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Debt composition and balance sheet effects of exchange rate volatility in Mexico: a firm level analysis

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Abstract

We use Mexican firm-level data to study the role of currency mismatches in the corporate sector in exacerbating the negative effects of a devaluation. We also investigate what drives Mexican firms to borrow in foreign currency. We find that holding dollar denominated debt in a devaluation adversely affects firms' earnings and investment. However, exporters invested more than non-exporters in the same period. We also find that the negative effect of dollar debt was stronger than the positive effect of exports in the 1994 crisis for firms with positive dollar debt and/or exports, relative to firms that did not borrow abroad and/or export. This was a result of imperfect currency matching by firms. However, in the 1998 crisis firms managed the denominations of their inflows and outflows much better and these two effects were roughly equal in magnitude. We also find some evidence of currency matching by exporters, especially after the introduction of the floating exchange rate.

Keywords: Devaluation; Balance sheet effects; Currency composition of debt

1. Introduction

The currency crises of the 1990s in Latin American and East Asia and the events leading up to them, have belied traditional explanations of crises based on macro imbalances such as the fiscal deficit or the output gap. Instead, attention has been focused on the deficiencies of the financial sector, of which an important aspect is the holding of 'excessive' foreign currency liabilities by firms and banks. (See for

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example, Mishkin, 1996; Goldstein et al., 2000; Kaminsky and Reinhart, 2000; Harvey and Roper 1999).

Developments in the theoretical literature have emphasized the currency mismatch between inflows and expenditures at the micro level as a mechanism for the propagation of currency crises. Krugman (1999) argues that a devaluation triggers a negative shock to the net worth of firms that have borrowed heavily in foreign currency. This is amplified by capital market imperfections that reduces firms' access to external funds when balance sheets are weak, i.e. an open economy version of the 'Bernanke–Gertler' effect (Bernanke and Gertler, 1989). While devaluation improves the financial situation of exporting firms—the competitiveness effect—, this effect is offset by the mismatch between foreign-currency liabilities and assets denominated in local currency, increasing indebtedness of firms with dollar denominated debt—net-worth effect.

In this paper we study the effects of two major devaluations on firm investment in Mexico. We use a panel of firm level data between 1990 and 1999 from the Mexican stock market and we seek an answer to the following questions: (i) Is there any evidence of a balance sheet effect of exchange rate depreciations through the holding of dollar debt on firm investment; (ii) Is there any evidence that exporters experienced a competitiveness effect due to the devaluations, that is reflected in their earnings and investment[1]; (iii) What determines whether and how much a firm borrows in foreign currency. In particular, we focus on two devaluations, those of 1994–1995, when the nominal exchange rate fell by 44% and 1998 when it fell by approximately 12.5%.

Recent empirical work in this area has produced mixed results. Bleakley and Cowan (2002) investigate the effect of holding foreign-currency-denominated debt on investment during an exchange rate realignment. Using a database of over 500 non-financial firms in 5 Latin American countries, including Mexico, they find that the effect of a devaluation on investment is consistently positive. However, they do not have information on firm level exports, and if firms match currency flows of exports and debt repayments, the positive effect that they find may be due to an omitted variable bias.

Aguiar (2002) looks at the immediate effect of the crisis on investment and currency composition of debt in 1995 in Mexico. He finds that investment was positively related to net worth, which in turn was adversely affected by the holding of dollar debt in this year. He also finds that exporting firms borrowed mostly in foreign currency, and while their profits and sales increased after the devaluation, they were constrained by weak balance sheets. He therefore finds limited evidence of a competitiveness effect. However, the time period on which this study focuses is limited to the 1994–1995 and is not able to account for firm heterogeneity. He also does not study the effects of the 1998 devaluation, which were somewhat different from 1994.

[1] The competitiveness effect may be mitigated by other factors. For example, if firms' exports are very import intensive or the demand for them is very inelastic, a devaluation may actually reduce the firms' earnings and investment.