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## Relative price volatility under Sudden Stops: The relevance of balance sheet effects

Guillermo A. Calvo<sup>a,1</sup>, Alejandro Izquierdo<sup>b,\*</sup>, Rudy Loo-Kung<sup>b,2</sup>

<sup>a</sup> *Inter-American Development Bank, University of Maryland and NBER, 1300 New York Ave., N.W., Washington, D.C. 20577, United States*

<sup>b</sup> *Inter-American Development Bank, Research Department, 1300 New York Ave., N.W., Washington, D.C. 20577, United States*

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### Abstract

Sudden Stops are associated with increased volatility in relative prices. We introduce a model based on information acquisition to rationalize this increased volatility. An empirical analysis of the conditional variance of the wholesale price to consumer price ratio using panel ARCH techniques confirms the relevance of Sudden Stops and potential balance sheet effects as key determinants of relative price volatility, where balance sheet effects are captured by the interaction of a proxy for potential changes in the real exchange rate (linked to the degree of external leverage of the absorption of tradable goods) and a measure of domestic liability dollarization.

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\* Corresponding author. Tel.: +1 202 623 2864; fax: +1 202 623 2481.

*E-mail addresses:* calvo@wam.umd.edu (G.A. Calvo), alejandroi@iadb.org (A. Izquierdo), rudyk@contractual.iadb.org (R. Loo-Kung).

<sup>1</sup> Tel.: +1 202 623 2843; fax: +1 202 623 1772.

<sup>2</sup> Tel.: +1 202 623 3962; fax: +1 202 623 2481.

## 1. Introduction

The succession of financial crises in Emerging Market economies (EMs) that materialized throughout the second half of the 1990s,<sup>3</sup> affecting a wide range of countries in terms of standard fundamentals in a relatively short time span, suggests that systemic financial market forces, coupled with specific country vulnerabilities to capital account shocks, lie at the heart of these developments.

The vast literature on contagion in capital markets that emerged following these events acknowledges the existence of systemic effects (or “excess” volatility in spreads and asset prices), and it attempts to identify underlying characteristics that work as coordination factors. For example, contagion between two countries could be due to the fact that they belong to a particular asset class (Rigobón, 2001), borrow from the same banks (van Rijckeghem and Weder, 2000), or share a set of overexposed mutual funds (Broner and Gelos, 2003). Inspired by the Russian crisis of 1998, Calvo (1999) provides a model for contagion based on liquidity shocks to international investors, triggered by developments in a particular country that spread to other countries as international investors sell other assets in their portfolio to restore liquidity.

As a result of contagion, EMs have been subject to large and unexpected falls in capital inflows or Sudden Stops. Although the origins of Sudden Stops (or “incipient” Sudden Stops) typically reflect systemic shocks to capital markets, the probability that a particular country will experience a full-fledged Sudden Stop with large capital flow reversals could still depend on domestic factors representing vulnerabilities to this external shock. That is, the probability of experiencing a full-fledged Sudden Stop, conditional on the materialization of an “incipient” Sudden Stop could be a function of domestic factors.

As established in Calvo et al. (2004), potential balance sheet effects are key domestic drivers of the probability of experiencing a Sudden Stop. This is mainly due to the fact that Sudden Stops may entail a dramatic change in the level of the real exchange rate (RER). Abstracting from supply-side effects, this is simply the corollary of a cut in current account financing that forces a fall in aggregate demand, which, in turn, induces a drop in the price of non-tradable goods relative to that of tradable goods,<sup>4</sup> so that the RER (defined as the inverse of this relative price) will rise. This change-in-level effect in the RER becomes larger the less open a country is (i.e., the smaller the supply of tradable goods,<sup>5</sup> and given supply elasticities), as less tradable resources will be available to cushion the impact of the cut in foreign financing (see Calvo et al., 2003 for details). EMs may find RER fluctuations quite challenging to deal with when their financial systems are dollarized, especially if domestic banks lend to non-tradable sectors in foreign currency.<sup>6</sup> Thus, this phenomenon that we will refer to as Domestic Liability Dollarization (DLD) is particularly

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<sup>3</sup> Starting with the Mexican crisis of 1994–95 and the subsequent crises in East Asia (1997), Russia (1998), and Latin America (1999–2001).

<sup>4</sup> Taking the foreign exchange price of tradable goods as given (the standard assumption for a small open economy), all the effect goes through the foreign exchange price of non-tradables.

<sup>5</sup> Relative to the absorption of tradable goods.

<sup>6</sup> See de la Torre and Schmukler (2004) for a discussion on why banks may have a preference for default risk over exchange rate risk.

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