What's different about modeling finstab and macropru?

title-page

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Workshop repository:
https://github.com/gimm-institute/july-2023-rwanda-workshop.git

Modeling at policy making institutions

- Both monetary and macroprudential frameworks/processes used at policy making institutions benefit greatly from a **core** model
- A core model ties up a large number of disaggregative and partial inputs/results/assumptions/judgmental calls with some consistency
- This presentation is about differences in modeling philosophy for building and operating core models

Financial cycles

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- **Longer** periodicities
- Often **asymmetric**

Monetary

- Shorter periodicities
- Not so asymmetric

Model output sought

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- **Unlikely yet plausible** events
- Entire financial cycles
- Far away from "steady state"

Monetary

- Most likely forecasts (baseline)
- Specific alternative scenarios
- Within a neighborhood of "steady state"

Economic relationships

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- **Stock-flow** relationships
- Gross positions, **risk**
- Longer-term cumulation processes

Monetary

- Mostly **flows**, prices, expectations
- Stabilization business cycles
- Long-term assumptions exogenous

Nonlinearities

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- Nonlinearities **essential**...
- ...and the nonlinearities are **global**
- Examples: binding financial constraints, marginal borrowers, etc.

Monetary

- Although nonlinearities exist...
  ...regular analysis is fine **linearized**
- Examples: Endogenous credibility, asymmetric nominal rigidities, etc.

Empirical validation and uncertainty

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- Estimating models with nonlinearities and stock-flow relationships is drastically more complicated
- We need much larger numbers of data points, but have very limited amount of them available
- **Gigantic uncertainty** in the "accuracy" of model mechanisms...
- Do not bother pretending they are accurate
- Use extensively **smell tests**

Monetary

- Estimating linearized models (while still challenging) yields **relatively more trustable** results
- Monetary policy modeling can then have the flavor of forecasting

Mode of operation

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- **Scenario analysis** (what-if)
- Model = framework to make assumptions explicit
- Search for most critical parameters and inputs

Monetary

- Closer to statistical **forecasting**
- Model = "probabilistic" description of reality
- Build parameters immune to policy actions

Idiosyncracies

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- Large amounts of accounting/reporting/regulatory **specifics**
- Need to be incorporated within the models to correctly intepret data

Monetary

- Macro concepts more **universal** across countries and time

How to formally describe the policy problem

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- Macropru is to prevent (or at least alleviate) major catastrophes by making the system more robust to tail-risk events
- This is a **robust control** problem: Minimize the cost of the worst events
- Macropru is not to (and must not be) thought as fine-tuning business or financial cycles
- Regulators do not impose buffers to reduce bank business but to create buffers for bad times

Monetary

- Monetary (and fiscal) policies are often described as an **optimal control** problem
- Set up a reaction function to optimize some sort of objective function in the neighborhood of steady state

Policy reaction function

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- **Impossible** to create a simply/stylized reaction function that would work across a variety of scenarios
- Build-release based policies

Monetary

- The essence of monetary policy can be translated to a **simple reaction function**