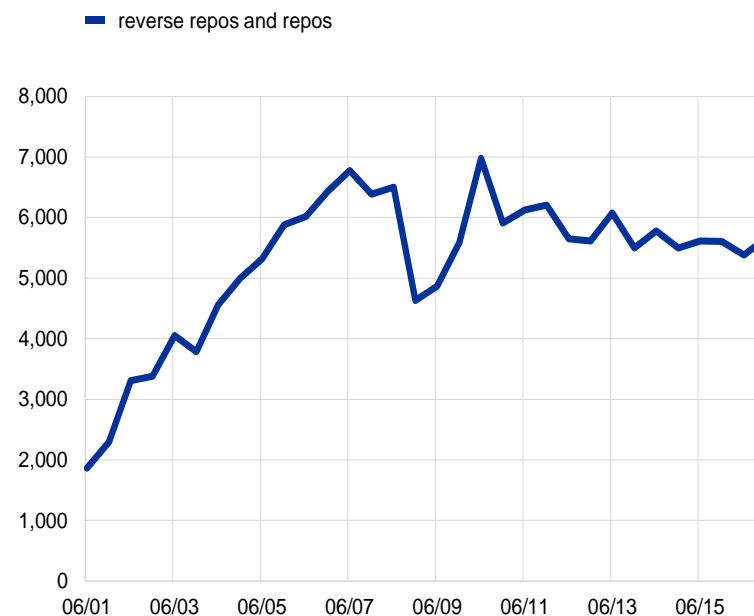
1995 – 2011; per cent



Source: Federal Reserve Board Flow of Funds and Bank calculations.

## Evolution of outstanding repo and reverse repo amounts in Europe

June 2001 – Dec. 2016; EUR billion



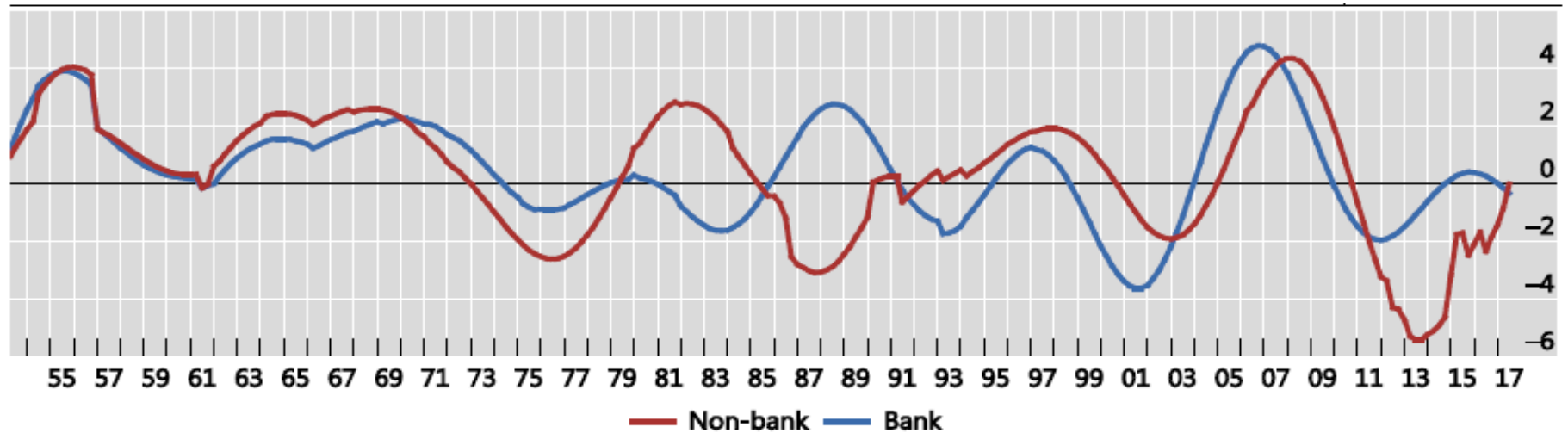
Source: ICMA December 2016 European Repo Market Survey.

# Direct financing (1): the non-bank credit cycle

## Bank and non-bank credit cycles

Percent, 4-quarter changes

Exhibit A3-1-3

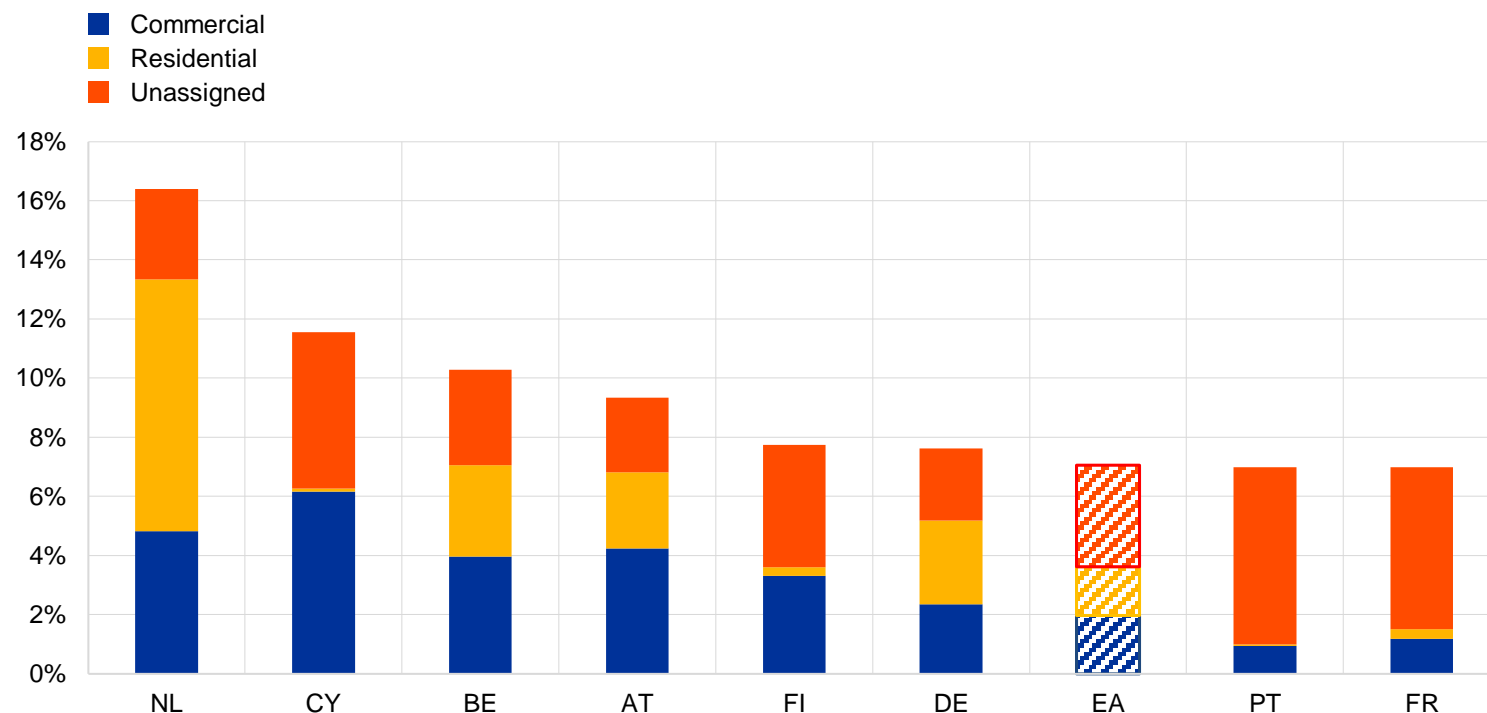


Source: FSB Global Shadow Banking Monitoring Report 2017

# Direct financing (2): insurance companies and real estate

- Insurance companies can gain real estate exposure directly (e.g. property, mortgages and real estate securities) and indirectly through real estate funds
- Austria, Belgium, Finland and the Netherlands received a warning on residential real estate vulnerabilities from the ESRB in 2016

**Euro area insurers' exposure to residential and commercial real estate as percentage of total assets**  
Q4 2017; per cent



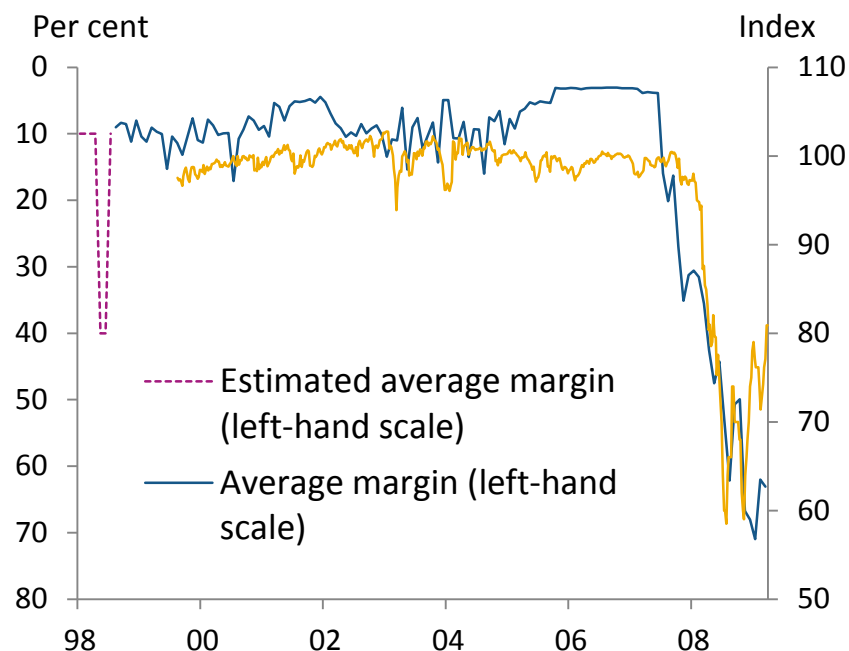
Source: Solvency II data and ECB calculations.



# Terms and conditions of transactions in financial markets

## Secured lending margins and prices of MBS rated AAA at issuance

Jun 1998 – Aug 2009; per cent



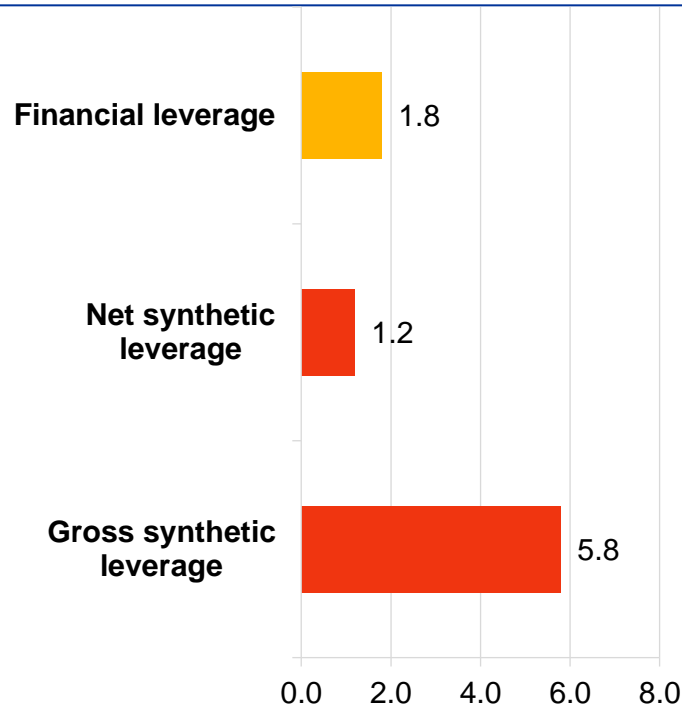
Source: Ellington Capital Group and JPMorgan. Taken from Geanakoplos (2010): 'Solving the present crisis and managing the leverage cycle', FRBNY Economic Policy Review.

- Interplay of market-based finance with the credit cycle: different dimensions
- **ECB research on micro behaviours linked to non-banks which might contribute to procyclicality**
  - van der Veer, Levels, Lambert, Molestina Vivar, Weistroffer, Chaudron, de Sousa van Stralen (2017), “Developing macroprudential policy for alternative investment funds”, ECB Occasional Paper, No. 202, November.
  - Fache Rousovà and Giuzio (2018): Insurers’ investment strategies: pro- or counter-cyclical? (*mimeo*, see also Box 5 in ECB FSR, November 2017).
- Policy thoughts and open issues

# Leverage in the IFs and the flow-performance relationship (1)

- Global figures suggest low leverage on average, but substantial leverage in a few funds

**Global hedge fund leverage figures by selected metrics**  
September 2016, multiples; global averages

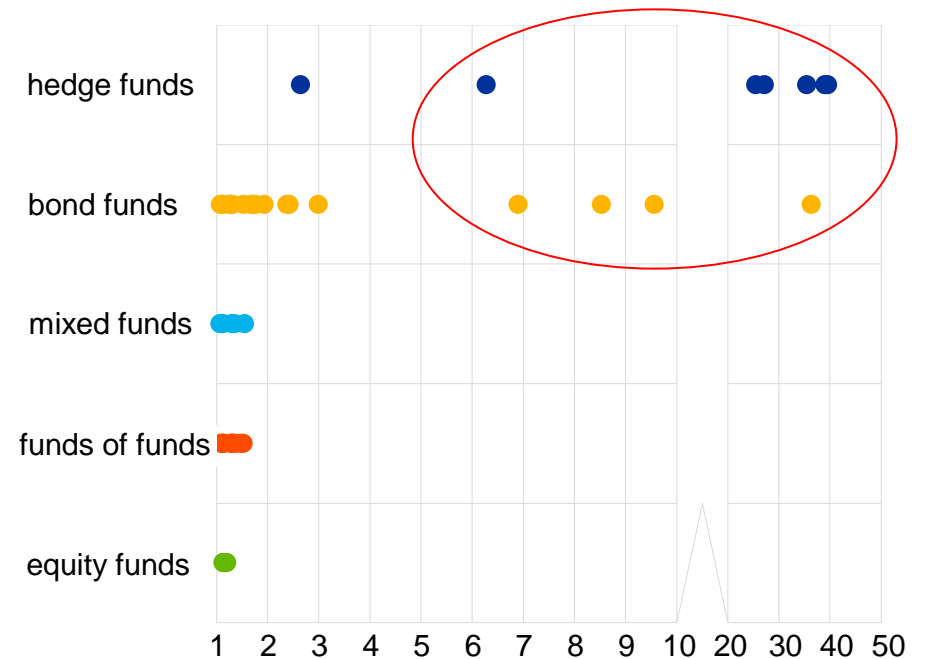


Source: 2016 IOSCO Hedge Funds Survey

Notes: Financial leverage accounts for cash and securities borrowings, while synthetic leverage takes only derivatives exposures into account. Both financial and synthetic leverage should be added for total leverage

**Example: Leverage among Dutch alternative investment funds (AIFs)**

Average quarterly values in 2016; net exposure to net asset value



Sources: DNB, and DNB and ECB calculations.

Notes: Data on net exposure and fund's net asset value from the AIFMD reporting framework. Substantial leverage is defined under the AIFMD as net exposure exceeding three times a fund's net asset value. [www.ecb.europa.eu](http://www.ecb.europa.eu) ©

# Leverage in the IFs and the flow-performance relationship (2)

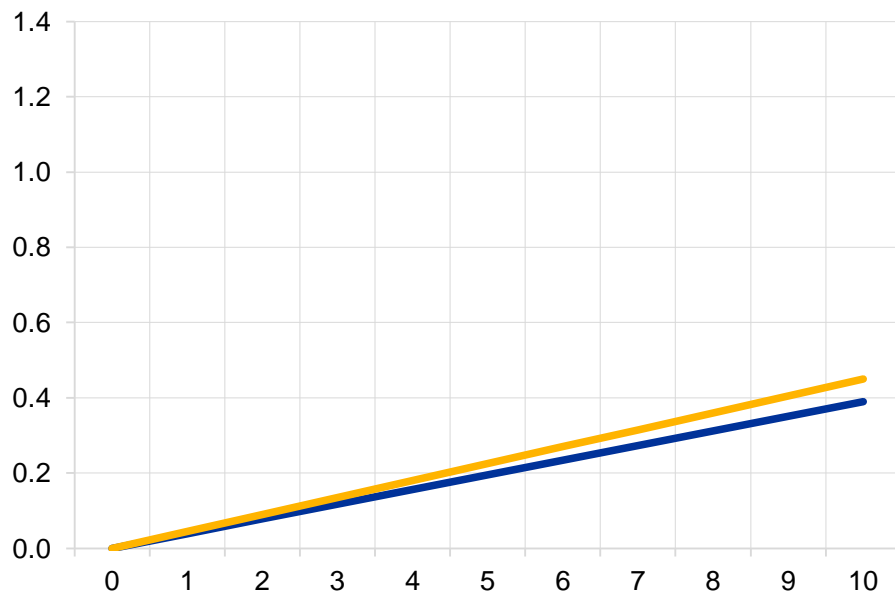
## Leverage increases sensitivity of outflows to poor past performance

x-axis: lagged fund performance in percent

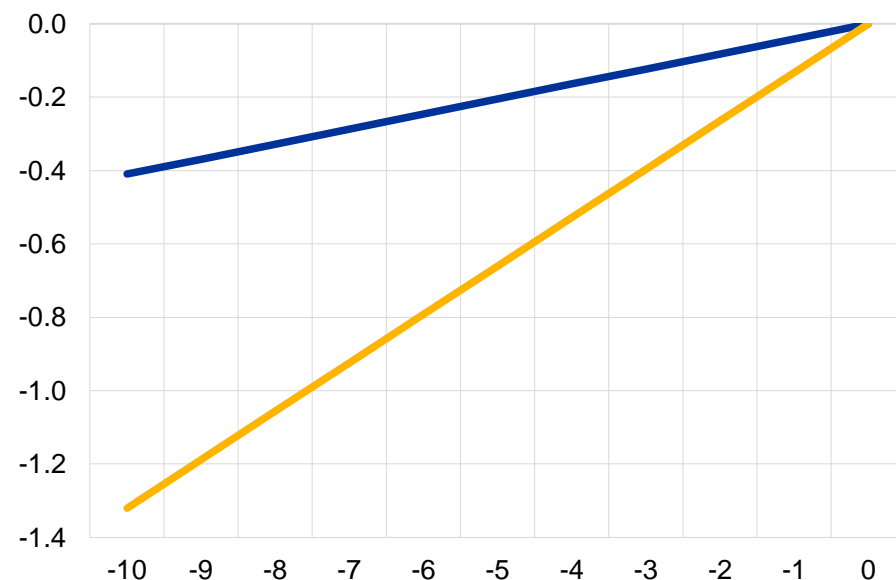
y-axis: net fund flows in percent of lagged total net assets

■ unleveraged funds  
■ leveraged funds

**a) After positive past return, flows in leveraged funds are only marginally higher compared with unleveraged funds**



**b) Investors in leveraged funds react more procyclically to past negative returns than investors in unleveraged funds**



Source: ECB calculation/estimation based on Lipper for Investment Management Database (Thomson Reuters).

Notes: The graphs shown are derived from a multivariate regression model analysing the sensitivity of fund flows to past fund returns between leveraged and unleveraged AIFs for the period from 31 January 2006 to 28 February 2017 (see Box 1 for details). In the positive range, the reaction between investors in leveraged and unleveraged funds is relatively similar. A 10% increase in fund return is associated with an average inflow of 0.4% of total net assets in the following month (graph on the left). In the negative range, investors in leveraged funds react more procyclically to negative performance than investors in unleveraged funds. For leveraged funds, a 10% decrease in fund performance is associated with an average outflow of around 0.4% of a fund's total net assets in the next period. For leveraged funds, a 10% decrease of performance would imply average outflows of around 1.4% of lagged total net assets (graph on the right).

## (How) Do insurers react to price changes?

- The underlying drivers of a price change (rather than just the direction) determine insurers' investment behaviour
- (Bond) prices can change due to changes in **risk-free rate** or **risk premia**, which have different effects on insurers' equity

The value of equity **decreases** with a decrease in **risk-free rate** in presence of negative duration gap

(Liabilities increase more than assets)

- ↓
- Risk bearing capacity decreases: sell assets (**countercyclical**)

The value of equity **increases** with a decrease in **risk premium**

(Market value of assets increases, while liabilities are not affected)

- ↓
- Risk bearing capacity increases: buy assets (**procyclical**)

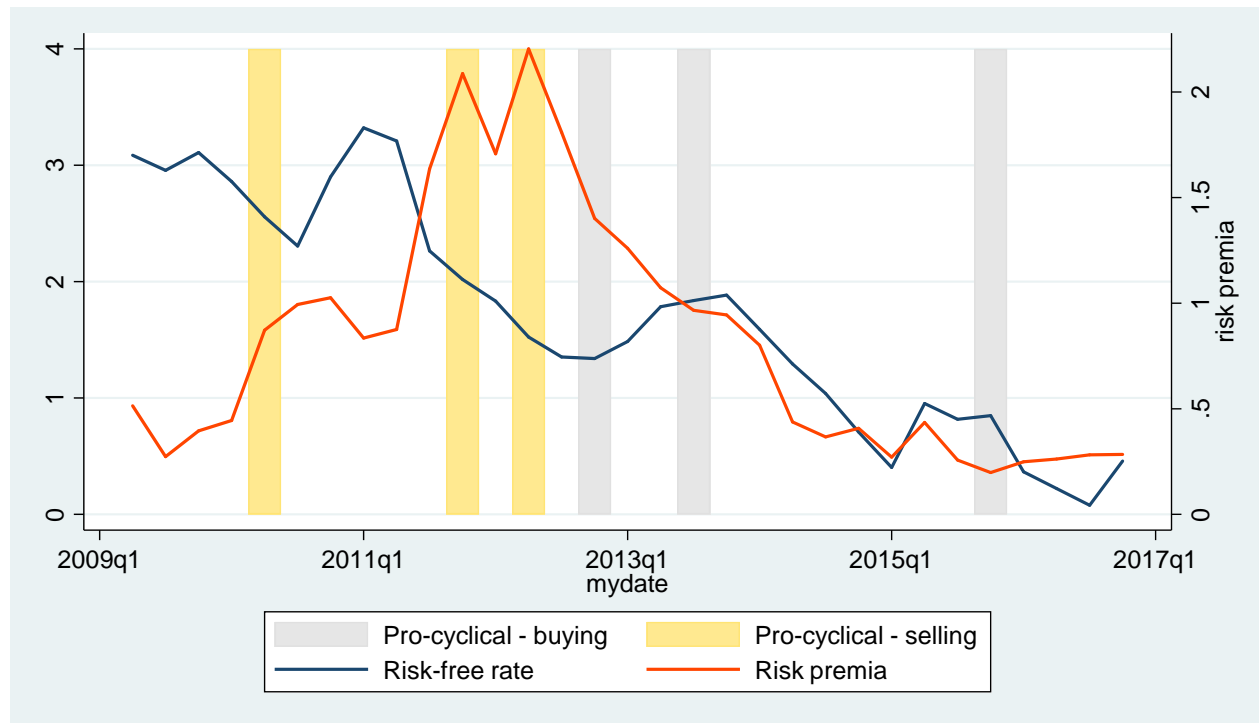
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### Insurer capital view

The overall effect of risk-free rate and risk premia depends on the relative size of the two factors

# Insurers' investment strategies: pro- or counter-cyclical? (2)

## Insurers' pro-/counter-cyclicality over time 2009 Q1 – 2016 Q4



Note: The average is weighted by holdings in our sample.  
Source: ECB (SHS and CSDB) and authors' calculations.

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## Better data

### Wholesale funding dependence of banks

- NFSR and LCR
- Time-varying liquidity ratios for banks (BoE, 2011; ESRB, 2014)

### Macroprudential instruments for non-banks (ESRB, 2016)

- Operationalise macroprudential leverage limits for AIFs (Article 25 AIFMD)
- Develop globally comparable leverage measures for investment funds (FSB recommendations to IOSCO)
- Operationalise existing liquidity tools for both AIFs and UCITS; consider additional macroprudential liquidity tools
- Macroprudential instruments for insurers (EIOPA, 2018)

### Terms and conditions in wholesale markets

- Minimum margins and haircut floors on both centrally cleared and non-centrally cleared derivatives and SFTs (FSB, 2015; Constâncio, 2016)
- Time-varying countercyclical margins / haircuts (BoE, 2011; Gai, Haldane and Kapadia, 2011; ECB, 2016)



# Open issues

- Deeper understanding of the interplay between market-based finance, the wider credit cycle and financing of the real economy
- Behavioural aspects and constraints of non-banks financial intermediaries which may contribute to procyclicality
- Leverage and liquidity risk in the non-bank financial sector potentially amplifying market stress
- Interplay between banking sector macroprudential policies and market-based finance
- Macroprudential toolkit to address risks in the non-bank financial sector