

MaRs Network

Session on Macro-Prudential Policy

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Outline of My Talk

1. Overview of the Papers.
2. Strengths of the Papers.
3. Critiques of the Papers.
4. Modeling Today's Banking System at the IMF.
5. Modeling a Much More Crisis-Proof System - "The Chicago Plan Revisited".

1 Overview of the Papers

They ...

- introduce a financial sector into a macro model.
- incorporate financial sector shocks.
- study rationales for a full menu of macro-prudential policies (in one paper only capital adequacy regulations) and their interactions.
- derive policy implications.

2 Strengths of the Papers

2.1 Strengths of All Three Papers

- **Banks have a central macroeconomic role in the models:** Along with Irving Fisher and many other great economists of the 1930s, I am convinced that banks' fast-changing attitude towards lending and thus money creation is the most important source of business cycle volatility.
- **Banks themselves are risky entities,** not just their customers: Most importantly, they can make losses, so that their balance sheets matter, as they do in the real world.

2.2 Strengths of Clerc et al.

- **DSGE Model:** Extremely useful for quantitative realism, and to study interactions with conventional monetary policy.
- **Lending to households,** not only to firms: Indispensable for quantitative realism.

2.3 Strengths of Martinez-Miera and Suarez

- Quantification of **optimal level of capital adequacy requirements** is very important for policy.
- Important idea: **GDP is an unrealistic indicator of welfare**, because during rare crises there will be a huge additional depreciation of capital that does not show up in (pre-depreciation) GDP.

2.4 Strengths of Goodhart et al.

- The sheer **complexity** of the model (but not the exposition of that complexity) is potentially very valuable: Academic insistence on extreme simplicity, e.g. on analyzing one policy instrument per paper, would be completely misplaced here if we want to get policy relevant insights.
- Clever modeling of **bank liquidity problems** due to timing mismatches.
- **Cash-in-market pricing** for key financial assets to explain asset price booms and busts: This may have a potentially wide applicability.

3 Critiques of the Papers

3.1 Critiques of All Three Papers

1. Incorrect understanding of the nature of banks:

- Deposits are discussed as savings, and banks are modeled as intermediaries.
- In reality, deposits are debt-based money that has no necessary relation to savings.
- In reality, banks are creators and destroyers of money, and intermediation is secondary and coincidental.
- In reality, to the extent that deposits are savings, savings do not cause investment through intermediation, but rather investment causes savings through money creation.

2. Modeling the origins of financial crises as shocks:

- The crisis is always due to some oh-so-surprising “shock”, not due to bad fundamentals that only required another straw to break the camel’s back.
- This probably reflects the popular but in my view completely incorrect view that one could not have seen the 2008 crisis coming.
- It may reflect a lack of awareness that high private debt levels are a very strong empirical crisis predictor (Irving Fisher, Schularick and Taylor).
- Different theories exist whereby the crisis had become much more likely due to higher income inequality (Kumhof and Ranciere) and/or high private debt levels (Steve Keen), all of which is facilitated by banks’ unrestrained power to create money as debt.

3. Partial equilibrium:

- All papers claim to be general equilibrium, but only Clerc et al. truly is.
- In the other papers there is an infinitely elastic supplier of funds that is not otherwise modeled.
- E.g. in the Goodhart paper at some point literally everyone could be borrowing, yet the policy analysis pays no attention at all to the guy who is lending, e.g. the modeling of his demand for debt-based bank money.
- This makes the policy prescriptions potentially very incomplete.
- General equilibrium can be done, especially in a DSGE model.

4. Model presentation is hard to follow:

- I think all of these papers should be made “public goods”, given the urgency of the topic.
- In that case, provision of a complete technical appendix with all derivations would be really helpful.
- Examples from Clerc et al.:
 - Do banks finance investment or capital? Not clear.
 - Why are firm dividends expressed as before payments to labor?
- Example from Martinez-Miera and Suarez:
 - Please provide all market clearing conditions. Otherwise I find the welfare derivations impossible to follow.

5. Separate, concave objective function of banks:

- What I like: Give banks a separate objective function that is independent of that of its owners. This is realistic.
- What I do not think is necessary: Nonlinearities in the objective function to avoid corner solutions with multi-asset portfolios.
 - I am always a bit suspicious of attempts to give banks ad-hoc nonlinear technologies to make them behave more like firms (or households). Linear objective functions are typically much clearer.
 - We have found that, with BGG-related lending technologies that feature different parameterization for different loan classes, there is an interior optimum for each loan class.

3.2 Critiques of Martinez-Miera and Suarez

1. Who are the “systemic borrowers” that are at the core of this paper?
 - I am a former banker, and I kept asking myself, when I was lending, did I know which of my borrowers was “systemic”? Answer: No.
 - For me, the key question is debt levels:
 - High-debt borrowers are systemic, low-debt borrowers are not. When aggregate private debt is high, everyone is systemic.
 - But whether borrowers are high-debt is of course endogenous to my lending decision, rather than an inherent characteristic of the borrower.
 - Preventing banker fraud seems like a much more convincing rationale for capital adequacy regulation than risk-shifting.
 - Do banks really take into account their high post-crisis equity value in case they survive, which is critical for the results? Seems implausible.

2. Model is not really embedded in a full business cycle model:

- If the objective is to compute a convincing value for the best capital adequacy ratio, then the model needs to be quantitatively convincing. But this one, unlike a New Keynesian model, is highly stylized.
- Example 1: Linear preferences.
- Example 2: No interactions with conventional interest rate policy.
- Example 3: Capital can be instantaneously transformed into output. This means that changes to bank equity can lead to an immediate large loan adjustment. This is not possible in the real world.
- Example 4: Banks only lend to firms. In reality there is more lending to households, and even more to the FIRE sector. This is critical if you want to do capital adequacy regulation right.
- Example 5: Some aspects of the calibration are extreme.

3. Obvious “public option” alternatives are ignored:

- If you need to go from 7% to 14% capital adequacy but fast transitions are costly, why not have the government take a large equity stake, financed by lump-sum taxation, and keep it?
- 100% reserve banking would solve a lot of the problems we are trying to solve. See below.

4. Systemic lenders cannot be identified (over a period of decades) by regulators because of opaque compensation: Strong assumption.

5. Capital adequacy regulation is imposed as an equality constraint: This is not realistic, Basel III calls for a 2.5% capital buffer over the minimum value. See Benes and Kumhof (2011) on how to model this.

6. Do I really need banks that default in equilibrium?

- Highly convex costs of low equity can deliver comparable outcomes.
- But those outcomes are continuous rather than discrete.
- This has big advantages when working with DSGE models.

7. The section on cyclically adjusted capital requirements is problematic:

- Policy should not respond to equity - what does it mean to have equity requirements respond to equity?
- If policy responds to loans instead, countercyclicality makes a lot of sense in our own work.

3.3 Critiques of Goodhart et al.

1. Two-periods setting is restrictive. Unclear how this affects results.
2. The money endowments:
 - This is treating money as a good that can be used to buy other goods.
 - In reality, all money (except treasury coins) is someone else's debt.
 - For a general equilibrium analysis, you need to also model the debtor.
 - And you need to model the transactions demand for money.
3. The other endowments:
 - Lots of free parameters where there is very little guidance from the data, but potentially large sensitivity of the results.
 - In the Chicago Plan DSGE model we were able to calibrate very large numbers of parameters by reference to data for spreads, leverage, etc., because the model is far less abstract and more structural.

4 Modeling Today's Banking System at the IMF

4.1 The Basic Framework: Benes and Kumhof (2011)

- DSGE model.
- Conventional monetary (and if desired fiscal) policies.
- Households with infinite horizons and risk aversion.
- Empirically realistic adjustment costs.
- BGG lending technologies, except that banks can make losses due to structure of loan contract.
- Basel capital adequacy rules modeled as pecuniary penalties that make banks choose to have a capital buffer.
- Other rules will be studied in the future.

4.2 Applications of the Basic Framework

1. Insertion of banks into GIMF (Global Integrated Monetary and Fiscal Model) large-scale DSGE model: Ongoing.
2. Estimated small open economy models with the same basic features as above. Jaromir Benes is working with several central banks.
3. Larger closed economy model of comprehensive monetary reform (rather than tinkering with the existing system): The Chicago Plan Revisited.

5 Modeling a Much More Crisis-Proof System

- The Great Depression led to profound debates about monetary reform.
- A large number of leading U.S. macroeconomists (Fisher, Simons, later Friedman) supported the Chicago Plan:
 - Separates the monetary and credit functions of banking.
 - Deposits/Money: 100% backing by public money becomes mandatory.
 - Credit: Cannot be financed by creation, ex nihilo, of bank deposits.
- The intellectual depth of the 1930s debate was far greater than anything seen today.

The Six Advantages of the Chicago Plan

The Four Advantages Identified by Fisher (1936)

1. Much better control of bank-lending-driven business cycles.
2. Complete elimination of bank runs.
3. Dramatic reduction of the (net) public debt.
4. Dramatic reduction of private debts.

The Two Additional Advantages Identified in This Paper

5. Large output gains approaching 10%.
6. No liquidity trap problems, zero long-run inflation attainable.

Chicago Plan - Changes in Bank Balance Sheet in Transition Period

Prior to Chicago Plan

20	Gov. Bonds		
100	Short-Term and Mortgage Loans	184	Deposits
80	Investment Loans		
		16	Equity

Chicago Plan 1

20	Gov. Bonds		
100	Short-Term and Mortgage Loans	184	Deposits
80	Investment Loans		
		16	Equity
184	Reserves	184	Treasury Credit

Chicago Plan 2

184	Reserves	184	Deposits
80	Investment Loans	71	Treasury Credit
		9	Equity

Chicago Plan and the MaRs Agenda

- Dramatically lower debt levels would mean dramatically lower crisis probability.
- Liquidity regulation would become redundant for bank deposits, because bank runs would become impossible.
- Capital adequacy regulation would have much more bite because endogenous equity creation, through credit, would become impossible.
- The shadow banking system with its complexities would become redundant.
- Maturity mismatches would become unnecessary because short-maturity money is no longer tied to longer-maturity credit.
- Industrial credit, which unlike all other types of credit generates its own sources of repayment, would become the dominant form of credit.