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Determining underlying macroeconomic fundamentals during emerging market crises: Are conditions as bad as they seem?☆

Mark Aguiar[a], Fernando A. Broner[b,*]

[a]*Federal Reserve Bank of Boston, USA*
[b]*CREI and Universitat Pompeu Fabra, Spain*

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Abstract

Emerging market crises are characterized by large swings in both macroeconomic fundamentals and asset prices. The economic significance of observed movements in macroeconomic variables is obscured by the brief and extreme nature of crises. In this paper we propose to study the macroeconomic consequences of crises by studying the behavior of "effective" fundamentals, constructed by studying the relative movements of stock prices during crises. We find that these effective fundamentals provide a different picture than that implied by observed fundamentals. First, asset prices often reflect expectations of improvement in fundamentals after the initial devaluations; specifically, effective depreciations are positive but not as large as the observed ones. Second, crises vary in their effect on credit market conditions, with investors expecting tightening of credit in some

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*Corresponding author. Tel.: +34 93 542 2601; fax: +34 93 542 1860.
E-mail addresses: mark.aguiar@bos.frb.org (M. Aguiar), fernando.broner@upf.edu (F.A. Broner).

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cases (Mexico 1994, Philippines 1997), but loosening of credit in others (Sweden 1992, Korea 1997, Brazil 1999).

Keywords: Emerging market crises; Macroeconomic fundamentals; Asset returns; Exchange-rate overshooting; Credit market conditions; Sudden stops

1. Introduction

Balance of payment crises in emerging markets have been a prevalent phenomenon during the last 10 years. In all cases, these crises were associated with large movements in both asset prices and macroeconomic fundamentals in the affected countries. For example, between December 1994 and March 1995, Mexico's stock market fell 26% in peso terms, the Mexican peso depreciated by 50%, and peso interest rates rose to 70% in annualized terms. These patterns were repeated, to a varying extent, during the Asian crisis in 1997, the Russian crisis in 1998, and the Brazilian crisis in 1999.

In this paper, we assess the economic significance of these shocks by studying the cross-sectional behavior of stock returns during crises. In particular, we estimate the set of macroeconomic innovations that best explain the relative returns of stocks in each country. We denote these implied macroeconomic variables as "effective" fundamentals.

We propose this alternative measure of macroeconomic variables because directly observed fundamentals are difficult to interpret given the brief and extreme nature of crises. For example, consider the behavior of interest rates and exchange rates during crises, illustrated in Fig. 1 for the cases of Mexico 1994 and Korea 1997. Balance of payments crises are characterized by a dramatic rise in interest rates to deter speculation and to reduce excessive depreciation and inflationary pass-through. However, these interest rate shocks are less persistent than during non-crisis times, as they are often reversed after a few months. In Mexico 1994 a large part of the shock was reversed in 3 months, while in Korea 1997 interest rates 9 months after the devaluation were below those observed one year prior to it. An even more extreme example occurred in Sweden 1992 when the Central Bank's lending rate reached 500% in mid-September, but reverted to historical levels over the following 2 months. This suggests that observed interest rate shocks during crises might *overestimate* their actual impact on credit market conditions. On the other hand, if there exist credit constraints that become binding during crises, observed interest rate shocks might *underestimate* the effect of crises. As a result, it is difficult to assess the effect of crises on credit market conditions by looking at the evolution of interest rates. Instead, in this paper we look at the behavior of *effective* interest rates to factor in the persistence of the shock and possible non-linearities in the impact of crises on credit markets.

Interpreting exchange rate movements during crises also presents difficulties, since the size of depreciations during crises is much larger than those observed during non-crisis times. While exchange rates have traditionally been modelled as random walks, it is not obvious how the market regards the persistence of these unprecedented shocks. A casual look at the subsequent appreciation of the Korean won in 1998 suggests that the won may have exhibited "overshooting," while the same cannot be said of the Mexican peso. However, such statements cannot be made with any confidence as the behavior of