



Global Financial Crisis @ 10

Would macroprudential regulation have prevented the last crisis?

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Views are only ours, not the official views of the Bank of England

Would macroprudential regulation have prevented the last crisis?

- Post crisis response is the creation of Financial Stability Committees
 - “Macroprudential Regulation” (will it work?)
- Why study the last crisis?
 - Tough test?: assume away post-crisis structural reforms;
 - Easy test?: can you win the last war?
 - Do macroprudential regimes have the analytical framework, tools and mandate to address a future resilience ‘gap’ akin to 2007?

Our approach

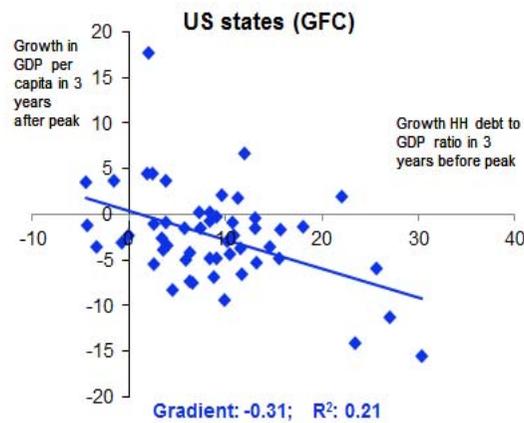
- 1) **Fault lines & their impact:** what made the crisis so bad?
- 2) **Required intervention:** what macroprudential policy would have been required to address fault lines?
- 3) **Institutional constraints:** are existing U.S. and U.K. macroprudential authorities equipped to take necessary steps?
- 4) **Overarching challenges:** what are the key questions for macroprudential framework design?

Fault lines: what made the crisis so bad?

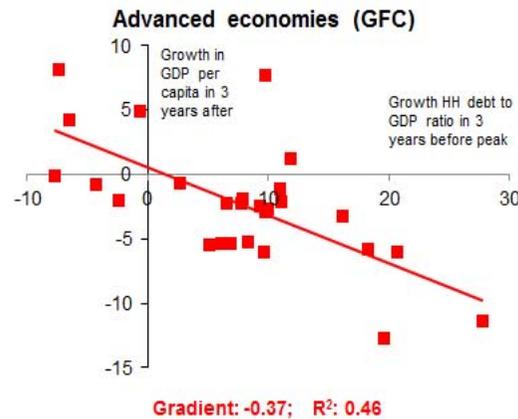
A) The financial system was fragile

- Total assets doubled 2001-2007; 70% of growth in “shadow” banks;
- Highly leveraged system: assets of broker-dealer 45x equity by 2007;
- Liquidity mismatch grew: eg repo liabilities > doubled between 2001 and 2007;
- Structural vulnerabilities: eg incentives to run on MMFs;
- System prone to **Credit Crunch**

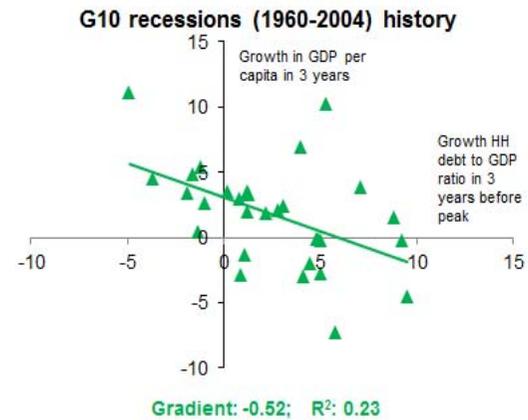
Household debt matters, too



Across U.S. states...



Across countries...



Across time...

A bigger build-up in household debt in the boom is associated with a more severe bust.

Fault lines: what made the crisis so bad?

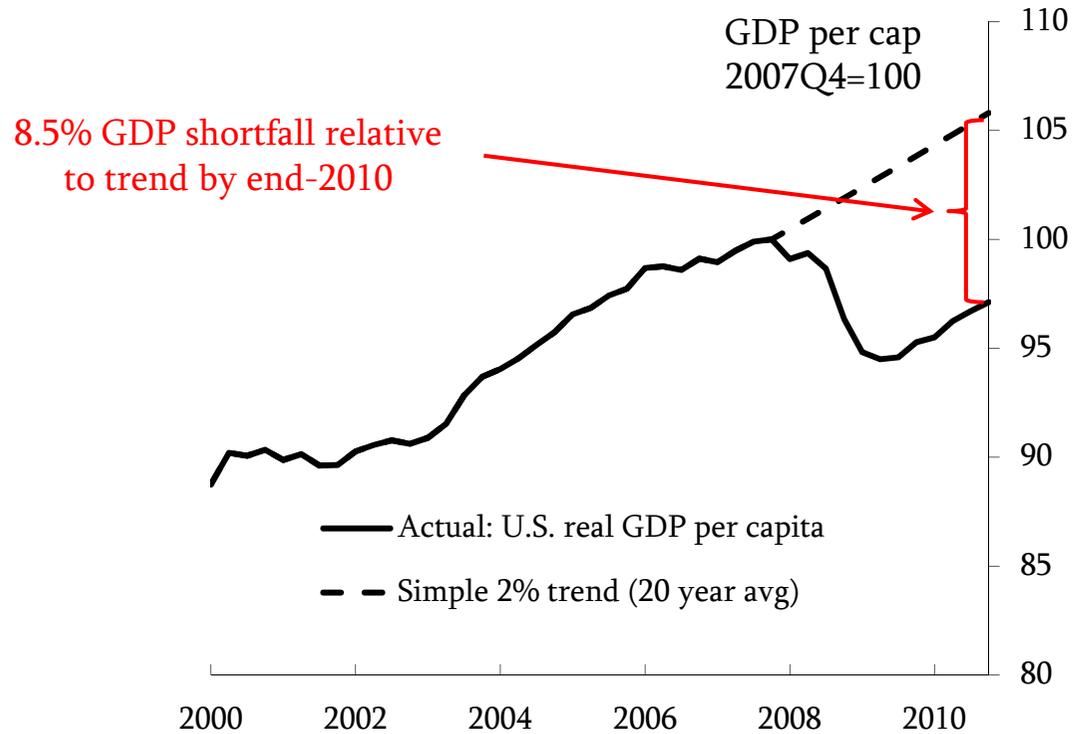
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B) Households were overly indebted

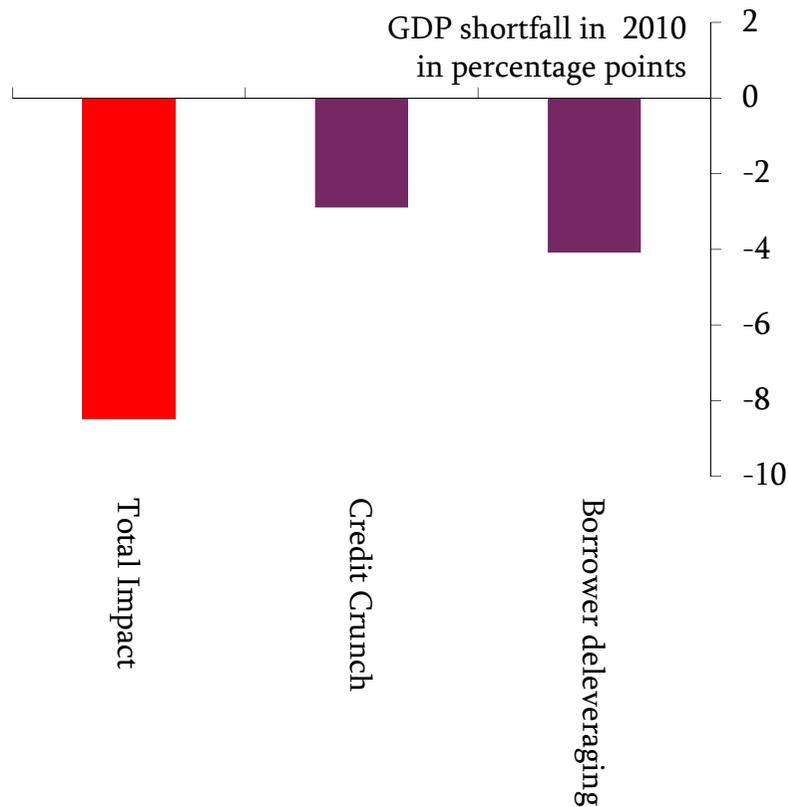
- Mortgage debt doubled to \$11trn between 2001 and 2007;
- Twin, reinforcing booms in house prices and debt: eg HELOCs tripled;
- Loose credit supply meant more marginal borrowers: eg subprime originations ≈doubled from 2003 to 2005 alone;
- Households prone to debt-deleveraging spiral: [aggregate demand externality](#)

Dimensioning the fall-out



Despite few actual (big) bank failures, crisis had significant macroeconomic costs.

Dimensioning the fall-out



Our thesis:

- Feedback loop from ‘credit crunch’ and ‘aggregate demand’ externalities materially amplified the crisis.
- Together, they can explain the majority of total GDP shortfall.
- Successful macroprudential policy would have had to address both fault lines.

Required intervention: what macroprudential policy would have been required to address fault lines?

Step 1: Identify the build-up of risk in real-time

Step 2: Take action to reduce leverage

Step 3: Take action to reduce funding mismatches

Step 4: Take action to reduce the build-up in household debt

Step 1: Identify the build-up of risk in real-time

With a clear remit to do so, would macroprudential policymakers have spotted the fault-lines?

- **Overvalued House Prices:** Yes “20% overvaluation” FOMC 2005
- **Household debt amplification:** Yes in aggregate...
...but spotting risks from marginal borrowers & fragile financial system harder.
- **Stress testing** of banking system, including shadow banks, could have revealed fault lines.
- **Identifying the perimeter** of the financial system and the fragility of funding flows would still be very difficult and data lacking.

Step 2: Take action to reduce leverage

What increase in capital requirements would have been necessary to address a resilience gap akin to 2007?

- TARP injection was ≈\$200bn and was transformative
- Obvious tool: Countercyclical Capital Buffer (CCyB)

Step 2: Take action to reduce leverage

Deploying the CCyB

$$\text{Required CCyB} = \frac{\$200 \text{ billion}}{\text{Risk weighted assets}} * \text{Domestic lending conversion factor}$$

- CCyB of 3% required to bring forward required capital raising
- If sized to sustain trend credit growth need $\approx 4.7\%$ CCyB
- (If sized to match the 2009 SCAP stress test need 4.2%)

Step 2: Take action to reduce leverage

Could a CCyB of 3% (or even 4½ %) have been raised?

- Challenge 1: Affordable?
 - Hirtle (2016): 2005-2008 dividend payments of large banks \$162bn and share buy-backs a further \$131bn
 - Within that \$49bn and \$18bn occurred between mid-2007 and Lehman collapse
 - ➔ There was capacity to meet higher requirements
- Challenge 2: Perimeter?
 - Some of the big TARP recipients were broker-dealers
 - Macroprudential authorities would have had to bring these firms into the regulatory perimeter as a first step

Step 3: Take action to reduce funding mismatches

What intervention would have been needed to address maturity mismatch in pre-crisis financial system?

- **Fed liquidity facilities** that were set up during crisis provided around \$1.5trn of liquidity
- **To avoid need for liquidity assistance** a macroprudential regulator could have required firms to replace \$1.5trn of short-term funding with longer-term debt during the boom (similar sized effect to introducing Basel III Net Stable Funding Ratio pre-crisis)
- **Funding costs** would have risen - but not materially so.

Step 4: Take action to reduce the build-up in household debt

Heavily indebted tail of borrowers:

	2001	2004	2007	2016
Debt to income >4x	6%	11%	13.2%	10.7%
DSR > 40%	16.9%	17.3%	20.2%	13.9%

Increasingly marginal borrowers:

	2003	2004	2005	2006	2007H1
Subprime					
Originations (# million)	1.1	1.7	1.9	1.4	0.2
Proportion on “teaser” rates (%)	68%	77%	81%	77%	68%
Proportion low or no doc (%)	32%	34%	36%	38%	34%
“Near-prime:” Alt-A pools					
Originations (# million)	0.3	0.7	1.1	0.9	0.3
Proportion interest only (%)	16%	37%	40%	44%	52%
Proportion low or no doc (%)	63%	62%	69%	80%	81%

- But who is responsible for attending to this?

Step 4: Take action to reduce the build-up in household debt

Could macroprudential policy have materially dampened the mortgage boom?

- **Housing tools** acting directly on borrower balance sheets likely needed to offset debt binge (because capital & liquidity cheap in boom)
- **A loan to income (LTI) limit** of 4x income would have limited 2.7 million loans 2000-2007, reducing pre-crisis mortgage debt by \approx \$150bn (1.3%)
- **Documentation required** to meet LTI limit would have had a big additional effect: eg 4.6 million non-prime originations 2003-2007 had low or no documentation: about \$850bn (8%) of mortgage stock
- **Affordability tests**, eg to stressed mortgage rates could have materially reduced the expansion of subprime lending on “teaser rates”: \approx 5million (76%) of subprime loans originated from 2003-2007 had teaser rates

Would U.S. or U.K. macroprudential authorities have had the necessary powers in principle?

FSOC

- No hard legal powers, beyond power to designate systemic importance 
- Limited implicit authority: recommendations to other regulators (not all of whom have an explicit financial stability objective) have been ignored in the past 
- Fed has partial authority in some areas (eg CCyB and stress test). In other areas (eg household leverage) nobody has authority. 

FPC

- Role in designing stress-tests. 
- Power to increase CCyB, sectoral capital requirements or leverage ratio. 
- No tools for non-banks, but regular review of regulatory perimeter. 
- Tools to address household leverage. 

Conclusion: would macroprudential regulation have prevented the last crisis?

Summary: “Maybe...”:

- Need suitably strong mandate
- Powers to adjust financial system leverage and maturity/liquidity transformation
- Powers to limit household sector indebtedness

With all of this, reducing the macroeconomic fall-out from the real estate collapse would have been possible.

But not all *institutions* would be able to do what's necessary:

- The U.S. FSOC is not set-up for this purpose
- A U.K. FPC-styled macroprudential regulatory would have had the necessary mandate and powers in principle. But in practice, would have required political backing to widen perimeter of regulation and to use its powers quite aggressively.

Questions raised for the future development of macroprudential policy regimes`

- **Risk assessment:** How much faith should we have in ability to identify problems in real-time? Build “slack” into framework?
- **Scope:** How wide should the remit of a macroprudential regulator be? Are targeted borrower interventions in scope?
- **Hard powers:** Which powers does a macroprudential regulator require to function? When does recommendation suffice?
- **Activism:** How actively and forcefully should the macroprudential regulator be using its powers? How should it weigh the costs and benefits of its intervention?
- **Accountability:** How do societies ensure that macroprudential regulators have the power to act, but are sufficiently accountable to sustain legitimacy in the long-run, given that crises are rare events?