TEN YEARS AFTER THE ONSET OF THE GLOBAL FINANCIAL CRISIS
GLOBAL TRENDS AND COUNTRY RESPONSES

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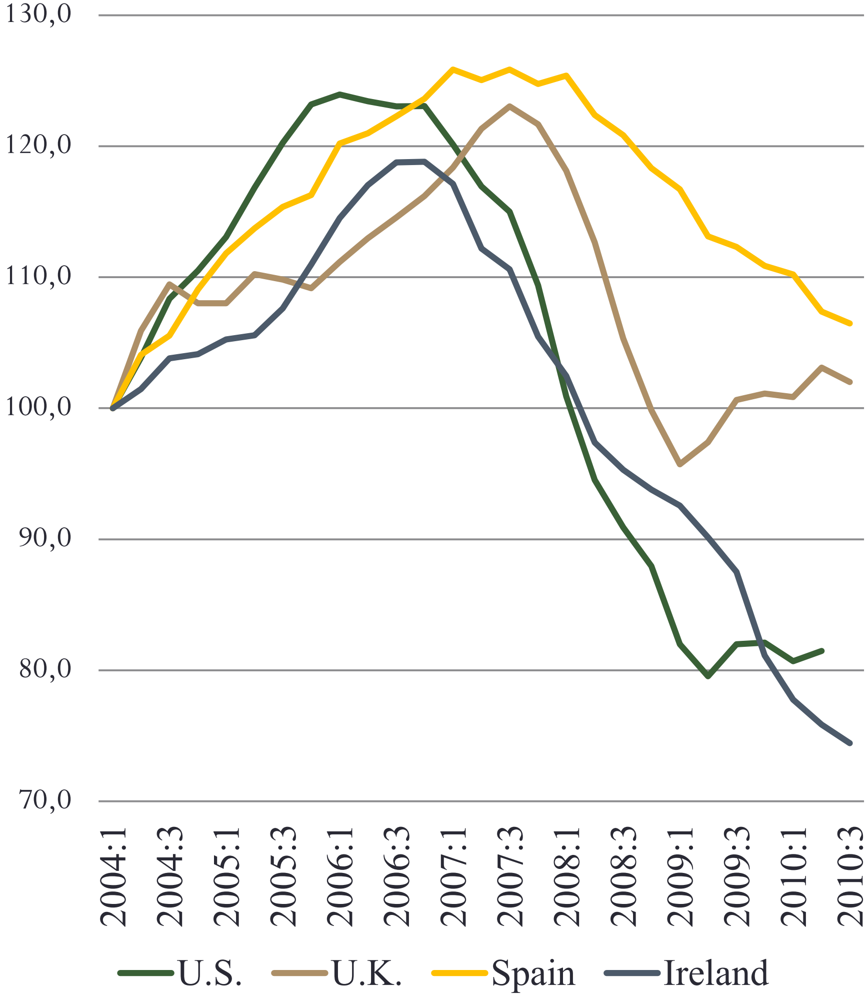
THE GREAT RECESSION

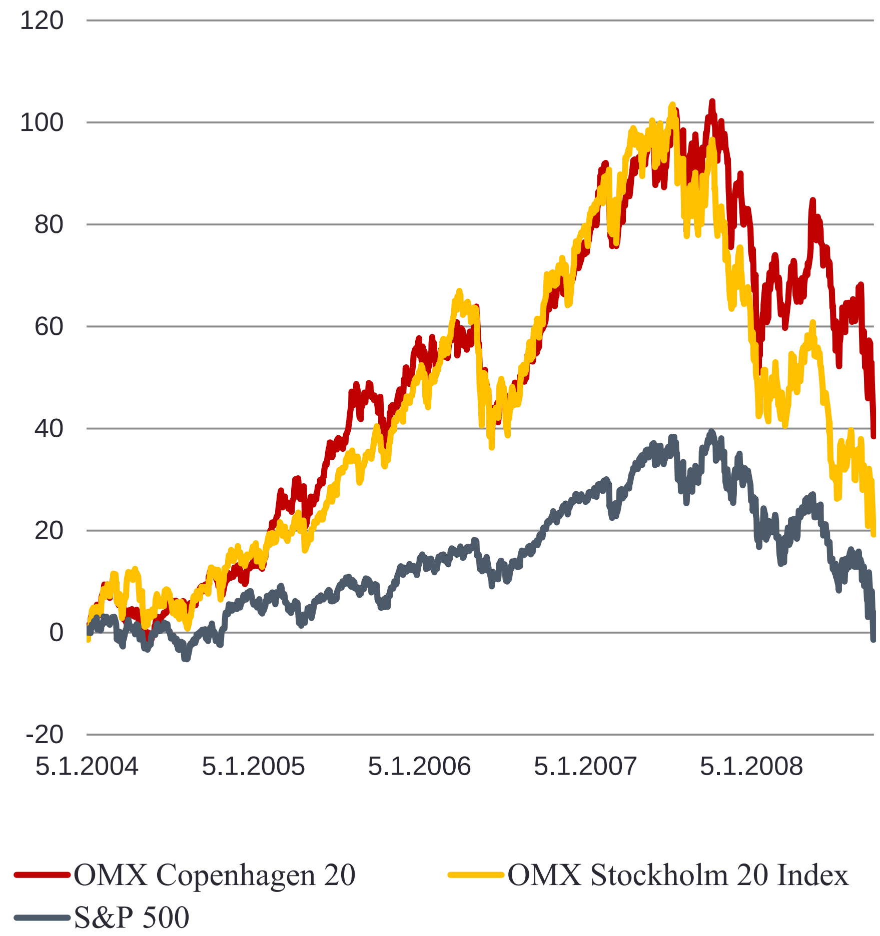
Run up

Asset Price Bubble

House Price Indexes

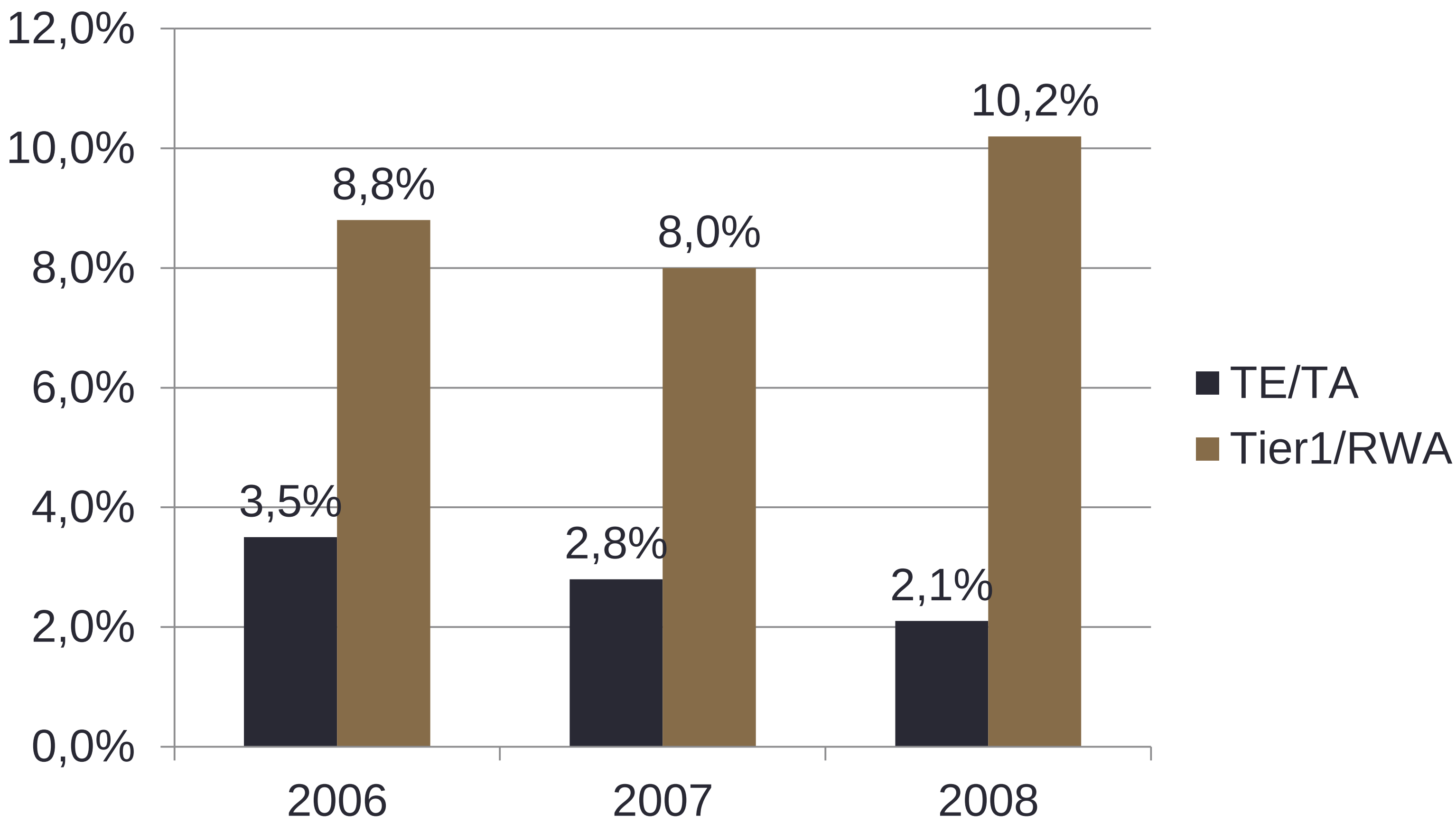


Stock market indexes



Deregulation … Bank Resilience Declined

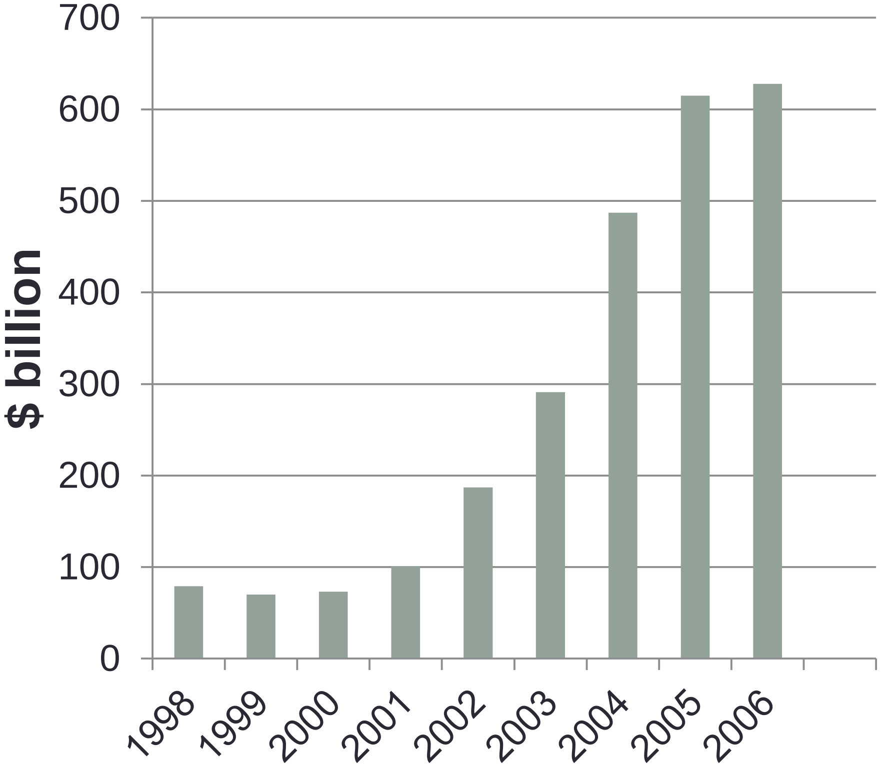
US did not implement Basel II but still total equity to total assets declined



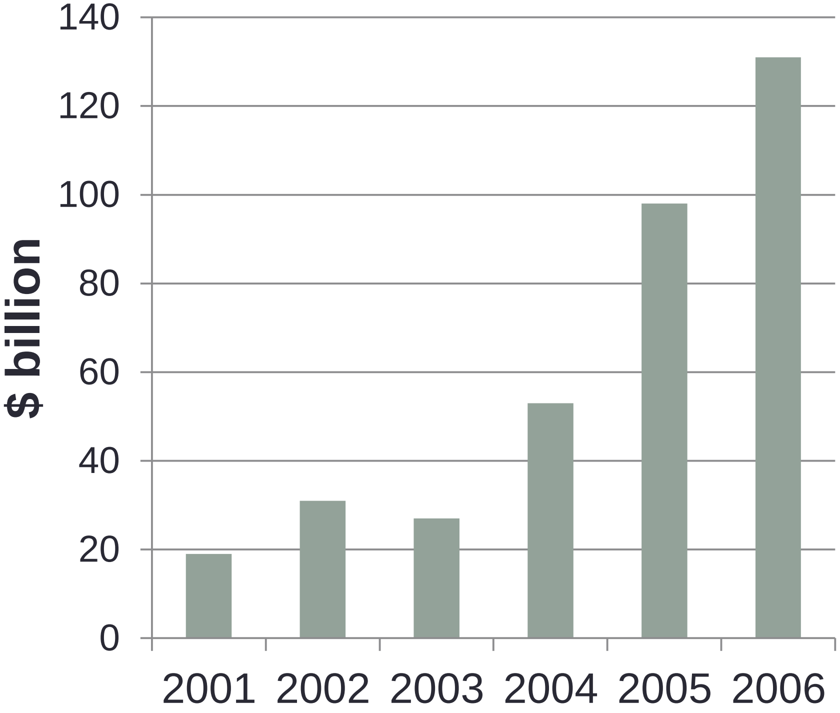
Large banks: C, BAC, JPM (not pro-forma for BSC in 2006 and 2007), WFC, UBS, DB, RBS, BARC and HSBC.
Source: http://www.citibank.com/citi/fin/data/p090127a.pdf

Mortgage Securities

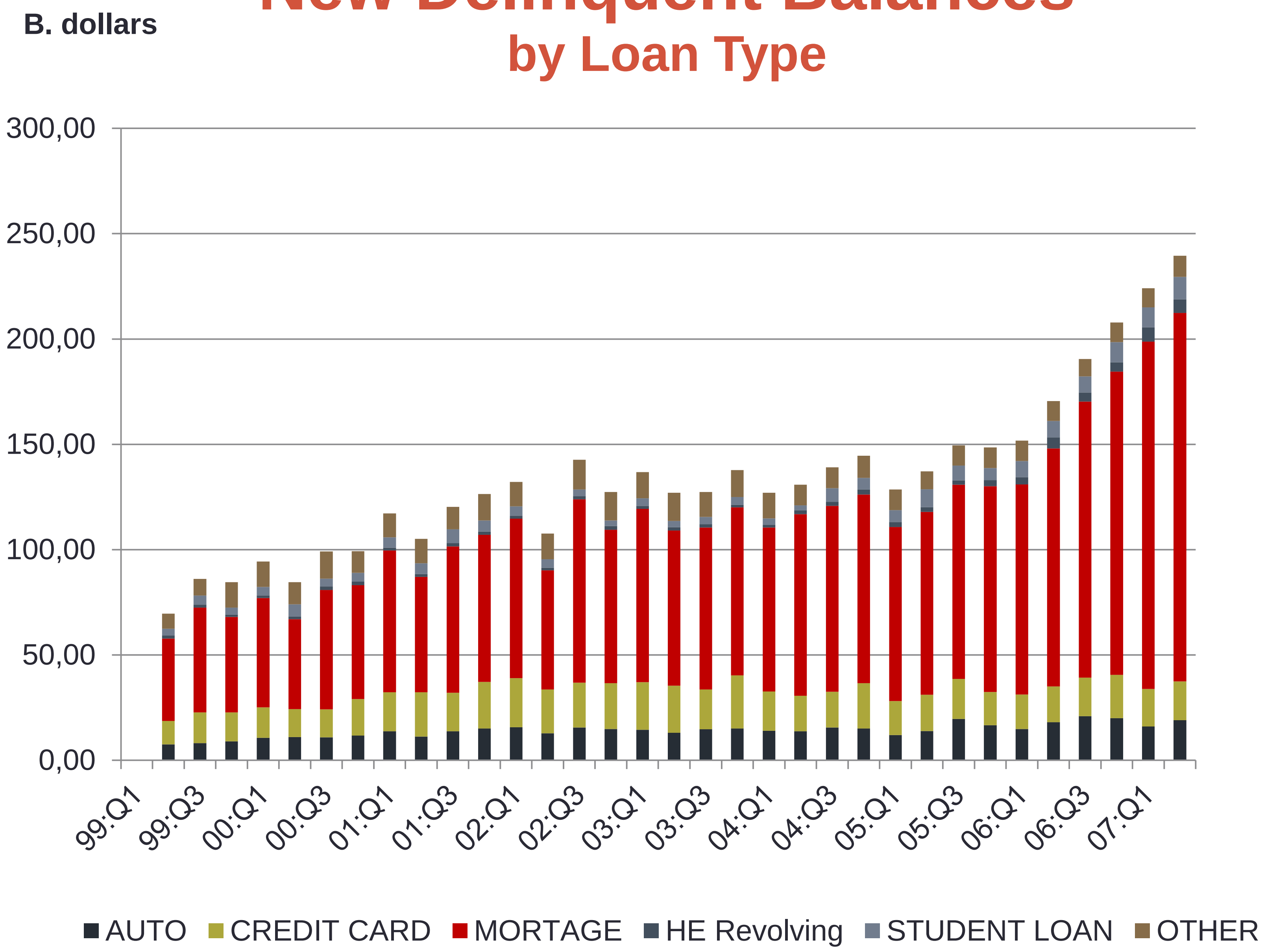
Sub-prime and Second-lien ABS issuance Volume



ABS/MBS/CMBS purchased by CDO's



New Delinquent Balances
by Loan Type



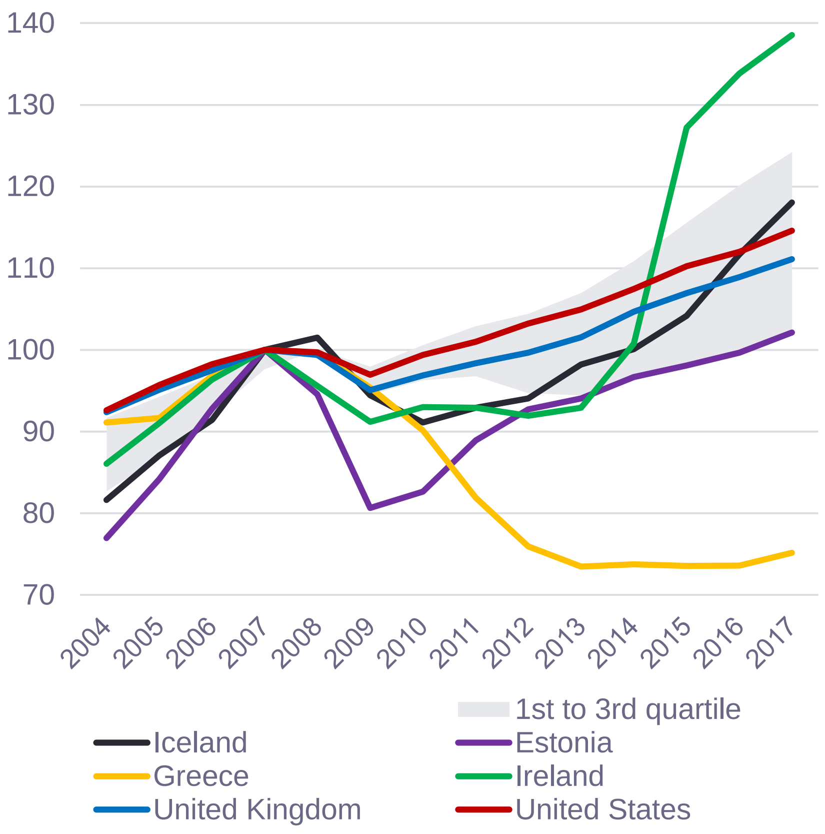
Asset-backed Commercial Paper Outstanding
seasonally adjusted

GLOBAL TRENDS SINCE…

Global Trends in 38 Industrialized Countries

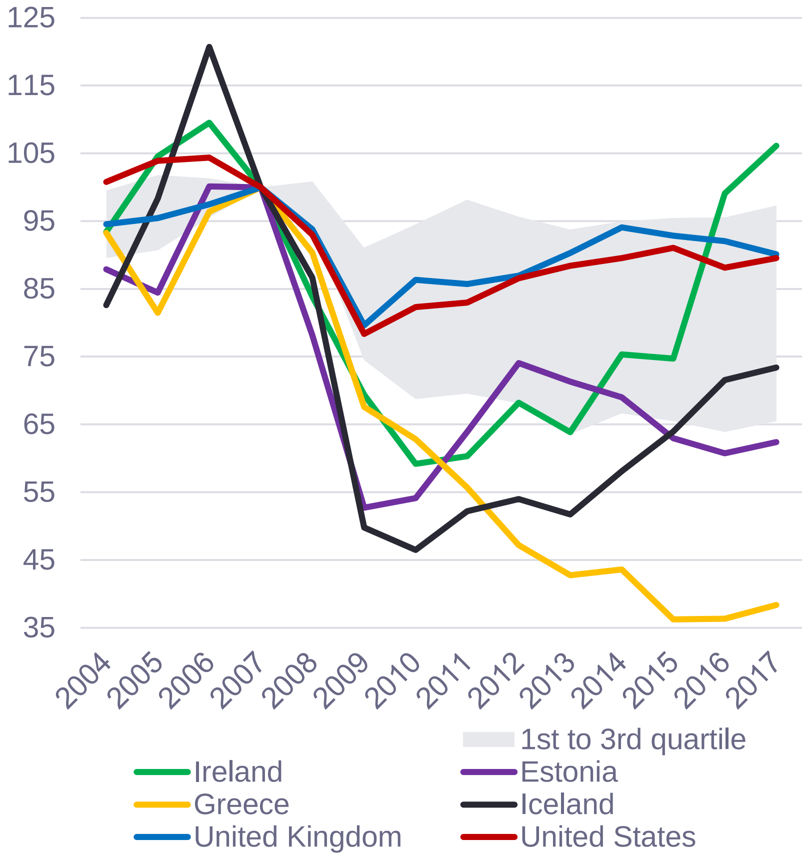
GDP

Index = 100 in 2007



Total Investment, % of GDP

Index 2007=100

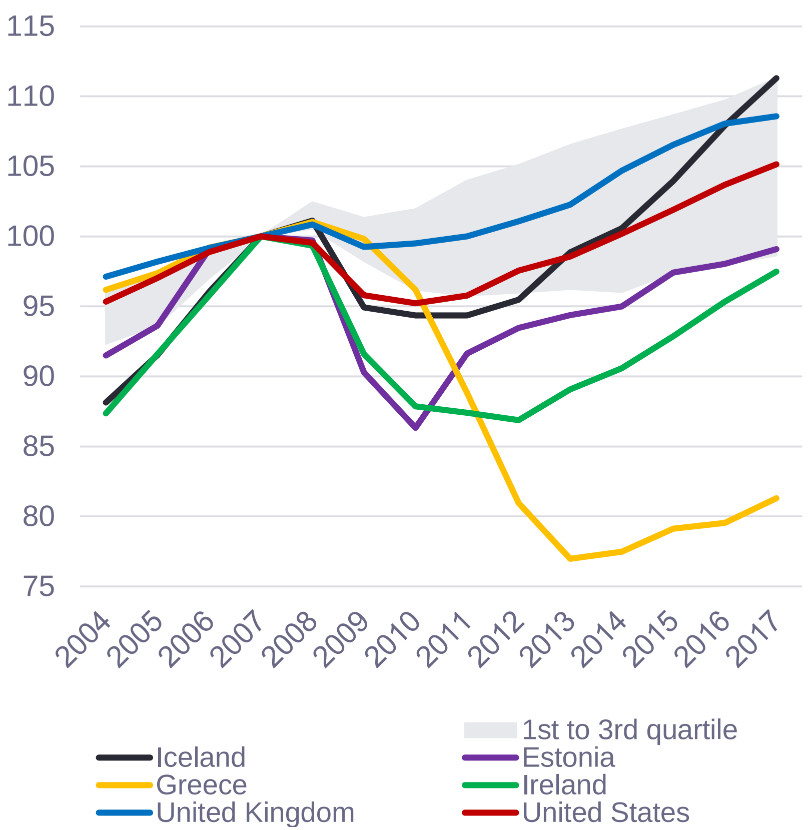


Source. IMF

Global Trends in 38 Industrialized Countries

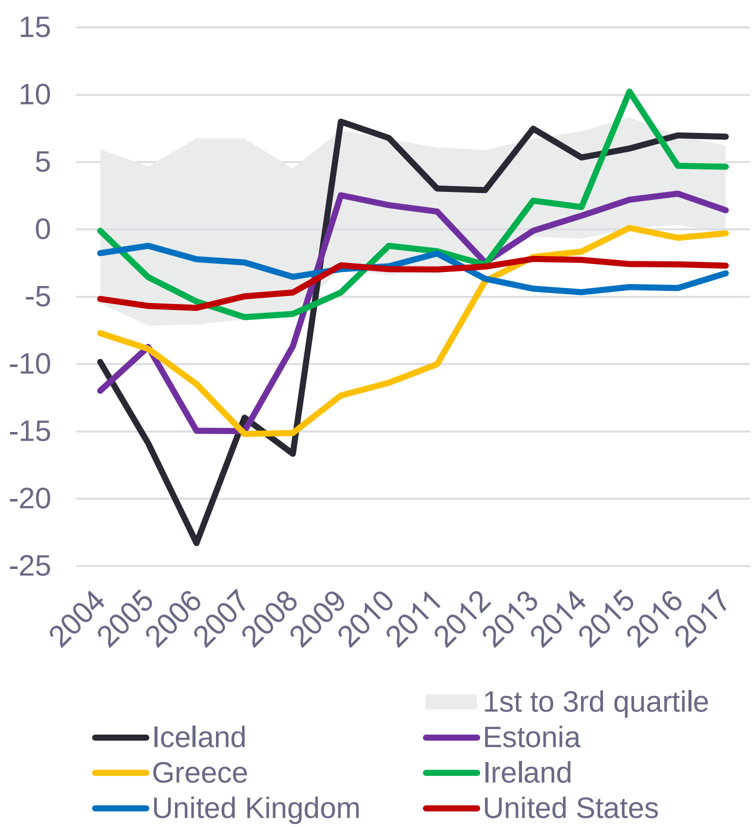
Employment

Index = 100 in 2007



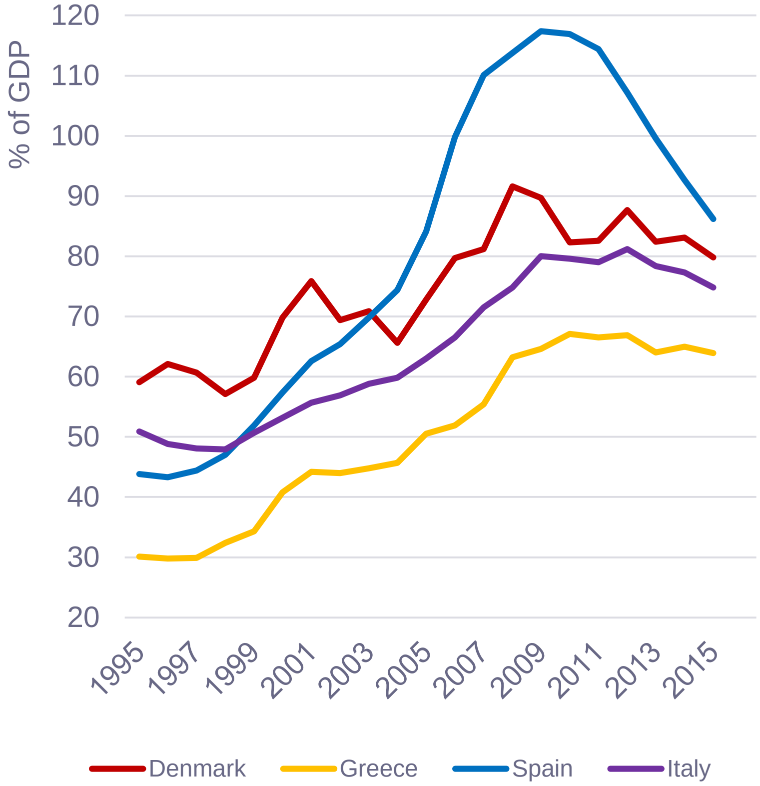
Source: IMF and CBI.

Current Account



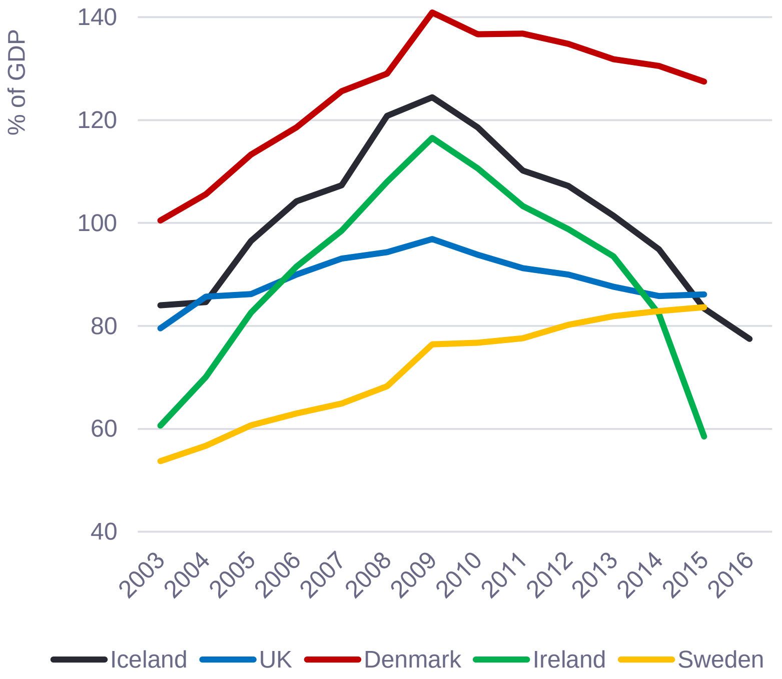
Deleveraging … in some countries

Firm Debt



Source: Central Bank of Iceland FS17/1.

Household Debt



Source: Central Bank of Iceland FS17/1.

HOW DID WE GET THERE…

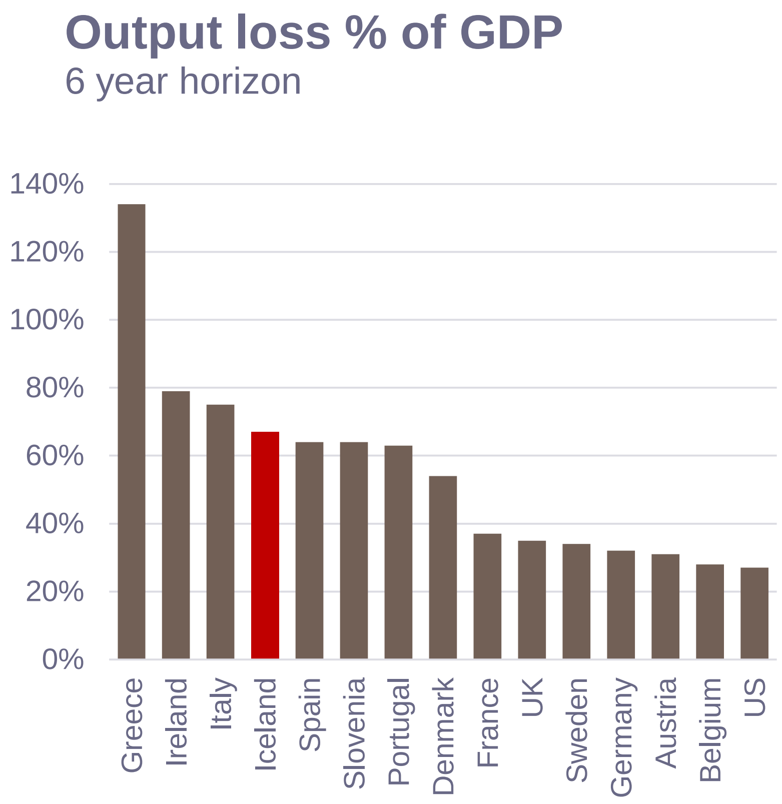
Not without costs

Output loss

- Financial Crisis are costly

- Many countries lost what amounted to ***over half a GDP*** in the six years following the crisis

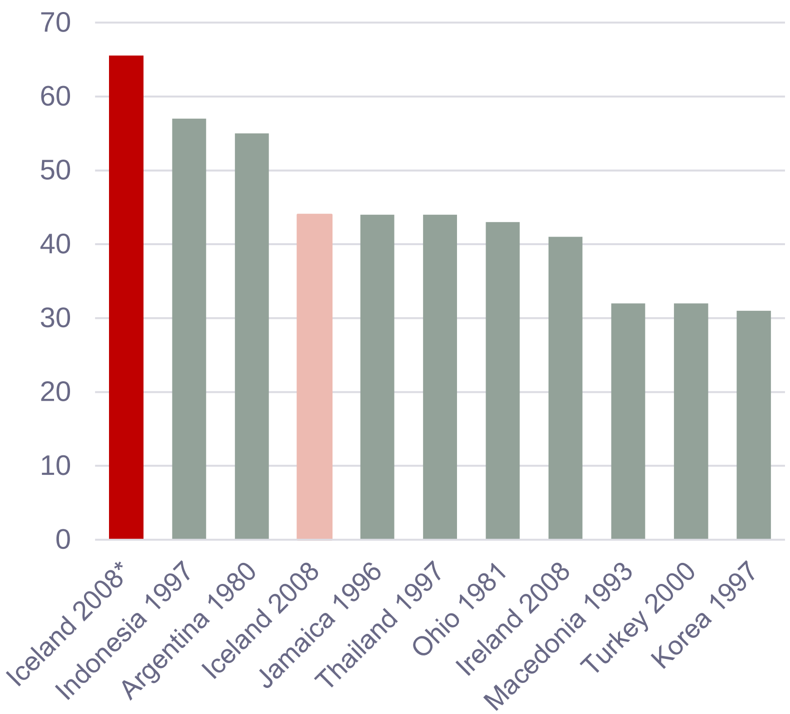
- Iceland lost over 65% of GDP



Source. Benediktsdottir, Eggertsson and Thorarinsson 2017

Fiscal Costs

Gross Fiscal Cost, Laeven and Valencia (2012) and update.



* Updated authors calculations
Source. Laeven and Valencia and authers calculations

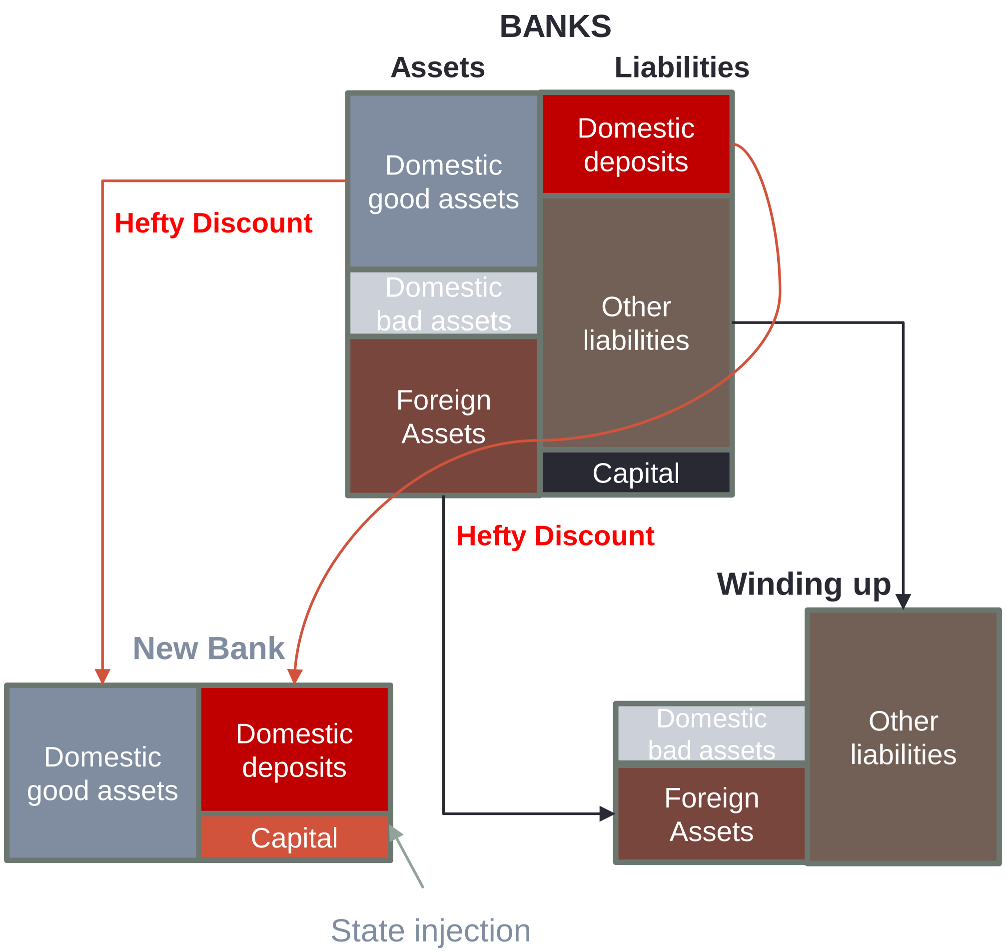
Net Fiscal Costs for Iceland is much Lower, % of 2016 GDP

Source: Benediktsdottir, Eggertsson and Thorarinsson 2017.

Largest Fiscal Costs

- CBIs lending facilities cost of 14.5% of GDP
- Initial equity injection about 12% of GDP...
  - already paid back 7% of GDP and current book value of that equity about 12% of GDP
- HFF and debt relief program -7.4% of GDP
- … Were the banks solvent?
  - Estimated recovery about 57% of all assets.

New Banks



Sweden

- COST:
  - Securum 2.1% of GDP
  - Cost of defending currency?
  - Future efficiency of banks declined
    - 21% decline in lending?
      - Credit crunch
      - Balance Sheet reasons
      - Saving shock
  - IMF estimation….

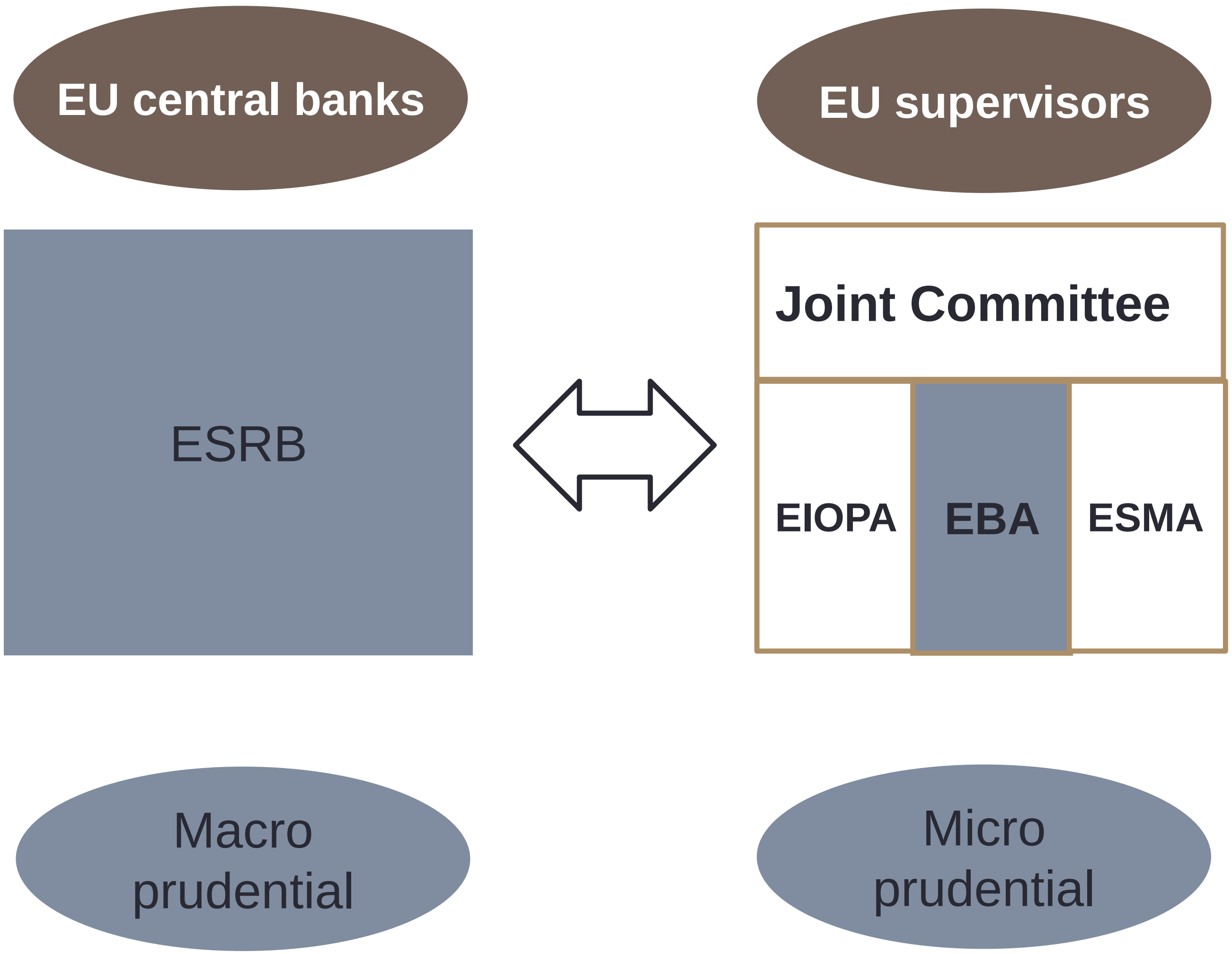
Country	Systemic Banking Crisis (starting date)	Fiscal Cost (gross, as % of GDP)	Output loss (IMF) (as % of GDP)
Sweden	1991	3.6	30.6

- Net Fiscal Cost 0-1%

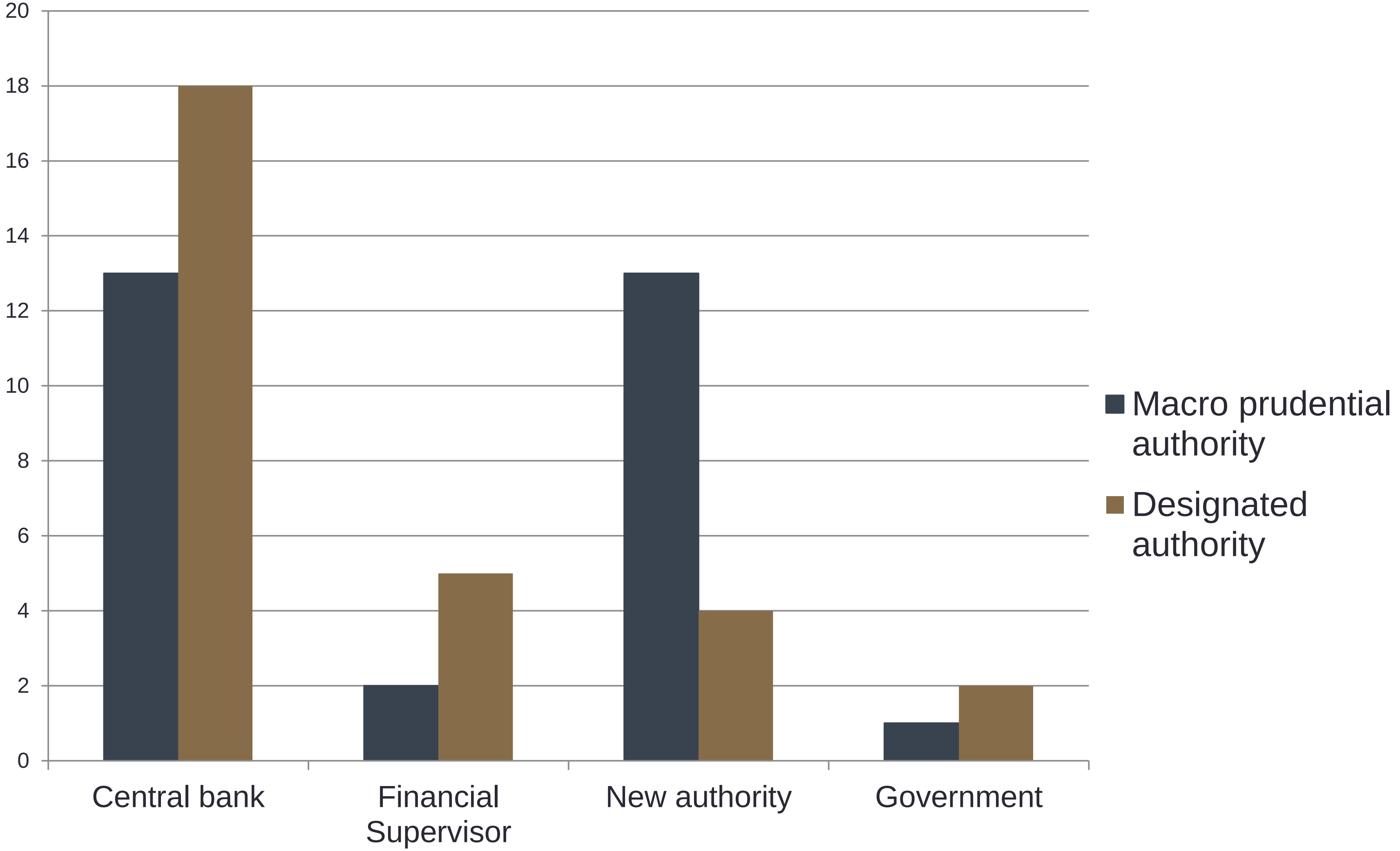
RESPONSES

Motivation: Lower Probability of a Financial Crisis and Increase Resilience

EUROPEAN SYSTEM OF FINANCIAL SUPERVISION



National Macroprudential Authorities



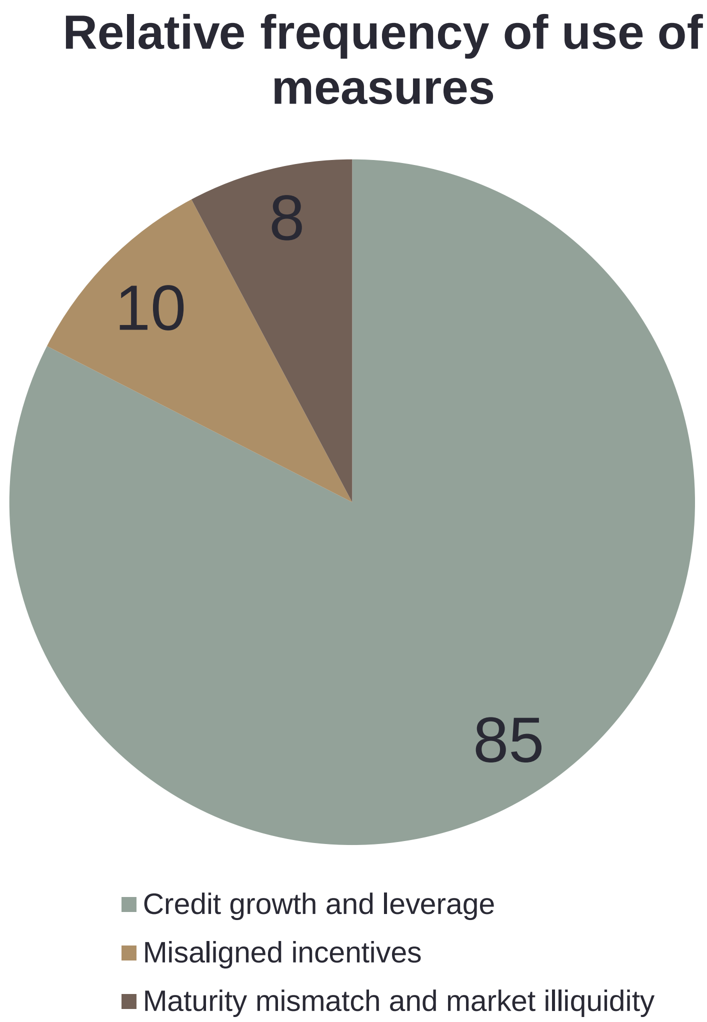
Tools, Enhance Resilience, Dampen Cycle

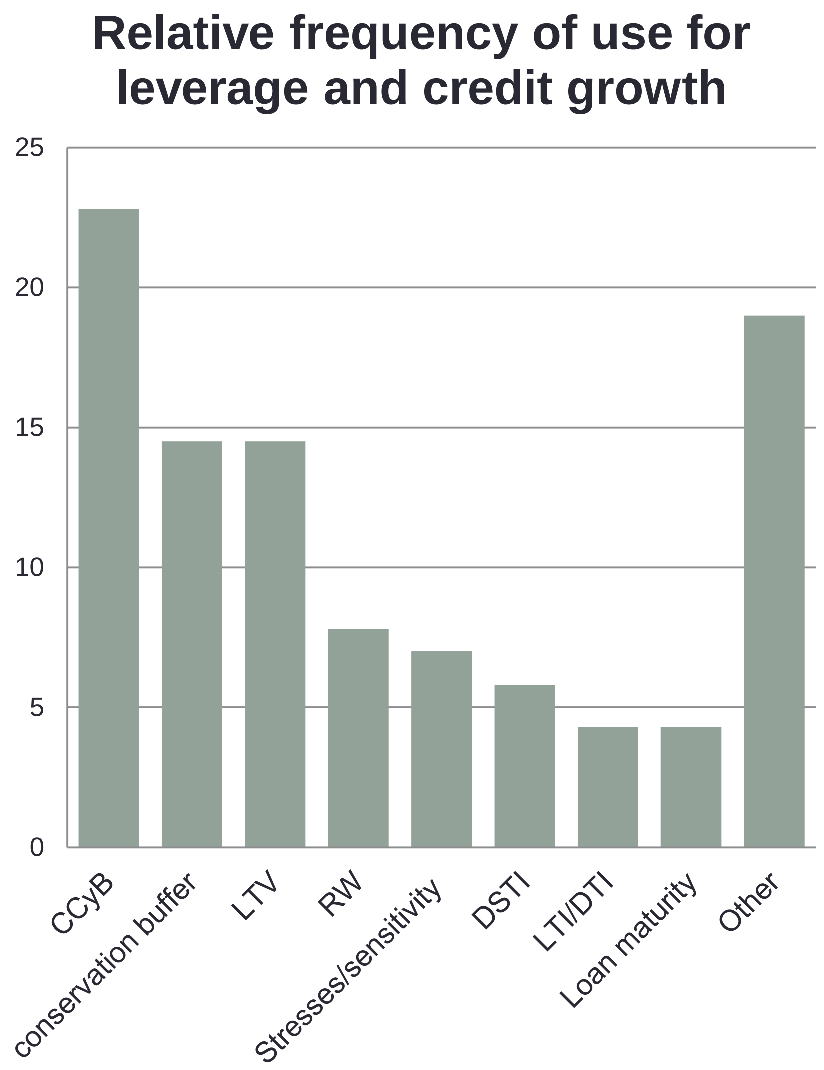
Restrictions demand side	Restrictions on supply side	Capital requirement	Taxation levies	Other
LTV, LTI, DSTI, Margins, haircuts, Cap on credit growth Limit FX borrowing	Caps on mismatch in FX Reserve req. Liguidity rules (LCR, NSFR) also in FX Asset composition, volker rule.	CCyB SRB Leverage req. Sectoral req. Dynamic prov.	Tax on specific assets or loans **Capital flow management tools CFM**	Compensation Governance Standardization Exchanges Deposit insurance Information discl.

Bank Capital:
Regulatory Capital levels now

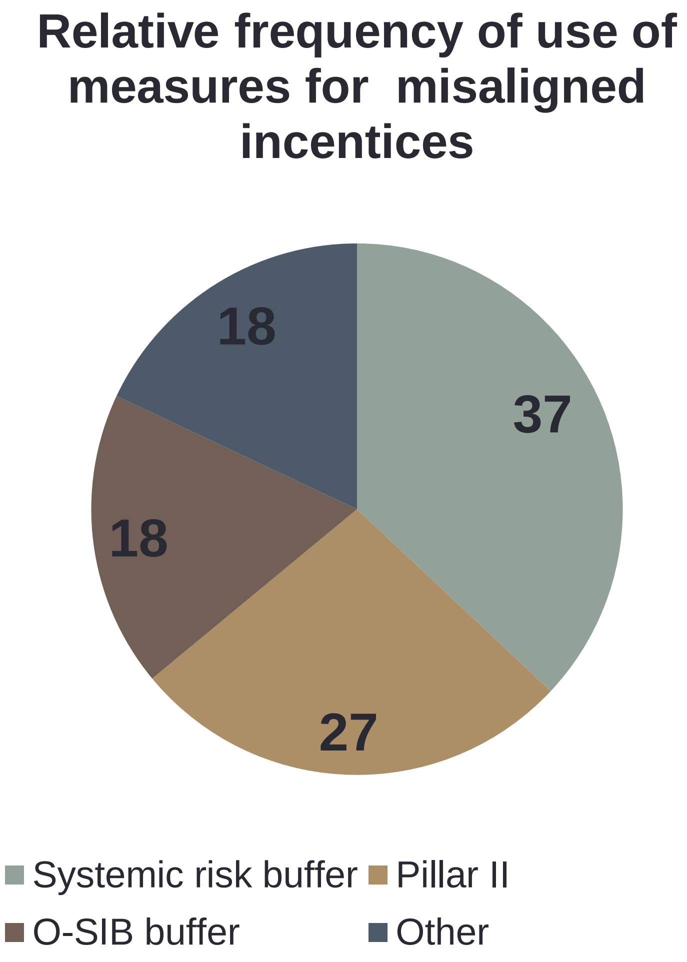
	US	Europe
Common Equity		4.5%
Total risk based capital	8%	8%
Total + conservation buffer	**10,5%**	**10,5%**
Countercyclical buffer CET	2,5%	2,5%
SIFI and GSIB surcharge CET	1-4,5%	0-5%
Systemic risk buffer CET		0-5%
Leverage ratio	3% General rule 5% bank holding comp 6% deposit inst of BHC	3%
NOTE: also added stricter capital deduction rules		

Use of measures within ESRB





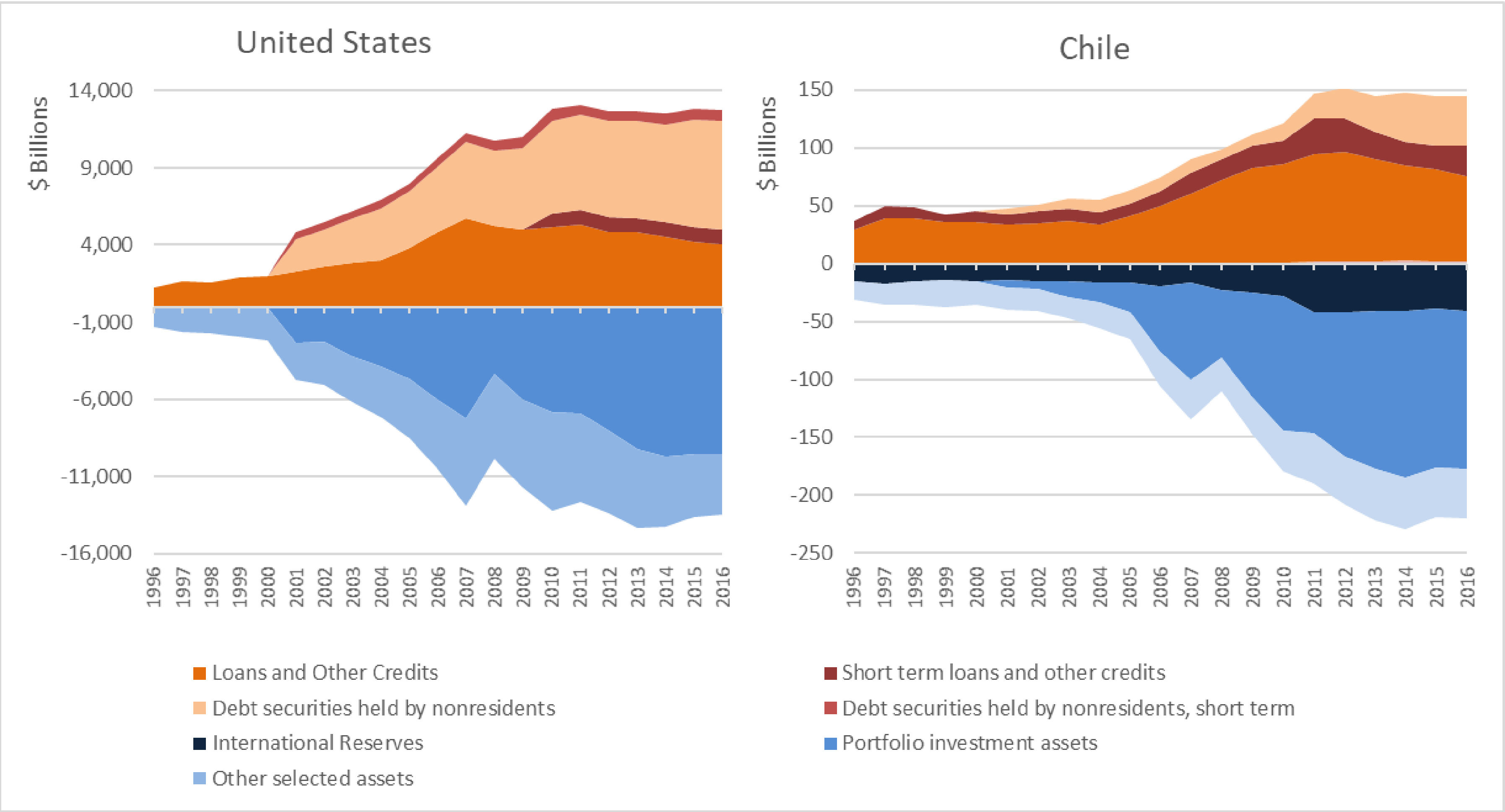
Use of measures within the ESRB



- Quite a number of the reported measures were aimed at preserving the regulatory situation before the introduction of the CRD/CRR and therefore did not result in any new requirements

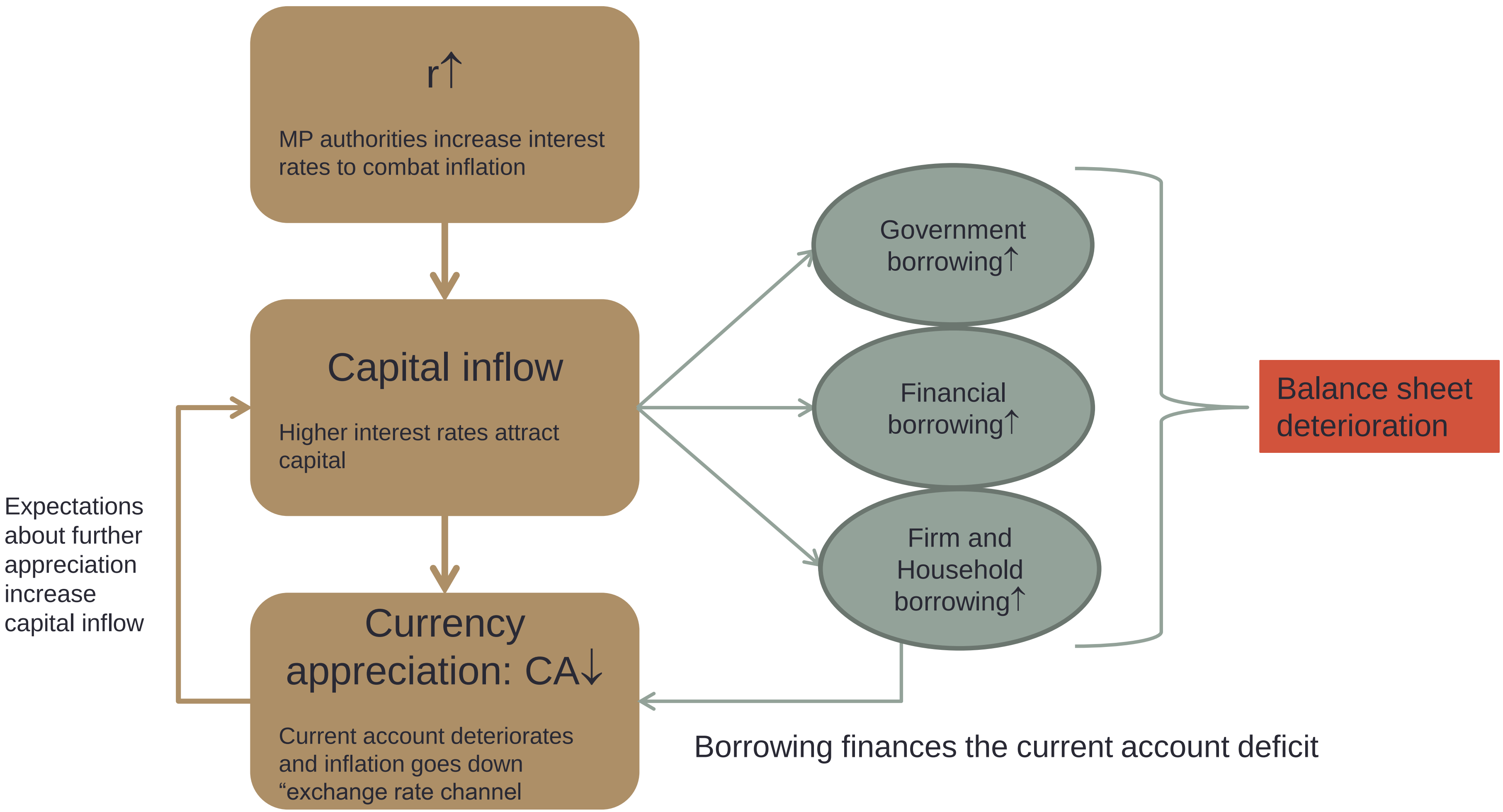
CAPITAL FLOW MANAGEMENT TOOLS

Gross External Liabilities and Assets



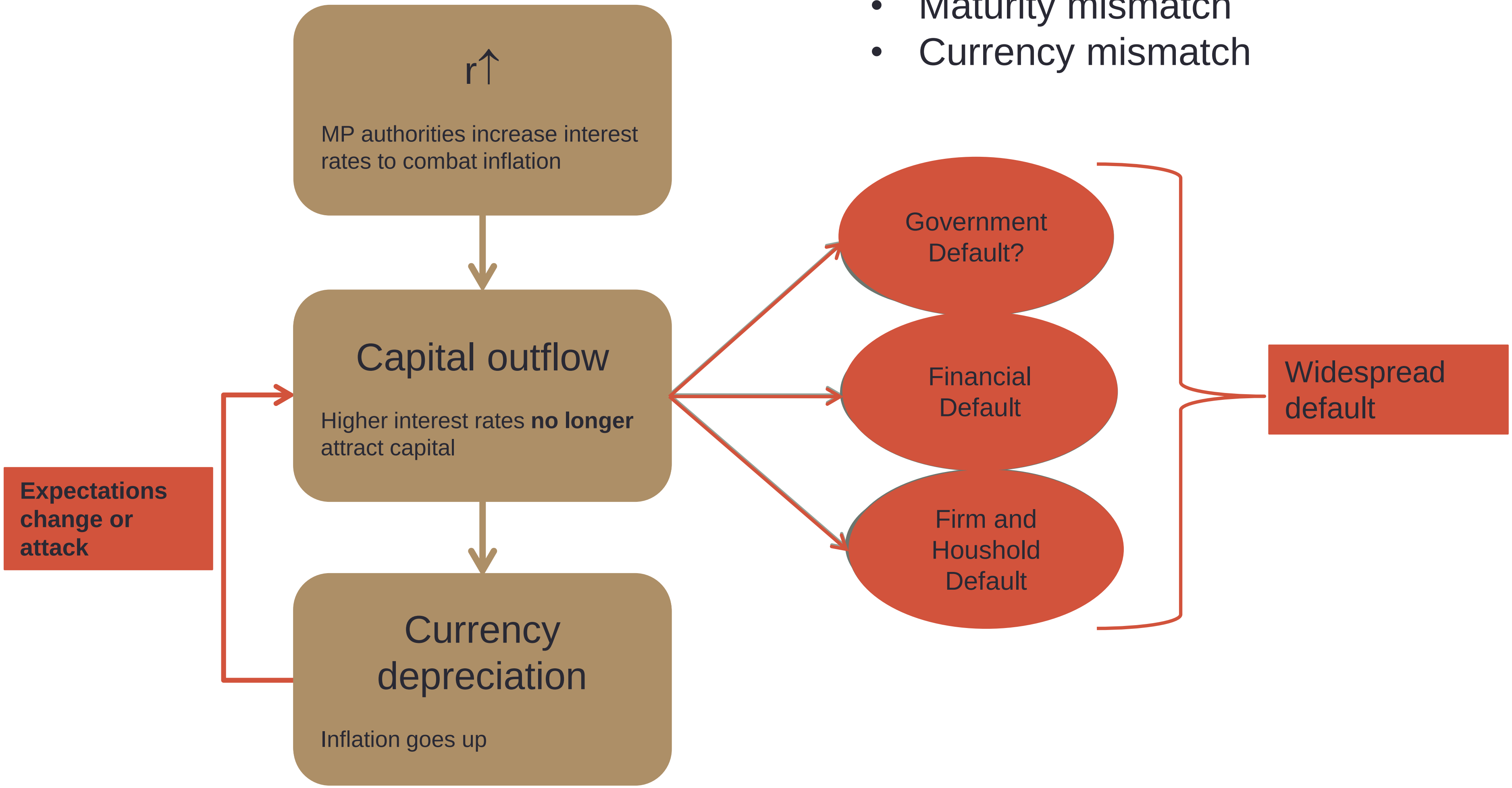
Source: Joint BIS-IMF-OECD-World Bank debt statistics

Capital Inflow



Capital flight

Servicing debt becomes difficult:
- Maturity mismatch
- Currency mismatch



Default further erode confidence and increase capital outflow resulting in a feedback loop

Capital Flow Management Tools

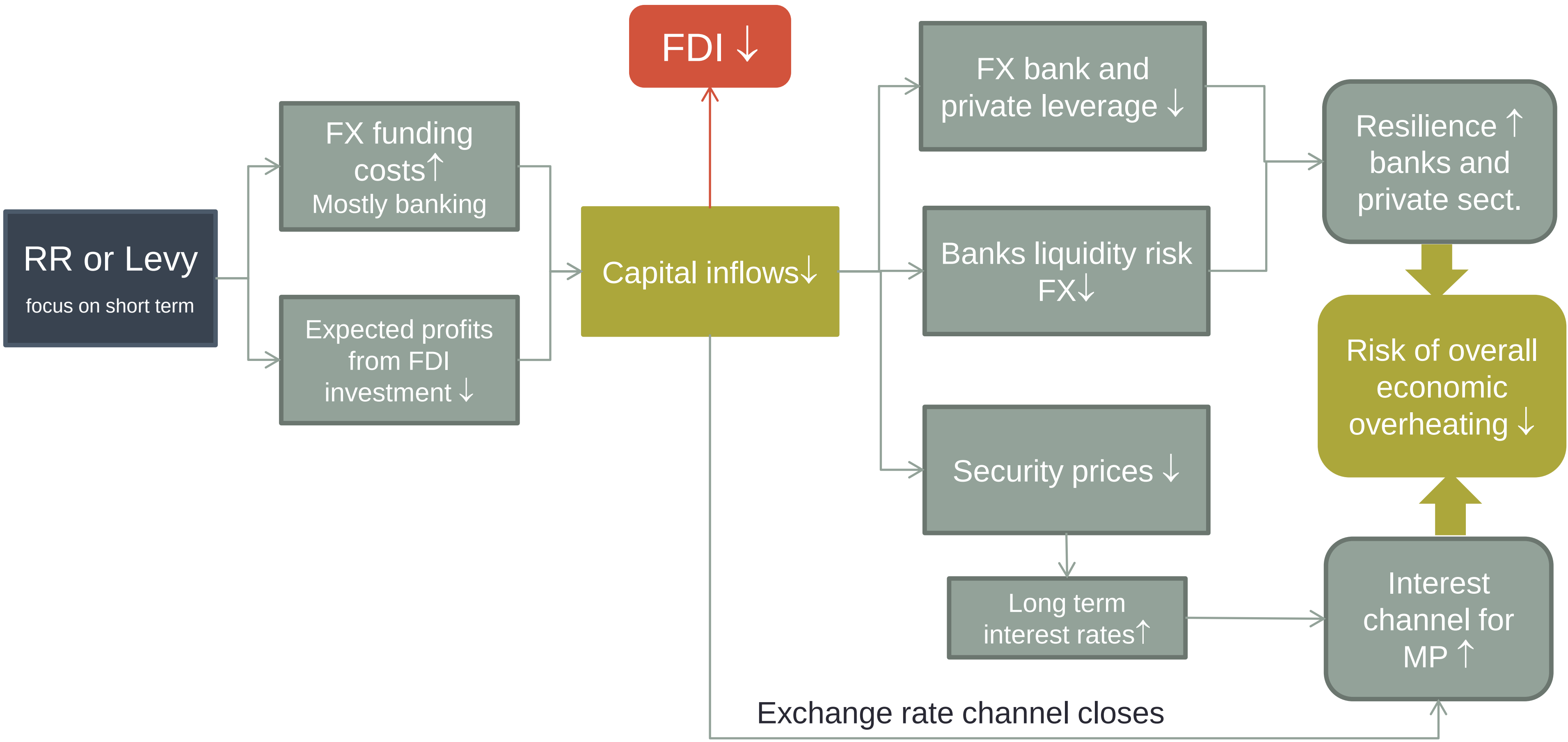
- Capital flows reduce greatly the effects that domestic monetary policy can have on domestic financial conditions

- Capital flows amplify economic fluctuations

- Tools to counter this
  - First Generation
    - Bans on entry of certain investments
    - Limits on open FX position for banks

  - Price Based Controls
    - Taxes or levies on certain, often security, investment
    - Taxes or levies on short term FX funding, in particular for banks
    - *Reserve requirement on FX deposits*
    - Margin requirement or other restrictions on derivative trading

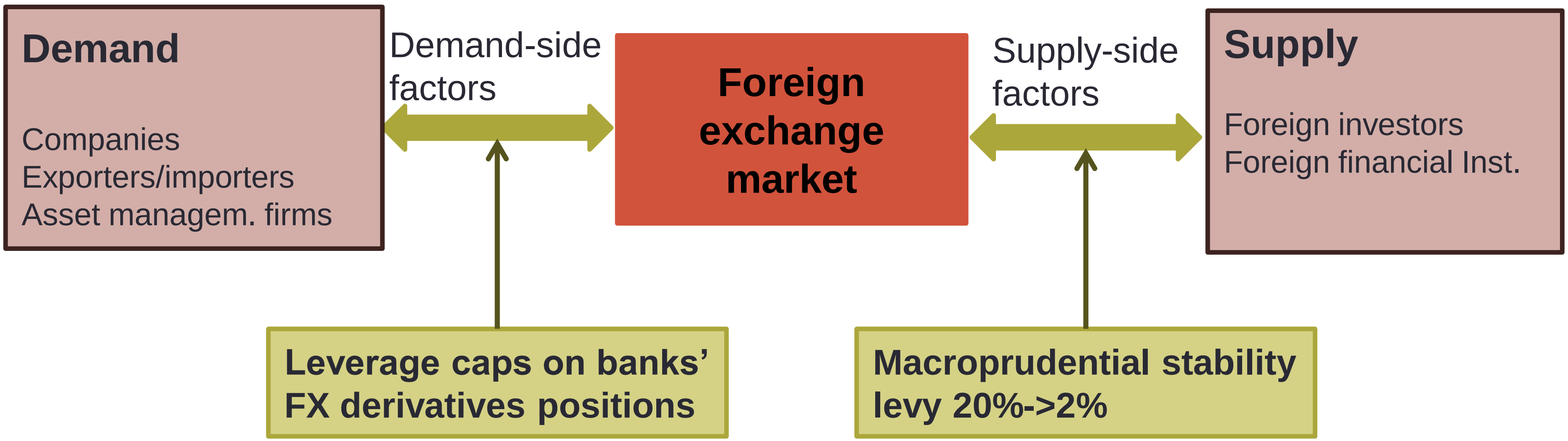
Captial Flow Management Tools



Korea post great recession policy

Motivation

- Excessive capital in- and outflows amplified the effects of the 1997 foreign currency crisis and the 2008 global financial crisis
- The unconventional monetary policies in advanced economies are increasing risks of excessive capital inflow now
- Policies are aimed at both the demand and supply sides



Korea..

- Bruno and Shin (2014) find that sensitivity of capital flows into South Korea to global conditions decreased substantially in the period following the introduction of macroprudential policies
  - For other countries in the region sensitivity of capital flows to global conditions increased over the same period

So….. what does the literature say

Reinhart and Reinhart (2009)

- Define capital flow bonanzas and associated it with a greater conditional probability of banking, currency, sovereign and inflation crises in developing countries.

Forbes and Warnock (2012)

- Global factors, especially global risk, are significantly associated with extreme capital flow episodes.

Caballero (2014):

- Capital flow bonanzas increases the odds of a crisis **3.6 times**, raising its probability to 14%, from an unconditional probability of 4%
  - this effect is present even in the absence of a lending boom

Ahmed (2014)

- Capital controls introduced in recent years do appear to have discouraged both total and portfolio net inflows.

So….. what does the literature say

Rey (2013)

- Dilemma: Independent monetary policy is only possible “if and only if” the capital account is managed directly or indirectly
- Recommends using macroprudential tools to combat leverage directly as a first line of defence

IMF, GFSR (2017)

- Finds that global financial conditions explain 20-40% in domestic fluctiotions in financial conditions ... more in EMEs
- Some scope to use monetary policy, but timing problematic
- Recommend using macroprudential tools to combat excessive leverage and short term Capital Flow Management tools to counter global shocks.

WHAT HAS NOT BEEN DONE…SOME EXAMPLES AND CURRENT RISKS …

Some examples

US, skin in the game…

- Root of the crisis were risky mortgages that banks offloaded as soon as the loan had been made
- Initial plans called for skin in the game, 5% of the initial mortgage loan should stay on the originators balance sheet
- That was rolled back before it saw the light of day

International banking

- … problem of lender of last resort, in particular for bank branches operating in a different currency area

Iceland, firm ownership transparency

- We still don’t know who owns what firm, how can we supervise large exposure and insider lending rules?

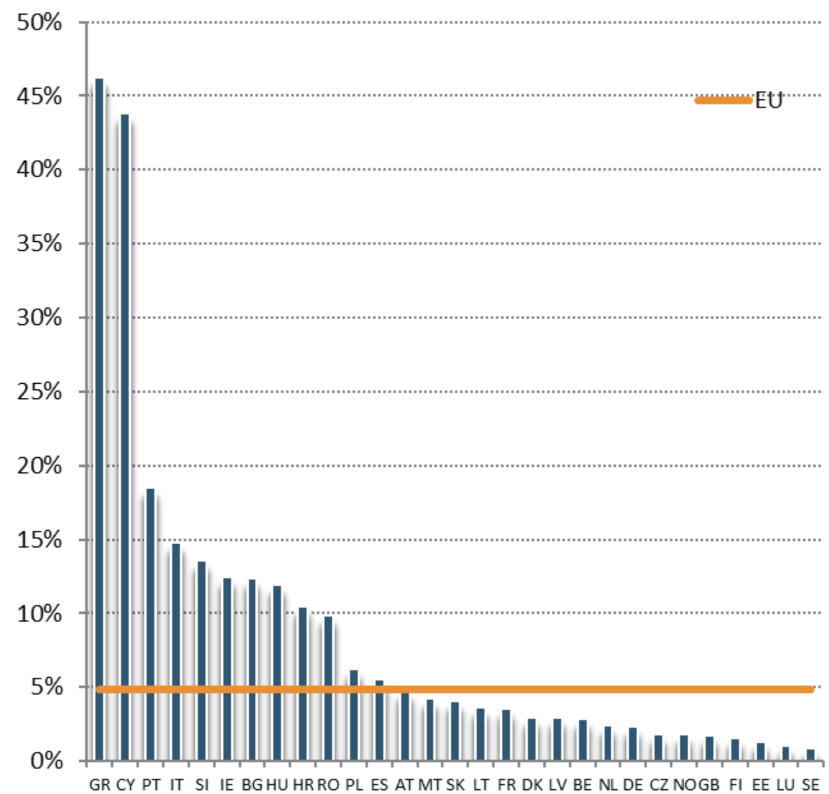
Some Risks to Global Financial Stability

- There are structural challenges in the European banking system … actions need to be taken to clean up banks balance sheets, i.e. write off non-performing loans

- Long period of low growth and low interest rates is a challenge to banks profitability

- … this slows down recovery in the region

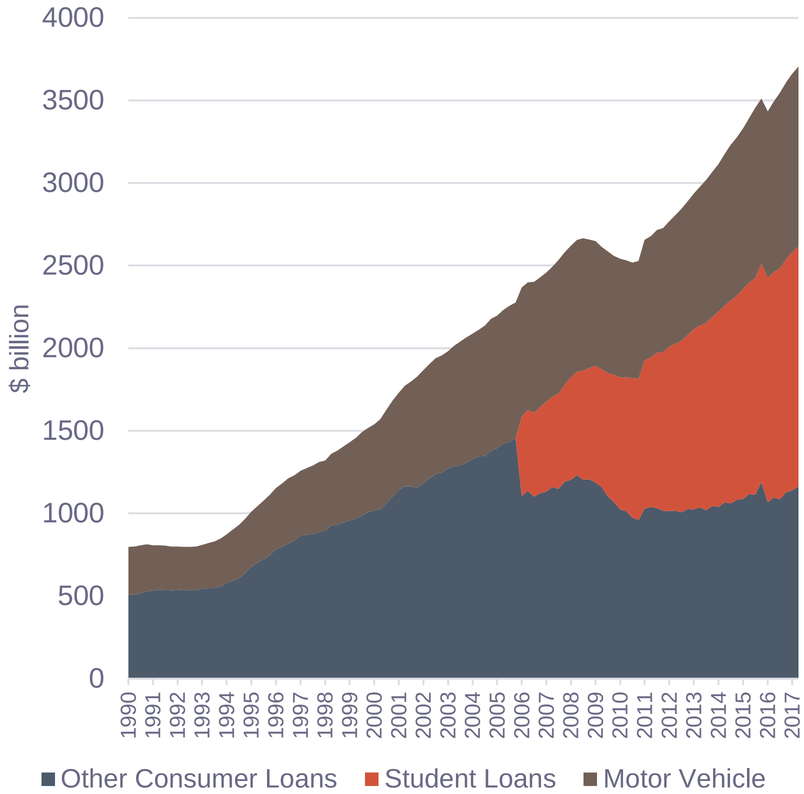
Non-performing loans, March 2017



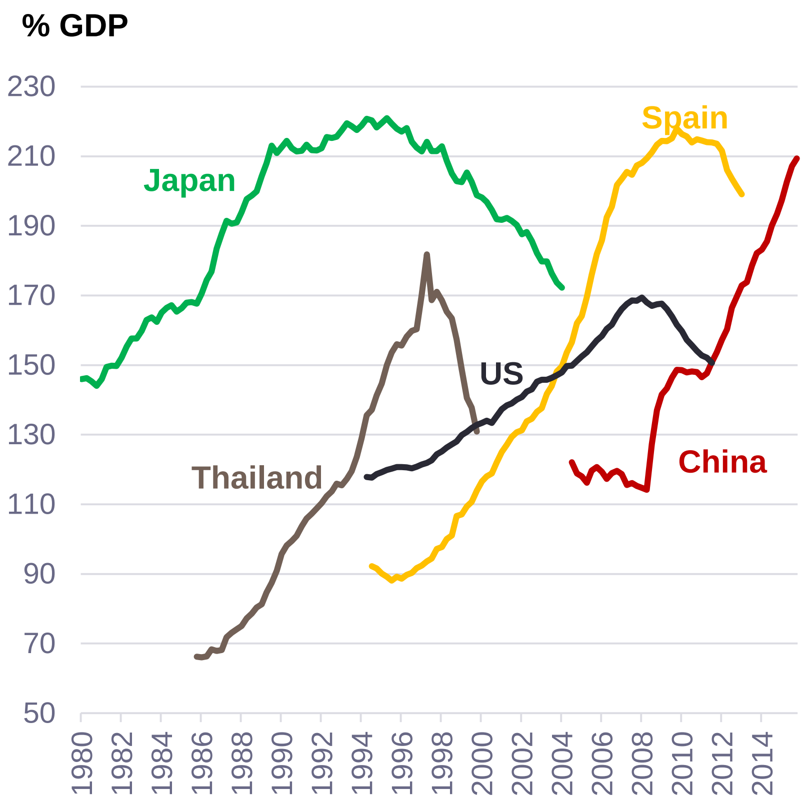
Source: IMF, GFSR April 2017

Other issues, credit growth

US growth in Consumer loans



- Credit Surge in China



Conclusion

- We have come a long way since the financial crisis
- Well managed crisis responses are important to minimize costs
- A new toolkit, macroprudential tools, came into focus during the crisis. These tools are being utilized in a number of countries … not just EMEs
  - Increase financial system resilience and hopefully lower the probability of financial crisis.
- Capital flow management tools and/or macropurdential tools are crucial for open economies that experience excessive fluctuations in capital flows, that amplify economic fluctuations.
  - Monetary policy alone is ineffective in managing the risks that excessive capital flows pose, and may in fact amplify them
  - Now we just need a rulebook on how and when to use these tools…