

Banks Are Not Intermediaries of Loanable Funds - And Why This Matters

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1 Introduction

- Following the GFC, models of banking should play a key role in supporting monetary and macroprudential policy analysis.
- Problem: Recent models use the intermediation of loanable funds theory.
 - This theory misrepresents how credit is created in the real world.
- Solution: Use the financing through money creation theory proposed here.
 - This theory is consistent with the actual credit creation process.
 - Bank of England papers: McLeay, Radia and Thomas (2014a,b).

2 Preview: Endogenous Money in DSGE

- Typical monetary models of the 1980s/1990s:
 1. Representative household.

(with cash-in-advance/money-in-utility/transactions cost technology)
 2. Exogenous government money.
- Our argument: The main shortcoming of these models is 2, not 1.
- Representative HH is in fact crucial for modeling endogenous money.

Single Model Difference: Budget Constraints

- Budget Constraints in ILF Model

- Saver Household:

$$\Delta deposits_t^s = income_t^s - spending_t^s$$

- Borrower Household:

$$\Delta capital_t^b q_t - \Delta loans_t^b = income_t^b - spending_t^b$$

- Budget Constraint in FMC Model

- Representative Household:

$$\Delta capital_t^r q_t + \Delta deposits_t^r - \Delta loans_t^r = income_t^r - spending_t^r$$

Deposits and loans
are predetermined
variables

Deposits and loans are
jump variables

3 Understanding Banks: Key Insights

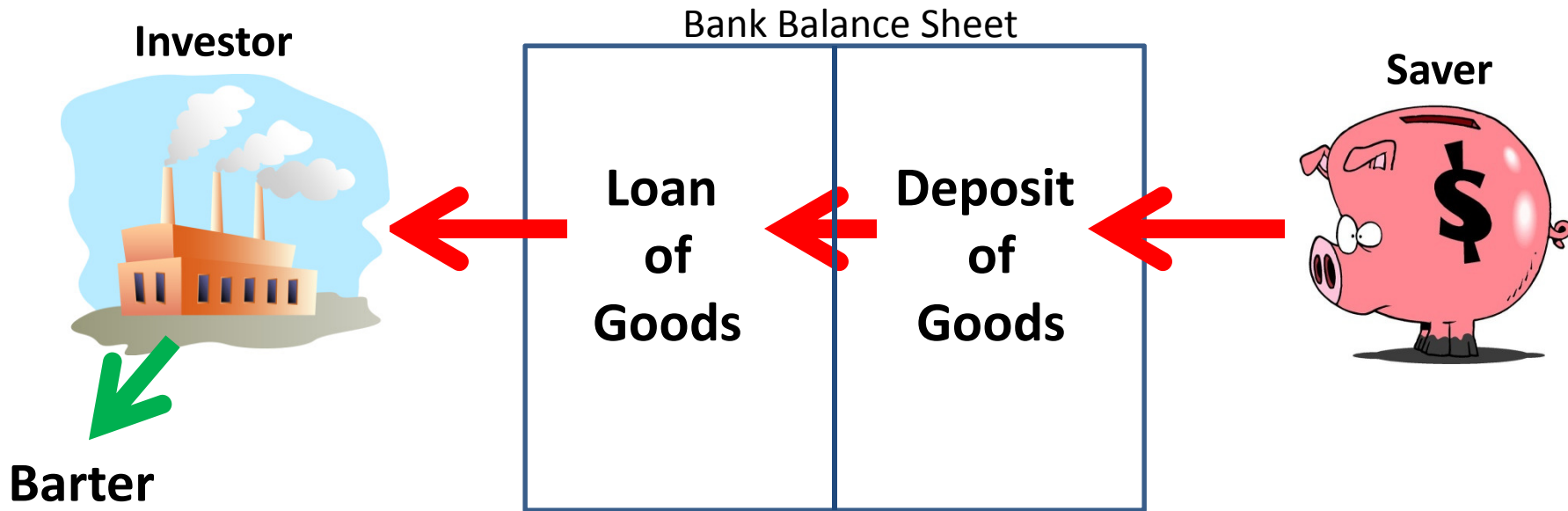
2.1 Banks are not Intermediaries of Loanable Funds

2.2 The “Deposit Multiplier” is a Myth

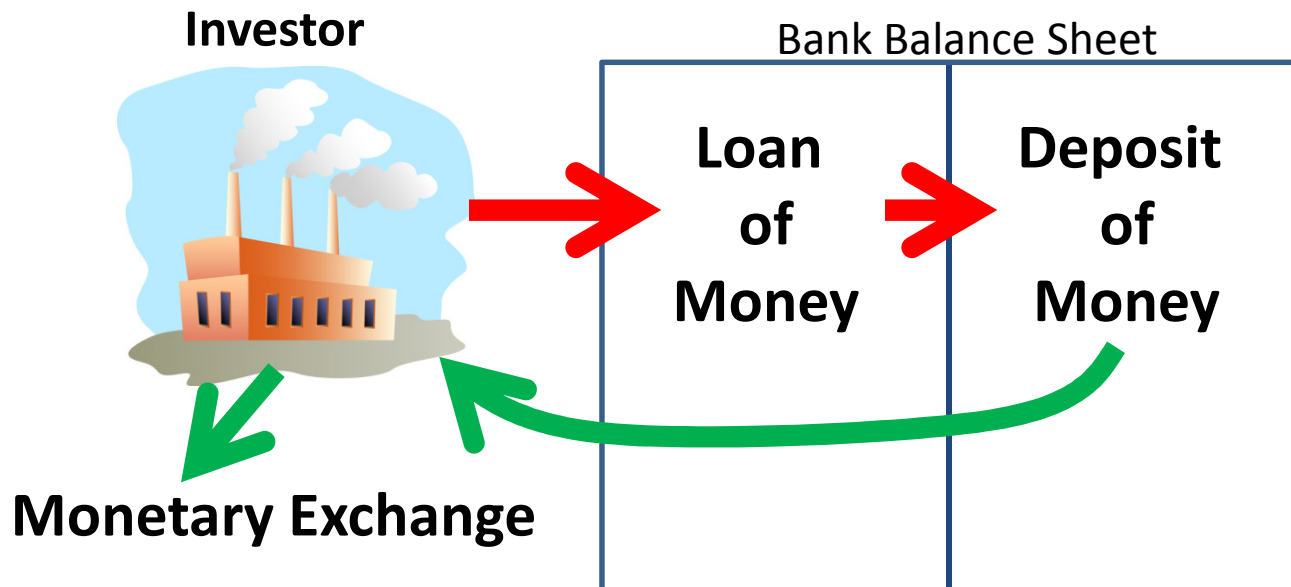
3.1 Banks are not Intermediaries of Loanable Funds

- The Loanable Funds Model – Postulated Credit Process
 - Intermediation** = Physical Trading of Real Resources
 - Banks collect a deposit of real resources (goods or capital) from a saver.
 - Banks lend those existing goods to *another agent*, the borrower.
 - Deposits in this model are an input.
 - Money in this model is held as a store of value.
 - Rapid changes in credit: Switching of “savings”, dis-/re-intermediation.
- The Financing Model – Actual Credit Process
 - Financing** = Digital Creation of Monetary Purchasing Power
 - Banks make a loan of money to agent X.
 - Banks credit new money to the deposit account of *the same agent X*.
 - Deposits in this model are an output.
 - Money in this model is held as a medium of exchange.
 - Rapid changes in credit: Changes in gross balance sheet positions.
- This financing process is a fact, not a theory that needs to be proved.

Intermediation of Loanable Funds Model



Financing Through Money Creation Model



- Fundamental Reason for Different Behavior of Models:
 - Loanable Funds Model:
 - * Deposits come from a physical process of saving resources.
 - * This process is by nature *slow* and *continuous*.
 - Financing Model:
 - * Deposits are created on a computer as book entries.
 - * This process can be *instantaneous* and *discontinuous*.
 - * What constrains it?
 - Not savings, and not reserves.
 - Only bank and borrower optimality.

3.2 The “Deposit Multiplier” is a Myth

- Deposit Multiplier:
 - Central bank fixes narrow money first.
 - Broad money is a function of narrow money.
- Kydland and Prescott (1990) showed that the actual monetary transmission mechanism works in the opposite direction.
 - Broad money leads the cycle.
 - Narrow money (M0) lags the cycle.
- This is obvious under Inflation Targeting:
 - If you control a price (the interest rate), ...
 - then you have to let quantities (reserves) adjust.

3.3 Understanding Banks: Conclusions

- Transmission starts with loan creation = deposit creation, and ends with reserve creation.
- Alan Holmes, Vice President of the New York Federal Reserve, 1969:

In the real world, banks extend credit, creating deposits in the process, and look for the reserves later.

4 Key Features of Our Financing Model

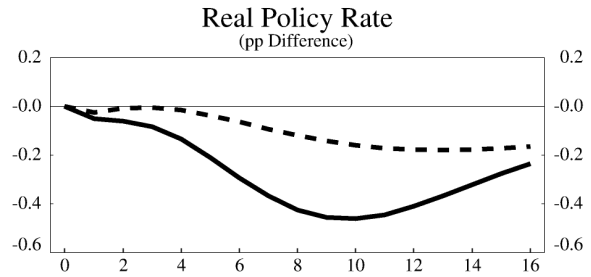
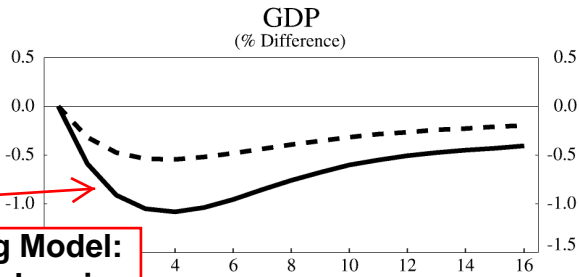
1. Bank Assets: The Provision of Credit.
 - Banks do not lend out pre-existing loanable funds.
 - **There are no loanable funds:**
 - Funds first exist in the mind of the banker.
 - They then materialize (digitally) along with the loan.
2. Bank Liabilities: Households Demand Bank Deposits.
 - Bank deposits are not real savings.
 - **Banks do not collect deposits from non-banks:**
 - They create deposits for non-banks.
3. Bank Equity: Subject to Basel regulation and aggregate risk.
4. Bank Assets: Banks are lenders, not holders of equity.
5. Loan Contract: BGG, but lending rates are non-contingent.

5 The Models

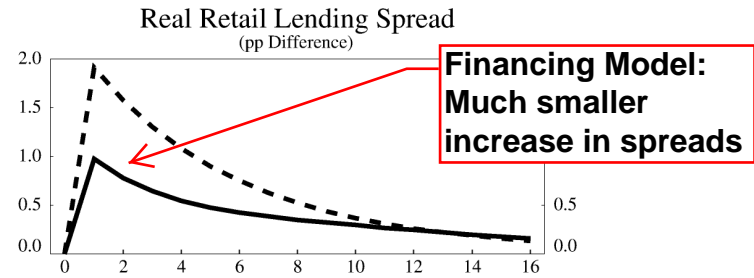
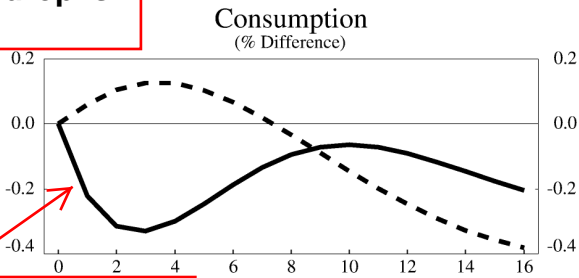
- Two Models: One loanable funds and one financing model.
- Except for the loanable funds - financing difference, models are identical:
 - New Keynesian monetary models.
 - Identical preferences, technologies, endowments.
 - Identical deterministic steady states.
- We are therefore, as much as possible, comparing apples with apples.

6 Model Impulse Responses to Financial Shocks

Credit Crash Due to Higher Borrower Riskiness

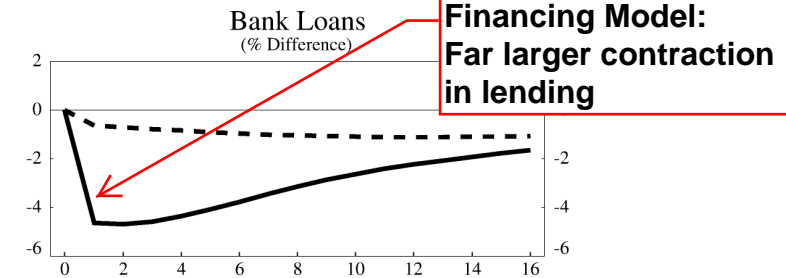
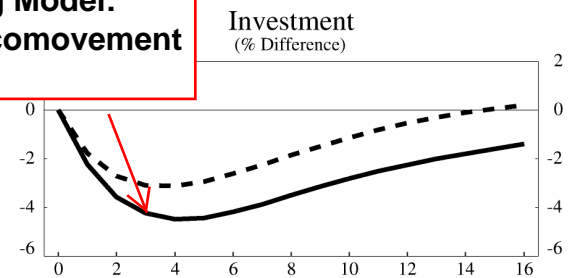


**Financing Model:
The GDP drop is
far larger**

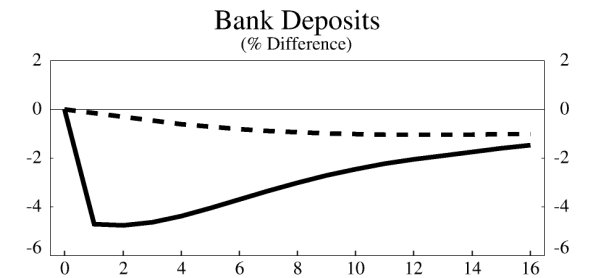
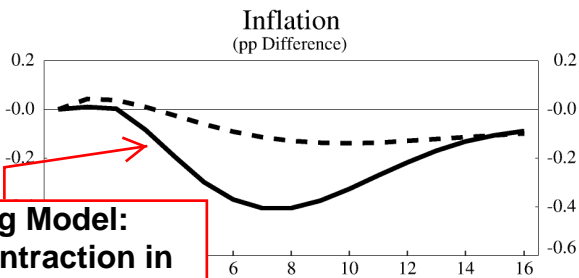


**Financing Model:
Much smaller
increase in spreads**

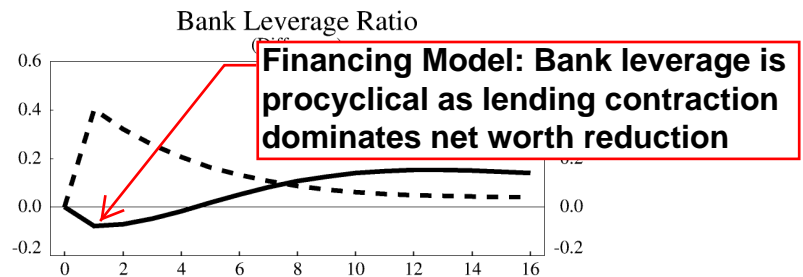
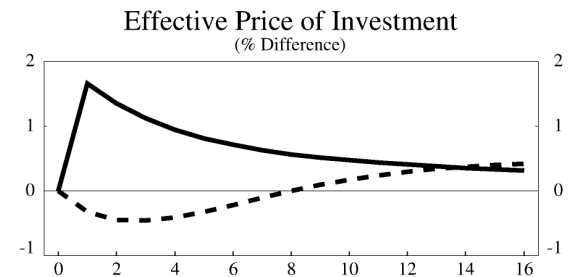
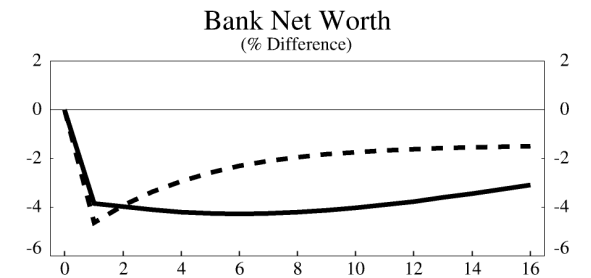
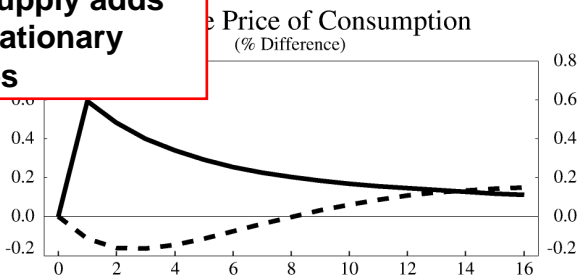
**Financing Model:
Positive comovement
of C and I**



**Financing Model:
Far larger contraction
in lending**



**Financing Model:
Large contraction in
money supply adds
to disinflationary
pressures**



**Financing Model: Bank leverage is
procyclical as lending contraction
dominates net worth reduction**

--- = Loanable Funds Model, — = Financing and Money Creation Model

7 Stylized Facts and Related Empirical Literature

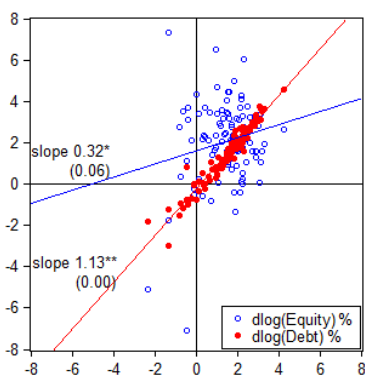
Simulations have generated three interrelated predictions for the financing model versus the loanable funds model:

1. Credit and money exhibit large, discontinuous jumps.
2. Bank leverage is procyclical or acyclical.
3. Credit crashes have a large quantity rationing component.

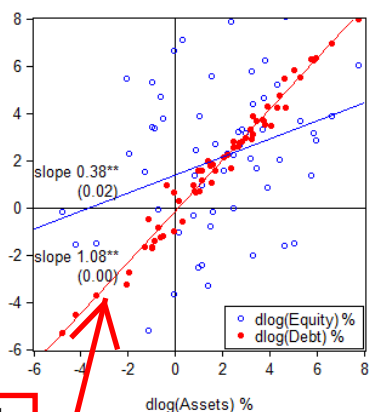
We only have time to look at 1.

Bank Balance Sheets: Time Series Evidence for Six Countries

United States (88Q1-13Q1)

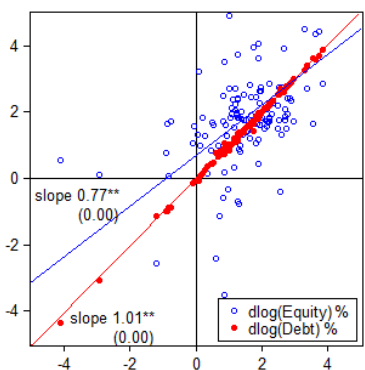


United Kingdom (98Q2-13Q2)

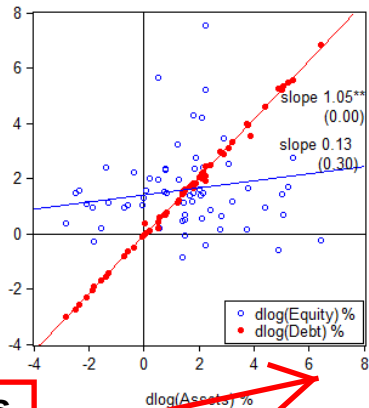


**Bank assets and bank debt
move virtually one-for-one**

Germany (80Q1-10Q3)

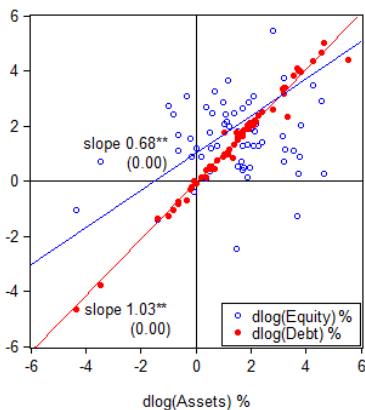


France (80Q1-13Q2)

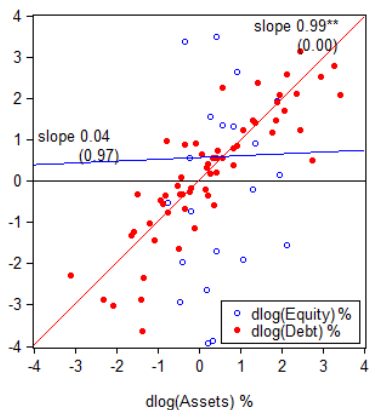


**The balance sheet changes
are often extremely large**

Italy (97Q2-13Q2)

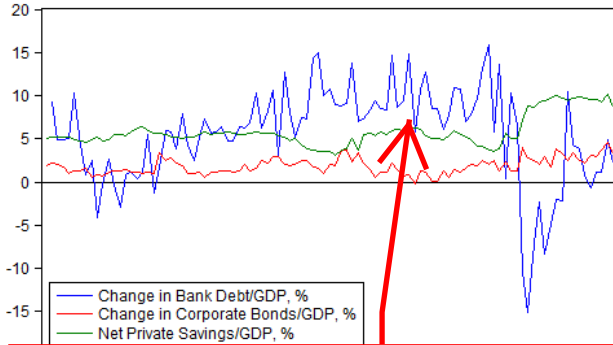


Japan (88Q1-13Q2)

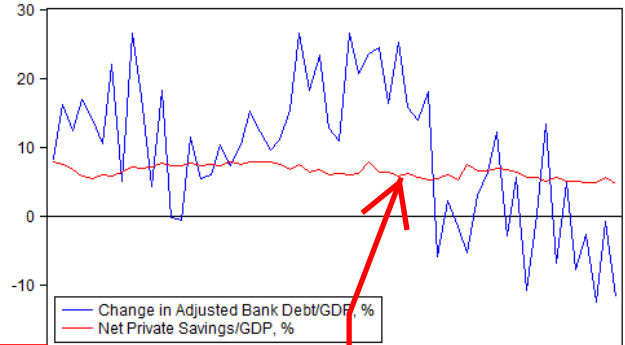


Bank Balance Sheets: Changes in Bank Debt versus Net Private Saving

United States (88Q1-13Q1)

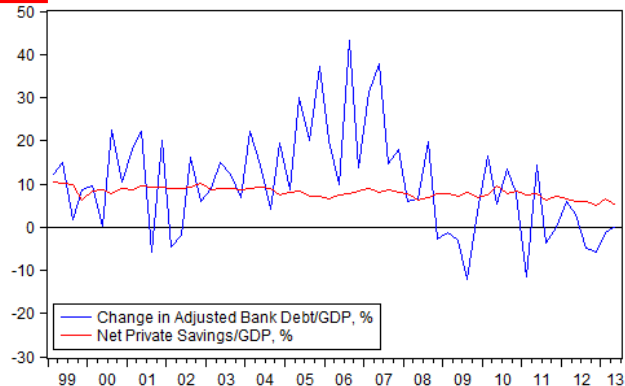
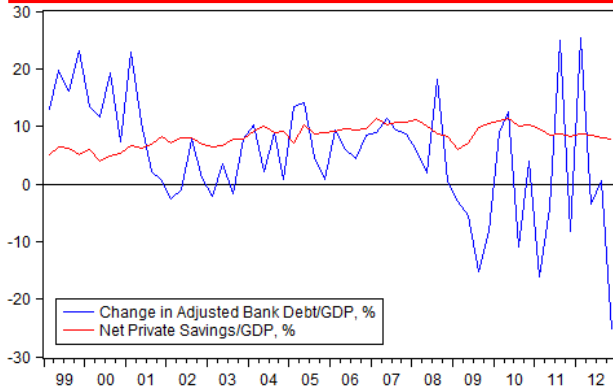


Eurozone (99Q1-13Q2)

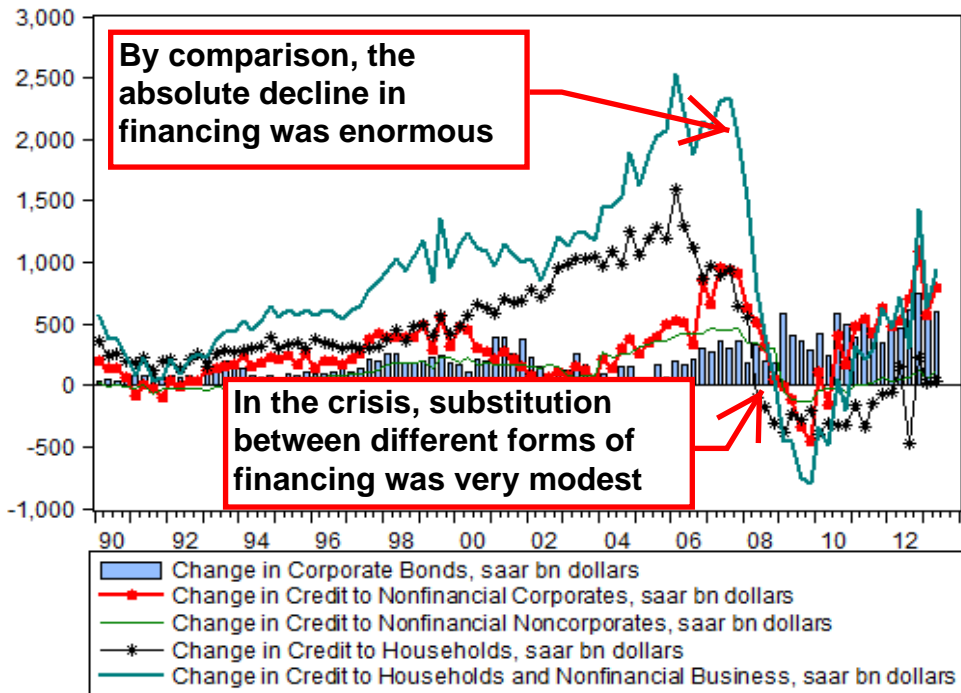


Changes in the size of bank balance sheets are extremely large and extremely volatile

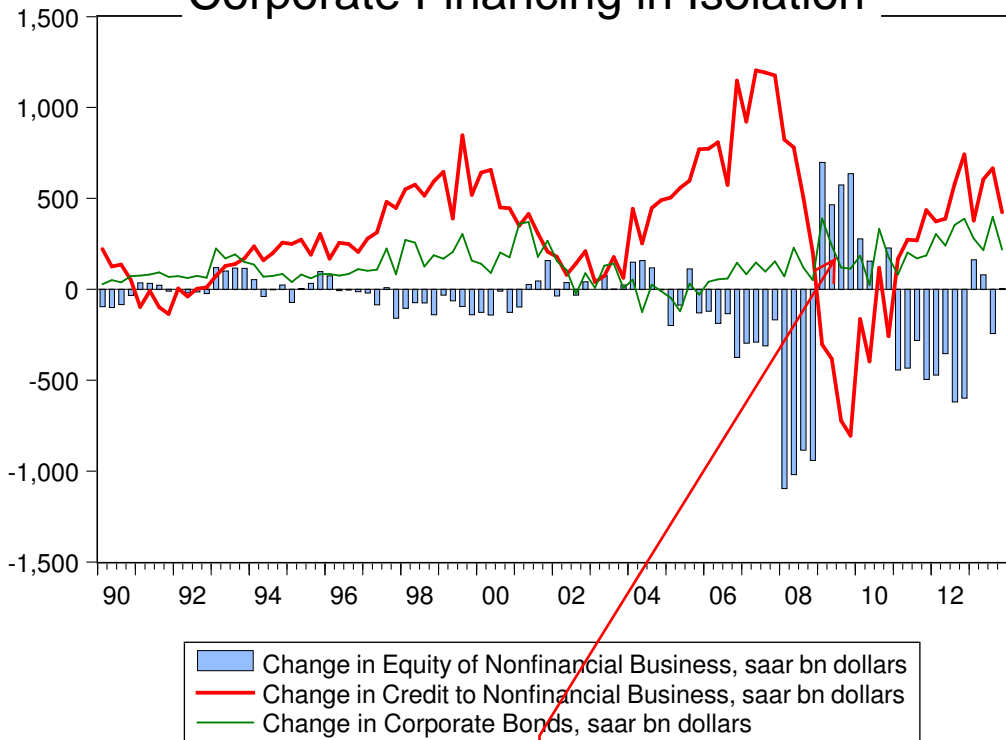
Net private saving is very smooth by comparison



Bank Financing and Bond Financing in the United States

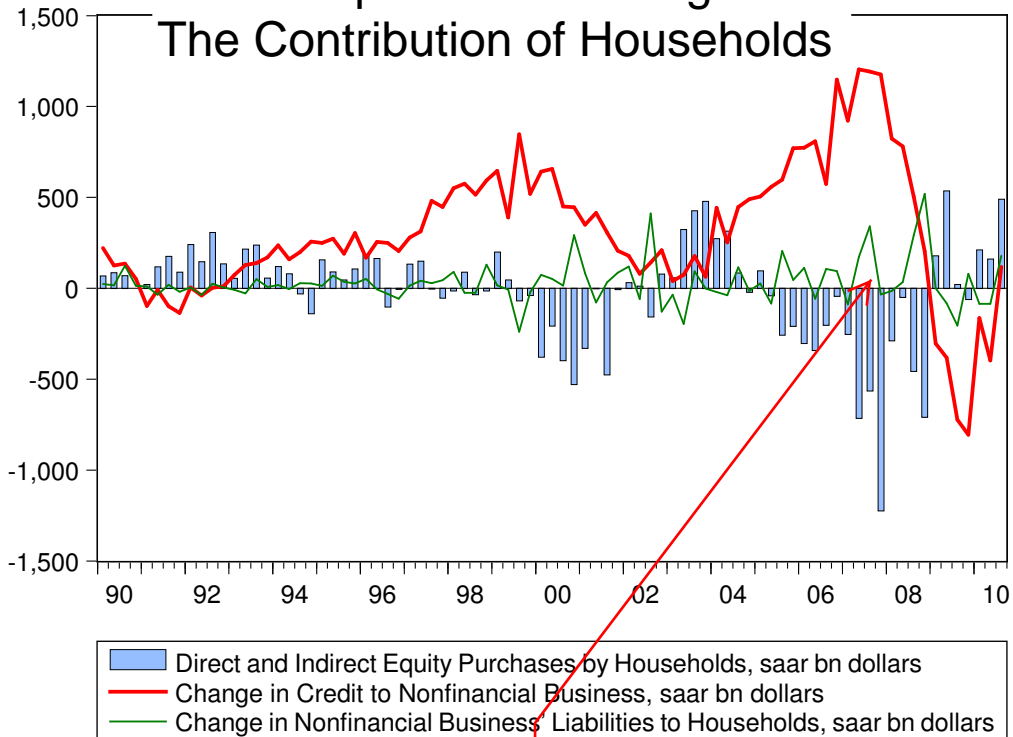


Corporate Financing in Isolation



- There was a very partial offset though higher equity/bond issuance.
- Is this evidence of a household reallocation of savings?
- Next page: No, not at all.

Corporate Financing: The Contribution of Households



- **The net position of HHS vis-a-vis corporates hardly changed.**
- **HH position includes hedge funds and indirect holdings via pension funds, insurance companies etc.**

- More importantly: Credit to HH themselves collapsed even more.
- HH cannot switch to bond or equity financing.
- Reallocation of HH loanable funds from banks to markets is therefore almost completely irrelevant in practice.
- What matters is changes in bank gross positions.

8 Conclusions

- Key Contributions of This Paper:
 1. **Theory:** Loanable funds models of banking are not a correct representation of the real-world credit/money creation process. The objective of financing models is to fix that.
 2. **DSGE Model Comparison:** Financing models have very different simulation properties.
 - Far larger and far faster changes in bank lending.
 - Much smaller changes in spreads.
 - Much larger effects on the real economy.
 3. **Stylized Facts:** Financing models are consistent with key stylized facts.
 - Large discontinuous jumps in credit and money.
 - Procyclical bank leverage.
 - Credit rationing during downturns.

9 Looking Ahead

- Large literature studies quantitative effects of macroprudential policies.
- This entire literature uses the loanable funds model of banking.
- Conclusion of this paper: Macroprudential (and monetary) policy frameworks should be reevaluated using financing models of banking.
- At the Bank of England we have started doing that.