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A quantitative exploration of the role of short-term domestic debt in balance of payments crises

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Abstract

The quantitative implications of a model of balance of payments crises are explored. The model analyzes government sterilization of capital outflows through low interest rates on domestic debt. This prevents a collapse in money demand but instead leads to a collapse in bond demand and therefore an increase in central bank domestic credit. The theory's implications are consistent with the Mexican experience of 1994, but much less so with Indonesia in 1997 and Brazil in 1998. © 2000 Elsevier Science B.V. All rights reserved.

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1. Introduction

A striking aspect of several recent balance of payments crises is that the collapse of the central bank's foreign exchange reserves was not primarily driven by a collapse of its domestic liabilities, money, as predicted by economic theory. Instead, many crises were characterized by a sharp increase of central bank domestic credit.

The behavior of monetary aggregates is, of course, affected by the stance of monetary policy, which is expansionary before many actual balance of payments

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crises.[1] That goes beyond the simple monetization of fiscal deficits. Monetary authorities are often reluctant to allow nominal interest rates to rise. Such a policy is referred to as interest-rate smoothing, or as sterilizing the effect of capital outflows on money. The model presented here provides a theoretical framework with which the role of this policy during a balance of payments crisis can be understood.[2]

Much of the theoretical economics literature on balance of payments crises is based on the seminal papers by Salant and Henderson (1978) and Krugman (1979).[3] Krugman (1979) explains balance of payments crises as a result of the incompatibility of a fixed exchange rate and monetization of fiscal deficits. The speculative currency attack is due to an upward jump in the nominal interest rate when the government has to resort to seigniorage once it has lost its interest earning reserves. Calvo (1987) has demonstrated how Krugman's results can be derived in a fully optimizing representative agent model.

In standard monetary balance of payments crises models it is not possible to explain sterilization, i.e. increases of central bank domestic credit, at the time of the crisis. Flood et al. (1996) show that anticipation of this policy would lead to the immediate collapse of the exchange rate regime. The monetary model produces this result because of the assumption of perfect asset substitutability. When the rate of change of the exchange rate is predetermined and capital is fully mobile, a policymaker is unable to offset capital in- or outflows through open market operations, the so-called "Impossible Trinity".

A rationale for sterilization therefore has to explain why substitutability between domestic and international bonds may not be perfect. Flood et al. (1996) employ a reduced form portfolio balance framework. This paper builds on the dynamic general equilibrium model developed in Kumhof (1998). Following Calvo and Vegh (1990, 1995), it treats short-term domestic government bonds as quasi-money entering a liquidity-in-advance constraint, as an imperfect substitute of money. Short-term bonds can in practice often be used to settle larger transactions. The idea also has a long pedigree in the closed economy macroeconomics literature.[4] Barnett and Zhou (1994) argue that interest-yielding assets are joint

[1] There is an extensive literature documenting the empirical regularities around balance of payments crises. Particularly useful and very comprehensive are Edwards (1989), Eichengreen et al. (1995) and Kaminsky and Reinhart (1996).

[2] A second reason for increases in central bank domestic credit is credit to banks to bail out a troubled domestic financial system.

[3] This is the so-called "first generation" of balance of payments crisis models. The more recent "second generation" models emphasize the interaction of the policy maker's objectives and private sector expectations.

[4] This includes Friedman (1969), Barro (1974), Fried and Howitt (1983), Poterba and Rotemberg (1987), and Bansal and Coleman (1996).

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