EUROPEAN CENTRAL BANK

EUROSYSTEM

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Financial integration, credit booms, and regulation

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** The views expressed here are my own and not those of the ECB's Executive Board or Governing Council*

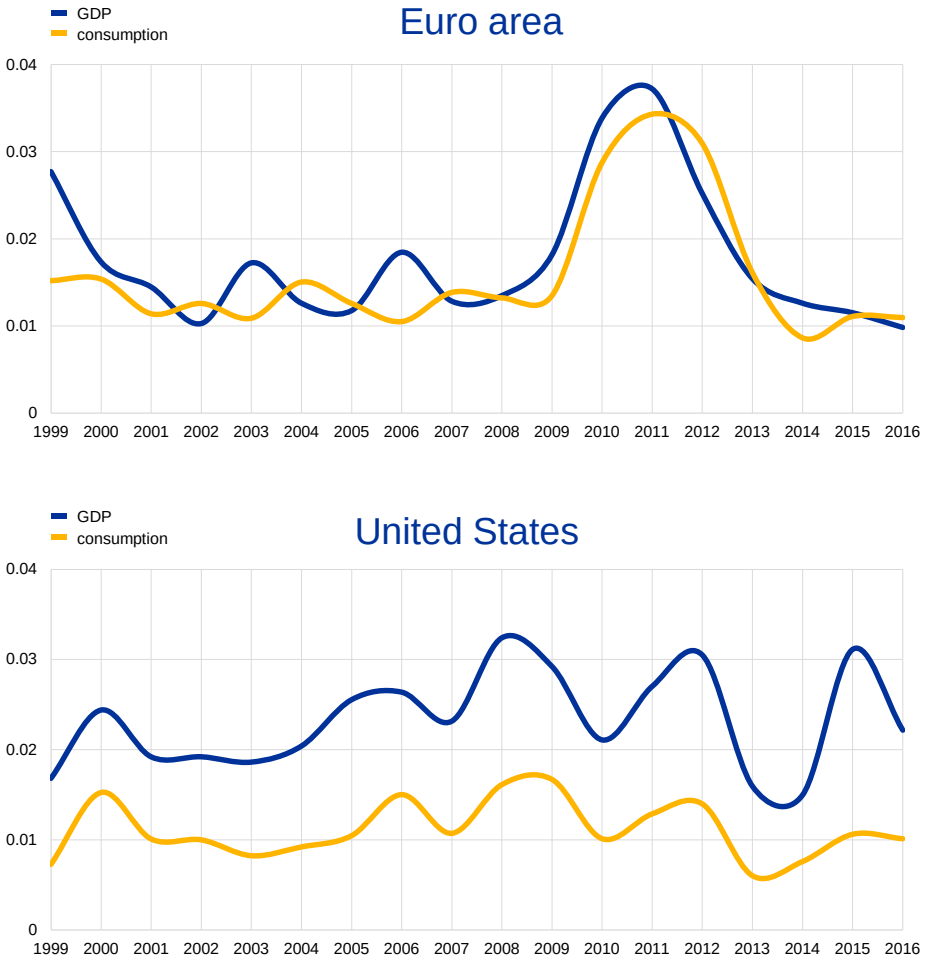
Outline

1. Risk sharing and financial fragmentation of euro area banking markets
2. Distinguishing good and bad credit booms
3. Implications for macroprudential regulation
4. Conclusions

Risk sharing through credit markets

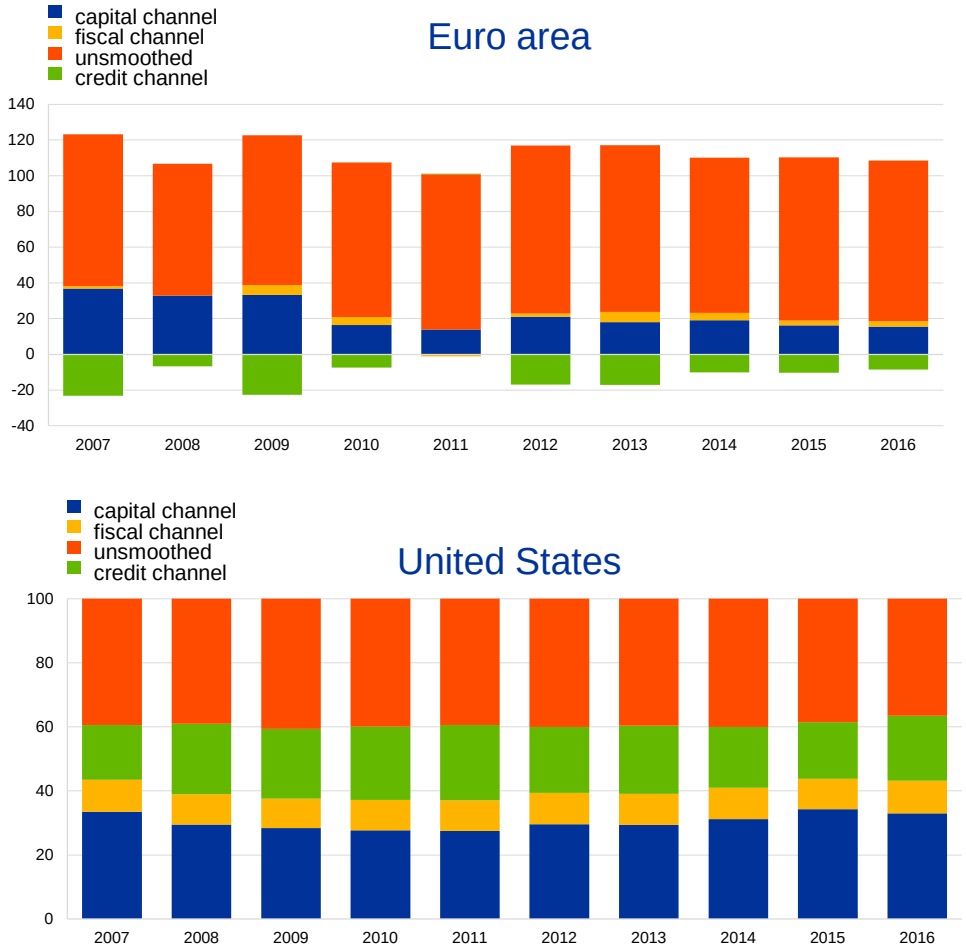
- Risk sharing benefits of financial integration: Consumers use credit markets to intertemporally smooth consumption
- Consumption growth is correlated with output growth, pointing to ineffective international risk sharing
- Limited risk sharing through credit markets (i.e. net lending abroad) in the euro area (Asdruabli et al. 2016)
- Banking deregulation (e.g. interstate branching deregulation) has fostered risk sharing in the United States (Demyanyk, Ostergaard, and Sorensen 2007)

Output and private consumption dispersion



Source: “Risk sharing in the euro area”, ECB Economic Bulletin, Issue 3 / 2018

Consumption risk sharing and its channels



Source: “Risk sharing in the euro area”, ECB Economic Bulletin, Issue 3 / 2018

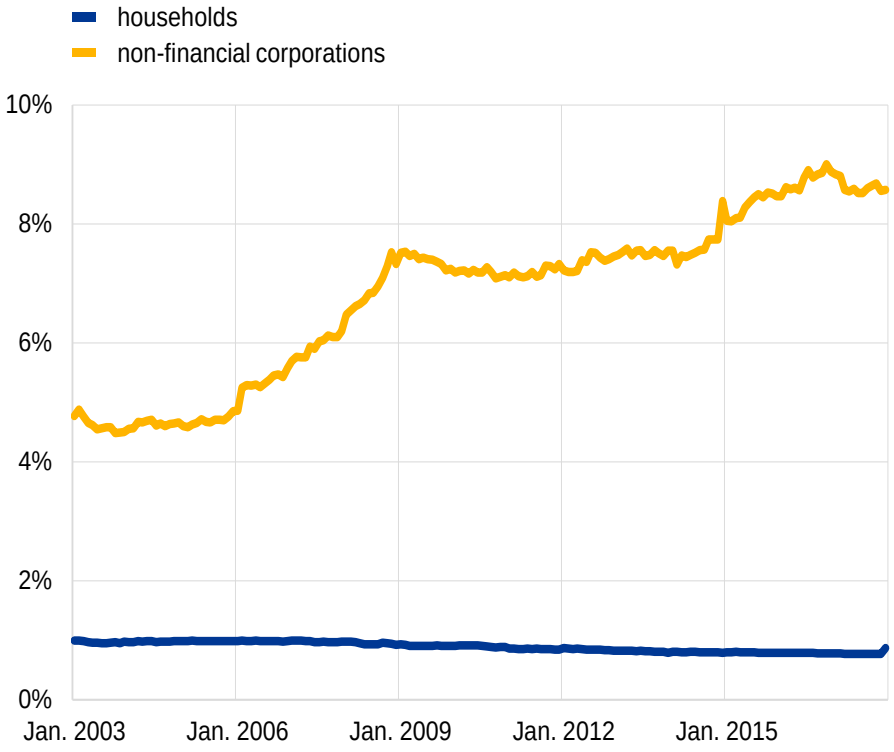
Fragmentation in retail banking markets

- Lack of integration is most evident in euro area retail banking markets
- Legal, language and political barriers result in lack of cross-border M&As

Fragmentation in euro area lending and deposits

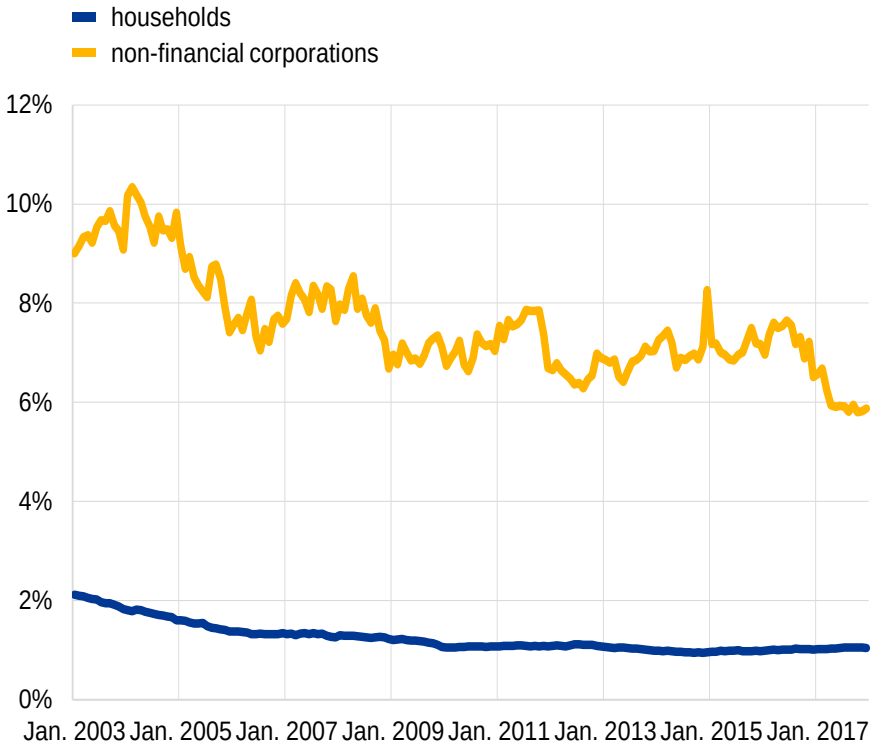
Share of cross-border loans in the euro area for NFCs and households

(percentages per annum)



Share of cross-border deposits in the euro area for NFCs and households

(monthly data; standard deviation, percentage points)

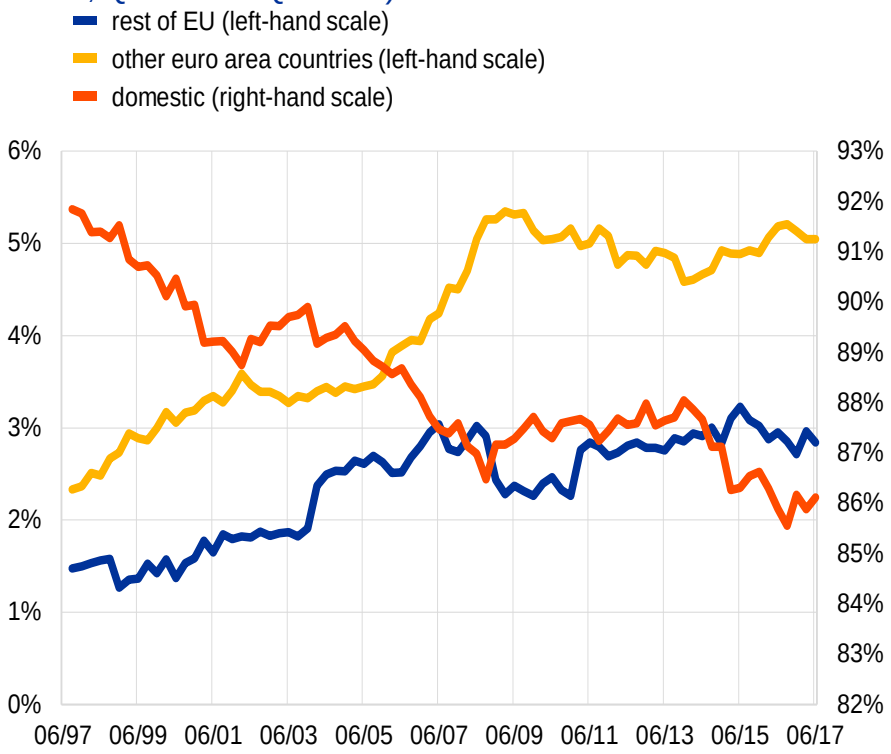


Source: ECB 2018 Financial Integration Report

Fragmentation in euro area retail banking

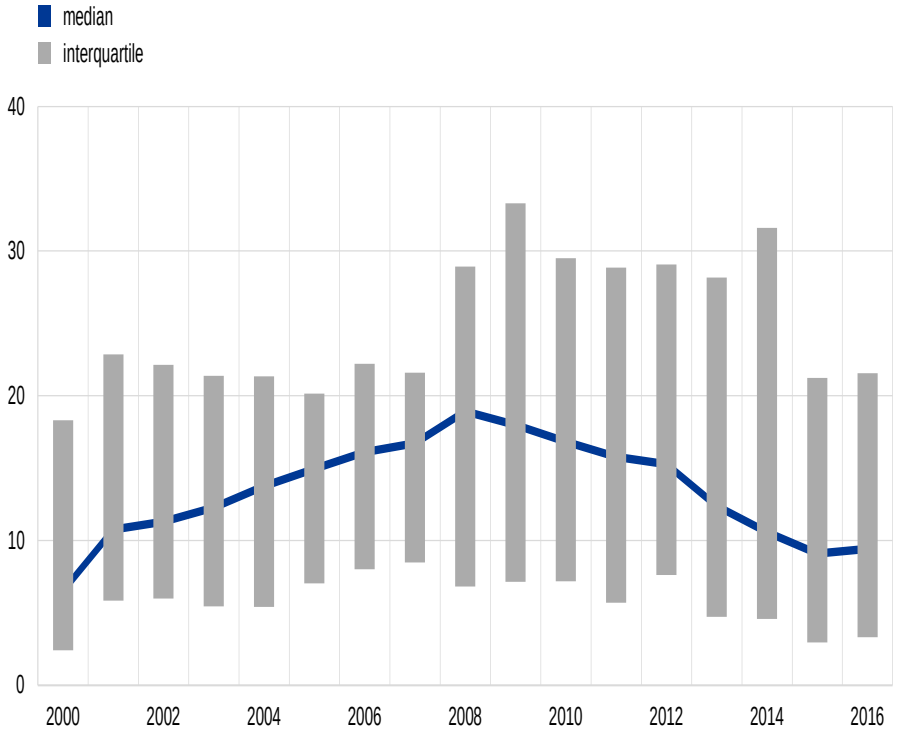
MFI loans to non-MFIs: outstanding amounts by residency of counterparty

(percentages of total lending excl. Eurosystem, quarterly data, Q3 1997 – Q2 2017)



Dispersion of the total assets of foreign branches and subsidiaries of euro area banks across euro area countries

(percentages of total assets of the euro area banking sector, yearly data, 2000 - 2016)



Source: *ECB 2018 Financial Integration Report*

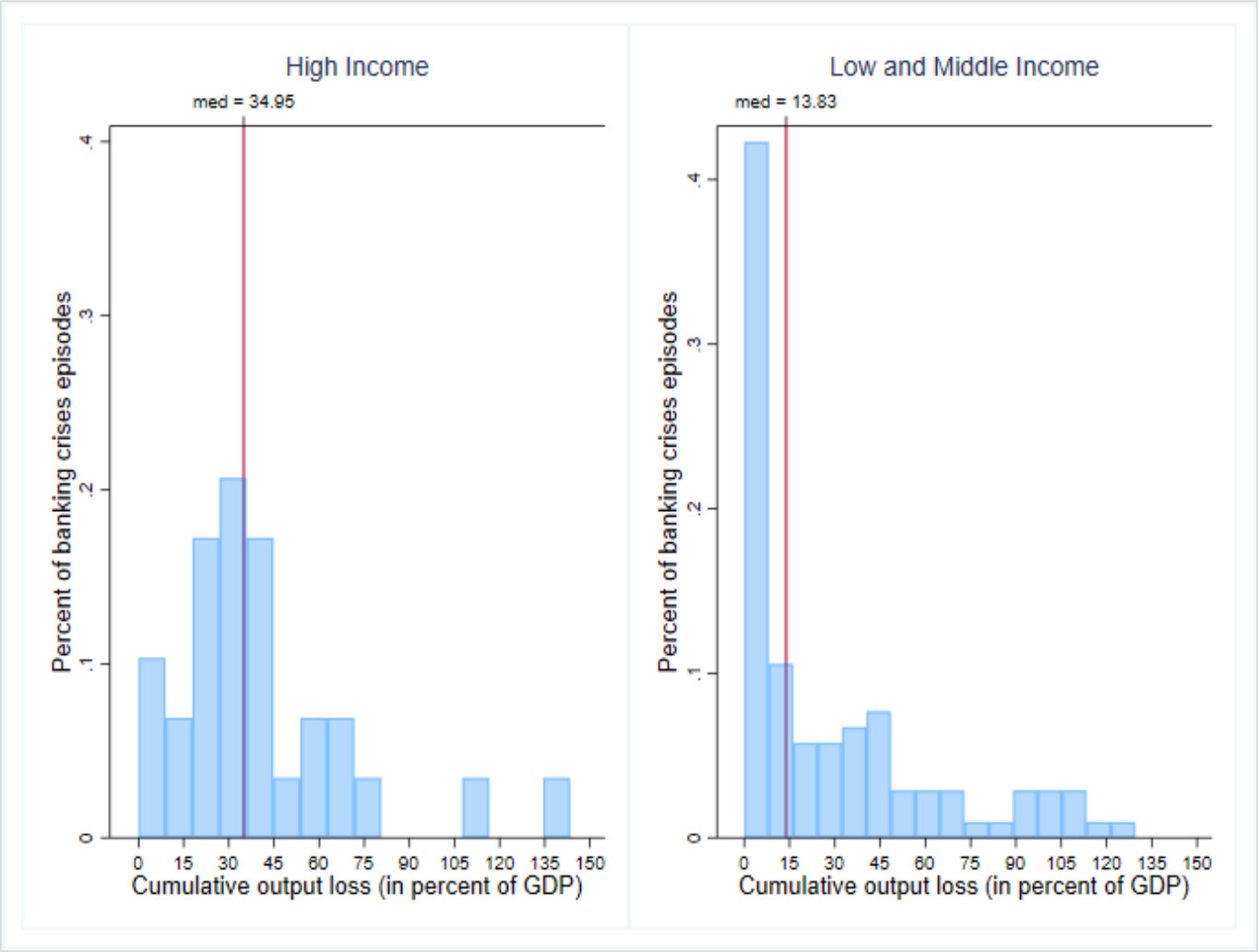
Risk of risk sharing

- Increases in risk sharing in credit markets have often followed episodes of financial deregulation
- Risk sharing through credit markets allows to better diversify borrower's idiosyncratic risks…but need not reduce systemic risk
  - Diversified banks tend to take more risks (Demsetz and Strahan 1997)
- And could create dangerous sectoral booms
  - Funds are reallocated to shocked sectors that may be riskier (Khorrami 2018)

Credit booms

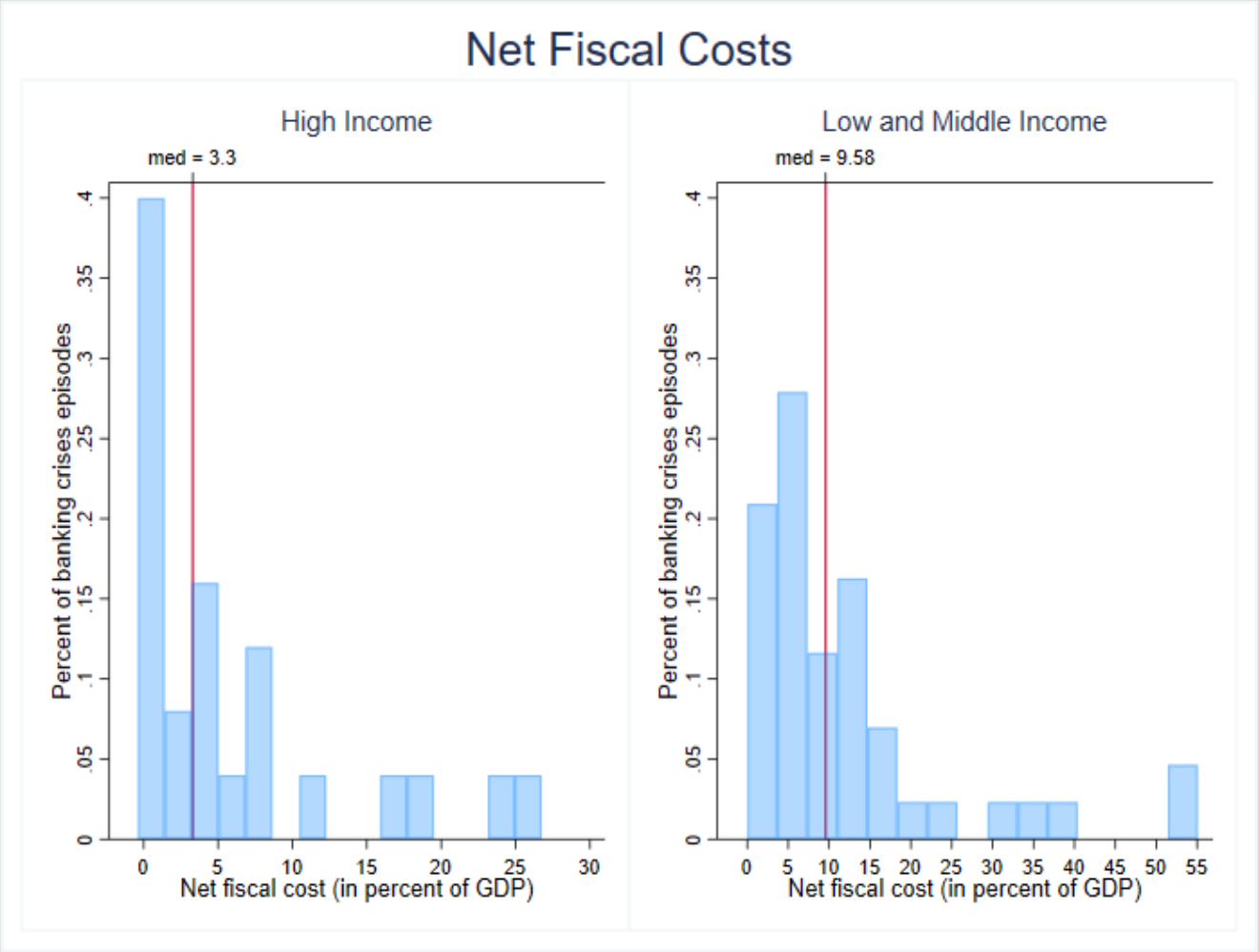
- Fluctuations in credit are common, and more so in recent decades (Claessens et al. 2011; Bakker et al. 2012)
- **Good** things happen during credit booms...
  - Asset prices, investment and GDP growth higher than in normal times
- But they also raise **concerns**...
  - Relaxation of lending standards : "bad loans are made in good times" (old banker's maxim)
  - Depletion of information on borrowers, as lending shifts to unscreened borrowers during collateral booms (Asryan, Laeven and Martin 2018)
  - Often followed by banking crises and low growth (Schularick and Taylor 2012)

Banking crises result in high output losses ...



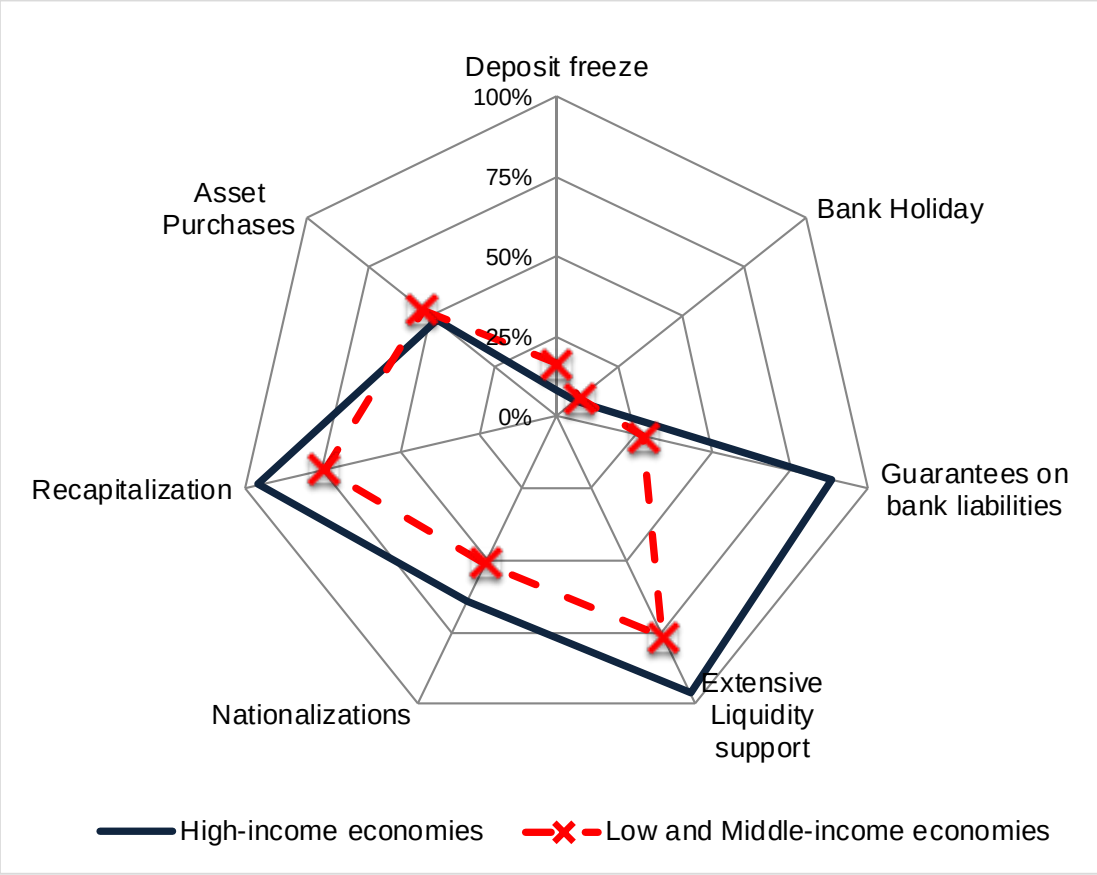
Source: Laeven and Valencia (2018)

… and are associated with high fiscal costs …



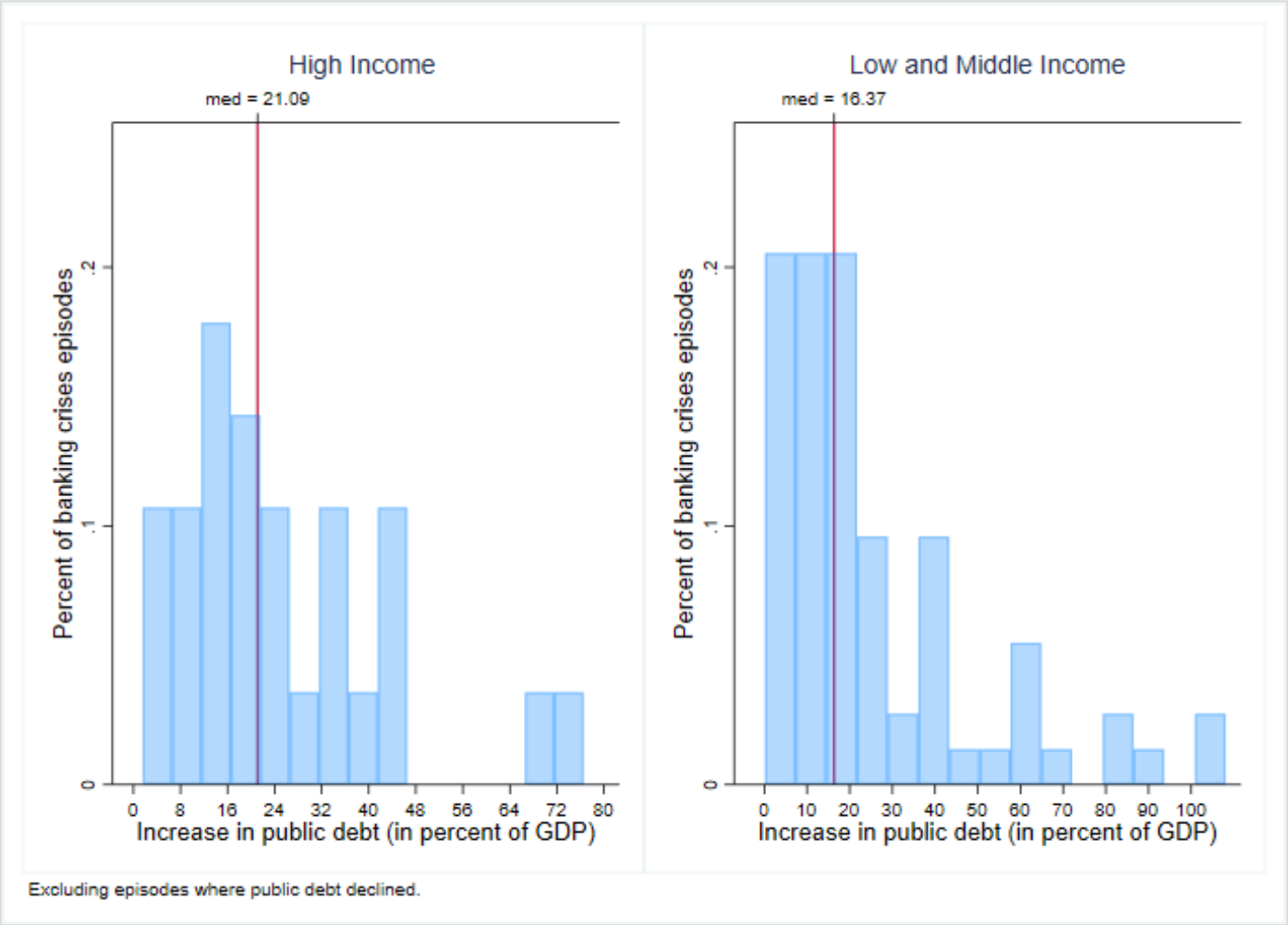
Source: Laeven and Valencia (2018)

… including from financial sector containment and resolution policies …



Source: Laeven and Valencia (2018)

… that contribute to large increases in public debt



Source: Laeven and Valencia (2018)

In macroprudential policy we trust

- The now standard remedy to managing credit boom-bust cycles is **macroprudential** regulation
  - Effective macroprudential policies should contain risks ex ante and help build buffers to absorb shocks ex post (IMF 2013)
- In particular, **countercyclical capital regulations** propose to tame credit cycles by imposing a Pigouvian tax on credit gaps (deviations from trend in credit-to-GDP ratios)

Effectiveness of macroprudential regulation

- Evidence on effectiveness of macroprudential policies from Cerutti, Claessens and Laeven (2017), based on IMF survey for 119 countries over the 2000–2013 period
- Emerging economies use macroprudential policies more frequently
- Usage is generally associated with lower growth in credit, notably in household credit
- Borrower-based policies, such as limits on LTVs and DTIs, and financial institutions-based policies, such as limits on leverage and dynamic provisioning, appear to be especially effective
- Effects are less in financially more developed and open economies, however, and usage comes with greater cross-border borrowing, suggesting some avoidance

Good and bad credit booms

- For 170 countries over the period 1970-2010, Dell'Ariccia, Igan, Laeven, and Tong (2015) show that only about **1-in-3** credit booms end up in financial crisis or below-trend economic performance **(next slide)**
- The cost of intervening too early and running the risk of stopping a good boom have to be carefully **weighted** against the desire to prevent financial crises
- But these financial crises tend to excessively costly
- Macroprudential policies are "costly" in the short run by reducing credit and growth (Richter et al. 2018)
- But benefits of macropru are non-linear: Macropru policies affect risk of sharp contractions

Credit booms gone wrong

Table 3. Credit Booms Gone Wrong

	Followed by economic underperformance?					
Followed by financial crisis?	**No**		**Yes**		**Total**	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**
No	54	31%	64	37%	118	67%
Yes	16	9%	41	23%	57	33%
Total	70	40%	105	60%	175	

Notes: Number and proportion of credit boom episodes are shown. A boom is followed by a financial crisis if a banking crisis happened within the three-year period after the end of the boom and is followed by economic underperformance if real GDP growth was below its trend, calculated by applying a moving-average filter, within the six-year period after the end of the boom.

Source: Table 3 in Dell'Ariccia, Igan, Laeven, and Tong (2015)

Credit dynamics and recessions

- Employ quantile regressions to estimate nonlinear relationship between credit dynamics and output losses during recessions

	QUARTIL 1		QUARTIL 2		QUARTIL 3		QUARTIL 4	
	Mixture 1	Mixture 2	Mixture 1	Mixture 2	Mixture 1	Mixture 2	Mixture 1	Mixture 2
μ	-0.03	-0.20	-0.03	-0.18	-0.04	-0.27	-0.14	-3.33
σ	0.00	0.00	0.00	0.01	0.00	0.03	0.02	0.86
prob.	0.80	0.20	0.67	0.33	0.66	0.34	0.89	0.11

Source: Gadea, Laeven and Perez-Quiros (2018)

- Mixture of distributions of output loss during the recession, by quartiles of variation in credit to GDP ratio in the two years prior to the recession
  - Quartile 1: Usually (80%) lose only 3% of GDP during recession periods
  - Quartile 4: Very likely a bad recession (14% output loss) and sometimes terrible recessions (333% output loss)

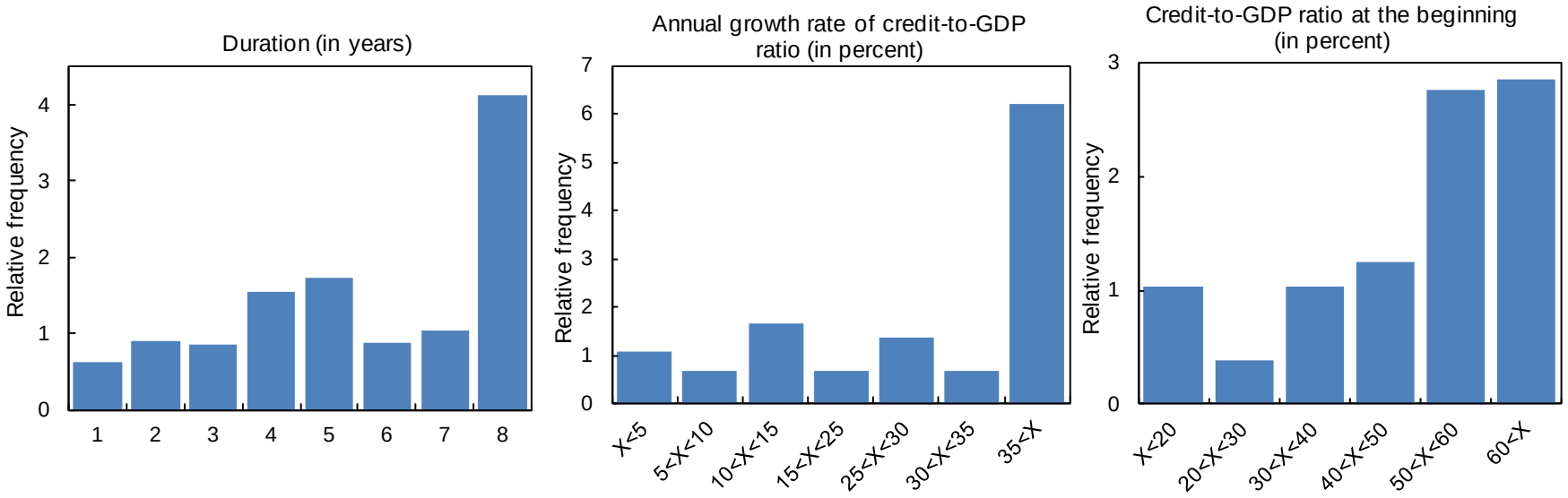
Distinguishing good and bad credit booms

- Optimal design of macroprudential policy requires distinguishing good and bad credit booms
- Merit of macroprudential regulation depends on the underlying **source** of boom
- For instance, Asriyan, Laeven and Martin (2018) show that **productivity-driven** booms are generally beneficial
- Booms that tend to grow faster and last longer also tend to be more dangerous (Dell'Ariccia, Igan, Laeven and Tong 2015) **(next slide)**
- Widening credit gaps not necessarily a sign of a bad credit boom

Good and bad booms in international comparison

Figure 7. Bad versus Good Booms

Booms that last longer and that develop faster are more likely to end up badly. Booms that start at a high level of credit-to-GDP also tend to be bad.



Sources: IMF *International Financial Statistics*; staff calculations.
Notes: Relative frequency is the frequency of a given attribute in bad booms divided by the frequency in good booms. Credit booms are identified as episodes during which the growth rate of credit-to-GDP ratio exceeds the growth rate implied by this ratio's backward-looking, country-specific trend by a certain threshold. Bad booms are those that are followed by a banking crisis within three years of their end.

Source: Dell'Ariccia, Igan, Laeven, and Tong (2015)

Implications for macroprudential regulation

- Optimal **regulation** requires understanding the **source** of booms
- For instance, should preserve **productivity-driven** booms
- Using **credit gaps** to design macroprudential regulation (e.g. countercyclical capital buffers) may be suboptimal
- Need to distinguish between **good** and **bad** booms
- Simulations based on **quantile regressions** of credit dynamics and output losses can help determine where in the cycle you are and how much growth is at risk, and thereby guide the stance of macroprudential policy

Conclusions

- Need to enhance integration of **retail** banking markets
- Supervisors need to take a **systemic** approach to balance the benefits and risks of international banking
- Optimal **regulation** requires understanding the **source** of booms
- Using simple credit gaps to design macroprudential regulation (e.g. countercyclical capital buffers) is **suboptimal**