Sudden floods, macroprudential regulation and stability in an open economy

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Abstract

A dynamic stochastic model of a small open economy with a two-level banking intermediation structure, a risk-sensitive regulatory capital regime, and imperfect capital mobility is developed. Firms borrow from a domestic bank and the bank borrows on world capital markets, in both cases subject to a premium. A sudden flood in capital flows generates an expansion in credit and activity, as well as asset price pressures. Countercyclical capital regulation, in the form of a Basel III-type rule based on credit gaps, is effective at promoting macro stability (defined in terms of the volatility of a weighted average of inflation and output deviations) and financial stability (defined in terms of three measures based on asset prices, the credit-to-GDP ratio, and the ratio of bank foreign borrowing to GDP). However, because the gain in terms of reduced economic volatility exhibits diminishing returns, in practice a countercyclical regulatory capital rule may need to be supplemented by other, more targeted macroprudential instruments when shocks are large and persistent.

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1. Introduction

The experience of the past two decades, including most recently the global financial turmoil triggered by the collapse of the subprime mortgage market in the United States, has made painfully clear that abrupt reversals in short-term capital movements tend to exacerbate financial volatility and may lead to full-blown crises. Although misaligned domestic fundamentals (in the form of either overvalued exchange rates, excessive short-term foreign borrowing, or growing fiscal and current account imbalances) usually play an important role in financial crises, they have called attention to the inherent instability of international financial markets and the risks that cross-border financial transactions — facilitated by dramatic technological advances — can pose for countries with relatively fragile financial systems, weak regulatory and supervision structures, and policy regimes that lack flexibility.¹

In this vein, the post-crisis global excess liquidity and large interest rate differentials caused by the expansionary monetary policies of reserve currency-issuing countries has brought to policymakers in many middle-income countries — as well as in small industrial countries like Australia, Sweden, and Switzerland — the challenge of managing large amounts of capital inflows while preserving an independent monetary policy to keep macroeconomic and financial stability at home. Indeed, between early 2009 and mid 2011 “sudden floods” of private capital to Latin America led to rapid credit growth and monetary expansion (due to the difficulty and cost of pursuing sterilization policies), an expansion in economic activity, real exchange rate appreciation and widening current account deficits, and pressures on asset prices.² In turn, these pressures raised concerns about asset price bubbles and financial fragility in many countries of the region.³ The scope for responding to the risk of macroeconomic and financial instability through monetary policy proved limited, because higher domestic interest rates vis-à-vis zero interest floors prevailing in advanced economies would have exacerbated capital inflows. Other measures (such as direct taxes on fixed income and equity inflows, and foreign exchange market intervention) had some success but created other challenges related to the reaction of long-term investors vis-à-vis the overall policy stance.

A key issue therefore is, and continues to be, to identify short-term policy responses that can help to mitigate the impact of external financial shocks, in an environment where the use of short-term policy rates has to balance internal and external stability objectives. This paper focuses on the role of macroprudential regulation in mitigating the macroeconomic and financial instability that may be associated with sudden floods in private capital, in particular foreign bank borrowing. We do so not because of the size of bank-related capital flows—even though these flows have accounted at times for a highly significant share of cross-border capital movements.⁴ Rather, it is because our goal is to highlight the role of banks in transmitting external shocks and the risk that capital flows, intermediated directly through the banking system, may lead to the formation of credit-fueled bubbles and foster financial instability. To conduct our analysis, we dwell on the closed-economy model with credit market imperfections described in Agénor et al. (2013). A key feature of that model is a direct link between house prices and credit growth, via the impact of housing wealth on collateral and interest rate spreads. We extend it in several directions. First, we consider an open economy where

¹ See Agénor (2012) for an overview of the evidence. Terms-of-trade fluctuations can generate sizable output and employment effects, which may increase exchange rate volatility and exacerbate movements in short-term capital flows.
² Episodes of large capital inflows in Latin America and elsewhere have not been systematically associated with upfront increases in inflation. A key reason is that in many cases the deflationary effect of the exchange rate appreciation associated with these inflows (especially when a large proportion of intermediate goods is imported) has been very pronounced. As discussed later, in our model this is an important aspect of the transmission channel of external shocks.
³ Under a flexible exchange rate, growing external deficits tend to bring about a currency depreciation, which may eventually lead to a realignment of relative prices and induce self-correcting movements in trade flows. However, sharp swings in capital flows make it more difficult for the central bank to strike a balance between its different objectives; in turn, this may lead to exchange rate volatility.
⁴ According to data by the Institute of International Finance for instance, in 2011 net inflows of private capital associated with commercial banks accounted for almost 26 percent of total net private inflows to Emerging Asia.
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