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## Dollarization persistence and individual heterogeneity<sup>☆</sup>

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A salient feature of financial dollarization, arguably the one that causes most concern to policymakers, is its persistence: even after successful macroeconomic stabilizations, dollarization ratios often remain high. In this paper we argue that this persistence is connected to the fact that the participants in the dollar deposit market are fairly heterogenous, and so is the way they form their optimal currency portfolio. We develop a simple model when agents differ in their ability to process information, which turns out to be enough to generate persistence upon aggregation. We provide empirical evidence that is consistent with this claim.

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### 1. Introduction

Even though dollarization is a relatively new research area, the experiences of many Latin American and transition economies during the 1990s has inspired a growing and rich body of literature (see, inter alia, De Nicoló et al., 2005; Levy-Yeyati, 2006, for recent reviews). Dollarization is normally associated with the partial substitution of the domestic currency by a foreign currency (the US dollar) as a store of value, as opposed to currency substitution which refers to the use of the foreign currency as a medium of exchange. In this paper, by dollarization we mean *deposit dollarization*, which eventually leads to

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credit dollarization and to the vulnerability of the financial system of highly dollarized countries. As stressed by Cook (2004), the efficacy of monetary policy in small open economies with flexible exchange rates is compromised by the negative balance sheet effects generated by dollarization. In this case, sudden real depreciations can have detrimental consequences on the economic activity by reducing the net worth of firms and generating adverse effects on investment. This situation gives a rationale for a “fear of floating” behavior of central banks (cf. Morón and Winkelried, 2005).

One of the most salient features of dollarization, and probably the one that causes most concern to policymakers, is its *persistence*. It is well documented that dollarization increases sharply during episodes of unduly macroeconomic instability and that it remains stubbornly high even long after successful stabilizations (cf. Guidotti and Rodríguez, 1992; Kamin and Ericsson, 2003). A top-of-mind explanation of this hysteresis is lack of confidence in domestic currency assets as the result of the traumas brought by past inflation, devaluations, banking crises, and so on. Thus, even if strong macroeconomic fundamentals can be observed in several highly dollarized countries (e.g., Peru in the early 2000s), persistence of dollarization may be explained by fears that the sound macroeconomic policies will someday be abandoned.

An alternative avenue to address this puzzle is to adapt the existing literature on currency substitution, which is based on adjustment costs or network externalities. Guidotti and Rodríguez (1992), Sturzenegger (1997) and Uribe (1997) develop models where the cost of using the dollar for transactions depends negatively on the aggregate currency substitution ratio, so once transactions get dollarized, there is no benefit to switch back to using domestic currency if others continue using dollars. However, a limitation of this approach for explaining financial dollarization persistence is that relies only on transaction costs, and does not take into account financial variables, fundamental determinants of dollarization. Moreover, these models rely heavily on a knowledge stock that drives the persistence (a “ratchet variable”). Thus, although they can explain upward trends in the depth of dollarization, they may not be satisfactory in tracking episodes of dedollarization as this would require an implausible reduction in the knowledge stock.

On the other hand, Ize and Levy Yeyati (2003) derive a minimum variance portfolio (MVP), usually interpreted as the underlying equilibrium level of dollarization that depends on the relative volatility of inflation and real depreciation rates. Dollarization would persist even when inflation is low and stable insofar as the real depreciation volatility is smaller than that of inflation. The MVP approach has proven successful in explaining cross-sectional variation of dollarization level (cf. De Nicoló et al., 2005), but seems to be less satisfactory when it comes to explaining the evolution of dollarization ratios (see Morón, 2006). For instance, hysteresis is observed in several countries with high real exchange rate volatility (relative to inflation), such as Peru, Russia or Turkey. One explanation for this apparent contradiction with the portfolio approach is the difficulty in obtaining sound estimates of the variances and covariances that compose the MVP. On one hand, unobservable factors such as credibility effects or fears of a collapsing monetary regime can generate differences between observed and expected volatilities, the latter being the theoretical measurement of uncertainty in the MVP. On the other hand, in its simplest form, the MVP's framework is static and hence depends on unconditional moments. Since persistence is inherently a dynamic phenomenon, our analytical framework allows the MVP to depend on conditional, time-varying moments.

Curiously, a fact that researchers have apparently overlooked is the very nature of the participants of the dollar deposit market in dollarized economies: depositors are extremely heterogenous, ranging from large entrepreneurs to small firms to non-profit organizations and to individuals, rich and not-so-wealthy.<sup>1</sup> Participation costs in the dollar market are virtually nil due to liberalization, deregulation and, importantly, due to the emergence of informal currency traders – known as *cambistas* in Latin American countries and as *obmenschiki* in Russia – which benefit from buying and selling dollars with tighter markups than those in the banking sector.<sup>2</sup> A typical *cambista* or *obmenschik* would hold a limited amount of money for business (say, between US\$2000 and US\$5000) as he seeks to meet the

<sup>1</sup> An exception is Sturzenegger (1997) who studies the implications of income inequality on currency substitution, yet with no reference to deposit dollarization.

<sup>2</sup> Agénor and Haque (1996) provide an account of informal currency markets.

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