

Macro-Prudential Policy: the debate and some implications for New Zealand

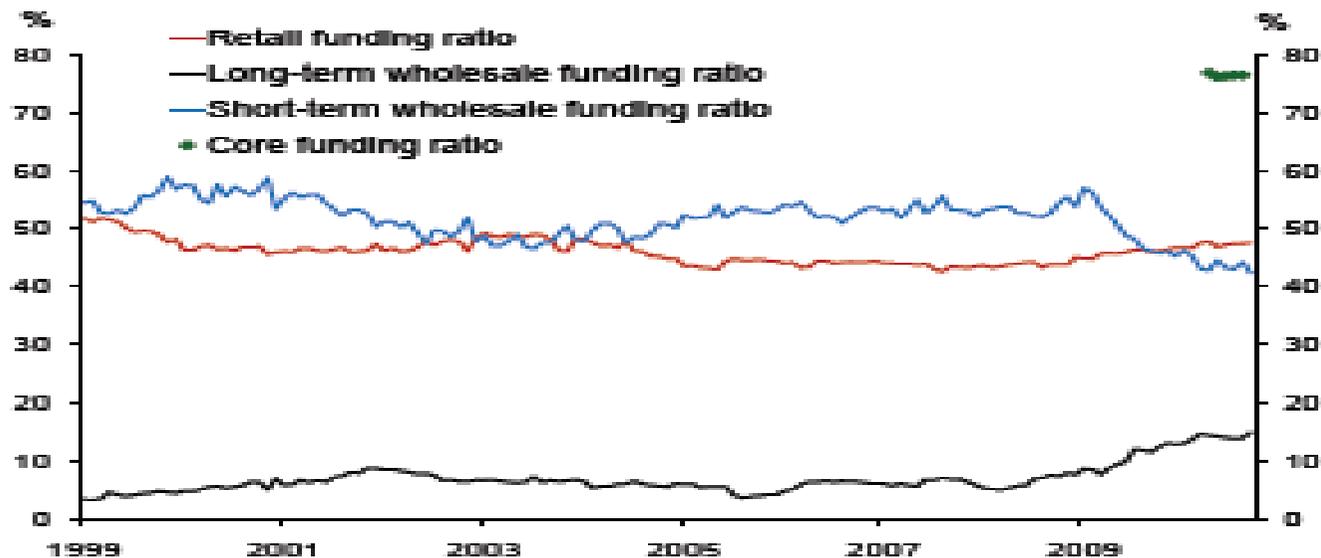
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NZ financial stability (IMF, May 2011)

- *Banks' key vulnerabilities are their exposure to highly indebted households and farmers together with their sizable short-term offshore borrowing. Prudential measures and market pressures have led to a reduction in banks' sizable short-term wholesale borrowing.*
- *New Zealand's large net foreign liabilities expose it to a possible rise in long-term interest rates as a result of high funding requirements of banks and sovereigns in advanced economies.*
- *The authorities should continue to strengthen their stress testing of banks and consider the merits of gradually raising bank capital to levels well above the Basel III requirements.*
- *Staff recommended explicitly including funding risk in future scenarios, encompassing a disruption to bank funding and a large increase in longer-term interest rates. The latter could come from a rise in global rates and an increase in New Zealand banks' risk premium.*

NZ bank funding

Figure 4.11
Sources of bank funding



Source: SSR, RBNZ liquidity report.

Note: Short-term wholesale funding is approximated by funding with less than one year to rate reset. The retail, short- and long-term wholesale funding ratios are relative to loans and advances and are based on SSR data. The core funding ratio is derived from the new prudential liquidity reports for the four major banks.

Roadmap

- The state of the macro-prudential policy debate
- Some challenging issues
 - Do solutions like the CFR reduce financial instability?
 - How do financial shocks translate into real activity?
 - Do stress tests properly handle systemic externalities?
 - How do we attenuate risk illusion?
- Concluding observations

State of the debate (1): the meaning of macroprudential policy

- Commonly interpreted as system-wide prudential policy
- Care about the *dynamic resilience* of the financial system
 - Two aspects: procyclical (time series) and resilience (cross-sectional)
- Traditional macro-policy instruments may have a role to play

State of the debate (2): cycles in financial variables

- Key exemplar: The leverage-margin-liquidity cycle in financial (and housing) markets

*↑ optimism → ↑ asset prices and financial market
liquidity → ↓ haircuts, margin requirements → ↑ leverage*

- Why?
 - Advent of market-based intermediation
 - Prevalence of universal banking
 - Richer interlinkages between retail banks, i-banks, broker-dealers

State of the debate (3): system resilience

- Financial systems display characteristics of a complex adaptive network
 - robust-yet-fragile, pre-disposed to tipping points
 - feedback behaviours that amplify initial shocks (liquidity hoarding and asset firesales)
 - sensitive to diversity (risk management and search for yield)
- Significant real consequences when they break down

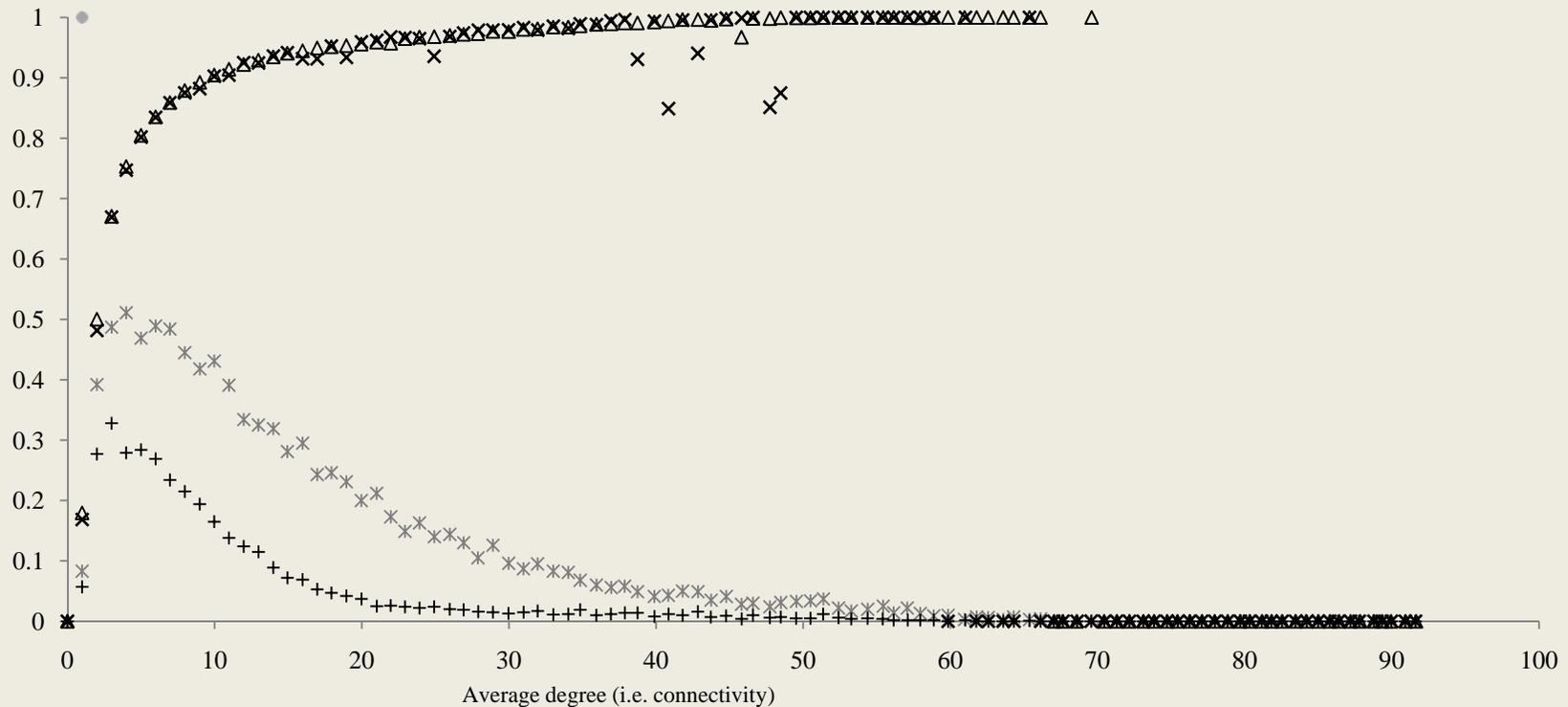
The basic externality (1)

- Individual agents do not take the spillover effects – *on system stability* – of their ***financial actions*** into account, e.g.
 - firesale externalities
 - liquidity hoarding(*)
 - location/size in the network
 - “local think” or ignorance of tail events
 - (over-)borrowing
- Spillover effects on *resource allocation* are also ignored.

The basic externality (2)

- Solutions are Pigouvian in spirit – taxes or constraints (static, state-contingent, time-varying)
 - systemic capital/liquidity surcharges
 - levy on non-core deposits
 - changes to haircuts
 - core funding ratios
- Quantities or prices?

CFR and dynamic resilience (1): probability of funding contagion



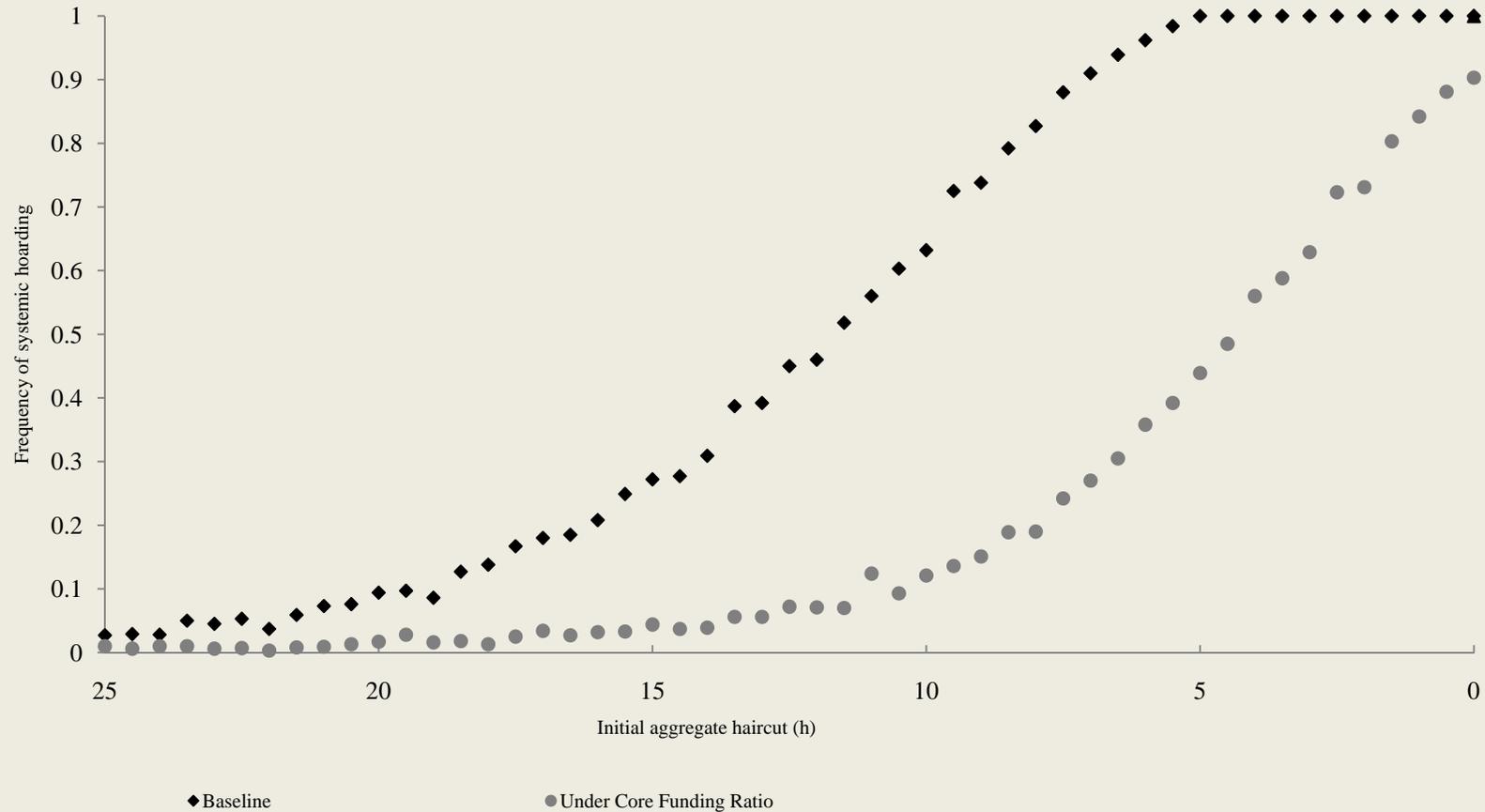
* Frequency of systemic hoarding (Geometric baseline)

Δ Extent of systemic hoarding (Geometric baseline)

+ Frequency of systemic hoarding (Geometric with Core Funding Ratio)

× Extent of systemic hoarding (Geometric with Core Funding Ratio)

CFR and dynamic resilience (2): time-varying policy



Financial crises and real activity (1)

Changes in per Capita Variables for the 2007-2009 Recession
(percent)

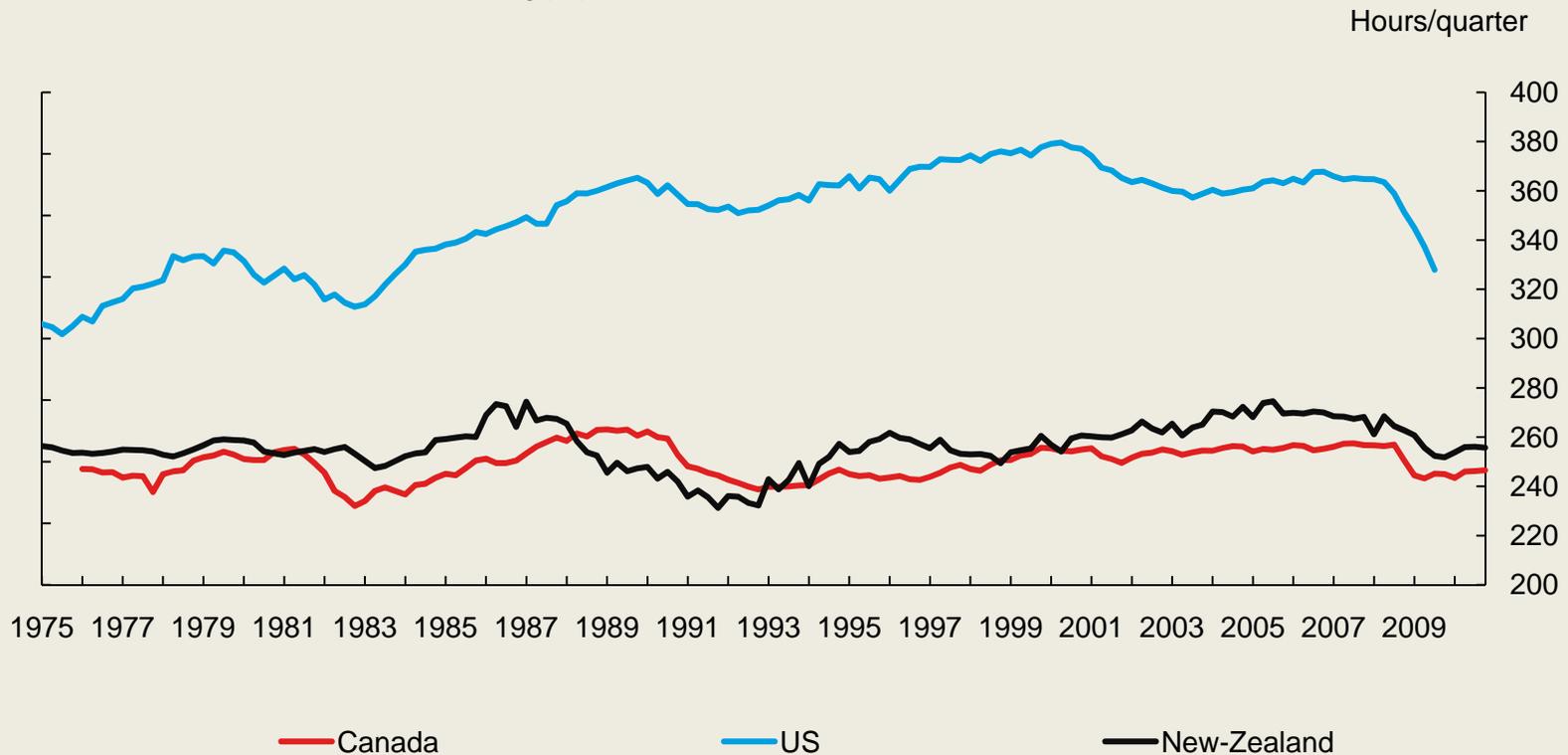
	Output	Consumption	Investment	Employment	Hours
United States	-7.2	-5.4	-33.5	-6.7	-8.7
Canada	-5.1	0.9	-15.3	-0.3	-4.8
New Zealand	-5.3	-3.4	-20.9	-1.5	-5.9

Source: Ohanian (2010), Bank of Canada, RBNZ.

Financial crises and real activity (2)

Quarterly Hours worked per capita

Total hours worked as a ratio of the total working population

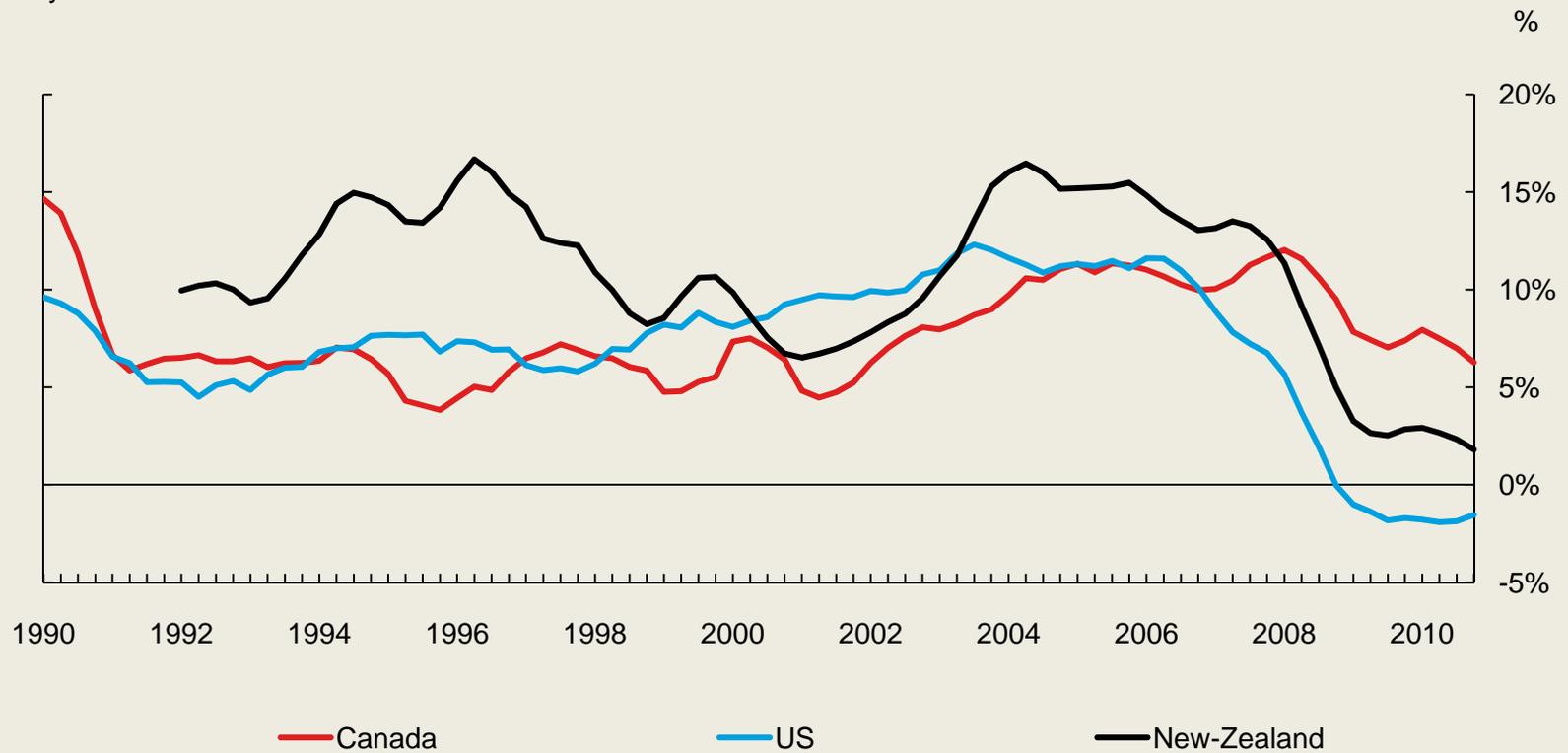


Source: National Statistical Agencies

Last observation: 2010Q4

Household Credit Growth

year-over-year



Source: National Central Banks

Last observation: 2010Q4

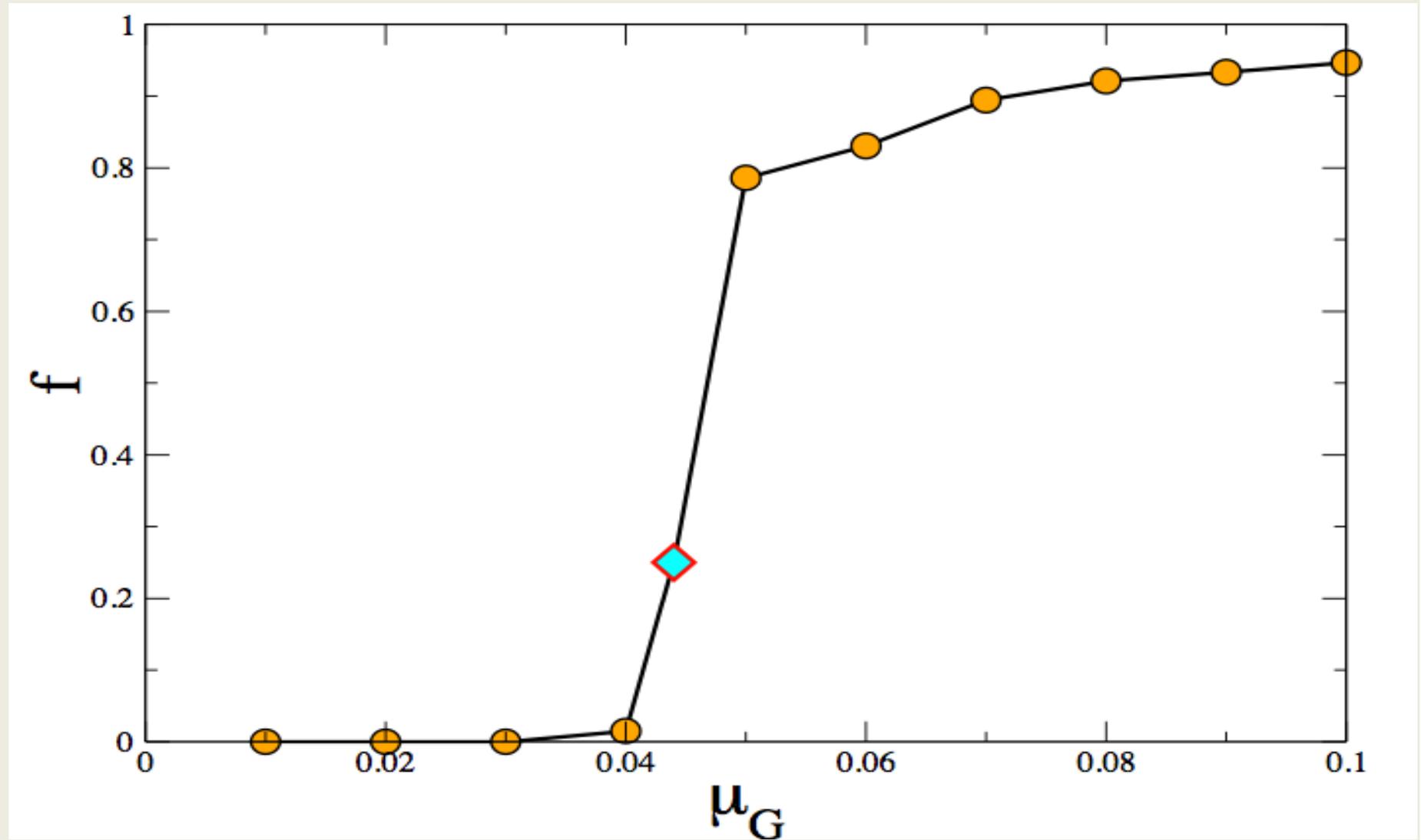
Stress-testing (1)

- Stress-tests usually scale up adverse macroeconomic shocks (e.g. unemployment=10%, commercial property declines=45%)
- But feedback effects mean that smaller shocks could have major consequences
 - network domino effects
 - distress firesale of assets
 - macroeconomic feedbacks on default probabilities from the withdrawal of credit
 - funding risks

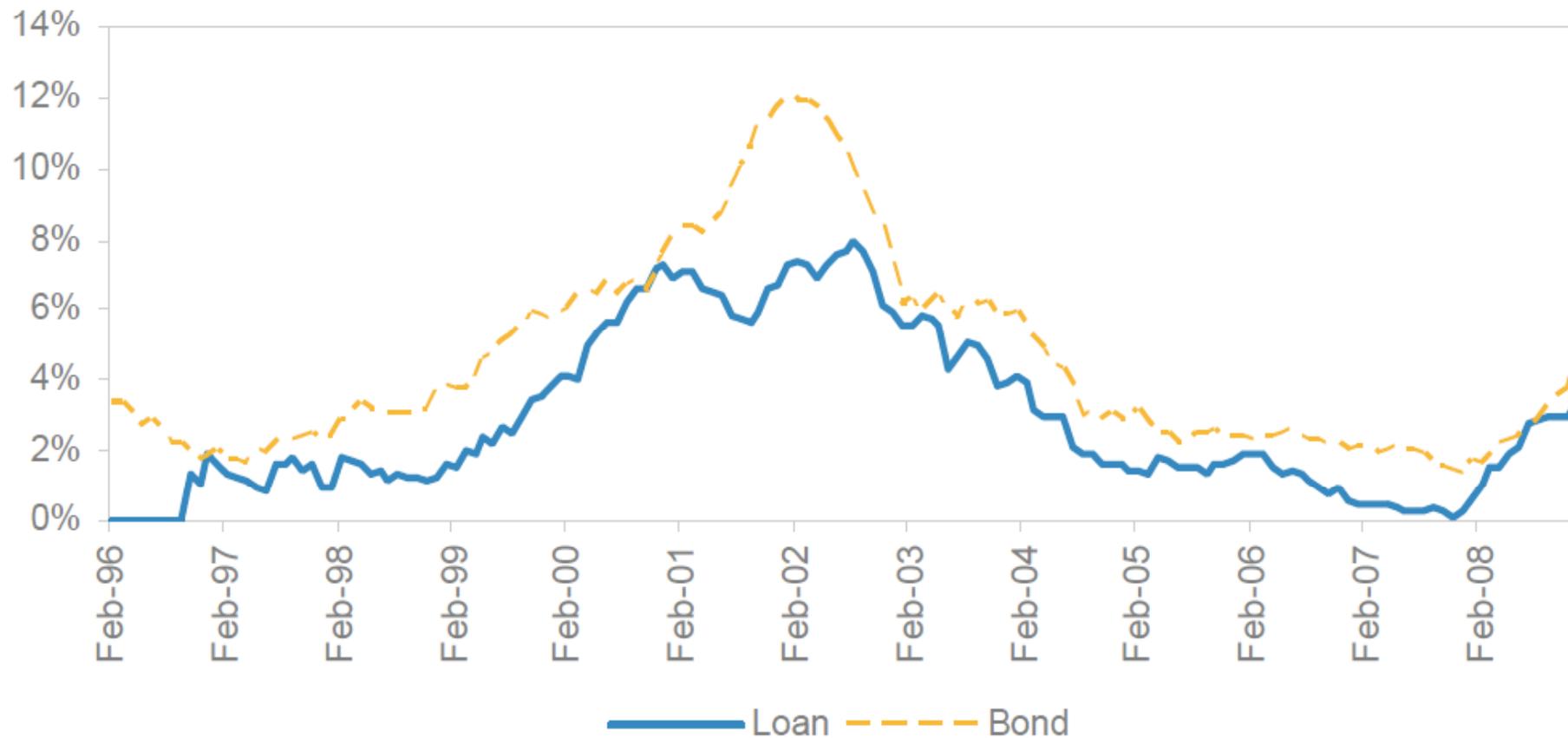
Stress-testing (2): A hypothetical exercise

- Euro area stress test (2010) assumed a drop in the value of major equity indices of 20% under the adverse scenario, which translated into a haircut of 36% of equity exposures [*“firesales”*]
- Availability of credit to firms in the UK fell by 20% following Northern Rock [*“macroeconomic feedbacks”*]
- LGD on interbank exposures of 100%. Capital buffers vary 4-24%
- **Network** calibrated on 17 UK banks in the core and 240 foreign banks, loans size and connections calibrated with BIS banking data. 50,000 firms, corporate PDs calibrated to Moodys data 1930-2006.
- Question: how big would an initial macroeconomic shock need to be to deliver calamitous results?

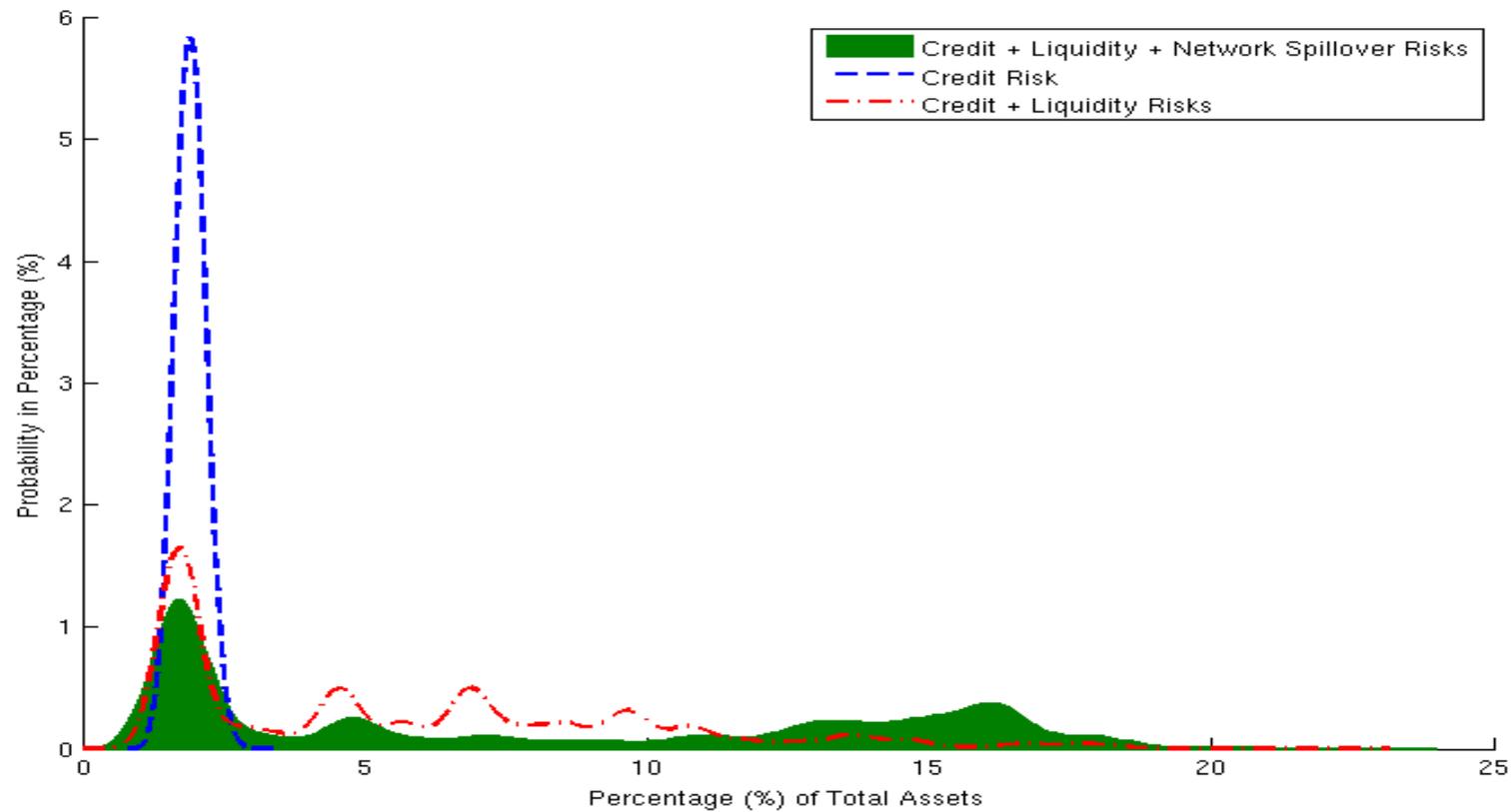
Stress-testing (3)



U.S. Speculative-Grade Bond and Loan Default Rates, 1996-2008



Stress-testing (4): adding funding liquidity risk



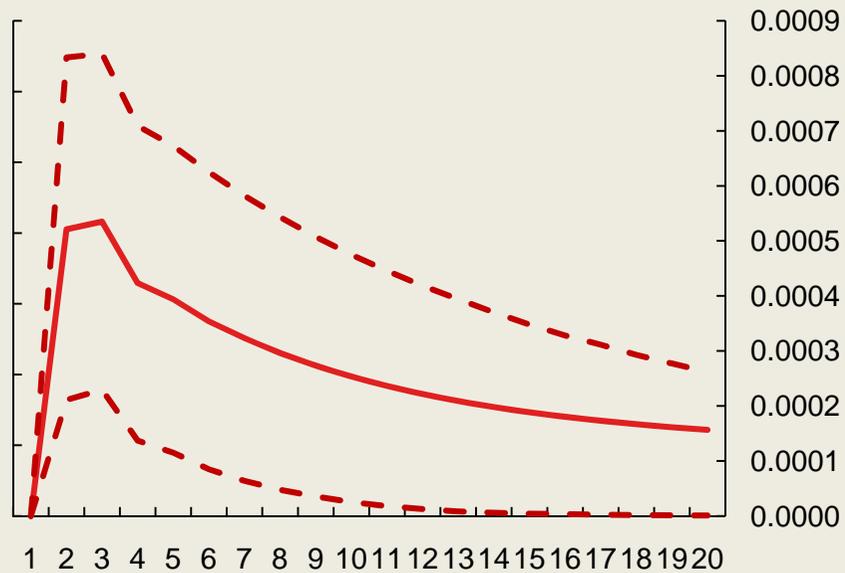
The problem of risk illusion (1)

- Improved beliefs about macroeconomic prospects can give rise to risk illusion and bring about “search for yield” like behaviour
- A serious policy problem: How to limit tendencies to engage in “local think”/ “group think”? Can we encourage diversity in business lines and risk management practices?

The problem of risk illusion (2)

Shock to Slope of the Yield Curve

Response of Risk Illusion

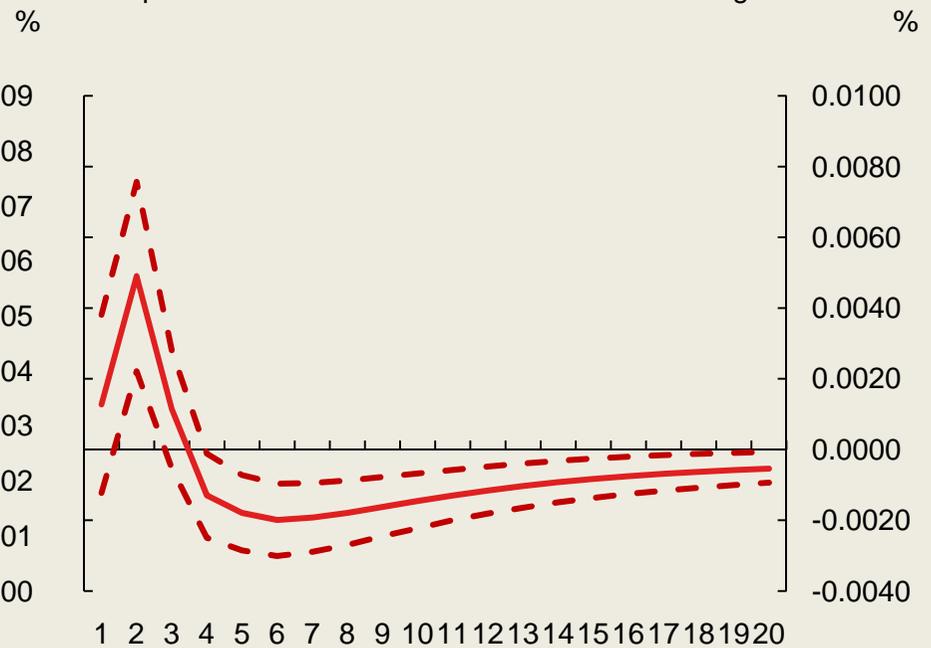


--- 95% confidence interval

Source: Authors Calculations

Shock to Risk Illusion

Response of Securitization/bank credit outstanding



--- 95% confidence interval

Source: Authors Calculations

Concluding observations (1)

- The central bank as risk manager
 - ✧ Vulnerabilities highlighted by the IMF are quite real. As the global outlook worsens, macroprudential measures will be key. Swap-covered funding has risks
 - ✧ Banks do not internalise funding liquidity risks to society as a whole. CFR a wise move and should be time-varying. A complementary menu of instruments could also be developed and deployed.
 - ✧ “War games” and (dynamic) stress-testing ought to be moved up the agenda

Concluding observations (2)

- Post-crisis analyses of the monetary-financial stability nexus
 - ✧ Yet to capture critical systemic externalities
 - ✧ Yet to articulate how economies fall to pieces after financial shocks – interactions between “wedges” not understood
 - ✧ Yet to address shadow banking and broad credit creation
 - ✧ Yet to tackle problems of risk illusion, “low for long”, and the search for yield

Concluding observations (3)

- Open issues in financial regulation
 - ✧ nature of banking – universal banks, ring-fencing and the systemic consequences thereof
 - ✧ targeting systemically important FIs
 - ✧ re-wiring the financial network – are central counterparties desirable?