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# Monetary policy during speculative attacks: Are there adverse medium term effects?

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### ABSTRACT

This paper extends the currency crises model of Aghion, Bacchetta and Banerjee (2000, 2001, 2004) in different directions. Our main result is that a tight monetary policy can have adverse effects beyond the short term and can potentially cause a currency crisis in the medium term, even in cases when the interest rate defense is successful and prevented a currency crisis in the short-run. In addition, we add a risk premium and find that this increases the likelihood of a crisis, can help explain contagion, and that prospective capital controls will increase the likelihood that such controls will be needed as an emergency measure.

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## 1. Introduction

The unexpectedness and the severity of the Southeast Asian crisis demonstrates the importance of understanding the underlying mechanisms of currency crises as well as the optimal policy response to an emerging crisis. One of the findings in the immediate aftermath was the inadequacy of the

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existing models of currency crisis to explain the events. Neither the first-generation models relying on inconsistent economic policy nor the second-generation models where the government faces a trade-off between maintaining the fixed exchange rate and a desire to boost output and employment by pursuing a more expansionary monetary policy are consistent with empirical evidence.<sup>1</sup> The Asian countries had an impressive economic performance the years preceding the crisis. After the crisis, following the depreciation, they all experienced deep recessions in which output fell at unprecedented rates.

These empirical observations motivated the development of a third-generation of currency crisis models.<sup>2</sup> Common within this latter approach is that they focus on stock rather than flow variables. There is no common denominator of which stock variables to focus on or the transmission mechanism, however. One strand of the literature emphasizes vulnerabilities in the financial sector (Chang & Velasco, 2000, 2001; Corsetti, Pesenti, & Roubini, 1999a, 1999b) while another strand focus on adverse impacts of foreign currency denominated liabilities on the balance sheets of the corporate sector (Aghion, Bacchetta, & Banerjee, 2000, 2001, 2004; Bergman & Hassan, 2008; Cho & Kasa, 2008; Krugman, 1999; Miller, García-Fronti, & Zhang, 2005, 2006). One of the appealing aspects of these frameworks is that the expectation of a depreciation can be self-fulfilling and thus enabling the existence of multiple equilibria.

One key issue within the third-generation framework concerns the role of monetary policy. Krugman (1999), Aghion et al. (2000, 2001, 2004), Cho and Kasa (2008), and Miller et al. (2005, 2006) all suggest that a tight monetary policy both prevent and resolve a currency crisis. However, there are also studies suggesting that a loose monetary policy and a depreciated currency is the optimal response, see for example Furman and Stiglitz (1998), Gertler, Gilchrist, and Nataluccim (2007), Céspedes, Chang, and Velasco (2004), Christiano, Gust, and Roldos (2004) and Bergman and Hassan (2008).<sup>3</sup>

In this paper we extend the Aghion et al. (2000, 2001) (ABB) model in different directions.<sup>4</sup> Our main focus is on the question whether the short-run policy recommendation of raising the interest rate can have adverse medium term effects such that it causes a currency crisis in the medium term even in cases when the interest rate defense was successful in preventing a currency crisis in the short-run. We show that adverse medium-term effects are present and that they can potentially reverse the effects of tight monetary policy, i.e., causing a currency crisis in the medium term even though the policy was successful in preventing a crisis. This feature of our model provides an explanation to the empirical observation that tight monetary policy may work for some countries but will not prevent a crisis for other countries. Second, we add a risk premium on domestic assets and show that the existence of a risk premium increases the likelihood of a crisis both in the short-run and in the medium term. More importantly, the inclusion of a risk premium also allows us to discuss contagion and prospective capital controls. If we assume that the risk premium is time-varying and that negative shocks in one market affect subsequent returns in other markets leading to increases in the risk premium, our model suggest an explanation to why healthy economies could be vulnerable to speculative attacks. We also find that an expectation of future capital controls (an increased risk premium on domestic assets) can increase the likelihood that such controls will be needed. In particular, there is a trade-off between having the option of a beneficial emergency use of capital controls and the adverse effect on the risk premium stemming from the possible future imposition of such controls.

<sup>1</sup> Blackburn and Sola (1993) provide a survey of first-generation models whereas Rangvid (2001) surveys the second-generation models.

<sup>2</sup> Allen, Rosenberg, Keller, Setser, and Roubini (2000) surveys the early literature.

<sup>3</sup> There is no consensus in the empirical literature, tight monetary policy may increase, decrease, or may not affect the probability of a successful speculative attack (see Furman & Stiglitz, 1998; Goderis & Ioannidou, 2008; Gould & Kamin, 2001; Kraay, 2003). Moreover, in a recent study of 22 episodes of systemic sudden stops that took place during the Tequila crisis 1994, the East-Asian crisis in 1997 and the Russian crisis in 1998, Ortiz, Ottonello, and Sturzenegger (2007) find that countries that raised the interest rates and implemented a restrictive fiscal policy experienced larger falls in output than countries implementing a looser policy.

<sup>4</sup> This model has been extended in different directions recently. Miller et al. (2005, 2006) expand the model by introducing demand-side effects, Bergman and Hassan (2008) replace UIP with the assumption that the nominal exchange rate is a martingale, and Cho and Kasa (2008) extend the model by introducing adaptive learning model such that currency crises become endogenous.

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