Research Challenges Faced by Regulators?
Or Is It: Policy Challenges Faced by Researchers?

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The Role of the IMF

- Surveillance (not regulation)
  - Bilateral Surveillance: every member country receives an Article IV Consultation every year—a review of their economic and financial situation and *policy advice*.
  - Multilateral Surveillance: examination of global and regional developments with *(general) policy advice directed at main players*
    - Flagship publications: World Economic Outlook, Global Financial Stability Report; Fiscal Monitor
    - Spillover Report, [Early Warning Exercise, Vulnerability Exercises]
    - Membership in the Basel Committee, Financial Stability Board, etc…

What kinds of basic questions arise?

- ❑ How do we determine whether an economy is vulnerable of some set of risks/shocks?

- ❑ Can we discover 'why' it is vulnerable?

- ❑ Which policy tools will work to mitigate the risks that are detected?

- ❑ How do we judge the effectiveness of the tools?

Types of macro-fin models

- Macroeconomic models (DSGE) with "add-ons" of financial "frictions"
  - First generation: with agents that have equity/collateral causing "accelerator" behavior
  - Second generation: with bona fide "intermediaries" that create credit and hold capital
- Asset pricing models with links to the real economy
  - Consumption and investment main variables
- Microstructure models with types of agents
  - Informed/uninformed traders, speculators, noise traders

Types of macro-fin models

- Empirical models that link (aggregated) financial and real variables
  - Structural VARs
  - Bayesian VARs; Bayesian SVARs
  - Regime-shift models/volatility models
  - Panel data regressions
- Raw (big) data/information the tools to discern relationships or behaviors
  - Factor analysis/cluster analysis
  - Network analysis
  - Agent-Based Modeling

Given many macro-financial linkages, *unified* framework to remain elusive

Financial exposures (stocks and flows) between sectors
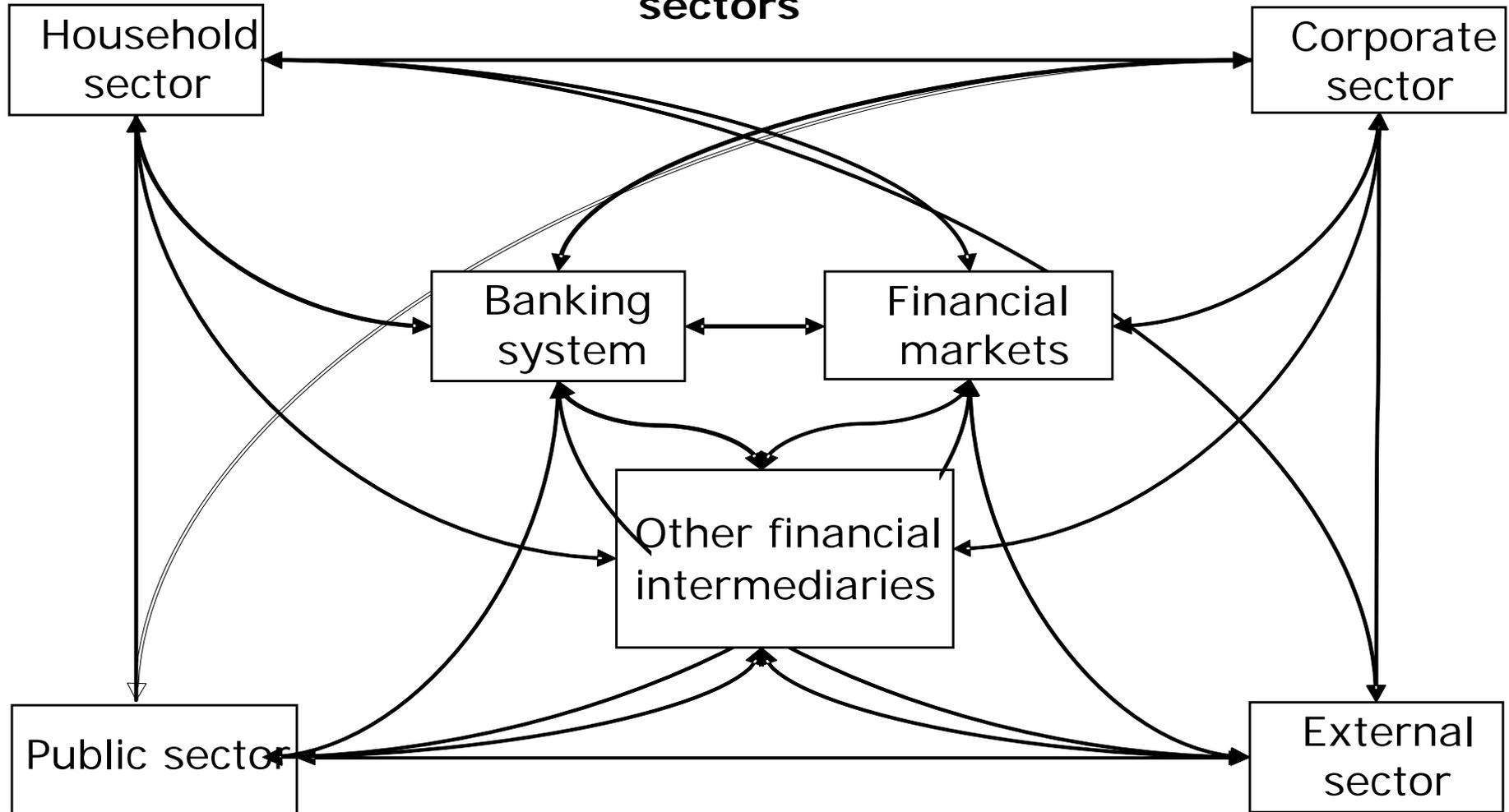
Challenge: match model to policy question

- How likely is China to end up in a "doom loop" between fiscal and financial risks like the euro area?
    - The correct model to use is … ?
- Are low (or negative) interest rates likely to be effective in spurring demand?
    - The correct model to use is … ?
- Is the low-for-long interest rate environment building into the financial system "excessive" risk-taking?
    - The correct model to use is … ?

Challenge: match model to policy question

- Which countries have housing "bubbles" at the moment? Is there a threshold overvaluation that requires action?
  - The correct model to use is …?
- Which macroprudential tools (loan-to-value restrictions; debt to income restrictions; real estate transaction taxes, other) will work best to lower housing risks?
  - The correct model to use is … ?

Some (personal) guidelines

- Think hard about endogeneity
  - What is it that you want to explain or understand or determine?
  - What can reasonably be assumed to be outside the "system"? What is a "shock"?
- Think hard about the robustness of the model
  - Along what dimensions does it matter that it is robust?
  - Can it be used across countries? Across markets? Across sectors? Across institutions?
  - How much do you trust your model? Does it pass the "smell test."

Some more (personal) guidelines

- Can you link the model to a policy?
  - Can a new measure of (systemic) risk help to design a "charge" or "tax" to mitigate the risk?
  - Can you build a DSGE model in which you can examine the effect of, say, capital charges, liquidity charges, lump-sum taxes.
  - Can network or big-data relationships shed light on whether certain entities are helpful or harmful to the system? If harmful should they be "removed" or cut off from the system?
- If no direct link to policy, what next steps are needed? Is there a policy implication? What did we learn?

A digression on IMF data

- Macro data (quarterly/annual)
- Direction of Trade Statistics (DOTS)
- Coordinated Portfolio Investment Survey (CPIS)
- Coordinated Direct Investment Survey
- Balance of Payment Statistics (BOPS)
- Joint External Data Hub (e.g., with BIS)
- Public Debt Statistics
- Financial Soundness Indicators (FSIs)
- Housing price data
- Global Macroprudential Policy Instruments (GMPI) (new)
- Global Flow of Funds (coming…)

Constrained optimization (for policymakers)

- ❑ Policymakers need to make decisions:
  - ◼ In real time
  - ◼ Without the correct or complete data
  - ◼ With "time-varying parameters" (some of which can change based on which policies are utilized)
  - ◼ In conjunction with other economic policies
  - ◼ Within a political environment with (less than perfectly "rational") agents.
- ❑ Can we embed some of these elements into the models themselves?

How macro has changed ... to accommodate finance

- Macroeconomics is becoming more "risk" focused
  - Predictions are less about the "means" and more about the variance, skewness, tail-fatness (kurtosis)
- Macroeconomics is becoming more "linkage" focused
  - Examining how agents and/or sectors are linked? How their behaviors interact?
  - More conscious of non-linearities? How and under what conditions?

But still needs to change more …

- ❑ Macroeconomics needs to be more "policy tools" focused
  - ■ Connections between the "outcome" and the "tools" needs to be better described
  - ■ "Tools" need to be "incentive compatible" – that is, they should work by relying on the natural tendencies of the agents.

- ❑ Macroeconomics needs to be more engaged with alternative disciplines – "speak their languages"
  - ■ With finance: financial intermediation is not a friction but the grease
  - ■ With Sociology, Psychology, Biology/Neuroscience, Engineering are a few such disciplines.

Regulatory Arbitrage in Action

"These new regulations will fundamentally change the way we get around them."

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