

Credit Cycles and Macroprudential Policy

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Office hours: Keynes D1.01, Wednesday 14:30-15:30, Thursday 10:30-11:30
(by appointment only)

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Topic

- Depressions are typically preceded by large expansions in credit.
- Is it the case that expansions in credit make economies more volatile?
- Should governments attempt to limit expansions in credit during good times?

Workshop Outline

- Stylised facts
- The theory of credit cycles
- Macroprudential policies and policy institutions

Hopefully with 10 minute breaks in between if time allows.

Seminar next week

What should the UK's stance of macroprudential policy be in January 2017?

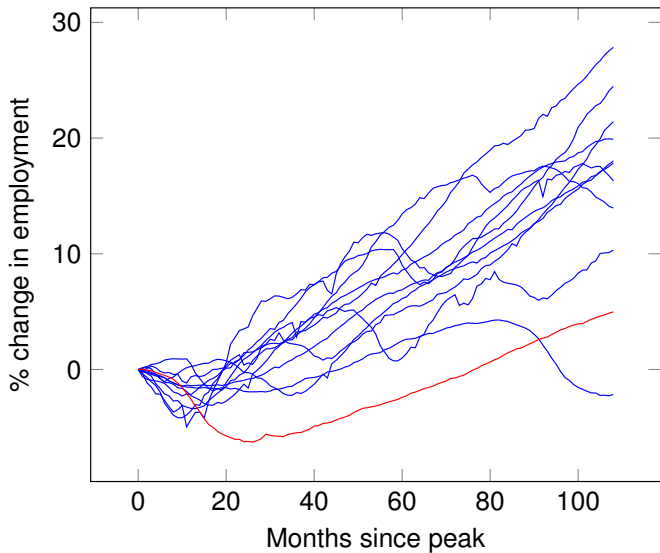
Part 1 - Stylised Facts

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Fact

Financial crises are deep and persistent.

The Great Recession (red) and other post war recessions (blue).



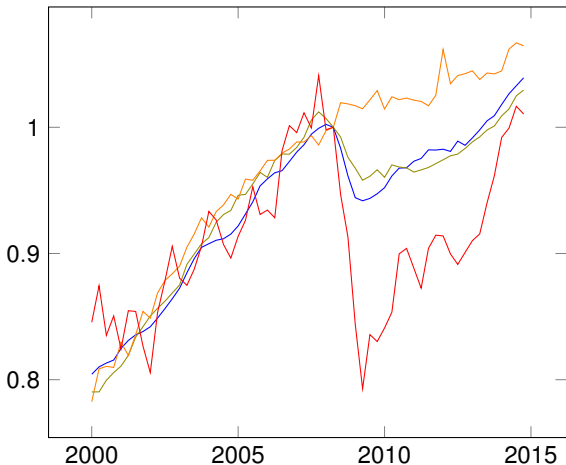
Part 1 - Stylised Facts

Fact

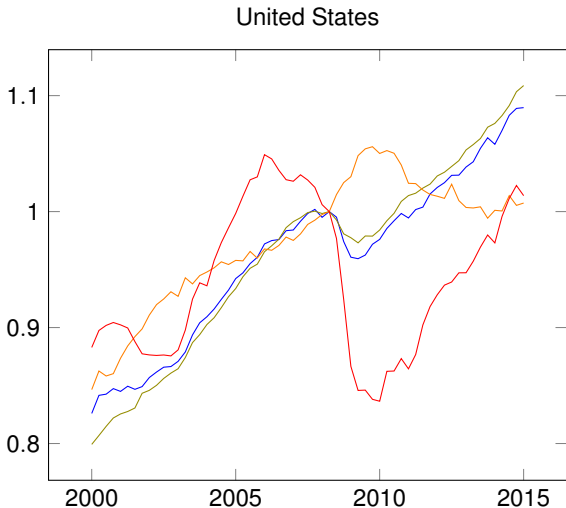
(a) In the wake of a financial crisis, all domestic components of aggregate expenditure fall below trend. (b) Gross fixed capital formation falls sharply.

Components of domestic aggregate expenditure. GDP (blue), Consumption (green), Investment (red), Government purchases (orange).

United Kingdom

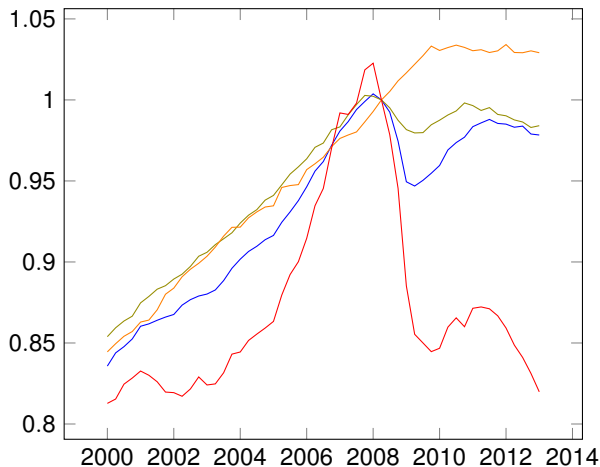


Components of domestic aggregate expenditure. GDP (blue), Consumption (green), Investment (red), Government purchases (orange).



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European Union



Part 1 - Stylised Facts

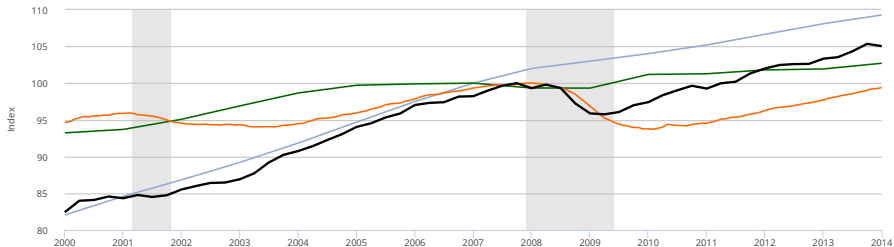
Fact

(a) In the wake of a financial crisis, employment, total factor productivity and the capital stock all fall below trend. (b) Employment and total factor productivity fall sharply.

The supply side.



- Capital Stock at Constant National Prices for United States, 2007=100
- Total Factor Productivity at Constant National Prices for United States, 2007=100
- All Employees: Total Nonfarm Payrolls, Dec 2007=100
- Real Gross Domestic Product, Q4 2007=100



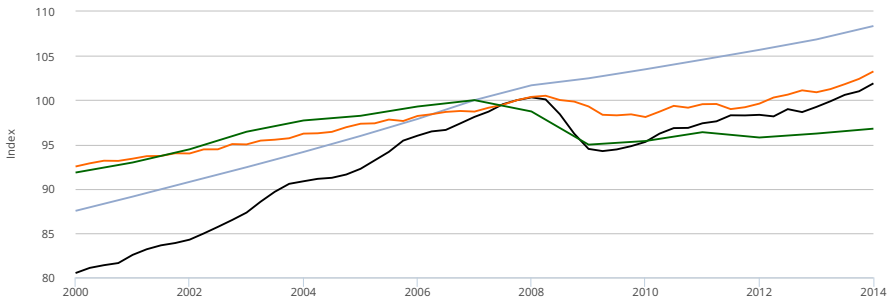
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The supply side.

FRED 

- Capital Stock at Constant National Prices for United Kingdom, 2007=100
- Gross Domestic Product by Expenditure in Constant Prices: Total Gross Domestic Product for the United Kingdom©, Q4 2007=100
- Employment in the United Kingdom©, Q4 2007=100
- Total Factor Productivity at Constant National Prices for United Kingdom, 2007=100



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University of
Kent

Part 1 - Stylised Facts

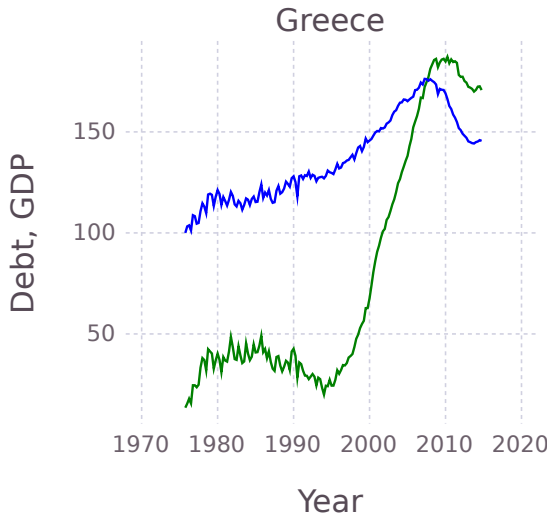
Fact

Depressions are typically preceded by large expansions in credit.

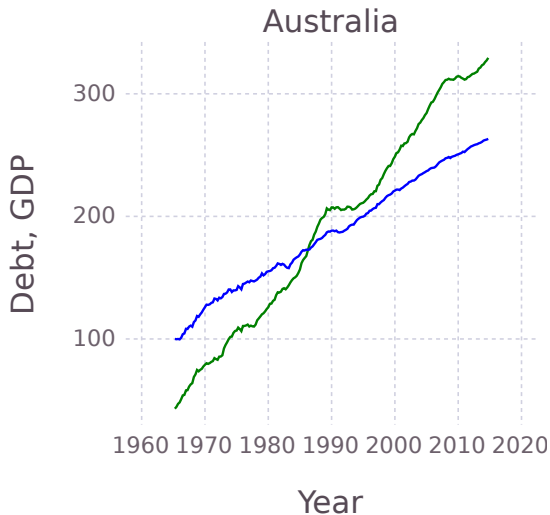
Fact

Since the 1960s, credit growth has typically exceeded GDP growth.

Log real GDP (blue) and log real credit to non-financial firms (green).



Log real GDP (blue) and log real credit to non-financial firms (green).



Part 1 - Stylised Facts

1. Recessions associated with financial crises are deep and persistent.
2. (a) In the wake of a financial crisis, all domestic components of aggregate expenditure fall below trend. (b) Gross fixed capital formation falls sharply.
3. (a) In the wake of a financial crisis, employment, total factor productivity and the capital stock all fall below trend. (b) Employment and total factor productivity fall sharply.
4. Depressions are typically preceded by large expansions in credit.
5. Since the 1960s, credit growth has typically exceeded GDP growth.

Part 2 - Credit Cycles

Part 2 - Credit Cycles: Debt and Equity

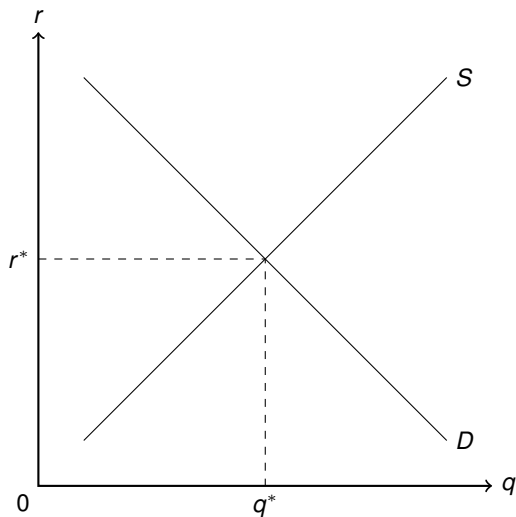
- The credit cycle theory is based on debt finance.
- To finance investments, firms can issue equity (shares) or debt (borrowing).
- Equity finance shares gains and losses with outside investors.
- Debt finance does not allow for losses to be shared with the lender.
- Debt finance often requires the borrower to hold collateral assets.
- The more collateral a firm controls, the more it can borrow.

Part 2 - Credit Cycles

Asset prices fall

- Tightens credit constraints
- Fall in investment
- Fall in business income
- Asset sales to cover labour and debt financing costs
- Asset prices fall

Perfect loan markets

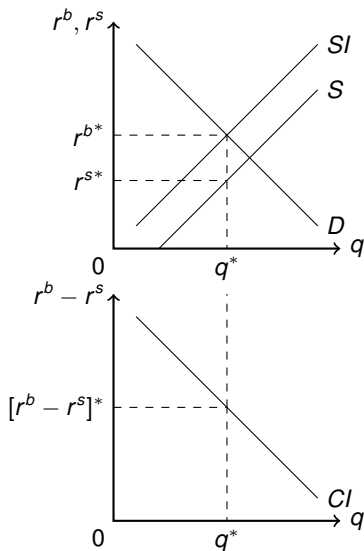


r is the real interest rate, q is the quantity of loans,
 D is the demand for loan financing, S is the supply of savings.

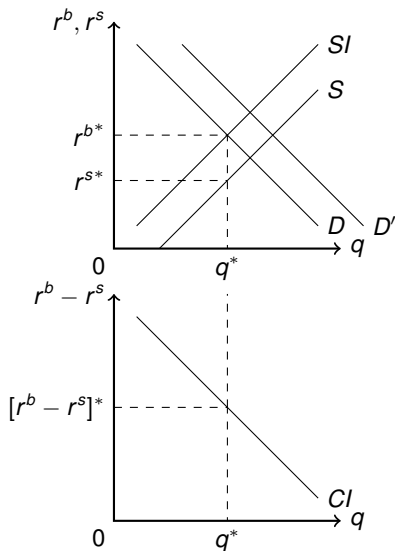
Collateral constrained markets

- Interest rates determined by collateral values.
- r^s is the return to savers.
- r^b is the cost of borrowing.
- $r^b - r^s$ is the cost of financial intermediation, [CI]; this cost decreases when collateral is more valuable.
- The value of collateral is increasing in the quantity of credit.

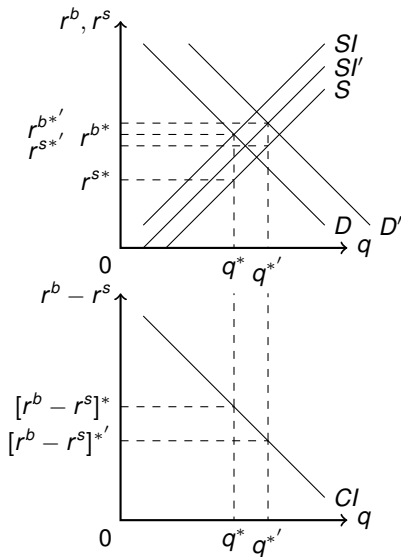
Collateral constrained markets



Collateral constrained markets - Increase in demand for loans



Collateral constrained markets - Increase in demand for loans



Collateral constrained markets - Increase in demand for loans

Collateral constraints

- Amplify the quantity response of credit to fluctuations in demand for credit.
- Mute the response of the interest rate to fluctuations in demand for credit.

Part 2 - Credit Cycles: Pecuniary externalities

Alex borrows to finance the purchase of a factory:

1. Demand for loans increases interest rates
 - Reflects higher returns to investment in capital.
2. Raises factory prices
 - Relaxes credit constraints
 - Reduces borrowing costs for constrained firms
 - Does not reflect fundamental movements in the supply of savings or the return on investment projects.

The first externality is efficient, the second is inefficient.

Part 2 - Credit Cycles: Reconciliation with Stylised Facts

1. Recessions associated with financial crises are deep and persistent.
 - Credit cycles predict deep recessions, persistence still a challenge for researchers, even with fall in investment.
2. (a) In the wake of a financial crisis, all domestic components of aggregate expenditure fall below trend. (b) Gross fixed capital formation falls sharply.
 - (a) Some debate over the mechanisms but yes; (b) yes.
3. (a) In the wake of a financial crisis, employment, total factor productivity and the capital stock all fall below trend. (b) Employment and total factor productivity fall sharply.
 - Capital stock falls as a result of low investment. Employment and total factor productivity still puzzles to some degree, but lots of progress has been made linking credit cycles to these facts.

Part 2 - Credit Cycles: Reconciliation with Stylised Facts

1. Depressions are typically preceded by large expansions in credit.
 - Consistent with credit cycles.
2. Since the 1960s, credit growth has typically exceeded GDP growth.
 - Still a challenge to identify sustainable from unsustainable credit growth.

Overall

Credit cycles do help us explain some of the key facts of financial instability. But, this is an active area for research. It may well be that other theories, perhaps based on herding or irrationality, are more fundamental to understanding the nature of financial instability.

Part 3 - Policy

Part 3 - Policy: the goal

- Macroprudential policy seeks to internalise a number of externalities including the credit cycle mechanism.
- Rapid credit expansions destabilise economies, and macroprudential policies attempt to limit these unsustainable expansions.

Part 3 - Policy

Axes for policy

- | | | | | |
|----|---------------------|---|----------------|---------------------------|
| 1. | Proactive | - | Reactive | |
| 2. | Activity based | - | Entity based | |
| 3. | Quantity regulation | - | Tax incentives | |
| 4. | State/time varying | - | Static | |
| 5. | Parliament | - | Executive | - Independent institution |
| 6. | | | | Standalone - Central Bank |
| 7. | Households | - | Firms | |

In my view, none of these questions are easy!

Part 3 - Policy: Proactive vs Reactive

In favour of proactive:

- An ounce of prevention...
- Crises are very costly, hard to imagine that the costs of over-regulating are as large as the costs associated with crises.

Against proactive:

- Unknown effectiveness of policies.
- Goodhart: “When a measure becomes a target, it ceases to be a good measure.”
- Irving Fisher’s experience
 - In 1929, he wrote “Stock prices have reached what looks like a permanently high plateau”
 - Later wrote many seminal works increasing our understanding of financial instability.
 - His books focus on stabilisation during a crisis rather than prevention.
- Friedman Schwartz (1963) - Depression aggravated by poor monetary policy.

Part 3 - Policy: Activity or entity based

In favour of entity based regulation:

- We already regulate banks—easy to extend this regulation to incorporate macroprudential aims.
- Individual institutions and networks of institutions are important determinants of financial instability.

Against entity based regulation:

- If credit is the problem, we should target lending across all sectors.
- Individual bank specific restrictions don't map easily into aggregate targets.
- Targeting banks might push financial intermediation into the unregulated, shadow banking sector.
- Entity based regulation may further encourage gaming and regulatory capture.

Part 3 - Policy: Quantity regulation or tax incentives

In favour of tax incentives:

- Currently our tax system favours credit and promotes instability.
- Difficult to determine the optimal quantity.
- Quantity controls can lead to price volatility.

Against tax incentives:

- New taxes must be passed by laws in Parliament, so are less flexible (maybe that's a good thing?)
- Difficult to determine the optimal tax.
- Distributional concerns and the salience of distributional concerns (again maybe a good thing?).

Part 3 - Policy: Time varying or static

In favour of time varying policies:

- More flexible and easier to tailor to circumstances.

Against time varying policies:

- Requires regulators to be very smart! To be able to forecast well and to not be hindered by the executive / parliament.

Part 3 - Policy: Institutions

In favour of parliament:

- Macroprudential policies have distributional consequences. They hurt first home buyers for example. These decisions should be taken by democratically elected representatives of the people.
- Some macroprudential policies have serious legal ramifications.

In favour of independent institutions:

- Less incentive to manipulate macroprudential policies to favour individual political groups.
- Technical ability

Delegation to independent institutions requires legitimacy

- Targets
- Instruments
- Credible, competent and trusted policymakers.

Part 3 - Policy: Institutions

How does monetary policy remain independent?

- UK Monetary policy was controlled by the Chancellor until the late 1990s.
- Chancellors had incentive to lower interest rates before elections.
- Now Operationally Independent and Goal Dependent.
- Operational independence: The Bank of England sets the policy interest rate.
- Goal dependence: Parliament sets the Bank of England an inflation target.

Challenge: Monetary policy has distributional consequences

- High interest rates favour the wealthy.
- Low interest rates favour first home buyers, workers at risk of unemployment.
- Important: The Bank of England cannot systematically favour one group over another without missing their inflation target. This gives them legitimacy.

Even still, BoE independence has recently been called into question by Conservative back benchers and Labour front benchers.

Part 3 - Policy: Who pays, households or firms?

Restrictions on credit growth could target household borrowing, firm borrowing or both.

In favour of household lending restrictions:

- Mortgages an important driver of 2007 financial crisis in the US.
- Firm lending promotes employment and economic growth.

In favour of firm lending restrictions:

- Less distributional consequences.
- Less interference with social policy, home ownership targets.
- Less likely to be a front page story in the Daily Mail.
- Corporate lending has been a driver of past crises (Japan).

Part 3 - Policy: The Counter-Cyclical Buffer

- Restricts bank leverage, over and above restrictions set by microprudential policymakers.
- That is, the CCB restricts leverage further than what would be judged necessary to protect the taxpayer from bailouts.
- Implemented in the UK (current value 0%).

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Part 3 - Policy: Mortgage lending speed limit

Mortgage lending restrictions (time varying)

- These are quantity regulations, limiting the amount of high loan-to-value and high debt-to-income mortgage loans that can be issued by individual banks.
- Implemented in New Zealand. Legislation passed in the UK but no limits have been set to date.
- Can be targeted to specific geographical areas (Auckland, London).

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Part 3 - Policy: Open Bank Resolution

Permits the regulator to control the administration of troubled banks, imposing losses on creditors while still providing core services to depositors and borrowers.

- Implemented in many countries.
- Significant change to legal rights of bondholders.
- Currently cases are under dispute in courts in London, Portugal.

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Part 3 - Policy: Reduce the tax advantage offered to debt

Debt finance enjoys favourable tax treatment over risk sharing equity finance.

- Either tax interest payments or lower corporation tax.
- Mixed experience of countries with more neutral taxation (New Zealand, Ireland).

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Part 3 - Policy: Monetary policy

Monetary policy mandates could be adjusted to encourage higher interest rates during periods of high credit growth—even if this means missing their inflation-employment targets.

- Monetary policy “gets in all the cracks” (Jeremy Stein).
- The costs in terms of inflation and employment are high.
- Increasing the number of policy targets encourages policymaker discretion.

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Part 3 - Policy: Capital Controls

Restrictions on borrowing in international markets or in international currencies.

- Financial crises are particularly costly when debts are denominated in foreign currencies (Ireland, Greece, Argentina).
- Cost: Outside capital can promote investment growth, raising wage income.

1. Proactive - Reactive
2. Activity based - Entity based
3. Quantity regulation - Tax incentives
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Part 3 - Conflicts with politicians in the UK

- Bank Levy: Initially a tax on bank debt finance. After complaints from big banks, turned into a tax on profits, further encouraging leverage.
- National Infrastructure Bank: Proposed by Labour party, subsidises borrowing by firms.
- Help to Buy: Subsidises mortgage borrowing through government guarantees.
- Corporation tax: Financial stability costs of differential treatment of debt and equity hasn't entered political discourse on tax policy.

Each of these policies serves to encourage credit expansion, countering the aims of macroprudential policy.

Part 3 - Policymakers and politicians in conflict in the UK

Cynical view: Politicians like to use debt to fund social policies without raising taxes (Rajan, 2010; Calomiris and Haber, 2014).

If debt is an important tool of social policy, can macroprudential policy ever be effectively delegated to an independent authority?

If macroprudential policy is delegated to monetary authorities, is this likely to reduce the independence of monetary authorities?

Summary

- The costs of financial instability are severe.
- We have some understanding of the underlying causes of financial instability, but our knowledge is incomplete; we are still arguably unable to convincingly detect sustainable from unsustainable credit expansions.
- A number of macroprudential policies have been proposed and some of them have been implemented in the UK.
- Their effectiveness is unproven.
- They have distributional consequences.
- Some policy tools appear to conflict with other aims of social and economic policy.