Financial Innovation, Securitisation and Housing Market: an Agent-Based Approach

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Motivation and Research Question
- The study argues that an excessive rate of financial innovation (RoFIN) has triggered the global financial crisis (Laurètta, 2017, forthcoming).
- RoFIN can create positive or negative externalities producing amplified positive or negative financial effects that can impact on the business cycle.
- How to capture the RoFIN amplifying mechanism and model it?
- We model RoFIN as an endogenous variable which amplifies the endogenous money/credit creation.
- We use EURACE (e.g. Cincotti et al., 2010; Raberto et al., 2012; Mazzocchetti et al., 2016) agent-based and stock-flow consistent macroeconomic model and simulator, which includes several agents who act by following behavioural rules and interact among themselves through different markets.
- EURACE includes a housing market and a securitisation process, allowing the study of RoFIN as an endogenous variable, which is captured in the model by a change in the debt-to-service-income (DSTI) ratio, a flow control measure of mortgage lending by banks to households.

EURACE Agent-Based and Stock-Flow Consistent Macroeconomic Model and Simulator

Housing Market
- Banks grant the requested mortgage only if the ratio between expected quarterly mortgage payments of households and her/his quarterly income is lower or equal than a threshold called debt service to income (DSTI)

Endogenous DSTI and RoFIN
The value of DSTI is endogenous and computed as follow

\[ DSTI = 0.5 \left( \varphi_1 + \Delta \varphi_t \right) \]

\( \varphi_1 \): maximum percentage price increase of housing price with respect to the previous month market price

\( \varphi_0 \): maximum fire sale price reduction

\( \Delta \varphi_t \): housing price monthly growth rate

Computational Experiments

Conclusions and Future Research
- The securitisation propensity modifies indirectly the DSTI, which reflects the households' creditworthiness conditions required by the banking system to grant a mortgage and mirrors the RoFIN within the system.
- Banks become able to overcome the regulatory capital requirements. The interplay between securitisation and DSTI impact on the credit and business cycles.
- Further research could include the development of a more complex financial architecture and an enrichment of EURACE with a financial R&D sector.