



ELSEVIER

Contents lists available at ScienceDirect

# Journal of International Money and Finance

journal homepage: [www.elsevier.com/locate/jimf](http://www.elsevier.com/locate/jimf)



## A model of the interactions between banking crises and currency crises

Michael Bleaney<sup>a</sup>, Spiros Bougheas<sup>a,\*</sup>, Ilias Skamnelos<sup>b</sup>

<sup>a</sup>School of Economics, University of Nottingham, Nottingham NG7 2RD, UK

<sup>b</sup>World Bank, Washington, DC 20433, USA

### A B S T R A C T

A second-generation model of currency crises is combined with a standard banking model. In a pegged exchange rate regime, after funds have been committed to the banks, news arrives about the quality of the banks' assets and about the exchange rate fundamentals. A run on the banks may cause a currency crisis, or *vice versa*. There are multiple equilibria (with either twin crises or no crisis), depending on depositors' expectations of other depositors' actions. Suspension of deposit convertibility can prevent a speculative attack on the currency, but last resort lending to solvent banks can induce one.

© 2008 Elsevier Ltd. All rights reserved.

### JEL classification:

F41

G21

### Keywords:

Banks

Currency crisis

Suspension of convertibility

## 1. Introduction

Recently there has been a great deal of interest in the interaction between banking crises and currency crises. Empirical evidence of a correlation between the two, particularly for emerging markets, is reported by Burkart and Coudert (2002), Kaminsky and Reinhart (1999) and Komulainen and Lukkarila (2003), amongst others. Theoretical work on the subject may be divided into two strands. In one strand, there is assumed to be a currency mismatch associated with foreign loans to (or deposits in) the domestic banking system, whose assets consist of loans to domestic agents (Chang and Velasco, 2000; Takeda, 2001; Goldstein, 2005). In the other strand, associated with Flood and Marion (2004) and a series of papers by Miller (1996, 1998, 2000), the banking system is not assumed to be subject to such a currency mismatch. Our paper belongs to the second strand.

\* Corresponding author.

E-mail address: [spiros.bougheas@nottingham.ac.uk](mailto:spiros.bougheas@nottingham.ac.uk) (S. Bougheas).

We contribute to the literature in three significant ways. First, we demonstrate that, even in an environment where the fundamentals of the banking and the foreign sector exhibit no correlation, fragility in either sector can cause a panic in the other. Put differently, contagion can spread in both directions. Second, we focus on the role of the domestic depositor in twin crises, and on bank deposits as a source of funds for currency speculation, rather than on foreign deposits or the exposure of bank assets to currency movements. Finally, we consider the impact of a policy of ‘suspension of convertibility’ of bank deposits on the outcome in the currency market. Compared with the papers by Flood and Marion (2004) and Miller (1996, 1998, 2000), our contribution differs in its approach to currency crises (our model is of a second-generation rather than a first-generation type) and in the explicit modelling of the banking contract.<sup>1</sup>

The seminal model of Diamond and Dybvig (1983) shows how banks may be subject to sunspot panics because of the maturity mismatch between their assets and their liabilities. With rational expectations, such sunspot panics can be eliminated by a commitment to suspend convertibility of deposits in the event of a run. In practice, however, bank runs occur, and are usually associated with bad news about the banks’ solvency, with less solvent banks experiencing larger runs (e.g. Schumacher, 2000). To allow for this possibility we develop the model of Jacklin and Bhattacharya (1988). Whilst theoretically banks might offer depositors run-proof contracts, such contracts are often dominated by alternatives in which there are some probabilities of a run induced by bad news (Alonso, 1996).

We combine a second-generation model of currency crises<sup>2</sup> with a standard model of the banking contract. There are three assets available to consumers: bank deposits, domestic currency or foreign currency. The exchange rate between domestic currency and foreign currency is initially pegged, but might be significantly devalued at some future date. *Ex ante*, returns on bank deposits exceed those on domestic or foreign currency. Subsequent bad news in the currency market (such as an adverse terms of trade shock) may cause depositors to seek to withdraw their funds from the bank in order to convert them into foreign currency, even when expected returns to bank deposits exceed those on domestic currency. Alternatively, bad news about banks’ solvency may cause an information-based bank run. The likelihood of devaluation is assumed to be decreasing in the quantity of foreign exchange reserves. If banks’ assets are liquidated and the funds distributed to depositors, this increases the funds available for currency speculation and may induce a currency crisis that would not otherwise have occurred. For certain values of the parameters there are multiple equilibria, with either twin crises or no crisis.

The work of Goldstein (2005) is most closely related to ours. His model differs in assuming that (1) the banks’ creditors are foreign (so deposit withdrawals are always associated with reserve losses), (2) the banks suffer from a currency mismatch (so the expected returns to the banking contract are negatively correlated with the expected returns on foreign currency), and (3) there are increasing returns to scale on the long-term investment (so withdrawals reduce the expected returns of those who remain in the bank). We show that there is an interaction between banking and currency crises even in the absence of these assumptions. We also investigate a variety of possible policy responses, including suspension of convertibility of bank deposits.

The empirical relevance of our model is demonstrated by the behavior of bank deposits in Argentina over the course of 2001. The spread between domestic 30-day interest rates denominated in pesos and in dollars increased steadily and markedly after February, and yet there were large withdrawals of bank deposits that were concentrated on peso-denominated deposits and affected all types of bank. Between December 2000 and November 2001, peso deposits fell by over 35% and dollar deposits by about 10%, which indicates that depositors were responding to perceived currency risk (De la Torre et al., 2004).

## 2. The model

The foundation of the model is the modern view of banks as offering consumers insurance against liquidity risk, so that they can exploit the higher returns available on longer-term investments, even

<sup>1</sup> Buch and Heinrich (1999), Burnside et al. (2000) and Velasco (1987) also consider banking and currency crises within a single framework, but they focus on different issues.

<sup>2</sup> Our modelling approach to currency crises follows Morris and Shin (1998) and Obstfeld (1996).

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات