



# Precautionary demand for foreign assets in Sudden Stop economies: An assessment of the New Mercantilism<sup>☆</sup>

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## ABSTRACT

Financial globalization had a rocky start in emerging economies hit by Sudden Stops. Foreign reserves have grown very rapidly since then, as if those countries were practicing a New Mercantilism that views foreign reserves as a war chest for defense against Sudden Stops. This paper conducts a quantitative assessment of this argument using a stochastic intertemporal equilibrium framework in which precautionary foreign asset demand is driven by output variability, financial globalization, and Sudden Stop risk. In this framework, credit constraints produce endogenous Sudden Stops. We find that financial globalization and Sudden Stop risk can explain the surge in reserves but output variability cannot. These results hold using the intertemporal preferences of the Bewley–Aiyagari–Huggett precautionary savings model or the Uzawa–Epstein setup with endogenous impatience.

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## 1. Introduction

The early stages of financial globalization in emerging economies were characterized by a series of financial and economic crises known as *Sudden Stops*. The indexes of capital account liberalization constructed by Edwards (2005) and Chinn and Ito (in press) show that financial globalization progressed significantly in these economies since the late 1980s (see Fig. 1). The waves of Sudden Stops that followed began with the Mexican crisis of 1994–95. Table 1 lists 18 Sudden Stop episodes that occurred between 1994 and 2002. Following these crises, emerging economies accumulated record-

high stocks of foreign reserves. Table 1 shows that the median increase in reserves was 7.7% of GDP (measured as the cross-country median of the differences between each country's average reserves-to-GDP ratio from the year of the country's Sudden Stop to 2004 and the average from 1985 to the year of the Sudden Stop).<sup>1</sup> The increase was particularly sharp in the Asian Sudden Stop countries, where the median increase in reserves exceeded 13% of GDP!<sup>2</sup>

A popular view in policy institutions and academic circles is that this surge in reserves represents a form of self-insurance that countries have taken against future Sudden Stops: Having realized that the sudden loss of access to capital markets is a shortcoming of financial globalization, and being aware of the limited financial

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<sup>1</sup> In most Sudden Stop countries, the change in reserves has been larger than the change in net foreign assets indicating large portfolio shifts that are beyond the scope of this paper. Our focus is on how much of the increase in assets can be explained by precautionary motives. Still, portfolio considerations can be important for studying the surge in reserves (Alfaro and Kanczuk, 2006; Jeanne, in press) and the dynamics of Sudden Stops (Durdu and Mendoza, 2006).

<sup>2</sup> Setting the breakpoint in the Sudden Stop year is not critical. A widespread surge in reserves is also evident when comparing average reserves across the 1986–2004 and 1970–1985 periods. Given that 1985 is often viewed as the starting year of the globalization process, we can also say that reserves surged along with financial globalization.

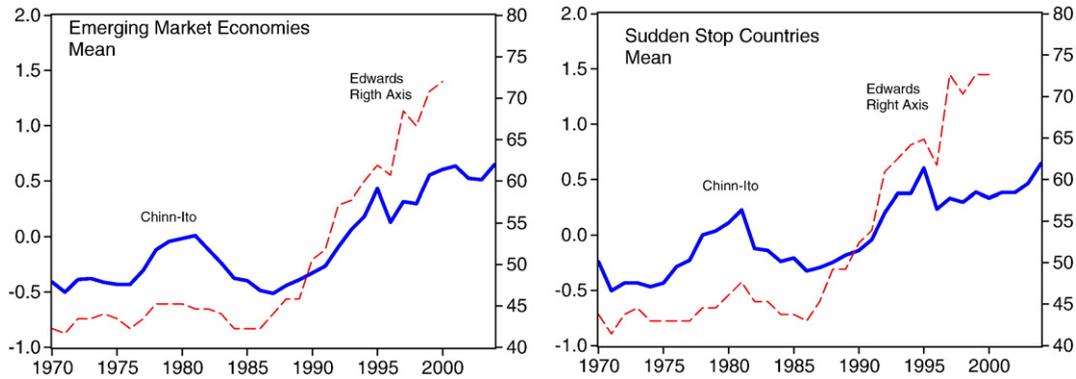


Fig. 1. Emerging market economies: financial integration.

mechanisms available to cope with Sudden Stops, emerging economies opted for a New Mercantilism in which large holdings of reserves are viewed as a war chest for defense against Sudden Stops. Aizenman and Lee (2007), Alfaro and Kanczuk (2006), Caballero and Panageas (2008), Choi et al. (2007), Jeanne and Ranci ere (2006), and Jeanne (in press) examine key features of this New Mercantilism, and the potential to develop better insurance mechanisms.

This paper conducts a quantitative assessment of the New Mercantilism. We use a dynamic stochastic general equilibrium framework of optimal precautionary demand for foreign assets in a small open economy with incomplete asset markets. We quantify the effects of three key factors that drive precautionary savings in this framework: (1) changes in the business cycle variability of output, (2) financial globalization (i.e., the removal of barriers affecting international asset trading), and (3) self-insurance against Sudden Stops.

The analysis proceeds in two stages. The first stage uses a canonical one-sector model of an endowment economy that faces noninsurable shocks in domestic income. Those shocks are non-insurable because asset markets are incomplete, but the economy still has access to a frictionless credit market in which it can borrow or lend at the world's risk-free interest rate. The model is calibrated to match the variability and persistence of output in Sudden Stop economies and then used to compute the optimal short- and long-run dynamics of foreign assets triggered by changes in output variability and financial globalization.

The second stage of the analysis studies a two-sector production economy with endogenous Sudden Stops. The economy has a tradable goods sector and a nontradable goods sector, and nontradables are produced with imported intermediate goods (which are priced in world markets). This economy features "liability dollarization" because non-state-contingent debt is denominated in units of tradables. Here, we reexamine the adjustments in foreign assets driven by financial globalization and business cycle volatility. The main goal, however, is to quantify the increase in foreign assets due to optimal self-insurance against Sudden Stops. To that end, we introduce Mendoza's (2002) collateral constraint that limits debt not to exceed a fraction of the value of total income in units of tradables. This constraint causes endogenous Sudden Stops because, when it binds, the output and price of nontradables collapse, tightening the credit constraint further and setting in motion Fisher's (1933) classic debt-deflation mechanism. In this setup, precautionary saving takes into account how foreign asset holdings alter the probability and the magnitude of Sudden Stops.

Our quantitative analysis yields three key findings: (1) Financial globalization, even without Sudden Stops, can produce large increases in mean foreign asset holdings; (2) the risk of Sudden Stops also produces large increases in foreign assets, even when the long-run variability of output is unaffected by Sudden Stops; (3) changes in output variability cannot explain the surge in reserves. The mo-

del's predict increases in foreign assets in response to higher income variability. In the data, however, there is no evidence of systematic increases in the standard deviation of cyclical output for Sudden Stop economies in the era of financial globalization (see Table 2 and Fig. 2). In some countries it increased, but in many others it fell, and the mean and median ratios of pre- vs. post-globalization output variability exceed 1. Looking at sectoral GDP variability, nontradables GDP shows the same pattern as aggregate GDP, and the variability of tradables GDP rose (see Table 2), but not by the magnitudes that the model would require to explain the surge in reserves.

Our model also yields an important result in terms of the dynamics associated with the surge in reserves: The large buildup of foreign assets in response to financial globalization or Sudden Stop risk is a slow, gradual process characterized by current account surpluses and undervalued real exchange rates. Those dynamics do not require central bank intervention to target the real exchange rate in efforts to promote exports. Hence, our results can resolve the dichotomy dividing self-insurance-based explanations of the surge in reserves

Table 1

International reserve position in Sudden Stop economies<sup>a</sup>.

Country	Year of Sudden Stop <sup>b</sup>	Before <sup>c</sup>	After <sup>d</sup>	Difference
<i>(Percent of GDP)</i>				
Argentina I	1994	3.20	8.62	5.42
Argentina II	2001	5.04	11.54	6.51
Brazil	1998	4.36	7.65	3.30
Chile	1998	16.93	20.49	3.57
Colombia	1998	9.24	12.21	2.97
Ecuador	1999	7.35	3.89	-3.46
Hong Kong	1998	34.16	68.85	34.69
Indonesia	1997	6.53	18.69	12.17
Korea	1997	5.03	21.26	16.23
Mexico	1994	4.64	7.29	2.65
Malaysia	1997	25.18	39.54	14.36
Pakistan	1998	1.90	8.51	6.61
Peru	1998	9.25	16.66	7.41
Philippines	1997	6.05	16.69	10.65
Russia	1998	3.05	12.46	9.41
Thailand	1997	14.84	28.01	13.17
Turkey	2001	5.67	13.57	7.90
Uruguay	2002	7.18	20.06	12.87
Median		6.29	15.12	7.66
Median Asian countries		6.53	21.26	13.17

<sup>a</sup> Refers to the emerging market economies that experienced a Sudden Stop during the past two-decades.

<sup>b</sup> We include Sudden Stop episodes that are included in various empirical studies of Sudden Stops, such as Calvo et al. (2004), Cavallo and Frankel (2007), and Rothenberg and Warnock (2006).

<sup>c</sup> Covers the period since 1985 to the year before the Sudden Stop.

<sup>d</sup> Covers the period since the year after the Sudden Stop till 2004.

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