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Currency crises and foreign credit in emerging markets: Credit crunch or demand effect?

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ABSTRACT

Currency crises of the past decade highlighted the importance of balance-sheet effects of large devaluations. Currency crisis literature identified a decline in credit as one of the channels through which such crises affect real economic activity. We find empirical evidence of the existence of this channel and quantify its extent and persistence: controlling for a host of fundamentals, we find a decline in foreign credit to emerging market private firms of about 25 percent in the first year following large depreciations. This decline is especially large in the first five months, is less pronounced in the second year, and disappears entirely by the third year. We show that only about a quarter of the initial decline in credit could be attributed to the "credit crunch," while the rest of the decline is due to contracting demand. After six months, however, most of the credit decline could be attributed to supply effects.

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1. Introduction

In the past two decades, many currency crises in emerging markets were accompanied by a substantial decline in economic activity in affected countries (Gupta et al., 2003; Hong and Tornell, 2005; Hutchison, 2001; Hutchison and Noy, 2002). Much of the literature attributes a large part of this decline to currency-related balance-sheet problems that arise when firms borrowing in foreign currency find their net worth deteriorate after a large depreciation of domestic currency. The literature on the balance-sheet effects has shown that these effects can lead to a decline in investment.[1] A popular view seems to be that this decline in investment is driven by a credit crunch through a financial accelerator effect *à la* Bernanke and Gertler (1989). Indeed, Calvo et al. (2006) show that the recovery from financial crises tends to take place without recovery in credit. In this paper we take the analysis one step further and attempt to identify how much of the decline in credit is indeed due to a credit crunch and how much is driven by a reduction in the demand for credit.

While the decline in credit following currency crises is frequently discussed, the empirical analysis of this phenomenon is scarce.[2] We contribute to this literature by systematically analyzing the effects of currency crises that occurred since 1980 on the credit provided to emerging markets' domestic private firms by foreign creditors, both through banks and on

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[1] See, for example, Aghion et al. (2001, 2004a) and Cespedes et al. (2003).

[2] Desai et al. (2008) show that after currency crisis, domestic firms suffer from the decline in credit, while multinationals expand. Blalock et al. (2004) present the evidence of a credit crunch after the 1998 crisis in Indonesia, while Beng and Ying (2001) analyze a disequilibrium model of demand and supply of credit after the 1997 crisis in Malaysia.

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the bond market.[3] In addition to documenting the qualitative decline in foreign credit to the emerging markets' private sector, which represents over 30 percent of total foreign credit to emerging markets,[4] we provide quantitative analysis of the size and the duration of this decline.

Documenting a decline in credit, however, is not the same as identifying a credit crunch. A credit crunch implies that firms are interested in obtaining credit, but are either unable to do so or find the cost of credit prohibitively high. Nevertheless, there are reasons to believe that some of the decline in credit could be due to a reduction in firms' demand for credit. To our knowledge, there is no systematic evidence on the effects of currency crises on the demand and supply of foreign credit to emerging market private firms. This paper provides such an analysis.

We begin with an informal discussion of the reasons currency collapses could lead to a decline in supply of credit and demand for credit. Currency crises may make foreign creditors less willing to lend, which is likely to lead to an increased risk premium that all the firms in the affected country are charged by foreign creditors. Faced with this increase in costs, firms are likely to choose to borrow less from foreign creditors and switch to other types of financing. We refer to such effects as ''supply effects'' or ''credit crunch,'' because it is a change in the quantity of foreign credit demanded by firms as a result of an increased cost. Firms, however, might choose to borrow less on foreign markets for reasons that are not related to the cost of borrowing—we refer to such changes as ''demand effects.'' Finally, firms' borrowing needs might remain the same in local currency, which would imply that they need to borrow less in foreign currency after the currency crisis—we refer to this as the ''accounting effect.'' In our empirical analysis we are able to differentiate between these three types of effects.

We use firm-level data on foreign bond issuance and foreign syndicated bank loan contracts for 29 emerging markets between 1981 and 2004 to calculate the total amount of new credit that private domestically owned firms obtained on the bond market or from bank syndicates in each month.[5] We then analyze how this aggregate measure of credit is affected by large real depreciations. We construct a number of indicators that describe various aspects of each country's economy as well as factors that affect the world supply of capital to emerging markets, which we use as control variables. Since foreign credit to the country could be conditional on the country having an agreement with the IMF, we include this indicator in our list of control variables. In addition, we control for banking crises (Caprio and Klingebiel, 1996; Demirgüç-Kunt and Detragiache, 1998; Hutchison and Noy, 2005) and for debt crises (Arteta and Hale, 2008).

Using fixed-effect panel data regressions, we find, not surprisingly, that there is indeed a significant decline in credit to emerging market firms (measured either in U.S. dollars (USD) or in local currency) in the aftermath of large currency depreciations. We find that, compared to the country mean, foreign credit to the private sector falls by over 30 percent in the first two years after a large depreciation and then recovers. About 10 percentage points of this decline in credit in the first year and about 15 percentage points decline in the second year are explained by the worsening of macroeconomic fundamentals and other control variables. We find that the decline in credit is most severe during the first five months after the crisis and that there is little or no evidence of the decline in credit prior to the currency crisis.

By separating demand factors from supply factors and using a proxy for the price of credit, we are able to identify separately the demand and the supply of credit and see whether the decline in credit that we document comes from the demand or the supply side. Because we do not have good exclusion restrictions for the supply equation, we estimate the effect of a currency crisis on the average cost of borrowing. Thus, our supply equation is simply the price equation. We simultaneously estimate the demand equation without imposing restrictions on its slope with respect to our measure of price. Finally, we convert the amounts borrowed into local currencies to see whether our results are driven by the accounting effect and find that the accounting effect turns out to be negligible.

At first it appears that both demand and supply contribute equally to the decline in credit. However, once we control for sovereign debt crises (Arteta and Hale, 2008), we find that the decline in demand for credit (which is large at 30 percent) only persists for five months, while the initial decline in the market value of bonds (over 20 percent) recovers very gradually and is still statistically significant and equal to over 10 percent in the second year after the crisis. Given our estimate of the price elasticity of demand, this decline in the market value of bonds translates to about 8 percent decline in credit initially and about 5 percent decline in credit in the second year. These results square well with our findings for the reduced form—the initial large decline in credit is driven by the reduction in both demand and supply, while the persistent decline is due to the fall in supply only.

We estimate a number of additional regressions as extensions and robustness tests and find that the above results are robust to the definition of the dependent variable and the currency crisis indicator, econometric model specification, the sample, and the set of control variables.

[3] We focus on emerging markets because the exchange rate movements appear to be more destabilizing in developing countries than in industrial countries (Ahmed et al., 2002). We have no access to the firm-level data on domestic lending. Instead, we include foreign borrowing by the financial sector in our analysis, thus analyzing total availability of foreign capital to the country's private sector.

[4] See, for example, Chapter 4 of the Global Development Finance, The World Bank, 2005. According to Chapter 4 of the Global Financial Stability Report, IMF, April 2005, about 25 percent of emerging markets' corporate bonds and bank credit are external, and this number is much larger for Latin American emerging economies.

[5] We exclude from our analysis all the firms that are foreign-owned and all the firms that are owned by central or local governments, which we would not be able to do with aggregate data. In addition, using firm-level data avoids biases that are due to credit going through offshore centers (Warnock and Cleaver, 2003), because we are able to identify the true nationality of a borrower.