Comments

Eduardo Levy Yeyati: Any serious attempt to dedollarize (that is, to gradually and voluntarily undo the de facto denomination of onshore financial assets in a foreign currency) needs to address at least two fundamental questions: why is the current financial dollarization level suboptimal, and how are governments supposed to bring it to its optimal level at a reasonable cost? This paper attempts to do so. It surveys the empirical and analytical literature on financial dollarization, provides a case for an active dedollarization policy, and proposes a strategy to that end. As such, it represents a welcome effort to put the debate in perspective and shed light on what *should* and *could* be done with financial dollarization in Latin American economies. My comments on the paper center on how Fernández-Arias addresses these two questions.

With regard to whether something should be done (more precisely, whether current levels of financial dollarization are suboptimal), there is a growing consensus that financial dollarization is a source of financial fragility because it creates a currency imbalance that results in deleterious balance sheet effects in the event of a real exchange rate depreciation. However, before concluding that financial dollarization should be brought down, the analysis needs to ask why this situation of dollarized fragility arises to begin with. The paper tackles this point head on. Borrowing from a copious but fragmented literature, Fernández-Arias lists a number of arguments that suggest that financial dollarization may reflect not only the optimal portfolio choice in the context of a nominally unstable economy, but also the consequence of market imperfections or misguided policies. Here I briefly revisit this list, liberally editing and augmenting it as I go.

The first item on the list is externalities. Systemic crises induced (or facilitated) by financial dollarization involve social costs that are not internalized by the parties to the dollarized financial contract. To illustrate, Fernández-Arias uses Jeanne's "peso problem" story.[1] Under a noncredible peg with

1. Jeanne (2002).

perfect information, the probability of a large devaluation is low. This, in turn, widens the peso-dollar interest rate differential to the point that, whereas dollar debtors default with a devaluation, peso debtors default *without it.* If liquidation costs are largely fixed, it is optimal to choose the currency that minimizes the probability of default—in this case, the dollar. However, retorts Fernández-Arias, while the assumption of a fixed liquidation cost may be a realistic approximation of legal fees and time-consuming bankruptcy procedures, these represent but a small share of the social costs associated with the (possibly massive) bankruptcies triggered by a devaluation in a financially dollarized economy. Individually optimal financial dollarization thus ends up being suboptimal from an aggregate perspective.[2]

Most of the costs flagged in the recent financial dollarization debate stem, in one way or another, from the presence of a currency mismatch. Another, often overlooked source of externalities, specifically associated with onshore deposit dollarization, is related to the maturity mismatch and the limits that financial dollarization imposes on the domestic lender of last resort in the event of a liquidity run à la Diamond and Dybvig. Both the need to hoard liquid dollar reserves and the large liquidity runs that even a sizeable liquidity stock cannot insure against introduce social costs that, again, call for centralized intervention.

The second set of arguments on the list involves policy distortions. If risk is positively correlated with the real exchange rate, the option value of safety nets such as deposit insurance or lender of last resort facilities is higher for dollar assets, and they are mispriced in favor of the dollar if they are offered uniformly across currencies. Similarly, prudential regulation that fails to recognize the currency risk embedded in dollar lending to borrowers with no dollar income induces regulatory arbitrage that benefits the foreign currency. Two aspects of this issue deserve to be emphasized. First, it is not the dollarization bias per se that makes the case for regulatory reform, but rather the view that currency risk (like any other risk) should not be stimulated because of the externalities it creates—which brings me back to the previous point. Second, these policy distortions are sometimes symptoms of political constraints. Myopic governments tend to avoid the cost of tighter regulation today at the expense of a higher propensity to suffer a crisis tomorrow, while credibility-challenged governments may use financial dollarization as a commitment to a peg by increasing exit costs, at the expense of a high cost once

2. This argument would also apply to the (a priori optimal) warranted dollarization at the core of the paper's analytical discussion, if default (and its social costs) were discussed in that context.

the exit cannot be avoided. This agency problem does not weaken the dedollarization case, but it suggests that some rules or external conditioning (including domestic political support) may help in the process.

Finally, this discussion cannot ignore the fact that financial dollarization may be self-reinforcing. If so, while still optimal, it may not represent the best possible equilibrium. Examples of multiple equilibria abound. Some are mentioned in the paper: because of balance sheet concerns, widespread financial dollarization reduces the government's tolerance for real exchange rate fluctuations ex ante, increasing financial dollarization according to the portfolio model—and raising the probability of a government bailout ex post, with the same result. I could add other examples: financial dollarization heightens the correlation between nominal devaluations and GDP contractions, which increases the hedging benefits of dollar assets according to the safe haven hypothesis, and strengthens the dollarization bias implicit in currency-blind safety nets, thereby deepening financial dollarization. Whatever the underlying plot, the presence of these feedback effects is crucial for the dedollarization policy discussion. A bad equilibrium implies that marginal changes in the parameters of the problem may have negligible effects on financial dollarization. This represents yet another rationale for abandoning gradualism in favor of a concerted strategy, which the paper suggests perhaps too subtly.

With regard to the question of how governments are supposed to bring financial dollarization to its optimal level at a reasonable cost, it is fair to note that even after the empirical relevance of the previous arguments is taken into account, dedollarization remains an uphill task, with hurdles that may exceed the long-run gains promised by dedollarization advocates. How should governments proceed to keep the transition costs reasonably low? Fernández-Arias proposes giving priority to the promotion of peso substitutes (the carrot) rather than the tightening of regulatory pressure on dollar intermediation (the stick). He is concerned that an excessively hawkish antidollar stance may induce disintermediation. The main difficulty with evaluating this (or any other) proposal is that there are simply no relevant precedents from which to build a useful benchmark.

On this front, some confusion pervades both the literature and the paper. The set of pertinent experiences identified in the literature is a mixed bag that groups together countries that successfully prevented financial dollarization from growing (such as Chile and Israel), forceful conversions to the local currency in the midst of a bank run (namely, Bolivia in 1982, Mexico in 1982, Peru in 1985, Pakistan in 1998, and Argentina in 2002), and some borderline cases with moderate declines in financial dollarization that are hard to attribute

to specific factors or that can be ascribed to valuation changes (as in transition economies that experience violent swing in their real exchange rates at the time of the price liberalization).

As a result, the policy discussion is rather speculative. In Chile and, most notably, Israel, dedollarization owed more to a long and patient price stabilization strategy than to the dedollarization efforts endorsed by this paper. Thus, the case for inflation indexation, rooted as much in these experiences as in the portfolio model of financial dollarization, is somewhat weakened in the scenario of contained inflation that presently characterizes most financially dollarized countries.

At the other extreme, the argument that dedollarization leads to a sharp financial disintermediation is based on evidence from the forceful conversions. The latter, however, were conducted in the context of a generalized capital flight when the bank run was well under way, so the specific role that the conversion played in the financial contraction that followed is hard to identify. Indeed, since capital flight in those cases preceded—and largely brought about—the currency conversion, disintermediation was the cause of both dedollarization and its failure, rather than its consequence. Nevertheless, this questionable evidence should not overshadow a more general issue: if the application of the regulatory stick in tranquil times results in some narrowing of the market, should it be considered a loss, or simply the natural downsizing of a market that was artificially beefed up by financial dollarization at the risk of a sudden contraction in the future?

Finally, the intuitive claim that repressed dollar savings may opt for shorter peso instruments still needs empirical validation. Anecdotal evidence, however, is not always supportive: even in the heyday of convertible Argentina, the vast majority of dollar deposits were below the 90-day mark, which contradicts the currency-maturity tradeoff.

With all these caveats, Fernández Arias makes the most of the partial analytical models and scarce empirical evidence at hand. He takes a stand on this incipient debate, endorsing calls for an active dedollarization strategy, spearheaded by the government, in its double role of regulator and main issuer, and institutional investors, as the backbone of the investor base for peso instruments. This pattern is being followed, incipiently and with variations, by a growing number of financially dollarized countries in the region. In addition, he highlights the role of multilateral financial institutions in jumpstarting peso markets and marketing dedollarization among governments reluctant to pay the price.

This is where the debate now stands. Given the growing popularity of these ideas, it may not be long until a more precise picture emerges of how dedollarization works in the real world.

Eduardo Morón: Fernández-Arias tackles one of those neglected issues that became important only after a financial crisis hit the region. The reason for that neglect could be that dollarization has many faces, each of which poses different risks to emergent economies. The literature has evolved from early discussions on currency substitution, in which monetary policy was left out of the equation, to a scenario of liability dollarization, in which a currency crisis comes in conjunction with a banking crisis, and depreciations are again contractionary.

In this sense, adopting a dedollarizing policy has become a rather important decision for many countries in the region. The problem is that previously that decision was never implemented in a market-friendly way. Analysts need a model that explains the phenomenon and pinpoints possible solutions. Until recently, the most frequently suggested policy solution for reducing the level of domestic financial dollarization was to keep inflation at low levels.[1] It was argued that central banks needed to regain their wasted reputation through long periods of low inflation, so as to erase the memory of rapidly rising inflation.

When that failed, the recipe changed to reducing the relative variability of inflation vis-à-vis the real exchange rate.[2] The beauty of the minimum variance portfolio (MVP) model was that given the link between domestic financial dollarization and liability dollarization present in the data, policy decisions toward dedollarization might focus on the depositor side of the problem. This opened the discussion on the role of eliminating currency-blind deposit insurance schemes or imposing taxes on dollar deposits with the risk of reducing the level of domestic intermediation.[3]

Before the details of a dedollarization strategy can be identified, however, two questions must be addressed. First, what happens if the apparently high level of liability dollarization is, in fact, optimal? Second, have any countries actually succeeded at dedollarizing? While the paper discusses both questions at length, the MVP model is not the best method for framing the optimality question. This calls for a new research effort. In addition, the paper assumes that the MVP model has been doing fine, yet in the Peruvian case, the model fails to capture the evolution of the data. In fact, the MVP model consistently underpredicts the dollarization ratio. In a recent paper, my coauthor and I extend the basic capital asset pricing model (CAPM) formulation,

1. Guidotti and Rodríguez (1992).
2. Ize and Levy Yeyati (2003).
3. See Castro and Morón (2004a) on currency-blind deposit insurance schemes.

introducing the possibility of a default scenario triggered by an unanticipated real exchange rate shift.[4] The modified model encompasses Ize and Levy Yeyati's model as a special case and performs much better than the MVP model under suitable parameters.

Fernández-Arias discusses the optimal level of dollarization given the presence of negative externalities such as those arising from balance sheet effects. In fact, the paper shows that the level of dollarization will fall when agents internalize these externalities. Nevertheless, the question remains: is this the optimal level of dollarization? That will be the case if, and only if, balance sheet issues are the only market failure. The paper answers this question as it emphasizes the need to issue domestic assets in local currency. This implies the presence of at least one more market failure: assets are not perfect substitutes. In that case, the optimal level of dollarization will be even lower than before. It is hard to say how important—in welfare terms—these market imperfections are, at least from this analysis.

Finally, the paper does not address the recent dedollarization experience in Peru. The country had one of the region's most dollarized economies, but it has been able to consistently reduce domestic deposit dollarization. Although Peru has not yet achieved a 20 percent dollarization level and the program has only been in operation for four years, it is a key experience in that Peruvian authorities have followed a great deal of Fernández-Arias's proposal. Peru introduced first indexed bonds and then nominal bonds. Maturities were initially very short, but a fifteen-year nominal bond was recently introduced. Peru has partially dedollarized its foreign debt, and firms have started to issue bonds following the government's first steps. The Central Bank, however, has been extremely conservative in allowing the exchange rate to appreciate. The reluctance to let the exchange rate float freely has slowed the dedollarization process and deterred the formation of markets to hedge against exchange rate risk.

4. Castro and Morón (2005).

References

Aghion, Philip, Philippe Bacchetta, and Abhijit Banerjee. 2001. "Currency Crises and Monetary Policy in an Economy with Credit Constraints." *European Economic Review* 45(7): 1121–50.

Baliño, Tomás, Adam Bennet, and Eduardo Borensztein. 1999. "Monetary Policy in Dollarized Economies." Occasional Paper 171. Washington: International Monetary Fund.

Borensztein, Eduardo, and Paolo Mauro. 2002. "Reviving the Case for GDP-Indexed Bonds." Policy Discussion Paper 02/10. Washington: International Monetary Fund.

Broda, Christian, and Eduardo Levy Yeyati. 2006 (forthcoming). "Endogenous Deposit Dollarization." *Journal of Money, Credit, and Banking.*

Buiter, Willem H., and Anne C. Sibert. 1999. "UDROP: A Contribution to the New International Financial Architecture." *International Finance* 2(2): 227–47.

Burnside, Craig, Martin Eichenbaum, and Sergio Rebelo. 2001. "Hedging and Financial Fragility in Fixed Exchange Rate Regimes." *European Economic Review* 45(7): 1151–93.

Caballero, Ricardo, Kevin Cowan, and Jonathan Kearns. 2005. "Fear of Sudden Stops: Lessons from Australia and Chile." *Journal of Policy Reform* 8(4): 313–54.

Caballero, Ricardo, and Arvind Krishnamurthy. 2003. "Excessive Dollar Debt: Financial Development and Underinsurance." *Journal of Finance* 58(2): 867–93.

———. 2004. "Smoothing Sudden Stops." *Journal of Economic Theory* 119(1): 104–27.

Calvo, Guillermo A., and Eduardo Fernández-Arias. 1998. "The New Features of Financial Crisis in Emerging Markets." In *Wanted: World Financial Stability,* edited by Eduardo Fernández-Arias and Ricardo Hausmann. Washington: Inter-American Development Bank.

Calvo, Guillermo A., and Pablo Guidotti. 1989. "Credibility and Nominal Debt: Exploring the Role of Maturity in Managing Inflation." Working Paper 89/73. Washington: International Monetary Fund.

Calvo, Guillermo A., Alejandro Izquierdo, and Luis-Fernando Mejía. 2004. "On the Empirics of Sudden Stops: The Relevance of Balance-Sheet Effects." Working Paper 509. Washington: Inter-American Development Bank.

Calvo, Guillermo A., and Carmen M. Reinhart. 2002. "Fear of Floating." *Quarterly Journal of Economics* 117(2): 379–408.

Castro, Juan Francisco, and Eduardo Morón. 2004a. "Dedollarizing the Peruvian Economy: A Portfolio Approach." Lima: Universidad del Pacífico, Centro de Investigación. Mimeographed.

———. 2004b. "Política monetaria en economías dolarizadas: un aporte analítico." Universidad del Pacífico. Mimeographed.

———. 2005. "Financial Dollarization and the Size of the Fear." Lima: Universidad del Pacífico, Centro de Investigación. Mimeographed.

Chamon, Marcos. 2001. "Foreign Currency Denomination of Foreign Currency Debt: Has the Original Sin Been Forgiven but Not Forgotten?" Harvard University.

Chamon, Marcos, and Ricardo Hausmann. 2003. "Why Do Countries Borrow the Way They Borrow?" Harvard University.

Chang, Roberto, and Andrés Velasco. 2000. "Exchange Rate Policy for Developing Countries." *American Economic Review* 90(2): 71–5.

———. 2005. "Endogenous Dollarization and Monetary Policy." *Journal of Policy Reform* 8(4): 263–80.

Catão, Luis, and Marco Terrones. 2000. "Determinants of Dollarization—The Banking Side." Working Paper 00/146. Washington: International Monetary Fund.

Claessens, Stijn, Daniela Klingebiel, and Sergio Schmukler. 2003. "Government Bonds in Domestic and Foreign Currency: The Role of Macroeconomics and Institutional Factors." Washington: World Bank. Mimeographed.

Cowan, Kevin, Herman Kamil, and Alejandro Izquierdo. 2004. "Macroeconomic Determinants of Dollarization: A New Look at the Evidence." Washington: Inter-American Development Bank.

De la Torre, Augusto, and Sergio Schmukler. 2003. "Coping with Risk through Mismatches: Domestic and International Financial Contracts for Emerging Economies." Washington: Inter-American Development Bank. Mimeographed.

De Nicoló, Gianni, Patrick Honohan, and Alain Ize. 2003. "Dollarization of the Banking System: Good or Bad?" Washington: International Monetary Fund. Mimeographed.

Dooley, Michael. 2000. "A Model of Crises in Emerging Markets." *Economic Journal* 110(460): 256–72.

Eichengreen, Barry, and Ricardo Hausmann. 1999. "Exchange Rates and Financial Fragility." Working Paper 7418. Cambridge, Mass.: National Bureau of Economic Research.

Eichengreen, Barry, Ricardo Hausmann, and Ugo Panizza. 2002. "Original Sin: The Pain, the Mystery, and the Road to Redemption." Washington: Inter-American Development Bank. Mimeographed.

———. 2003. "Currency Mismatches, Debt Intolerance, and Original Sin: Why They Are Not the Same and Why It Matters." Working Paper 10036. Cambridge, Mass.: National Bureau of Economic Research.

Fernández-Arias, Eduardo, and Ricardo Hausmann. 2001. "Capital Inflows and Crisis: Does the Mix Matter?" In *Foreign Direct Investment versus Other Flows to Latin America,* edited by Jorge Braga de Macedo and Enrique V. Iglesias, pp. 93–110. Paris: Organization for Economic Cooperation and Development, Development Center Seminars.

Fernández-Arias, Eduardo, and Davide Lombardo. 2002. "Market Discipline and Exuberant Foreign Borrowing." In *Banking, Financial Integration, and International Crisis,* edited by Leonardo Hernández and Klaus Schmidt-Hebbel, pp. 333–60. Santiago: Central Bank of Chile.

Galiani, Sebastián, Eduardo Levy Yeyati, and Ernesto Schargrodsky. 2003. "Financial Dollarization and Debt Deflation under a Currency Board." *Emerging Markets Review* 4(4): 340–67.

Galindo, Arturo, and Leonardo Leiderman. 2005. "Living with Dollarization and the Route to Dedollarization." Working Paper RES-05-526. Washington: Inter-American Development Bank.

Galindo, Arturo, Ugo Panizza, and Fabio Schiantarelli. 2003. "Debt Composition and Balance Sheet Effects of Currency Depreciation: A Summary of the Micro Evidence." *Emerging Markets Review* 4(4): 330–39.

Goldstein, Morris, and Philip Turner. 2003. "Currency Mismatching in Emerging Economies." Basel: Bank for International Settlements.

Guidotti, Pablo E., and Carlos A. Rodríguez. 1992. "Dollarization in Latin America: Gresham's Law in Reverse?" *IMF Staff Papers* 39(2): 518–44.

Gulde, Anne-Marie, and others. 2004. "Financial Stability in Dollarized Economies." Occasional Paper 230. Washington: International Monetary Fund.

Hausmann, Ricardo. 2003. "Good Credit Ratios, Bad Credit Ratings: The Role of Debt Structure." Paper prepared for the conference Rules-Based Fiscal Policy in Emerging Market Economies. International Monetary Fund and World Bank, Oaxaca, Mexico, February 14–16, 2002.

Herrera, Luis Oscar, and Rodrigo V. Valdés. 2005. "Dedollarization, Indexation, and Nominalization: The Chilean Experience." *Journal of Policy Reform* 8(4): 281–312.

IDB (Inter-American Development Bank). 2004. "Unlocking Credit." In *Economic and Social Progress in Latin America.* Washington.

IMF (International Monetary Fund). 2005. "Debt-Related Vulnerabilities and Financial Crises: An Application to the Balance Sheet Approach to Emerging Market Countries." Occasional Paper 240. Washington.

Ize, Alain, Miguel A. Kiguel, and Eduardo Levy Yeyati. 2006 (forthcoming). "Managing Systemic Liquidity Risk in a Financially Dollarized Economy." In *Financial Dollarization: The Policy Agenda,* edited by Adrian Armas, Alain Ize, and Eduardo Levy Yeyati. Basingstoke, (Hampshire) United Kingdom: Palgrave Macmillan.

Ize, Alain, and Eduardo Levy Yeyati. 2003. "Financial Dollarization." *Journal of International Economics* 59(2): 323–47.

———. 2005. "Financial Dedollarization: Is It for Real?" Working Paper 05/187. Washington: International Monetary Fund.

Ize, Alain, and Eric Parrado. 2002. "Dollarization, Monetary Policy, and the Pass-Through." Working Paper 02/188. Washington: International Monetary Fund.

Ize, Alain, and Andrew Powell. 2005. "Prudential Responses to de Facto Dollarization." *Journal of Policy Reform* 8(4): 241–62.

Jeanne, Olivier. 2002. "Why Do Emerging Economies Borrow in Foreign Currency?" Working Paper 03/77. Washington: International Monetary Fund.

Levy Yeyati, Eduardo. 2004. "Dollars, Debt, and the IFIs: Dedollarization Multilateral Lending." Working Paper 11/2004. Buenos Aires: Universidad Torcuato Di Tella, Centro de Investigación en Finanzas.

———. 2006. "Financial Dollarization: Evaluating the Consequences." *Economic Policy* 21(45): 61–118.

Levy Yeyati, Eduardo, Federico Sturzenegger, and Iliana Reggio. 2002. “On the Endogeneity of Exchange Rate Regimes.” Working Paper 11/2002. Buenos Aires: Universidad Torcuato Di Tella, Centro de Investigación en Finanzas.

Licandro, Gerardo, and José Antonio Licandro. 2002. “Anatomía y patología de la dolarización.” *Revista de Economía del Banco Central del Uruguay* 9(2).

———. 2003. “Building the Dedollarization Agenda: Lessons from the Uruguayan Case.” Montevideo: Central Bank of Uruguay. Mimeographed.

McKinnon, Ronald, and Huw Pill. 1997. “Credible Economic Liberalizations and Overborrowing.” *American Economic Review* 87(2): 189–93.

Rajan, Raghuram. 2004. “Straight Talk: How Useful Are Clever Solutions?” *Finance and Development* 41(1): 56–57.

Ramey, Garey, and Valerie A. Ramey. 1995. “Cross-Country Evidence on the Link between Volatility and Growth.” *American Economic Review* 85(5): 1138–51.

Reinhart, Carmen, Kenneth Rogoff, and Miguel Savastano. 2003. “Addicted to Dollars.” Working Paper 10015. Cambridge, Mass.: National Bureau of Economic Research.

Savastano, Miguel. 1996. “Dollarization in Latin America: Recent Evidence and Some Policy Issues.” Working Paper 96/4. Washington: International Monetary Fund.

Schneider, Martin, and Aaron Tornell. 2000. “Balance Sheet Effects, Bail-out Guarantees, and Financial Crisis.” University of California at Los Angeles. Mimeographed.

Shiller, Robert. 1998. “Indexed Units of Account: Theory and Assessment of Historical Experience.” In *Indexation, Inflation, and Monetary Policy,* edited by Fernando Lefort and Klaus Schmidt-Hebbel. Santiago: Central Bank of Chile.

Thomas, Lee R. 1985. “Portfolio Theory and Currency Substitution.” *Journal of Money, Credit, and Banking* 17(3): 347–57.

Tirole, Jean. 2002. *Financial Crises, Liquidity, and the International Monetary System.* Princeton University Press

Wright, Mark. 2004. “Private Capital Flows, Capital Controls, and Default Risk.” *Proceedings* (June). Federal Reserve Bank of San Francisco.