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## Over reaction in capital flows to emerging markets: Booms and sudden stops $^{\mbox{\tiny $\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{$\ensuremath{\\$\ensuremath{$\math{$\math{$\ensuremath{$\ensu$

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#### ABSTRACT

This paper applies the overreaction hypothesis of De Bont and Thaler [De Bont, W., Thaler, R., 1985. Does stock market overreact? Journal of Finance 40(3), 793-805], developed for stock price behavior, to capital flows to emerging markets. We find that a surge in capital flows, or what we call a *capital boom*, can predict future sharp contractions in capital flows, or sudden stops. We use a large list of possible economic fundamentals as control variables, and the results show that the best predictor of a sudden stop is a preceding capital boom. Moreover, the probability of a country undergoing a sudden stop increases considerably with the length of the boom: this probability more than doubles when the boom is three years old, and rises by three to four times when the boom lasts for four years. These results are interesting for two reasons. In the first place, they contradict previous studies that emphasize worsening fundamentals as the ultimate cause of a sudden stop. Second, they are of policy interest because of the enormous negative impacts that sudden stops have on the real economy. © 2011 Elsevier Ltd. All rights reserved.

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### 1. Introduction

Informal claims of overreaction in financial markets arise more frequently than what economists and analysts are prepared to admit, since they feel more comfortable anchoring stock price movements to informed expectations about future fundamentals. However, in a seminal work De Bont and Thaler (1985) evaluate what they call "overreaction" in the stock market and prove that, as is the case with many other human activities, financial markets show an excessive reaction to new information or unexpected events. One of their main conclusions is that a pronounced reversion in prices (negative returns) can be predicted by the observation of extreme preceding positive returns; in other words, an upward overreaction subsequently calls forth a dramatic downward adjustment.

An important aspect of this literature is the identification of an overreaction, which is related to psychological factors that push a price much beyond what would be determined by fundamental factors. Consequently, examples of markets with frequent overreaction behavior are those showing excess volatility. Such is the case of capital flows to emerging markets, where an unexplained volatility has been found. In a recent paper, Broner and Rigobón (2006) showed that capital flows to emerging markets are more volatile than those to developed countries. Using GDP per capita, inflation rates, real depreciation of exchange rates, terms of trade and interest rates for a set of emerging countries, the standard deviation of the error from panel estimations was greater than the error from a panel using data for developed countries by more than 60 percent. This standard deviation was significantly reduced using own lags of capital flows and contagion variables.

Our approach is different. We focus on the predictive power of a capital flow bonanza on subsequent and sharp reversions of capital flows, labeled *sudden stops* in recent literature, and consider this pattern as an example of overreaction. We define episodes of large capital flows to emerging markets, which we call *capital booms*, as those that are larger than a standard deviation above the historical mean and represent at least five percentage points of GDP. Using the definition of sudden stops by Guidotti et al. (2004), we define periods of abrupt reversions, or sudden stops, as those when capital flows decline by more than a standard deviation of their average variation during the sample period and when that decline is at least five percentage points of GDP. Similarly to the findings for stock prices, our results indicate that a capital-boom period is a good predictor of a subsequent sudden stop. Moreover, we find that the probability of a sudden stop increases dramatically the longer the preceding capital boom.

In our approach, emerging markets should be seen as an asset class for financial markets.<sup>1</sup> Leijonhufvud (2007) confirms this view. She shows that financial institutions have separate business units that manage profit and loss targets for their investments in emerging markets. Leijonhufvud stresses that this organizational form is responsible for the concentration of risk in emerging markets and the consequent formation of bubbles in asset prices. In addition, compensation systems "which link annual bonus payments to the amount of net income an employee has generated for the firm or its clients in a given year directly encourage employees to focus on short-term income opportunities" (Leijonhufvud, 2007). These ideas are lent credence by Kaminsky et al. (2004). Using monthly and quarterly data, they showed the existence of chartist strategies (buy winners and sell losers) and contagion trading in mutual funds dedicated to Latin American assets. These strategies proved stronger during crises.

In this paper, we use the financial account of the balance of payments (excluding reserve movements) as our closest measure of net capital flows. With an analysis of the probability of suffering a sudden stop, we test the relevance of prior capital booms. A capital-boom year is a period dominated by short run chartist strategies, as described previously. We find that the probability of a capital boom is significantly in countries that have experienced a capital boom the year before, and that this probability is very similar to the probability of suffering a sudden stop. However, as the capital boom lengthens, the probability of a subsequent sudden stop rises markedly, while the probability that the capital boom will continue drops to zero.

In contrast to other studies such as those by Edwards (2007), Calvo et al. (2004) or Cavallo and Frankel (2004), who attribute to domestic variables the cause of sudden stops, our results indicate

<sup>&</sup>lt;sup>1</sup> This is an application of Kindleberger's (2005) model of financial crises, where agents are prone to manias, which eventually give way to panics, in markets for specific asset classes.

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