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MacroPrudential Policies in Brazil: Taking Stock of the Recent Experience

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Financial Cycles and Policy Responses in Latin America

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The views expressed in this work are those of the author and do not necessarily reflect those of the Banco Central do Brasil nor of its members.

Motivation

- With global financial integration, global liquidity and global risk aversion are major factors in financial cycles for many economies
- As a result: simultaneous macroprudential policy experiments in several economies, around and after the global financial crisis
- **Evaluation is a challenging** because econometric identification is challenging. Way forward? possible benefit of credit register data and clever identification strategies.

- **This presentation: Summarizes the results from systematic research at the Central Bank of Brazil exploring these strategies.**

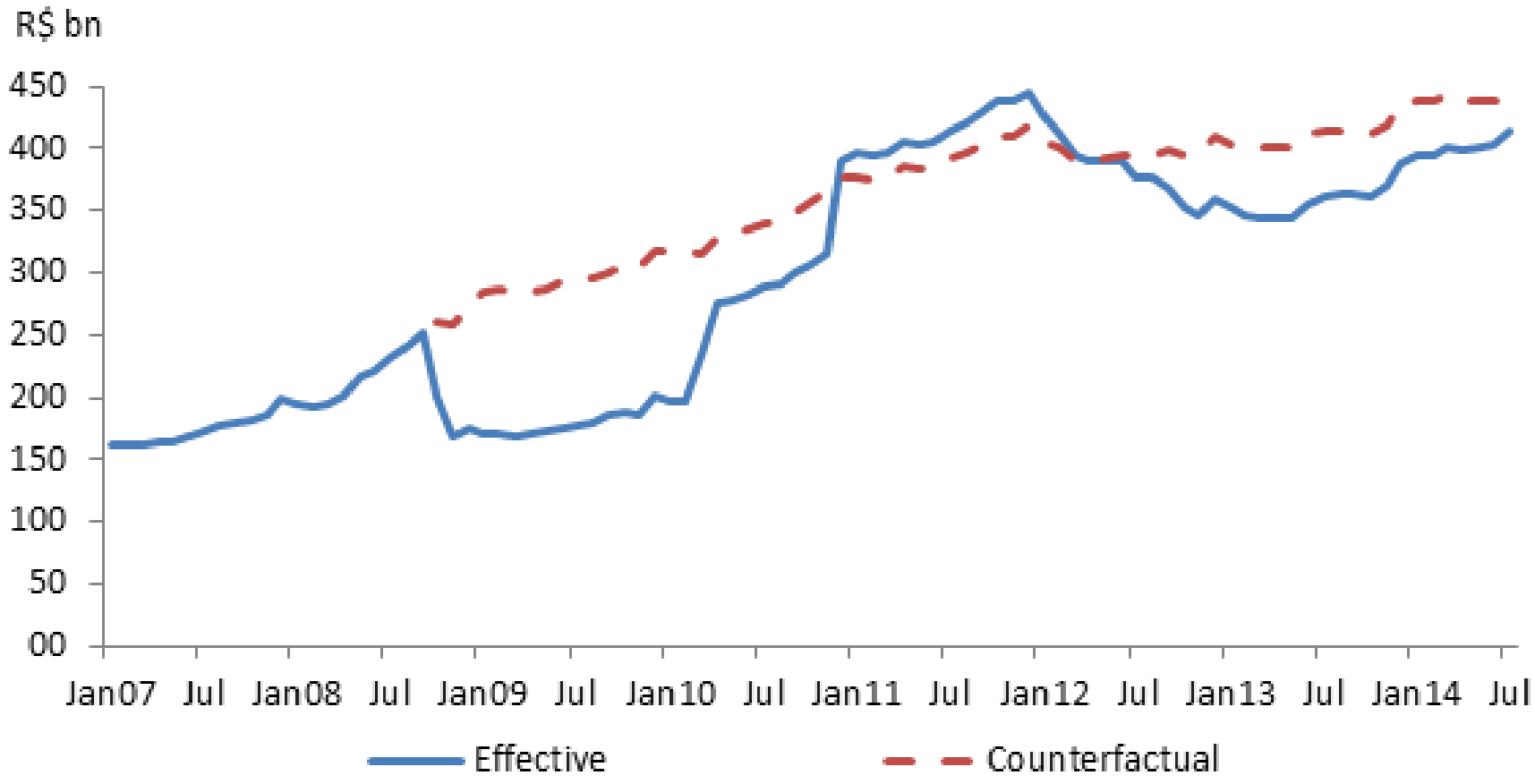
Reserve Requirement Policy

- Brazil has made intense use of reserve requirement policy to smooth the credit cycle.
- The argument for effectiveness goes back to Stein (1998). A change in funding composition towards or away from reservable (and usually insured) liabilities affects funding costs and then credit supply.
- **Paper: Suppose we had bank specific shocks to reserve requirements during a certain time period. This allows us to identify the effect of the shock and how it relates with variables of interest.**
- From 2008 to 2014 the BCB provided us with many policy shocks. We used loan level data from the "Sistema de Informação de Crédito" (SCR) to measure the impact of the shocks on credit supply.

Based on my paper with Bernardus, Carlos and Rodrigo "Credit Supply Responses to Reserve Requirement: Evidence from credit registry and policy shocks" available upon request

Reserve Requirement Policy

Counterfactual based on regulation in place before September 2008



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Reserve Requirement Policy

- The evidence is suggestive that RR policy impacts credit supply in the expected direction, that is, RR easing increases credit, while RR tightening decreases credit supply.
- Interaction results are sensitive to specifications. But overall we find that
  - **Banks with higher liquidity and capital ratios mitigate the impact**
  - **RR policy is asymmetric during monetary policy cycles in the sense that tighter mon.policy increases the effect of reserve requirement.**
  - **During economic expansions the impact of RR is somewhat weaker**
  - **Riskier borrowers receive less credit during tightening**

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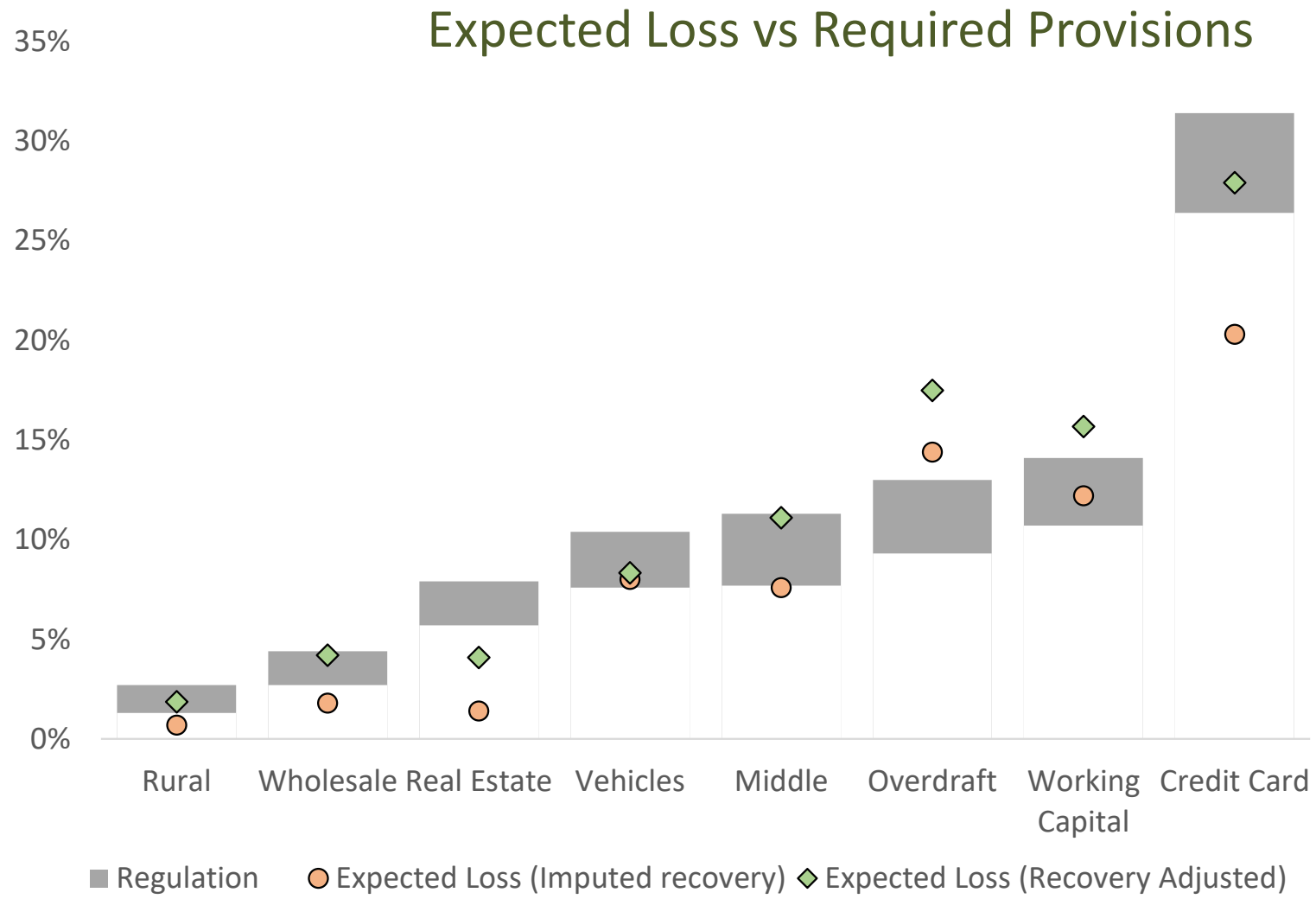
Provisioning Policy

- Conditional provisioning is a potential tool not used in Brazil. Studies in the CCA working group show provisioning changes in the direction of expected loss smooth the credit cycle.
- **Paper: The expected loss can be consistently estimated by the average realized loss. With Brazilian credit register data, we can run regresssion models with conditioning variables of interest using the full trajectories of loans to monitor asset recoveries/losses after default events.**

Based on my paper with Bernardus, Jose Renato, Marcos Soares and Rodrigo "Provisioning evaluation with credit register data" available upon request

Provisioning Policy



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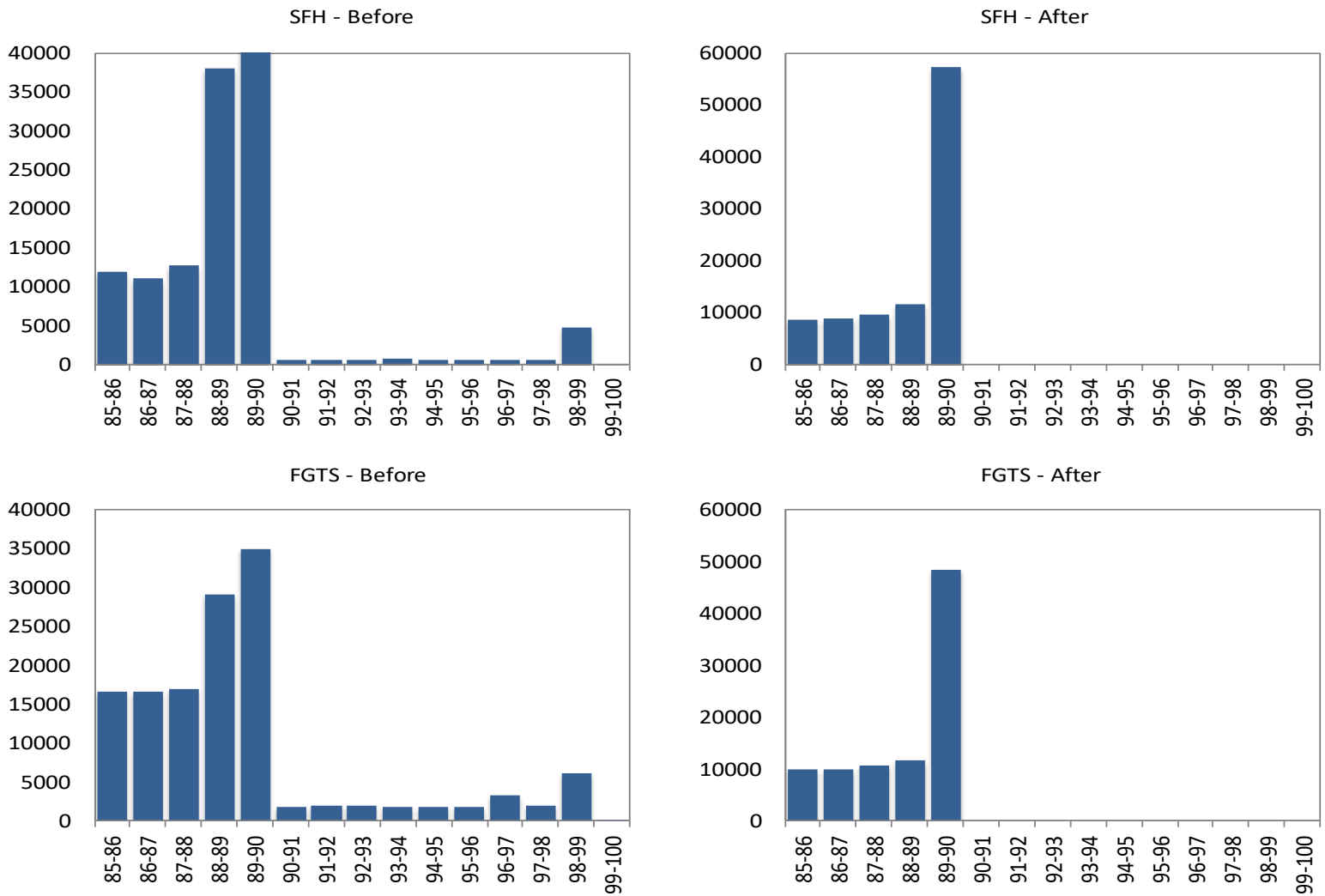
Loan-to-Value Policy

- Lots of evidence on the correlation of LTV and credit outcomes.
- But no evidence on the effect of a LTV cap policy.
- Why not? Difficulty is that one cannot distinguish affected borrowers constrained by the cap from unconstrained ones after the regulation.
- **Paper: We model how likely a household is to be constrained based on pre regulation data. We show it is still possible to estimate the average treatment effect on the treated, in spite of partial treatment observation**

Based on my paper with Douglas and Rodrigo on LTV on the housing market; available upon request

Loan-to-Value Policy

Frequency of new housing loans by LTV ranges



Loan-to-Value Policy

- In the subsidized housing loan segment the average housing loan contracts for treated borrowers have
  - higher down payment requirements
  - higher interest rates,
  - shorter maturities.
- Borrowers compensate these factors by purchasing more affordable homes, and improve their repayment behavior.
- **This may either reflect signaling effect of the new LTV cap or the increasing demand for subsidized housing (because eligibility ceiling were also augmented at the same time)**

Foreign Exchange Policy

- It is hard to assess the effectiveness of foreign exchange intervention. Since the policy goes against the wind, it may look it is not working or that it is having the opposite effect.
- **Paper: Suppose we have an observable random variable that affects intervention but that is not correlated with the exchange rate variation. This solves the problem, because we can isolate a 'random part' of the intervention.**
- It is very hard to find such a variable. Except in financial markets!
- I have shown elsewhere that **realized volatility** (and other similar observable variables) fits the requirements by purely formal reasoning. A very clean identification strategy.

This section is based on my paper "Realized Volatility as an Instrument to Official Intervention" available as BCB WP 363

Foreign Exchange Policy

- The average impact effect of a 1 billion USD sell or buy intervention is around 0.50% depreciation or appreciation, respectively.
- The estimate is a bit lower controlling for swaps (0.30%), which suggests intervention policies are complementary.
- The analogous effects from swap operations is around (.25%). It is not statistically significant in our sample. But the direction is consistent with other sources of evidence of swap effectiveness.

This section is based on my paper "Realized Volatility as an Instrument to Official Intervention" available as BCB WP 363

Macroprudential Capital Flow Tax Policy

- Capital flow management makes sense when too much borrowing today makes the adjustment harder in the future, but economic agents don't care.
- This applies to financial cycles in general and is a good rationale for calibrating macroprudential policies.

- To make agents care about borrowing to exact extent that they should, set

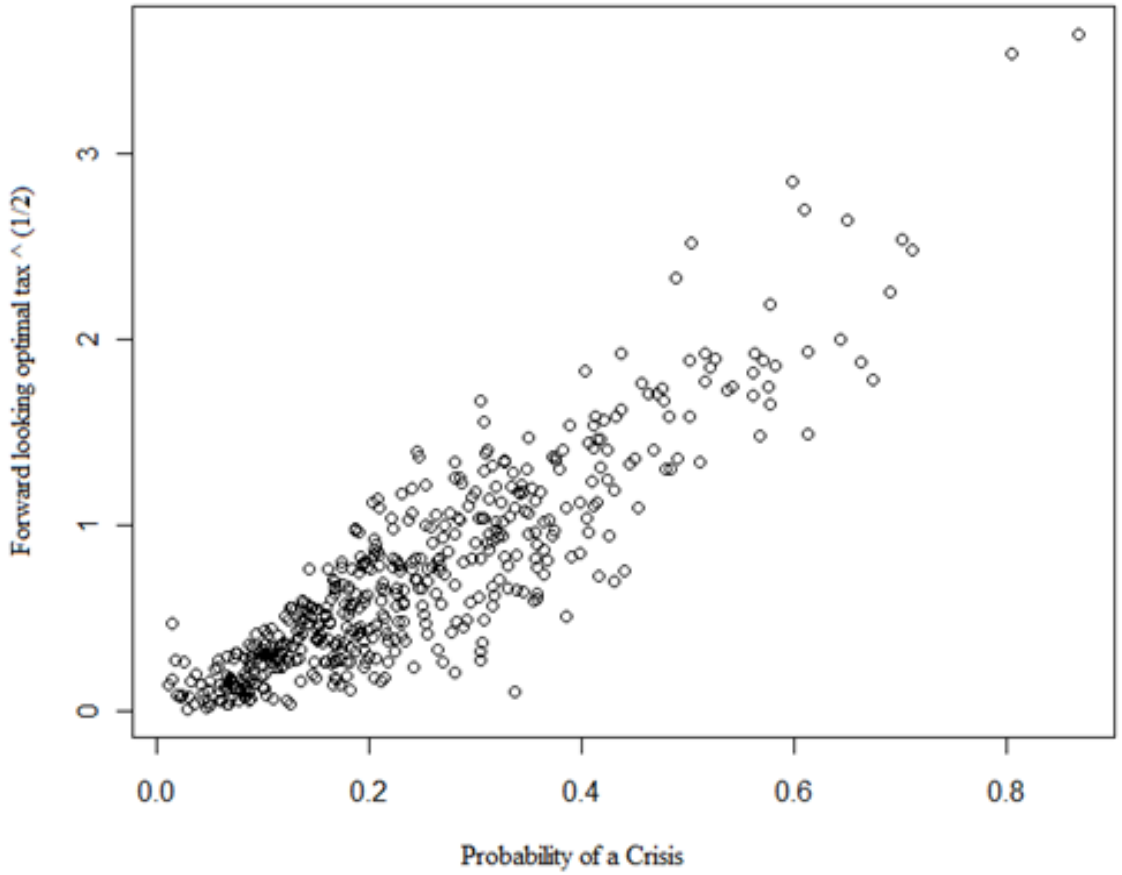
optimal capital flow tax = severity * amplification * likelihood

- The **severity** depends on how badly one needs credit
- The **amplification** depends on how bad things become upon adjustment
- The **likelihood** depends on how much borrowing has been done in the past

This section is based on my paper "Optimal Capital Flow Taxes in Latin America" available as BCB WP 268

Macroprudential Capital Flow Tax Policy

Optimal tax is proportional to the square of the probability of crisis



This section is based on my paper "Optimal Capital Flow Taxes in Latin America" available as BCB WP 268

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Thank you.

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