

A Macroeconomic Model with Financially Constrained Producers and Intermediaries

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ECB Research Workshop 2018

- Main goal
 - Quantify the level of optimal capital requirements
- Methodology
 - Dynamic Stochastic General Equilibrium model
 - Builds on (some) financial frictions
 - Very thorough calibration (unfair to the paper)
- Results
 - Able to replicate some salient features observed in crisis
 - Persistency of slowdown (specially when productive + financial crisis)
 - Slow recovery in many aggregate variables: GDP, consumption ..
 - Current capital requirements (Basel II) are near optimal
 - Countercyclical capital buffers obtain much more that changes in level

- Interesting and needed paper with a nice "macro - micro" approach
 - Talk about "macro - micro" approach next
 - Analysis of a set of financial frictions
 - Demand of safe assets
 - Government guarantees
 - Bankruptcy costs
 - Costly issuance of equity for banks
- Relevant piece of work on an interesting avenue of research
 - Other policies (for this paper):
 - Government spending? bailout for equity? only partial deposit insurance?
 - Other frictions (future research):
 - Risk taking and correlation on the asset side, runs (instead of safe asset?) ...
 - Some quibbles: Basel II regulation?

- Modigliani and Miller (1958) - Irrelevance Proposition
 - In a **frictionless** financial **financing decisions irrelevant**
 - Theoretical model already with deviations (Taxes)
- Economic fluctuations are not caused by financial issues
 - Analyzing finance is at best second order
 - At most could be auxiliary to other frictions
- 1958 onwards
 - Theoretical and Empirical literature on **financial frictions**
 - Compelling arguments that financial markets have frictions
 - Informational frictions, Adverse selection, moral hazard, coordination failures, risk taking incentives, etc

- Finance decisions can be relevant for economic outputs
- Two different approaches
 - With different objectives
- Microeconomic approach (Ant)
 - Understand different mechanisms (frictions)
 - Little focus on aggregate implications
 - Partial equilibrium models (and local identification in empirical work)
- Macroeconomic approach (Bird)
 - Focus on aggregate implications
 - Little focus on different frictions
 - General equilibrium models

Micro Financial frictions (Ant) - lessons

- Various frictions shape financial landscape
 - Moral hazard problems (Holmstrom and Tirole, 1997)
 - From borrowers & from lenders
 - Runs in demandable debt (credit lines) (Diamond and Dybvig, 1983)
 - Many others
- Not all financial frictions have the same implications
 - Neither the same solutions - hint to policies
- Financial Intermediaries are a **KEY** player
 - Solve and **generate** economic problems
 - React to different economic conditions
 - Risk is a fundamental element of the analysis
 - Exposure (creation) of risk by Financial Intermediaries

- Main question is the Financial Sector
 - Not much analysis of spillovers to other sectors
 - Not much analysis of overall economic impact
- Effort to clarify the mechanism at play
 - Mickey Mouse models
 - Cost of not exploring all the ramifications

Macro Financial frictions (Bird)- lessons

- Focus on aggregate outcomes
 - DSGE Models as a benchmark (RBC)
- Financial frictions have aggregate effects
 - Important role in amplifying shocks
- Focus on borrower driven issues (subset of frictions)
 - Borrower moral hazard
 - Pledgeability Constraint (Kiyotaki and Moore (1997))

Macro Financial frictions (Bird) - caveats

- Low detail of the financial sector
 - Small possibility of risk origination in Financial Sector
 - Main role is to amplify crisis not to create them
 - Financial Industry = Parameter (in some cases)
- Disregard Financial Industry issues
 - Ad-hoc constraints
 - Frictionless financial markets
 - No (correlated) bank failures

The Bird (Macro) and the Ant (Micro) should talk

- The Ant (Micro) can be shortsighted
 - Not all frictions have implications for overall output
 - Some "nice" frictions could have little impact
 - Some of them could have important spillovers not analyzed
- The Bird (Macro) can miss relevant details
 - There can be other relevant frictions at play (not only one)
 - It can be really difficult to analyze them together
 - Different frictions mean different problems and solutions

A Micro-Macro Finance Approach

- After 2007-2009 in need a body of new research
- **Financial Intermediaries** should have a **prevalent role**
 - Different underlying issues
 - Maturity Mismatch, Moral Hazard, Safety Asset, Risk-taking
 - *Source* of economically significant issues
- **Aggregate implications should be important**
 - General equilibrium and multiple markets
- **This paper** is part of this new body of research
 - Building on the macro (Bird) approach
 - With a clear description and analysis of (some) financial frictions

- Brief recap of the model - friction
- Comments

Ingredients of the model (frictions)

- 2 types of infinitely lived Households (patient and impatient)
 - Consumption, labour and savings decisions
 - Only impatient HH can fund firms and banks - friction
 - Patient HH have to invest in safe assets - friction
- Government: issues safe gov bonds (exogenously)
 - Collects taxes from firms and banks - friction
 - Guarantees debt of banks - friction
- Firms use factors of productions
 - Funded by HH equity and long term bank debt
 - In case of default bankruptcy costs - friction
 - 2 shocks: TFP (AR(1)) + Idiosyncratic (high and low variance regimes)
- Banks issue loans to firms and receive id. shocks
 - They have adjustment cost in their equity - friction
 - Subject to capital requirements - friction/policy
 - They issue safe deposits because of gov. guarantee

- Why do Banks exist?
 - To exploit government guarantees on bank debt
 - Without them only firms would exist
 - No direct productive role
 - e.g. monitoring - Holmstrom and Tirole (1997)
 - No risk-sharing role
 - e.g. run based - Diamond and Dybvig (2083)
- What do they add to economy? Their role
 - Provide a safe asset
 - Crucial for patient HH problem
 - Deepen the safe market

What happens in a (negative) shock (nutshell)

- Firms default rate goes up
 - Banks default more and their equity goes down
 - There is a lower supply of the safe asset - tension
 - There is lower investment in loans
- Bank equity is costly to raise (persistent)
 - Takes time to generate enough equity
 - Persistency on variables that depend on bank equity (state variable)
 - Amplification and persistency
- By raising required equity
 - You reduce the investment done by banks (and safe assets)
 - But banks are more resilient to bad shocks as they have more buffers (less amplification effects)
- Trade-off: Less production vs more stability
 - No overinvestment problem (no need to control size)

Comment 1: Equity adjustment cost in banks

- The paper assumes an exogenous cost of bank recapitalization
 - When there is a negative shock banks do not raise enough equity
 - Less production than "optimal" (given the capital regulation)
 - Less safe assets than "optimal"
- The model analyzes a setup with no equity issuance friction
 - Similar to Brunnermeier and Sannikov (2014)
 - Relevance of decoupling banks from firms
- Equity adjustment costs are a relevant friction in this model

Comment 1: Equity adjustment cost in banks

- What if firms also have an equity issuance friction?
 - This could change HH trade-off of funding firms or banks
 - Firms can not absorb changes in equity so "cheap" - affect state variable of the economy
 - Should not be too difficult to introduce (in similar fashion as banks)
- Are this costs of recapitalization state independent?
 - Normally the microfundation of this cost (in banking) relates to informational asymmetries
 - I am not sure that such informational asymmetries are state independent
 - Can you calibrate them?

Comment 2: Safe asset and government guarantees

- Safe HH can only save through the safe asset - friction
- The paper assumes that all bank debt is insured by the government
- There is a role for bank debt to be insured by the government
 - Is there a role for government insurance of firm debt?
 - Banks exist to exploit the gov guarantee (equity issuance frictions)
 - Maybe a theoretical game but maybe not (General Motors?)
 - Is there a role for government bailout of bank equity?
 - Maybe a theoretical and empirically relevant question (more on this later)
- Does it make sense to analyze these two issues?

Comment 2: Safe asset and government guarantees

- Quibble...
- Safe HH can only save through the safe asset
- The paper assumes that all bank debt is insured by the government
 - However this is not the case in banks (or in insurance companies etc)
 - Paper: general bailouts (but CDS on bank debt is not equal to risk free rate)
 - Some type of deposits in the utility function approach (Begenau and Landvoigt 2018)
 - Any role for Shadow banks? (Plantain 2014)
 - Calibration to secured vs unsecured debt? (No bailout regime)
 - Change the role of bank capital?

C3: Countercyclical Capital requirements and Gov Bonds

- CC requirements obtain much higher welfare gains than flat (Pareto)
- It looks like the constraints in bad times are much tighter
 - Bank equity is low (and banks have adjustment costs)
 - Low supply of safe asset (partially offset by government bonds)
 - Low investment from firms (as there is low bank debt)
- Can the government do something more/better?
 - Can the government be more countercyclical (issue more bonds in crisis)
 - Relaxes the tension on safe assets
 - Reduces the equilibrium risk free rates - higher bank profits
 - Rapid accumulation of bankers wealth
 - Relation to other strands of literature (government debt)

C3: Countercyclical Capital requirements and Gov Bonds

- Quibble...
- Does the transversality condition guarantee that government bonds always safe? (no clue)
- If not could we have a problem of too big to safe? very important given assumption of HH only buying safe assets
- This could be more of a theoretical quibble than of economic relevance (sorry for being an ant :()

Comment 4: Capital Regulation calibration

- How to calibrate?
 - Base yourself in Basel II but
 - Banks do not hold all the corporate bonds in the economy
 - There are IRB vs Standardized
 - Market prices.
- Replicate the observed leverage of the whole financial sector?
 - It might be too heterogeneous...(but is it then market imposed)
 - Why not focus on the leverage of banks (commercial)

- Why do firms default without selling their assets?
 - Might be against the creditors not worse off...
- Bank specific dividend/profit shock?
 - What is it?
 - Banks have incentives to diversify no? (Equity adjustment cost)
 - They are owned by the HH so why create non diversified banks?
 - Recall that they exploit Gov Guarantees by being correlated
- Deposit insurance charge
 - Very interesting results
 - Is the deposit insurance "fund" self sustainable in your economy?

Comment 5: Role of bank capital requirements

- Model with various frictions
 - Banks exist because of government guarantees
 - Bank (or firms) have no asset side risk - no change in the productive technologies
 - Bank equity as a way to absorb losses
- What is the (real) role of bank capital regulation?
 - For sure to absorb losses: See Basel Approach (LGD approach)
 - What about skin in the game incentives?
 - Equity bailouts are very bad
 - Surely not for this paper - we need more good papers like this one!

- Nice and carefully crafted paper
 - Paper is able to match persistency after financial crisis
 - Through (a couple) of financial frictions
 - Carefully calibrated
- I would recommend it for the (hopefully) new strand of micro-macro papers
 - There are more frictions to analyze and understand