Macroprudential Capital Controls, Leakages and Financial Stability

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The surge in capital inflows that followed the world financial crisis has prompted several central banks worldwide to adopt capital control policies as part of their prudential and macroeconomic policy toolkit. As the view that such restrictions on capital flows may under some conditions be warranted has recently gained ground (see notably Ostry et al. (2010)), the debate about their effectiveness and efficiency is still unsettled. Common arguments against capital controls are that they create distortions and may be circumvented (Edwards and Ostry (1992), Forbes (2007)). But while it is generally believed that the ability of agents to evade capital controls reduces their attractivity, there is a lack of theoretical clarity about the precise consequences of imperfect capital control enforcement on the optimal design and effectiveness of these policies. To what extent does the prospect of evasion preclude the use of capital controls as macro-prudential instrument? Does this prospect call for stronger or weaker capital controls on those who do not escape them? How significantly is the effectiveness of capital controls as a financial stability tool affected by this evasion prospect? What are the distributional implications of capital controls in the presence of evasion?

This paper investigates these questions theoretically in the context of a quantitative model of emerging market crisis in which systemic externalities call for macro-prudential policy interventions that take the form of capital controls. The environment is a small open economy business cycle model featuring endogenous Sudden Stops generated by an occasionally binding collateral constraint that creates a feedback loop between depreciating exchange rates and falling aggregate demand, as in Mendoza (2002). As shown by Korinek (2011) and Bianchi (2011), this feedback loop creates a pecuniary externality that causes the decentralized equilibrium to feature overborrowing and excessive exposure to the risk of financial crises. In this context, appropriately designed capital controls can correct the externality and restore (constrained) efficiency. [1]

To the best of our knowledge, our paper is the first one to investigate macroprudential policy in an economy where a subset of agents are able to circumvent regulation. At the core of our analysis lies the insight that unregulated agents respond to changes in the regulatory environment, as in

[1] This approach to financial regulation fits into a recent research agenda that study second best policies in incomplete markets environments (see, for instance, Caballero and Krishnamurthy (2001), Allen and Gale (2004), and Lorenzoni (2008)).

Bengui (2013). In our model, the inability of the government to enforce capital controls in the shadow economy gives rise to a trade-off resulting from the interaction between the behavior of the regulated and unregulated spheres. On one hand, the government has an incentive to raise the cost of borrowing when external indebtedness is high by imposing capital controls so as to reduce the exposure to adverse shocks. On the other hand, the reduction in external borrowing by the regulated sphere prompts more borrowing by the unregulated sphere. This leakage occurs because the contemporaneous reduction in aggregate demand leads to a decline in prices which prompts unregulated agents to take on more borrowing. Moreover, there is a moral hazard effect by which the perception of lower aggregate risk due to capital controls leads to even more risk taking by the unregulated agents.

We provide a simple formula for an optimal time- and state-dependent capital control based on a generalized Euler equation that is derived from a Markov perfect equilibrium where governments set optimal capital controls taking as given the actions of future governments. This formula depends on two key elasticities: one that determines the sensitivity of borrowing by unregulated agent to the capital control, and one that relates the real exchange rate to variations in relative consumption of regulated and unregulated agents. Depending on the strength of these elasticities and on the degree of evasion, we show how the tax on borrowing can be higher or lower than in the case with perfect enforcement. Hence, our model qualifies a popular view that governments should refrain from resorting to capital controls if these controls can be easily avoided. The key insight arises from the fact that the government may need more aggressive controls on the regulated sector to compensate for the behavioral response of the unregulated sector.

We conduct a quantitative analysis of the model calibrated to emerging market crises. Our results deliver a schedule of state-contingent taxes on borrowing. In the model simulations, we study the cyclical features of these taxes and their usefulness despite partial evasion. Importantly, we analyze how the design and effectiveness of these capital controls vary with the size of the shadow economy. Finally, we evaluate the welfare implications of capital controls across the population. This allows us to study possible winners and losers from capital controls.

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