

Changing the focus of the exchange rate regimes debate in emerging economies: causes and scope of de-dollarization in Latin America

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Abstract

In the late 1990s, controversies among academics and policymakers were focused to a large extent on the “pros and cons” of adopting a monetary regime of complete and official dollarization in many emerging countries. Conversely, towards the mid-2000s de-dollarization is one of the main themes of debates about monetary and financial issues in this region.

Within this framework, the purpose of this study is, firstly, to ascertain the factors that have led to such a state of affairs. Subsequently, we are going to try to see what are the effects of financial dollarization by drawing on a few equations that include elements from the models usually used in the theoretical literature on this question. Lastly, insofar as the benefits of reducing the scope of financial dollarization are increasingly propounded, we study the extent to which de-dollarization has been implemented in the region’s countries in the last few years.

JEL Classification Codes: E52,E58,F31,F33

1 Introduction

Debates about dollarization in emerging countries, and notably in Latin America — and the proposals they give rise to — have radically changed in the last few years. In the late 1990s, against the backdrop of the acute phase of the latest cycle of monetary and financial crises in emerging countries (the Asian crises of 1997, the Russian crisis of 1998, the Brazilian crisis of 1999,

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etc.), controversies among academics and policymakers were focused to a large extent on the “pros and cons” of adopting a monetary regime of complete and official dollarization, as one of the corner solutions that would enable countries to weather financial turbulence more efficiently. These debates took place against the backdrop of *de facto* widespread partial dollarization in several economies of the region. In other words, many Latin American countries were undergoing a process in which their national currency was being substituted by the dollar. Some countries, like Ecuador and El Salvador, under quite different conditions, went as far as implementing a regime of complete dollarization at the beginning of the current decade.

As the international environment had become more positive for Latin American countries, de-dollarization is one of the main issues debated in the monetary and financial field. In fact, concern about the high extent of partial dollarization as a source of financial fragility seems to have dominated since 2002-2003. Since then, a new intellectual mood has appeared as the result of two closely linked factors. On the one hand, the lessons drawn from the Argentine crisis of 2001, as well as from other recent crises — i.e. the Uruguayan crisis of 2002 and, partly, the Asian crises — and the new explanatory models of financial crises that emphasise the idea that domestic financial dollarization¹ can significantly increase the likelihood of banking and currency crises.

This paper addresses three questions. In the first section, we will seek to understand why debates about dollarization have changed in the manner described above. Subsequently, in the second section, we will try to ascertain some of the effects of financial dollarization. Lastly, insofar as the benefits of reducing the scope of financial dollarization are increasingly propounded, we are going to assess, in the third section, differences in the extent to which dollarization has been implemented in the region’s countries in the last few years. In our conclusion, we summarise the main findings of our study, particularly with respect to the factors that account for changes that have occurred in the debates about dollarization and the systemic fragility stemming from financial dollarization. We also present preliminary conclusions about the links between financial dollarization and increasing financial development and we initiate a discussion about the policies that should be implemented to curtail the fragility resulting from the high degree of dollarization in Latin American countries.

2 Changes in debates about dollarization

After defining some concepts, we outline, in a synthetic review, trends in debates on dollarization in the past few years. These changes are linked to the emergence of new models explaining financial crises in emerging countries.

¹In most cases, domestic financial dollarisation is understood to be a situation in which intermediation is carried out in another currency than the national currency.

2.1 Dollarization: What is being talked about?

In economic literature, the term dollarization has usually been used to describe a situation of partial dollarization². Several economies in Latin America have experienced, for several decades, *de facto* partial dollarization, i.e. a situation where the dollar is substituted for the local currency that occurs when the local currency does not meet one or several of its three fundamental functions: a reserve of value, a means of payment and a unit of account. In fact, partial dollarization defined broadly should encompass all forms of holding of monetary assets denominated in dollars, including banknotes and residents' deposits not only in the national banking system but also abroad. This is not easy to measure³. Therefore, partial dollarization corresponds, according to the usually used measures, to what is called “domestic financial dollarization”, as opposed to what is sometimes called “real dollarization”; in other words, the indexing of certain prices against the dollar or another foreign currency.

Generally speaking, financial dollarization is associated with the dollarization of deposits and loans in the domestic banking system. We are going to consider financial dollarization in a broad sense, considering three dimensions. Firstly, the afore-mentioned dollarization of credits and bank deposits. Secondly, the “dollarization” of public debt, measured by the share of the public debt in dollars or other foreign currencies, or indexed to the dollar. Thirdly, the dollarization of private non-financial sector's liabilities.

In general terms, the determinants of partial dollarization are well known: periods of high inflation or even hyperinflation resulting in a weakening in the national currency lead to *de facto* dollarization. In terms of policies, the now “conventional” analyses emphasise the lack of temporal coherence in monetary policy, which, under certain conditions, affects its credibility and works in favour of dollarization⁴. It also depends on country-specific institutional factors, i.e. the presence of restrictions on, or encouragements to hold, dollar-denominated assets and the liberalisation of financial and monetary markets. Inertial factors — such as the souvenir of inflationary phases — can, subject to the regulation in force, perpetuate dollarization⁵.

Various authors have provided explanations of the determinants of dollarization. Dollarization can be encouraged by the uncertainty resulting from fluctuations in inflation and the exchange rate (the so-called “*portfolio argument*”)⁶. Another approach insists on the importance of moral hazard, i.e. the existence of an incentive to run up debt in dollars by economic agents because of implicit or explicit guarantees provided by the government. This type of guarantee can,

² Among pioneering studies, see G. Calvo and C. Rodriguez (1977), M. A. Miles (1978) and R. I. McKinnon (1985). For a summary review of this issue and a typology of partial dollarisation, see Gastambide (2005).

³ Residents' so-called off-shore deposits are substantial in several Latin American countries, such as Argentina and Venezuela. However, because of the lack of reliable data, they are not considered in this study. See A. Gastambide (2005)

⁴ See G. Calvo and P. Guidotti (1990).

⁵ See M. Savastano (1996).

⁶ See A. Ize and E. Levy-Yeyati (1998).

for example, induce banks to slip into a currency mismatch, i.e. inadequate coverage of liabilities in a foreign currency⁷.

In opposition to partial dollarization and in the context of the debates that raged in the late 1990s, the proposal of total, complete and official dollarization appeared. Such a move would amount to a new monetary and exchange rate regime in which the national currency is completely replaced by the dollar — or possibly another reference currency⁸. Complete and official dollarization thus corresponds to the choice of a hard peg or a rigidly fixed exchange.

2.2 From complete dollarization to the reduction of financial dollarization

In the late 1990s, proposals aiming for complete dollarization held centre stage in the debates about the monetary and exchange-rate regimes that would most likely prevent the recurrence of monetary and financial crises that were hitting emerging countries, i.e. the Asian, Russian, Brazilian and similar crises. Indeed, on the basis of a high degree of *de facto* dollarization resulting, mostly, from the turbulent history of Latin America in terms of high inflation and hyperinflation, and institutional factors specific to each country, proposals recommending total and official dollarization of the economy, provided a radical solution to the problem of how to fend off speculative attacks that were becoming increasingly frequent.

For its main proponents, the proposal of dollarization sought to restore the economy's credibility by doing away with currency risk, thus inducing a decrease in interest rates⁹. Therefore, one could expect beneficial effects in terms of keeping inflation and fiscal deficits in check, the solidity and the openness of banking systems and, in the opinion of certain analysts, reinforcing the momentum of trade integration of the entire American continent — where the dollar zone that existed *de facto* would increasingly become a *zone de jure*.

While partisans of dollarization pointed out its advantages, opponents insisted on its costs and drawbacks. This controversy was obviously technical, but it included debates about the political and symbolic “values” of national identity conveyed by a currency. A first, and evident, disadvantage is the generally definitive loss of independence in terms of monetary policy; monetary policy would now depend on the US Federal Reserve. Faced with this criticism, proponents of dollarization argued that this subordination is already a fact and, in order to smooth cyclical developments as well as offset competitiveness problems, the dollarised country's authorities could always react by considering counter-cyclical mechanisms (such as macroeconomic stabilisation funds, etc.) and by implementing appropriate fiscal measures (subsidies for troubled sectors, and so forth).

⁷See A. Tornell and F. Westerman (2002)

⁸For instance, the euro. Thus, in the measure of dollarization, we consider not only assets and liabilities in dollars, but also in other benchmark currencies.

⁹See G. Calvo (1999) and S. H. Hanke and K. Schuler (1999)

Another drawback highlighted consists of the lack of any last-resort lender. With dollarization, central banks can no longer “print money”; a function that enables them to act as a last-resort lender. Such a role is crucial for the banking system because a banking crisis can be stopped by providing additional credit. To contend with this lack of a lender of last resort, many proposals have been advanced¹⁰. For instance, the US Treasury and the central bank could create a stabilisation fund or set up credit lines with private banks. Nonetheless, the viability of such proposals is dubious, notably when implementation implies a commitment of the United States to, at least partly, shoulder the responsibility of lender of last-resort.

Lastly, a third drawback generally mentioned during these debates related to the loss of seigniorage rights: in a non-dollarised economy, the central bank and governmental authorities earn interest income on the official reserves they hold. Such income would be lost if the country were to switch over to complete and official dollarization. For, in this case, the reserves in dollars would have to be exchanged against the national currency held by the public. Therefore, the central bank, which would no longer carry out their principal functions, would no longer hold reserves and the country would incur a loss because of this shortfall in interest income. Abandoning the role of lender of last-resort played by the central bank and the loss of seigniorage were the most frequently referred “costs”. Furthermore, some authors insisted on the shortcomings that, both with respect to stability of growth and accumulation of reserves as well as on a political level, can jeopardise the likelihood that dollarization may last. To answer such objections, some partisans of dollarization proposed to set up an arrangement with the United States that would make it possible to “share” seigniorage rights between the United States and the dollarised country. Such an arrangement could include an annual payment by the United States to the dollarised country and aid to set up an anti-crisis stabilisation fund. As a result, the crucial question therefore concerns the form that dollarization would take: unilateral or in agreement with the United States.

These debates took place as economic literature dealing with the causes of currency and financial crises as well as with the remedies to be drawn upon was changing rapidly. Until the early 1990s, so-called “first-generation” models explained these crises in “purely” macroeconomic terms. According to this approach, currency crises break out when fiscal and monetary policies prove to be incompatible¹¹. In a context of capital mobility, the objective of maintaining a fixed exchange rate can be called into question if the monetary authorities favour excessive expansion in credit to finance government expenditure. This policy hurts the country’s “fundamentals” since the expansionary policy generates inflation, a real appreciation and external deficits. Under fixed or virtually fixed exchange rates, maintaining the parity implies a gradual loss of official external assets that accelerates following the run on reserves by the public. The fixed exchange rate eventually has to be discarded to prevent the depletion of

¹⁰See, for instance, Hanke and Shuler (1999).

¹¹See P. Krugman (1979) and R. Flood and Garber, P. (1984)

the central bank's reserves.

In the wake of the European Monetary System crisis in 1992, followed by Mexico's crisis in 1994-1995, so-called second-generation models introduced new concepts¹². Speculative attacks can unfold although there are no "traditional" problems on the level of fundamentals and even though monetary policy is quite consistent with a fixed parity. The idea put forward in these models is that the exchange rate crisis occurs autonomously. According to these models, speculators' expectations depend on their forecasts about how the government will react and these expectations are themselves influenced by variables that depend on these forecasts. The crisis breaks out because speculators know that, should the attack be launched, defending the parity can generate substantial political and economic costs. For instance, rate hikes seeking to neutralise speculation can clash with objectives such as ensuring growth or maintaining full employment, and can even trigger problems for a fragile banking system, as it was the case of Mexico. To avoid a contraction in aggregate demand, the authorities can give in to pressures on the exchange rate and devalue it. Aware of the foregoing, speculators simply wait for a "bad signal" to launch their attack, confident that its rationale will be borne out ex-post by the government.

Even though the possibility of multiple equilibria is found in these models and can be re-interpreted as the outcome of liquidity mismatches, both in the public sector as in the private sector, the "balance sheet approach" became an increasingly widespread approach in the analysis of such issues in so-called third-generation models¹³. These models, seeking to interpret the lessons drawn from the Asian crises but also some other crises in the early 2000s (in particular the Turkish crisis in 2000, and the crises that hit Argentina in 2001 and Uruguay in 2002), attempted to include the consequences of the transformations stemming from financial liberalisation. Apart from the fact that there are several approaches and they emphasise different aspects to explain crises, they highlight the following conclusions:

a) unlike so-called "first-generation imbalances", the interaction between a banking crisis and an exchange-rate crisis, the — corporate and financial — private sector can be a major, and even decisive source of vulnerability, in addition to the public sector, because of currency mismatches;

b) economies that have liberalised operations in the capital account of the balance of payments are undermined by sudden changes in capital movements to a greater extent than by the "traditional" imbalances of the current account.

Debates about complete and official dollarization gave, *de facto*, greater importance to this second dimension. The key idea is that the disappointing results and the loss of credibility of "intermediate regimes", in a context of volatility of capital flows, revealed the superiority of corner solutions, i.e. hard pegs or ultra-fixed or floating exchange rate. Thus, if one does not want to take a backward step with respect to free capital mobility, an ultra-fixed regime such as

¹²See M. Obstfeld (1994)

¹³See, for instance, A. Velasco, and R. Chang (1998) and M. Cavallo, K. Kisselev, F. Perri, and N. Roubini (2003).

complete dollarization is interesting to eliminate currency risk and, accordingly, induce a decline in domestic interest rates and additional growth.

However, only Ecuador and El Salvador implemented complete dollarization, while most countries of the region discarded, around the late 1990s, intermediate regimes and changed over to floating regimes (Table 1). In 2002, even Argentina, where the likelihood of a serious crisis would have suggested that the country discard its currency board and embrace total and complete dollarization, decided to maintain its national currency, introduce the de-dollarization of contracts and a floating exchange rate regime.

Table 1: Exchange rate regimes in Latin America (1996 and 2006)

	1996	2006
Dollarization	Panama	Panama, Ecuador, El Salvador
Currency Board	Argentina	
Fixed rate	El Salvador	Venezuela
Crawling peg	Bolivia, Costa Rica, Nicaragua	Bolivia, Costa Rica, Nicaragua
Fluctuation bands	Brazil, Colombia, Chile, Ecuador, Honduras, Uruguay, Venezuela	Honduras
Flexible	Guatemala, Mexico, Paraguay, Peru, Dominican Republic	Argentina, Brazil, Chile, Colom- bia, Guatemala, Haiti, Mexico, Paraguay, Peru, Dominican Re- public, Uruguay

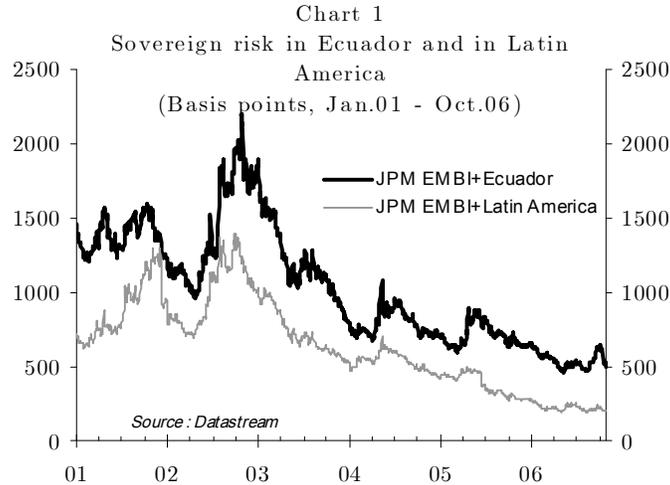
Source: ECLAC, United Nations

Several factors have combined to make complete and official dollarization less relevant and be replaced by a more “pragmatic” debate the dangers of partial dollarization and the possibility of implementing de-dollarization policies. In a summary review, we can point to several factors that help explain this evolution:

On the one hand, Ecuador’s experience was not convincing. The decision to introduce complete dollarization did not result from a cool-headed analysis of the pros and cons of this regime; to a greater extent, it was a desperate measure aimed at stabilising a financial and monetary situation that was deteriorating at a rapid pace¹⁴. Subsequently, the positive impact of the rise in international oil prices — the country’s main export product — provided the government with significant room for manoeuvre. However, given the lack of a noteworthy consolidation of the country’s macroeconomic and financial situation, the spreads of government bonds issued on the international markets remained very high (Chart 1). No substantial gain of credibility was achieved, as studies on the possible impact of dollarization on spreads of government bonds and country risk had demonstrated¹⁵.

¹⁴See F. Jaramillo (2001).

¹⁵See A. Berg and E. Borenzstein (2000), M. Grandes (2001 and 2002).



On the other hand, “pesification” in Argentina, despite the debates about the costs it could generate unfolded relatively well. It was a short-term “technical success” even though it gave rise to doubts about how capital losses were spread among the various economic agents and its implications in terms of investment in the future¹⁶.

As a result, a shift took place: since 2002-2003, greater importance has been granted to the first dimension mentioned above, i.e. the sources of vulnerability resulting from balance sheet effects on various economic agents characterised by the existence of currency mismatches. Drawing from contributions made by third-generation models, studies focused, to a greater extent, on the fragility created by a depreciation in the exchange rate, as its impact will therefore increase the debt burden of these agents that are highly indebted in a foreign currency.

3 The effects of financial dollarization

The vulnerability related to financial dollarization has been extensively analysed by drawing on the experience of the Asian crises and the traumatic developments that rocked Argentina and Uruguay in 2002. Among many studies, the contribution made by Fernandez Arias and Talvi (1999) seeks to build a model of the fragilities resulting from the use of the dollar on a domestic level.

¹⁶See J. Sgard (2002).

Taking, as a starting-point, the formalisation usually carried out to describe the fragility related to financial dollarization¹⁷, we study a situation in which a dollarized economy is forced to implement an adjustment aimed at correcting imbalances in its current account. They can be the consequence, inter alia, of a sudden stop¹⁸, a confidence crisis¹⁹ or a real shock resulting from the deterioration in terms of trade²⁰.

All other things being equal, and in the absence of counter-cyclical fiscal policies, the external imbalances demand a depreciation in the real exchange rate to rebalance external accounts²¹. What happens on the level of economic agents' profitability? In the absence of developed financial markets and in the context of credit rationing, the solvency of indebted agents can be endangered.

3.1 Effects on flows

To assess the solvency of economic agents faced with the adjustment in the real exchange rate, we look at the short-term effects of a devaluation on cash flow²². To assess the value of a company we should sum up its discounted future incomes. However, if financial development remains limited and credit is rationed, day-to-day operations are extremely important. Accordingly, we will concentrate on the effects in $t=0$. We consider four scenarios:

- a) a firm operating in the sector of non-tradable goods that buys inputs in markets that are not sheltered from foreign competition;
- b) a firm that operates exclusively on a domestic level;
- c) a firm that produces its goods with domestic inputs and sells its output in international markets.

In all three cases, the firms are indebted in a foreign currency.

Lastly,

- d) the public sector, which has to service its debt on a domestic level, as well as in the international capital markets.

a) Expression (1) describes the cash flow (CF) of our representative firm that sells its output (Y) in the domestic market and buys its inputs (F) from abroad. This firm is indebted in local currency and in foreign currencies and must service its debt periodically.

¹⁷See, for instance, E Fernández-Arias and E. Talvi (1999) and G. Licandro and J.A. Licandro. (2003).

¹⁸See G. A. Calvo and C. Reinhart, (2000).

¹⁹G. Corsetti, Pesenti, P. and N. Roubini (1999). See also Krugman (op. cit.) and Velasco and Chang (op. cit.).

²⁰Or a combination of these elements, as was the case during the Argentine crisis, cf. G. E. Perry and L. Servén (2003).

²¹We focus on adjustments in relative prices, but the adjustment, obviously, can result from a contraction in demand.

²²A more in-depth analysis would have to take into account the company's ability to adapt to changes in the cyclical environment.

$$CF_1 = P.Y - eP_fF - S - eS^f \quad (1)$$

Where P is the price of the non-tradable good, the price of the input, e the exchange rate. S and S^f are, respectively, servicing of the debt in local currency and in foreign currencies.

In real terms, we find expression (2), where $y = Y/P$

$$\frac{CF_1}{P} = y - \frac{eP_fF}{P} - \frac{S}{P} - e\frac{S^f}{P} \quad (2)$$

To analyze the effect of a depreciation in the currency, we derive (2) in relation to the exchange rate. We suppose that it is a real depreciation and domestic prices are not modified in the period. As we can see in expression (3), the depreciation reduces the cash flow of this firm²³.

$$\frac{\partial(CF_1/P)}{\partial e} = -P_f\frac{F}{P} - \frac{S^f}{P} < 0 \quad (3)$$

In the case of a fixed exchange rate, the real depreciation occurs via the deflation of prices.

$$\frac{\partial(CF_1/P)}{\partial(-P)} = -\frac{S}{P^2} - e\frac{P_fF}{P^2} < 0 \quad (4)$$

In this scenario, the company's profits also decrease. The first term of this expression refers to the conventional Fisher effect, i.e. the real weight of the debt increases in line with deflation, whereas the second term strictly reflects the same phenomenon but concerns debts in foreign currencies.

b) Conversely, the effects of the real depreciation are different for a company that acquires inputs (L) at a price w in the domestic market and sells its product in the domestic market. Formulas (5) and (6) thus describe the company's profits in nominal and real terms (the deflator is the price of the firm's product).

$$CF_2 = PY - wL - S - eS^f \quad (5)$$

$$\frac{CF_2}{P} = y - \frac{w}{P}L - \frac{S}{P} - e\frac{S^f}{P} \quad (6)$$

$$\frac{\partial(CF_2/P)}{\partial e} = -\frac{S^f}{P} < 0 \quad (7)$$

²³The hypothesis of rigid domestic prices implies a simplification and the impossibility to study the pass-through to the price of the increase in costs: if the company could pass through at least part of the depreciation to prices, the negative effects on cash flow would be dampened.

The currency's nominal depreciation studied in equation (7) reduces the firm's profits. The adjustment in the real exchange rate by deflation also hurts the firm's profits. In addition to the Fisher effect, there is an increase in the real weight of wages (local input) if they are rigid or a decrease at a slower pace than the pace of decrease in the output price (equation 8).

$$\frac{\partial(CF_2/P)}{\partial(-P)} = -\frac{w}{P^2} - \frac{S}{P^2} - \frac{eS^f}{P^2} < 0 \quad (8)$$

We will also study a firm that produces a tradable good using local inputs. The expression of its profits is given by identity (9).

$$CF_3 = eP^*Y - wL - S - eS^f \quad (9)$$

$$\frac{\partial CF_3}{\partial e} = P^*Y - S^f \quad (10)$$

A depreciation in the exchange rate improves the company's profitability, unless the company is over-indebted (with respect to external suppliers) and, accordingly, is already running up losses before the devaluation (if its income PY fails to service the debt in foreign currencies, both expressed in a foreign currency). But in the "normal" case, devaluation increases profitability.

With respect to deflation, we must observe equation (11):

$$\frac{\partial(CF_3/P)}{\partial(-P)} = \frac{eP^*y}{P} - \frac{w}{P^2}L - \frac{S}{P^2} - e\frac{S^*}{P^2} \quad (11)$$

Since the company's incomes in terms of national prices increase with depreciation, the negative effects on debt (Fisher effect) and on real weight of wages —if they remain unchanged in nominal terms— are more than offset (in the "normal" case, this expression is positive).

d) The public sector is also concerned by the moves in the real exchange rate. Expression (12), which describes the public sector's result, is made up of two terms: the primary surplus ($T - G$) and debt servicing (in domestic currency and in foreign currencies).

$$RSP = T - G - eSD_g^f \quad (12)$$

A nominal depreciation (with unchanged prices) will have negative effects if the additional revenues from taxes on foreign trade do not compensate for the additional valuation of the debt services in foreign currencies.

$$\frac{\partial RSP}{\partial e} = \frac{\partial T}{\partial e} - SD_g^f \quad (13)$$

Deflation risks to jeopardise the public sector's solvency because, whereas payments of interest and principal of the debt are constant in nominal terms,

tax revenues decrease (e.g. via the effect of value added tax). Even in the case where government expenditure is adjusted to maintain the same primary balance, the relative weight of (internal and external) debt increases.

To sum up, dollarization increases vulnerability through several channels. The adjustments in the real exchange rate can lead to substantial problems, not only for companies indebted in a foreign currency — when they have not hedged currency risk — but also for companies that produce non-tradable goods with tradable inputs²⁴. This effect combines, in the event of financial dollarization, with the increase in the real weight of the debt.

While an adjustment in relative prices becomes inevitable and, at that point in time, economic agents have currency mismatches, they may rapidly find themselves unable to service their total debt. This situation can play a role in generating a systemic crisis.

3.2 Balance sheet effects

A vast literature has sought to analyze balance sheets effects²⁵ in the wake of the Asian crises in the 1990s and banking crises in Uruguay and Argentina. Its starting point is the deterioration in the assets of banks that are involved in the financing of economic agents that have become insolvent following a devaluation of the real exchange rate. The underlying idea is that if the size of late payments or unpaid debts grows to become a significant proportion of the financial system's balance sheets, a systemic crisis risks breaking out.

Even if banks have hedged currency risk well, i.e. their liabilities in dollars are equal to their dollar-denominated assets, the real depreciation can also affect them via the deterioration in the quality of these assets: currency risk can become credit risk. In such a case, the situation can lead to a liquidity crisis, following the run on banks by economic agents wanting to withdraw their deposits and convert them into a foreign currency, and this fuels pressure to depreciate the currency. The problem worsens when external financing dries up. In a situation where the crisis has turned into a “twin crisis”, the central bank faces a two-sided problem: avoid a meltdown of the national currency by drawing on official reserves while acting as a lender of last resort to cope with the systemic crisis.

3.3 A trade-off between development of financial intermediation and repression of dollarization?

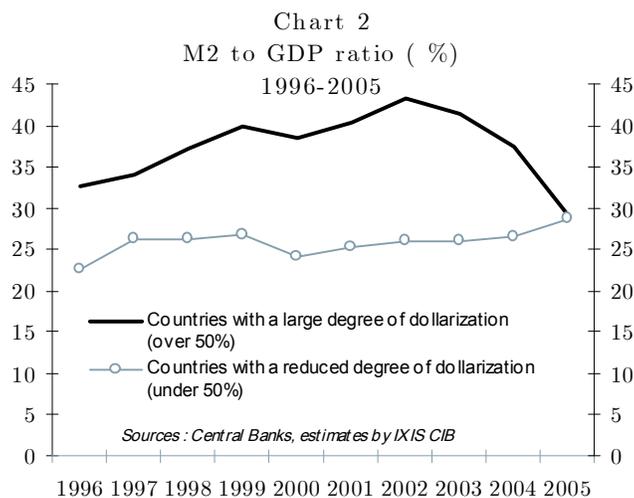
Financial dollarization introduces a factor of financial fragility, notably for economic agents in the sectors of non-tradable goods and can lead to a systemic crisis. In consequence, the room for manoeuvre for economic policy is reduced

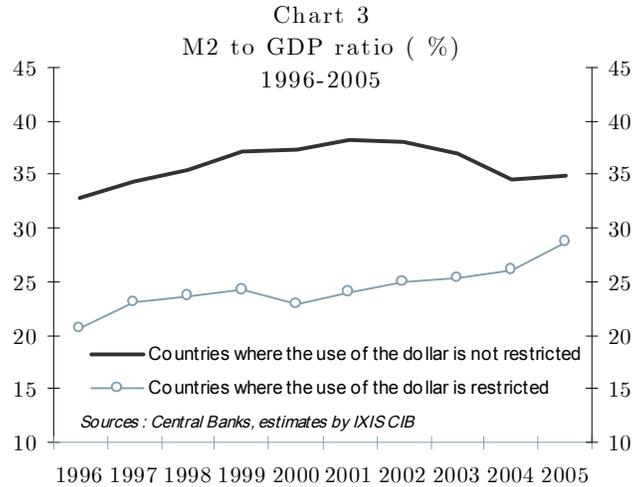
²⁴If the authorities are in favour of a fixed parity and undertake to defend the parity at all cost, they discourage hedging of currency risk by private economic agents, and this leads to behaviour patterns that resemble a situation of moral hazard.

²⁵See, inter alia, IMF reports on this issue; for instance A. Hofer (2005).

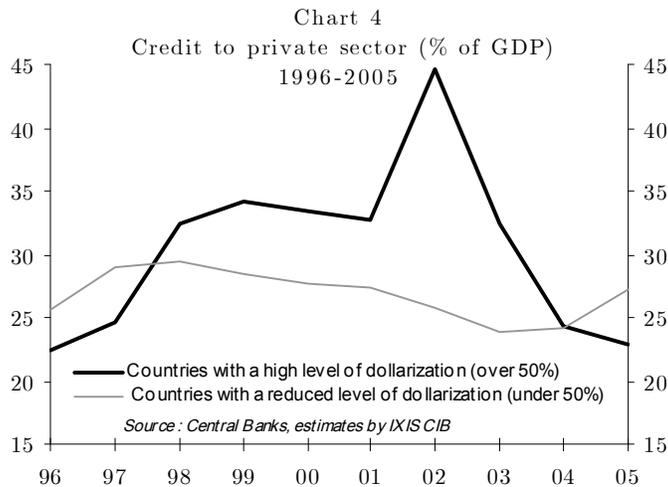
(the so-called situation “fear to float”). However, faced with these “disadvantages” of financial dollarization, the positive aspect usually advanced by its proponents is that it provides protection for economic agents against inflation. Therefore, accepting contracts in currencies other than the national currency is argued to be a vector of financial development.

We can see, in the case of Latin American countries, that the M2-to-GDP ratio — one of the indicators of financial development — is higher in dollarized countries, both when we consider the observed degree of dollarization (even if in recent years this ratio seems to converge) and when we take into account authorities’ regulations (Charts 2 and 3). In the latter case, the countries where there are significant restrictions on the use of the dollar in contracts stand out by their smaller degree of financial development.





Looking at the credit to the private sector-GDP ratio (Chart 4), we can see that larger financial development does not always go hand in with a higher degree of dollarization.



Furthermore, we can notice that this ratio turns out to be more volatile in the case of dollarized countries and its average level is not significantly higher than in countries that are dollarized to a lesser extent.

Empirical evidence about the relationship between financial development and dollarization is far from conclusive when we take into account a higher

number of variables to measure the degree of financial development and a large number of countries (about 90 countries). This is shown by econometric results obtained in a recent study of Miotti (2005, see Table 2). Indeed, the correlation between the two phenomena is not significant, whereas the frequency of banking crises is positively related to the degree of financial dollarization.

Table 2: Relationship between financial development and dollarization

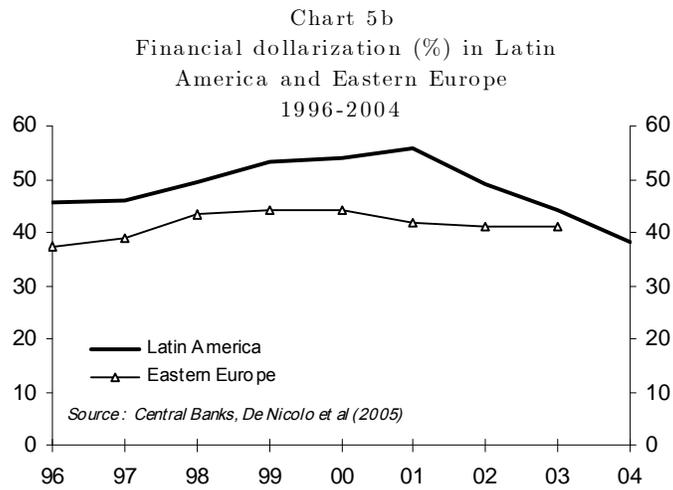
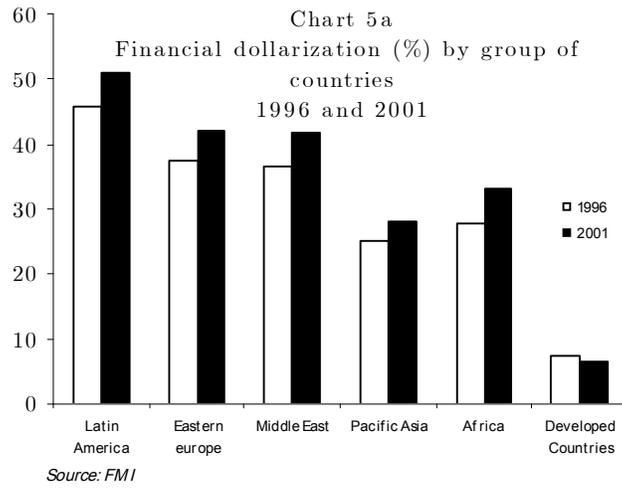
	Financial development		Banking crises	
	Correlation	Observations	Correlation	Observations
Assets in foreign currency (% of total assets)	-6.10%	76	25.1%***	93
Liabilities in foreign currency (% of total liabilities)	-3.10%	76	23.4%***	94
*** Significant at 1%				

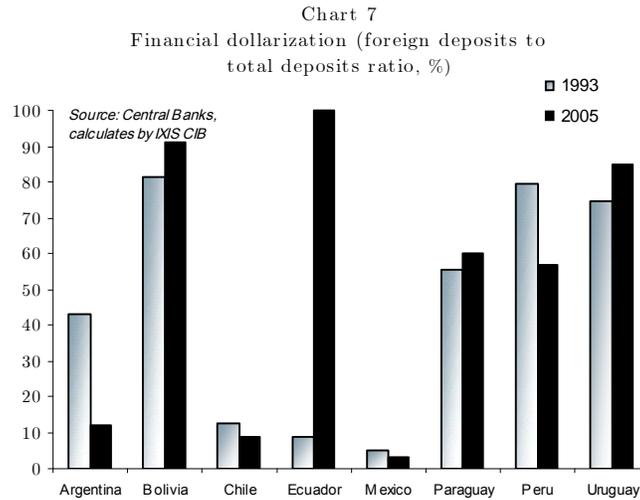
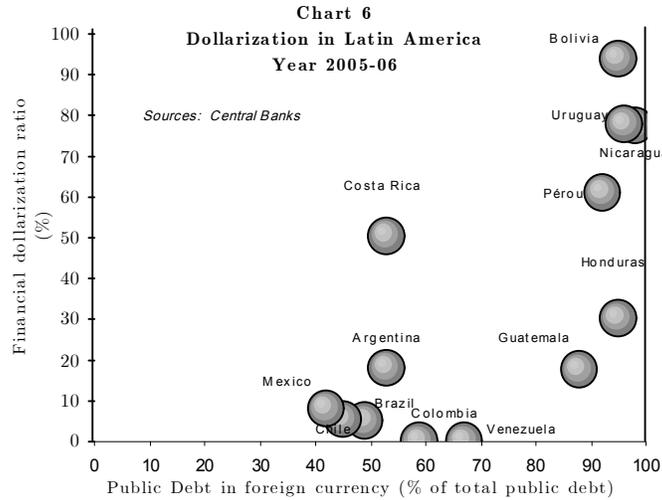
Source: Miotti (2005)

Additionally, De Nicoló *et al* (2005) find strong econometric evidence supporting a negative relation between the use of a foreign currency for domestic financial contracts and financial development. Indeed, the impact of an increase in dollarization on financial depth is negative, at least when inflation is low. However, dollarization has the effect of moderating the adverse effect of inflation on financial intermediation on countries where yearly inflation is over 20-30%.

4 Changes in the degree of dollarization in Latin America

In comparison with other regions in the world, Latin America is characterised by a high degree of financial dollarization (Chart 5a and 5b), but the region displays a wide range of situations in this field (Chart 6). By considering the two dimensions of dollarization — in other words, the proportion of “dollarized” bank deposits in total deposits, and the dollarization of the public debt measured by the share of the public debt in dollars or other currencies, or indexed to the dollar — the situation of Bolivia, Nicaragua, Peru and Uruguay, characterised by a high degree of dollarization markedly contrasts with what is seen in Brazil, Chile, Mexico and, even, Argentina.



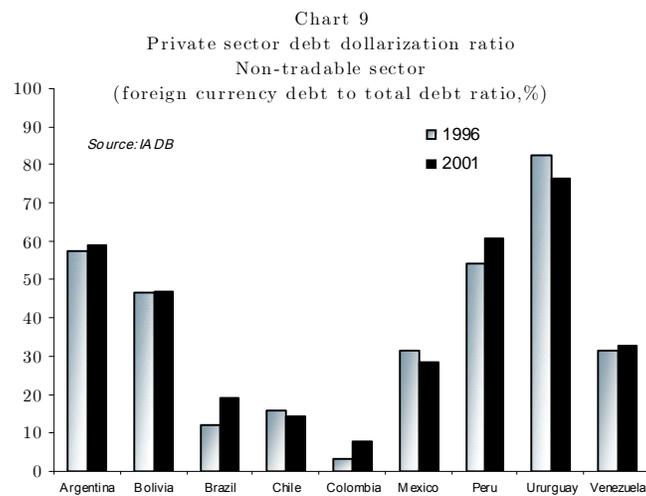
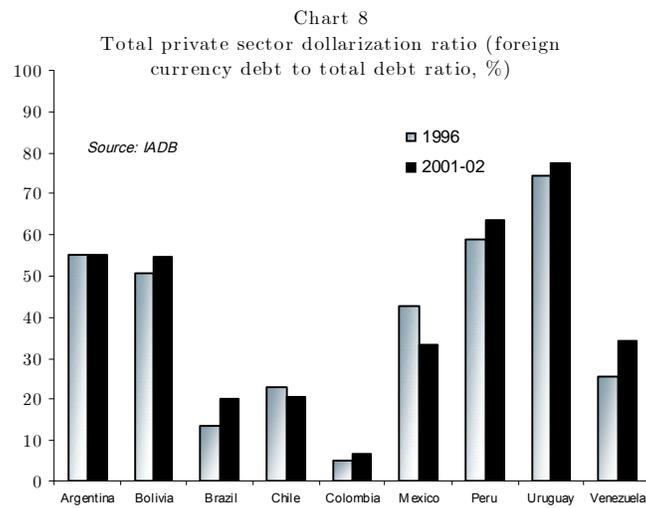


Recent trends show major heterogeneity in developments. Regarding the degree of banking dollarization (Chart 7)²⁶, some countries, such as Mexico or Paraguay, recorded a slight increase between 1993 and 2004, whereas others like Chile and Peru — where the degree of dollarization is still very high — have recorded a slight decrease. The most sudden changes have occurred in Ecuador,

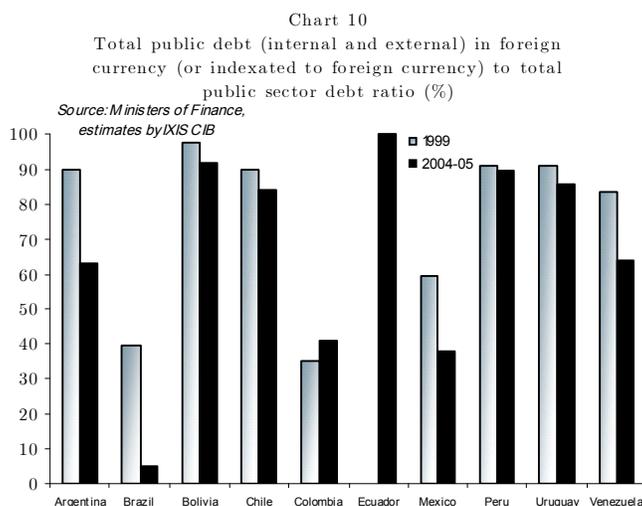
²⁶Note that Brazil, Colombia and Venezuela are absent from this chart because, in these countries, deposits in dollars, or other foreign currencies, are not authorised.

which implemented complete dollarization and in Argentina, where dollarization declined sharply in the wake of pesification introduced in 2002.

Likewise, no clear-cut pattern appears with respect to the situation in terms of the private sector's debt, whether one considers the sector as a whole or firms operating in the sheltered sector of the economy, even though most countries have experienced, in general terms, a very moderate increase in the degree of dollarization (Charts 8 and 9).



A more straightforward trend emerges when we consider recent trends in the degree of dollarization of the public debt of the region's countries: it has decreased in virtually all cases (Chart 10). This fall is more pronounced in the case of Argentina, Brazil, Mexico and Venezuela. The last few years have thus been characterised by quite significant divergences in relation to the various dimensions of dollarization that are taken into account.



5 Conclusion

For several years, there has no longer been any talk of official and complete dollarization and voices have called for a reduction in financial dollarization. Various factors explain why the nature of debates and proposals about dollarization in emerging countries, and notably in Latin America, has changed in recent years. On the one hand, recent developments in Latin American countries, in all likelihood, account for one of the reasons for this change in course. Ecuador's experience of complete dollarization was not convincing while Argentina's "pesification" has been an undeniable success, at least in the short term. On the other hand, on a theoretical level, and taking into account lessons from recent crises in emerging countries, the so-called "third-generation" models and the emphasis put on balance sheet effects — as a factor that plays a crucial role in terms of these countries' financial vulnerability — have given arguments in favour of de-dollarization²⁷.

²⁷It could be pointed out that the current stance of international financial institutions, in

These vulnerabilities, which we have identified by drawing on a few equations integrating elements of the models usually used in the literature on this issue, are particularly pronounced for economic agents in the sector that produces non-tradable goods. Furthermore, the spreading of imbalances generated by unfavourable shocks on relative prices via balance sheet effects highlights the systemic fragilities that can result from financial dollarization. This fragility could be the “price to pay” to avoid hampering financial development in countries. However, empirical evidence on the relationship between financial development and dollarization is not conclusive.

Lastly, the interest shown by analysts and decision-makers in reducing dollarization to lower financial vulnerability, has not been reflected by a noticeable decline in the degree of dollarization in the region. There has, admittedly, been a drastic reduction in the level of banking dollarization in Argentina, as a result of pesification, and a significant contraction in public debt indexed to the dollar in Brazil. But the process of reducing the degree of dollarization of Latin American countries will most likely be very slow, as is shown by Peru’s experience. Most Latin American countries that implement a policy of de-dollarization have adopted an approach that is based on incentives and is gradual, relying on the development of new instruments — such as contracts indexed to a price index — which can replace contracts in a foreign currency. However, these policies can give results only if confidence in the authorities is strengthened. In fact, pressures in favour of dollarization will remain significant as long as the region’s countries fail to build credible monetary regimes.

6 References

Berg, A and E. Borensztein (2000), “The pros and cons of full dollarization”, *IMF Working Paper* WP/00/50, Washington D.C.: International Monetary Fund.

Calvo, G. (1999), “On dollarization”, manuscript, *University of Maryland*;

Calvo G. and C. Rodriguez (1977), “A model of Exchange Rate Determination with Currency Substitution and Rational Expectations”, *Journal of Political Economy*, vol.85, p.617-625.

Calvo, G. and P. Guidotti (1990), “Indexation and Maturity of Government Bonds: An Exploratory Model” in R. Dornbusch and M. Draghi (eds.) *Capital Markets and Debt Management*, New York: p.52-82.

Calvo, G. (1998), “Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops”, *Journal of Applied Economics*, vol.1 (1), November, p. 35-54.

Cavallo, M., K. Kisselev, F. Perri, and N. Roubini (2003), “Exchange Rate Overshooting and the Costs of Floating”, manuscript, *New York University*.

particular the IMF, which are reluctant to the introduction of vast bail-out programmes in the event of a financial crisis, provides an argument in favour of reinforcing measures aimed at preventing crises. One such measure can be reducing financial dollarization.

- Corsetti, G., Pesenti, P. and N. Roubini (1999), "What caused the Asian currency and financial crisis?" *Japan and the World Economy*, Elsevier, vol. 11(3), p.305-373.
- De Nicolo, G., P.Honohan and A.Iza (2005), "Dollarization of bank deposits: Causes and consequences", *Journal of Banking and Finance*, vol.29, p.1697-1727
- Fernández-Arias, E. and E. Talvi (1999), "Devaluation of Deflation? Adjustment Under Liability Dollarization", manuscript, *Inter-American Development Bank*.
- Flood, R. and Garber, P. (1984), "Collapsing exchange rate regimes: some linear examples", *Journal of International Economics*, vol. 17, p.1-13
- Gastambide, A. (2005), "*Dollarization partielle et dollarization intégrale : l'expérience de l'Equateur*". Ph. D. Thesis in Economics, *Université d'Auvergne Clermont I*.
- Grandes, M. (2002), "Convergence and Divergence of Sovereign Bond Spreads: Lessons from Latin America", *OECD Development Centre Technical Paper 200* (October 2002).
- Grandes, M. (2002), "External Solvency, Dollarization and Investment Grade: Towards a Virtuous Circle?", *OECD Development Centre Technical Paper 177* (June 2001).
- Hanke, S. H. and K. Schuler (1999), "A Dollarization blueprint for Argentina", *Foreign policy briefing* CATO Institute.
- Hofer, A (2005), "The International Monetary Fund's Balance Sheet Approach to Financial Crises Prevention and Resolution", Monetary Policy and the Economy, Q1/05. Washington D.C.: International Monetary Fund
- Ize, A. and E. Levy-Yeyati. (1998), "Dollarization of Financial Intermediation: Causes and Policy Implications", *IMF Working Paper 98/28*. Washington, DC: IMF.
- Jaramillo, F. (2001), "Cinco, Una o Ninguna: Las Opciones Cambiarias para los Países Andinos", (manuscript), Bogotá.
- Krugman, P. (1979), "A model of balance of payments crises", *Journal of Money, Credit, and Banking*, vol. 11, p.311-325
- McKinnon, R. I. (1985), "Two Concepts of International Currency Substitution", in M. B. Connolly and John McDermott, eds. *The Economics of the Caribbean Basin*. New York: Praeger: N.52 p.101-13, March 1999.
- Miles, M. A. (1978), "Currency Substitution, Flexible Exchange Rates, and Monetary Independence", *American Economic Review*, N.68, p.428-36.
- Miotti, L (2005), "Libéralisation financière et fragilités bancaires" (miméo), IFRI, Paris, 2005.
- Obstfeld, M. (1984), "The logic of currency crises", *Cahiers Economiques et Monétaires*, N.43: p.189-213.
- Obstfeld, M. (1996), "Models of Currency Crises with Self-Fulfilling Features", *European Economic Review*, 40 (3-5), 1037-47.
- Perry, G. E. and L. Servén (2003), "The Anatomy of a Multiple Crisis: Why was Argentina Special and What Can We Learn From It?", *World Bank Policy Research Working Paper* N. 3081.

Savastano, M. (1996), “*Dollarization in Latin America: recent evidence and some policy issues*”, Washington, DC: International Monetary Fund, Research Dept.

Sgard, J. (2002), “L’Argentine un an après : de la crise monétaire à la crise financière”, *Lettres du CEPII*.

Tornell, A., and F. Westerman (2002), “Boom-Bust Cycles in Middle Income Countries: Facts and Explanation”, *NBER Working Paper* N. 9219.

Velasco, A. and R. Chang (1998), “The Asian Liquidity Crisis”, Working Papers 98-27, *C.V. Starr Center for Applied Economics*, New York University.