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# For a few dollars more: Reserves and growth in times of crises \*



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#### ABSTRACT

Based on a dataset of 112 emerging economies and developing countries, this paper addresses the question whether the accumulation of international reserves has effectively protected countries during the 2008–09 financial crisis. More specifically, the paper investigates the relation between international reserves and the existence of capital controls. We find that the level of reserves matters: countries with high reserves relative to short-term debt suffered less from the crisis, particularly when associated with a less open capital account. This suggests some degree of complementarity between reserve accumulation and capital controls.

#### 1. Introduction

In the decade preceding the 2008 global financial crisis (GFC), emerging market economies (EME) accumulated large stocks of international reserves (Fig. 1). The unprecedented pace of reserve accumulation was, at least partly, a response to the lessons drawn from previous financial crises, which predominantly affected emerging markets. Most research on emerging market crises suggests that

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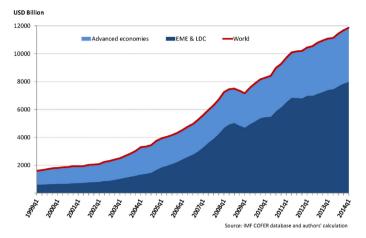


Fig. 1. World international reserves.

countries with an insufficient level of reserves, measured against appropriately chosen benchmarks, suffered more from crises in the 1990s.<sup>1</sup> A natural question arising from this observation is to what extent the accumulation of international reserves has protected countries from the negative shock of the latest crisis: have countries with more reserves fared better, in terms of output growth performance, than countries with less reserves? Are there, in addition, other policy tools that can strengthen or dampen the effects of reserves on growth performance?

To answer the above questions, this paper aims at identifying the relationship between pre-crisis foreign reserve accumulation and economic growth during the GFC; the latter can be viewed as an ultimate test for the usefulness of reserves as an insurance mechanism.

Against this background, the paper presents two sets of findings. First, we test the hypothesis that international reserves fulfill the protective role they are often assigned to, by testing whether the extent of the crisis (proxied here by two different measures of output collapse, which control for idiosyncratic factors) are related to the level of reserves before the crisis. More specifically, given the debate on what constitutes the most appropriate metrics for international reserves, we construct a set of reserve ratios, expressing reserves as a percentage of GDP, imports, M2 and short-term debt. The results indicate that when reserves are measured as a percentage of short-term debt, there is a statistically significant relationship with the dependent variable, but not for the other reserve adequacy ratios. This result is robust to using alternative definitions of the crisis variable, different sub-samples (EME only or combined with least developed countries (LDC)) or introducing additional control variables. In this set of regressions we also use an instrumental variable approach to account for a potential endogeneity bias. We develop two main instruments for our reserve ratio, focusing on reserve accumulation in neighboring countries as an alternative accumulation motive.

Second, we focus on the interaction between international reserves and capital account openness by introducing an interaction term involving these two variables. We find that the coefficient of the interacted term is sometimes significantly different from zero. The magnitude of the marginal effects of reserves depends on the degree of capital controls; that is, a less open capital account reinforces the positive marginal effect of reserves that we find in the first set of regressions.<sup>2</sup> This suggests that foreign reserves and capital controls are complementary, reinforcing each other.

<sup>&</sup>lt;sup>1</sup> For a detailed review of this literature, see Flood and Marion (1999), Berg and Pattillo (1999), Kaminsky and Reinhart (1999), Bussière and Mulder (1999), Gourinchas and Obstfeld (2012), Catao and Milesi-Ferretti (2014) and Obstfeld (2014).

<sup>&</sup>lt;sup>2</sup> The relationship between capital controls and foreign reserve accumulation is complex. Several parallel stories can be advanced regarding why the stock of reserves is larger in an economy with capital controls (for keeping the domestic currency undervalued, or for social welfare concerns). We provide an analysis of the subject in Section 3.3. In any case, the multiple motives for reserve accumulation do not preclude testing the usefulness of reserve holdings during the crisis, alone or with capital controls.

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