

Introduction and overview

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Workshop repository:

<https://github.com/gimm-institute/july-2023-rwanda-workshop.git>

A bit of context: What are we doing?

- Global Institute for Macroprudential Modeling www.gimm.institute: a (non-profit) network for finstap and macropru practitioners
- Running regional and technical workshops
- Assisting in developing and implementing in-house finstap and macropru model frameworks
- Producing and delivering global macrofinancial scenarios

What is the framework designed for?

- **Two-way** "behavioral" interactions between macro and the financial system with endogenous feedback
- **Top-down aggregative** view
- Focus on **medium-term** time dimension of a multiplicity of **solvency** risks (but flexible to judgmentally accommodate a range of other dimensions)
- Finstab **scenario** production and macropru **policy analysis**, cost-benefit analysis

How does the framework fit in?

- Top-layer **complement** to other existing models/tools; designed to help **synthesize** a variety of insights and inputs, including expert judgment
- **Customizable** and extensible to accommodate regional and jurisdictional specifics

What is the framework not meant to be?

- Forecasting framework
- Formal probabilistic model or statistical prediction framework
- Deeply structural (aka DSGE) or "publishable" model
- Econometric ("estimated") model
- Theory-based justification for macroprudential interventions (aggregate risk, money creation vs intermediation functions of banks, myopia, etc.)
- Framework for (stress) testing individual institutions
- Detailed accounting framework

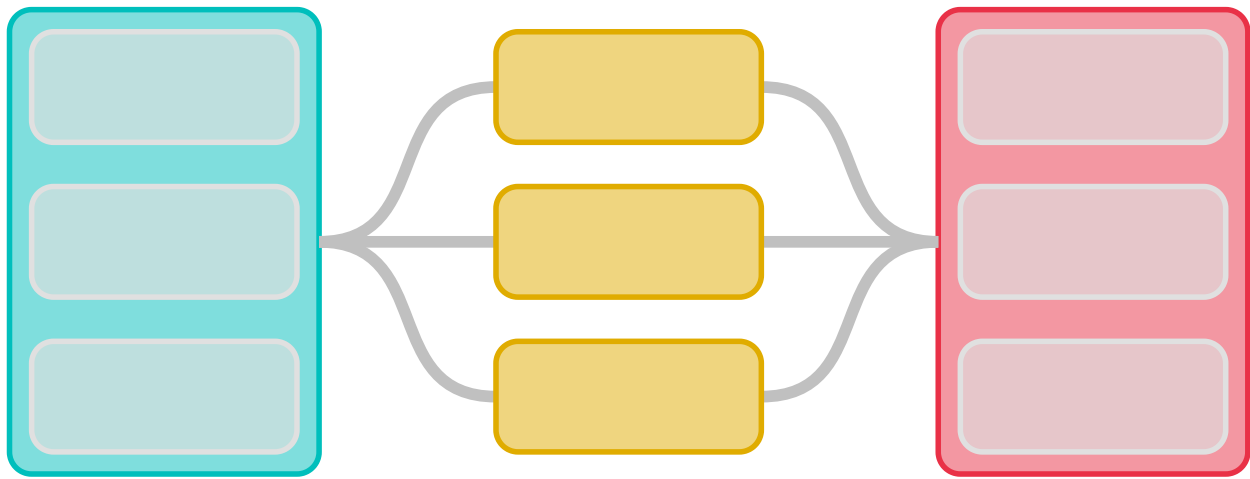
Digression: Theoretical foundations

- A large amount of insights from our work on macroprudential DSGE models
- Converted to semi-structural form
- Evolving form, based on our implementation experience

Use cases and place in finstab and macropu

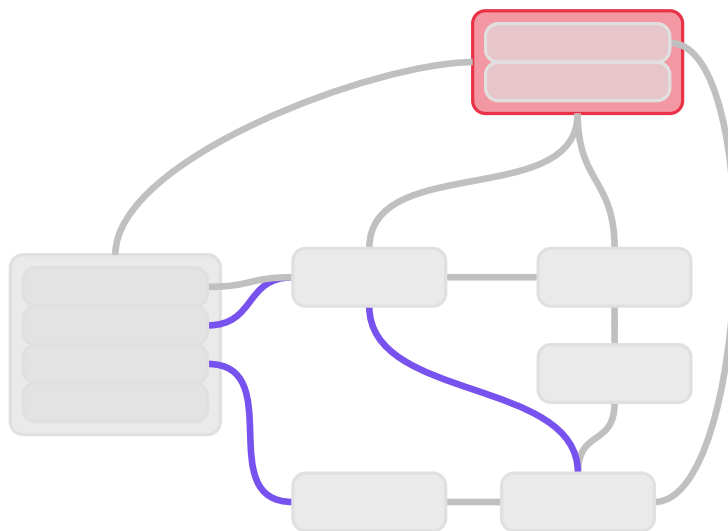
After we see the structure of the model

Basic structure of the framework



- **Modular** design (highly customizable) rather than fixed form
- The very basic model framework consists of **three types of modules**: macro, financial system, and connecting modules
- Examples of extension we implemented elsewhere: nonbank intermediaries (securities dealers), corporate fixed income markets, sovereign fixed income markets
- Keywords: Nonlinearities, asymmetries, stock-flow relationships, aggregate risk, macroprudential as robust not optimal policy

Core feedback mechanism between macro and bank balance sheets



Semi-structural modeling approach

- **Top-down** model building strategy
 - the properties of the model as a whole matter and are frequently the starting point for writing equations
 - the narrative to explain aggregate behavior based on top-down logic, not on proximate causes
- Explicit (but not microfounded) concepts of **supply and demand**
- **Unobserved components**: sustainability trends both in macro and financial parts (potential output, credit to GDP, excess comfort buffers, etc.)
- Forward-looking (model-consistent) **expectations**
 - help introduce some financial concepts consistently (e.g. IFRS9, pricing of future anticipated risk, etc.)
 - help construct scenarios with explicit assumptions about future events and their anticipation
- Well-behaved *8steady state** (steady growth path)
- Calibration heavily based on the properties of the model as **a whole system** ("smell test" simulations, policy trade-offs)
- Simplifying assumptions to mimic real world in an analytically tractable way (loan repayment schedule, present value calculations, asset valuation)

Operational flexibility

- Not a traditional econometric or research model with fixed form
- Needs to be maintained as a live evolving project, reacting to needs and questions arising over time
- Some equations and parameters may change as part of scenario assumptions

Typical use cases

1. **Data-based baseline projections**, e.g. scenarios consistent with macroeconomic assumptions (e.g. central bank macro forecast) and the current state of the financial sector
2. **Delta scenarios: Macro stress scenarios** build with the macro baseline as the structural point of departure: input into further stress testing frameworks
3. Impact of (alternative) **macroprudential interventions** in such scenarios, aggregative input into cost-benefit analysis discussions
4. **Conceptual/"theoretical" simulations**, in particular policy interventions simulations for building insights, elevating discussions inside the institution, building macropru narrative for the public