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Is Dollarization the Solution?

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Abstract

The series of crises, which have affected emerging markets in recent years, have reopened the debate on the most appropriate exchange regime for an emergent economy. In particular, all countries that experienced severe crises in the 1990s had some sort of fixed exchange rate regime, the majority of them falling in the categories that Corden (2002) calls fixed-but-adjustable exchange rate regime (FBAR) and in between regimes of the pegged (including flexible and crawling pegs) and target zone types. As a result, in recent years countries have been emigrating to a corner solution: a credible fixed regime or a floating regime with a monetary anchor. Within the latter categories the increasingly use monetary regime is the inflation targeting one. The paper discusses the pluses and minus of alternative exchange rate regimes and end up with a discussion of the possibility of dollarization in the Americas.

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1. Introduction

The series of crises, which have affected emerging markets in recent years, have reopened the debate on the most appropriate exchange regime for an emergent economy[1]. This debate has been prompted, in part, by the fact that all countries that experienced severe crises in the 1990s had some sort of fixed exchange rate regime, the majority of them falling in the categories that Corden (2002) calls fixed-but-adjustable exchange rate regime (FBAR) and in between regimes of the pegged (including flexible and crawling pegs) and target zone types. This is not surprising as the structural characteristics of an economy –degree of openness, structure of production, level of financial development, fiscal stance and its degree of wage and price downward rigidity- and its exchange rate regime affect its ability to adjust to negative real shocks, specially the persistent ones. In particular, under rigid downward adjustment in nominal prices, a more flexible exchange rate regime helps adjustment in the real exchange rate resulting in a lower cost in terms of unemployment. This acquires special relevance for countries specializing in natural resource based sectors, as they are frequently exposed to negative real shocks. Some of these shocks are of an external nature (a drop in terms of trade, a rise in foreign interest rates for a net debtor country, a sudden reduction in capital inflows) and some have a domestic cause (a drought, an earthquake or a political change with a negative impact on expectations and aggregate demand). When the adjustment to these types of shocks requires a depreciation of the real exchange rate, having a flexible exchange rate system can be an important asset in presence of real downward rigidities. Furthermore, the exchange rate system also has an effect on the effectiveness of monetary policy on aggregate demand, to stabilize the level of output and to control the size of the current account deficit. The macroeconomic fundamentals in conjunction with the exchange rate systems also have a bearing on the volatility of the nominal and real exchange rate with final effects on the level and variability of output and unemployment.

The rest of this paper is organized as follows. Section 2, briefly compares the cost and benefits of alternative exchange rate systems. Section 3 takes a look at what we know

about hard pegs and it compares their particular advantages and disadvantages. Section 4 reviews the current situation about exchange rate regimes in the Americas. Section 5 analyzes and explains the alternative monetary regimes, giving special attention to inflation targeting. Section 6 makes a more detailed analysis on the question of whether the major countries in the Americas are good candidates for dollarization or not, and Section 7 presents some concluding remarks.

2. Alternative Exchange Rate Regimes: Costs and Benefits

Exchange rate regimes can be grouped into three broad categories: hard peg regimes (dollarization, monetary unions and currency boards), intermediate regimes (fixed-but-adjustable-pegs, flexible pegs, crawling pegs, target zones) and floating regimes (managed floats with occasional interventions and free-floats).[2] Hard peg regimes have many benefits. First, they eliminate (and intermediate regimes reduce) the volatility in the nominal and real exchange rate and, when accompanied by supporting macro policies, are less prone to generate misalignment that are unrelated to change in fundamentals[3]. Second, hard pegs, as well as fixed-but-adjustable-pegs with infrequent adjustments (FBAR) also provide a nominal anchor for the evolution of the price level and allow for more efficient adjustments when shocks are of a nominal nature. The anchor is stronger for hard pegs than for FBARs. Also a commitment to an exchange rate anchor is easier to understand and to monitor than a commitment to a monetary anchor. Third, an additional advantage for countries with a poor track record on the use of monetary policy is that it also reduces the scope for an independent monetary policy. However, hard peg regimes (and to a lesser extend also FBAR) also have some important costs. First, in the presence of nominal downward price and wage rigidities, they make a real depreciation difficult to achieve when

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[1] Among recent work on exchange rate regimes see Obstfeld (1995), Ghosh et al. (1997), Edwards and Savastano (2000), Frankel (1999), Mussa et al. (2000) and Corden (2002).

[2] Corden (2002) distinguishes nine regimes that go all the way from absolutely fixed regime (dollarization and monetary unions) to the pure floating regime.

[3] Empirical work on Latin America shows that the variability of the real exchange rate has a detrimental effect on export growth and on investment and output growth (Caballero and Corbo, 1989, Corbo and Rojas, 1993, and Reinhart and Reinhart, 2001). Furthermore, Baxter and Stockman (1989) compare the variability of a set of real variables across different exchange rate regimes finding that, when controlling for fundamentals, there were not mayor differences except for the real exchange rate, which were more volatile for flexible regimes. Furthermore, there was a tendency for long lasting misalignments.

a change in fundamentals requires one, resulting in important costs in terms of output and unemployment. Thus, it has also been found that adjustment to real shocks under fixed exchange rate regimes (hard pegs and FBAR) are more costly than under more flexible regimes (Broda, 2000). Second, when agents underestimate the risk of an exchange rate change they facilitate over-expansion of foreign indebtedness exposing agents to high costs when an exchange rate adjustment does take place. These costs could be high in economies with weak financial systems. Furthermore, an additional difficulty for hard pegs and especially for FBAR, which has been much stressed in the recent literature (Fischer, 2001, Mussa et. al., 2000), is that they are prone to costly speculative attacks in countries that are increasingly integrated to world markets through trade, direct foreign investment and other types of capital flows[4]. The costs here are multidimensional: the central bank losses associated to the exchange rate intervention, the macroeconomic and financial effects of the high interest rates needed to defend the peg, the balance sheet and relative price effects of an abrupt change in the exchange rate, and the political and economic costs usually associated to the abandonment of a peg. Balance sheet effects can emerge when there is a severe currency mismatch between asset and liabilities in the real economy and in the financial system. That is, in systems in which the liabilities of private agents are dollarized while their assets or income generating capacity are in local currency. In this type of situations, a drastic exchange rate adjustment unleashes generalized bankruptcy. Third, a fixed exchange rate regime -both of the hard peg and FBAR varieties- also requires giving up on the use of monetary policy to help control demand to stabilize output. This is not a minor cost, as with a flexible exchange rate monetary policy is the most effective stabilization tool in the presence of nominal price rigidities. Some of these benefits of having a less rigid system should not be underestimated. Indeed, there is an emerging consensus that the countries that suffered least from the Great Depression were the ones that abandoned earlier on the rigid gold standard[5].

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[4] The experience of Hong Kong currency board illustrates this point. Thus, in the heydays of the Asian crises doubts about the survival of the system resulted in high interest rate and a substantial slowdown of growth.

[5] See Eichengreen and Sachs (1995), Eichengreen (1992) and Bernanke (1995) for industrial countries and Díaz-Alejandro (1982), Corbo (1988) and Campa (1990) for Latin America.

Floating regimes reduce most of the costs of the fixed regimes enumerated in the previous paragraph. However, floating regimes also have their own costs. First, they usually deliver higher inflation than fixed rate regimes. Thus, any flexible exchange rate regime has to be complemented by an explicit nominal anchor, most likely in the form of an inflation target regime. Second, flexible exchange rate regimes show more volatility in nominal and real exchange rates and sometimes lasting misalignments in the real exchange rate. This could be an important cost of flexible regimes as volatility and misalignments have real costs in terms of reduced trade and capital flows and, ultimately, on growth and welfare. How high volatility may rise is well illustrated by the exchange rate between the yen and the dollar, which went from 147 yen per dollar in August 1998, to 115, in October of that same year. If these sharp movements occur for the currencies of the two largest countries in the world, with deep markets to cover exchange rate risks, anything could happen for the currencies of smaller countries. The exchange rate volatility costs of a flexible exchange rate system could be important. Calvo (2000) has made this point forcefully while advocating for a hard peg (currency board or dollarization). However, currency mismatch could be ameliorated through appropriate regulation and supervision of the financial system and the aggressive development of instruments and markets to cover these risks as well as the development of deeper capital markets in domestic currency (Caballero, 2002, and Goldstein, 2002). Thus, a flexible exchange rate system has to be accompanied by appropriate supervision and regulation of banks and by the promotions of instruments to hedge exchange rate risks, including encouraging issuance of local currency denominated debt.

It is sometimes claimed that countries have fear of floating and therefore although they declare to have a flexible exchange rate system they do not use the flexibility that it entails[6]. Fear of floating could be due to a high pass-through effect of devaluation to inflation or to the commercial risks associated to an exchange rate adjustment in an economy where agents have a mismatch between the currency composition of their asset and liabilities. However, recent analytical and empirical work shows convincingly that pass-through effects –from depreciation to CPI inflation- are much weaker than initially thought

(Obstfeld and Rogoff, 2000, Goldfajn and Werlang, 2000). This is especially so for those countries having a well-established and credible monetary framework of the inflation targeting type. Under these circumstances, agents trust that the central bank will avoid an acceleration of inflation above the set target, in the process, reducing the pass-through from depreciation to inflation[7]. In a formal model where monetary policy follows a Taylor rule, fear of floating could just be the result of the normal reaction of a monetary authority that is concerned about inflation and especially if it has a also a separate target for the real exchange rate (or for the current deficit) as an independent objective of monetary policy. However, a hidden cost of having a separate exchange rate objective –for fear of bankruptcies or for its potential effects on trade flows- is that the IT framework would become less transparent reducing its credibility. In a recent study of monetary policy in Latin America, Corbo (2002) finds that the Central Bank of Chile in the 90s had a separate current account target objective and the central banks of Colombia in the 80s and of Peru in the 90s had real exchange rate objectives. However, Corbo and Schmidt-Hebbel (2001) show that countries in Latin America that are listed as floaters were indeed floating.

But one should always keep in mind that in the ideal case of absence of any market friction there is no gain from exchange-rate flexibility or from having and independent monetary policy. At the same time, in this particular case, not much is gained by giving up the domestic currency, as currency transaction costs are nil and perfect financial markets hedge the currency risk premiums and currency mismatch. The only residual issue would be a minor one, related to the international distribution of seigniorage revenue.

Can one make a combination between a fixed exchange rate regime and a flexible one? At their heydays a decade ago, the intermediate regimes of adjustable pegs and exchange rate bands seemed to provide a perfect combination of credibility (with the nominal anchor provided by the exchange-rate peg or band) and flexibility (through the limited and gradual adjustment of the nominal and real exchange rate in response to shocks). However, in a world with large capital movement and high levels of workers' remittances,

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[6] Calvo and Reinhart (2002) present evidence on fear of floating.
[7] However, still the pass-through from depreciation to a raise in import prices could be high as shown by Campa and Goldberger (2002).

these exchange rate regimes have become very vulnerable to highly costly speculative attacks (Mexico 1994, Asia 1997, Russia 1998, Brazil 1999 and Turkey 2001). As a result, after a decade of growing disappointment with intermediate regimes (including FBAR), the current consensus has shifted in favor of the two pure cases: credible fixed or fully flexible (Eichengreen, 1994, Obstfeld, 1995, Summers, 2000, Mussa et al., 2000, and Fischer, 2001). A minority view in favor the intermediate option is presented in Frankel (1999) and in Williamson (2000).

As for countries well integrated to world capital markets, intermediate regimes are prone to crises; there has emerged a strong policy interest in finding less costly options. The main options are to establish a credible hard peg exchange rate system (dollarization, currency unions or currency board) or to employ a more flexible exchange rate system where there is not an explicit commitment to a given exchange rate value, developing, at the same time, instruments to cover exchange rate risks and building in parallel a monetary framework capable of delivering low inflation. A framework of this sort that is becoming increasingly popular is the inflation targeting one[8].

3. Hard Pegs: Dollarization, Currency Unions and Currency Boards.

Hard pegs are extreme cases of fixed pegs and, as such, they share the cost and benefits of that kind of systems already discussed in the previous section. A successful hard peg has some pre-requisites. First, it has to be credible and therefore the central bank has to have enough foreign reserves to buy back the monetary base or to back it up. The fiscal and financial situation has to be also strong enough to facilitate the normal development of the private economy. Otherwise, unacceptable economic outcomes (high interest rates, low growth and high unemployment) would reduce the credibility in the system unleashing an attack on it. Second, as they rule out the use of the nominal exchange rate to adjust to negative real shocks that require a rise in the real exchange rate, they have to be

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[8] A third option, generated in certain cases to avoid exchange rate crises, is to introduce controls on capital flows. However, it must be kept in mind that, given the increasing integration to world trade and to direct foreign investment and the lower communication and information costs and advances in information technology, the world is an ever more integrated market, so that capital controls are very difficult to implement and, at best, are only temporarily effective (until the private sector finds ways to avoid them). For a recent review of the effectiveness of capital controls see Edwards (1999).

accompanied by enough downward flexibility in nominal prices and wages to reduce adjustment costs to these types of shocks. In the particular case where the hard peg is part of a currency union, adjustment is also facilitated by the possibility of labor and capital mobility within the union. Third, the financial system must be strong enough to be able to survive without a lender of last resort. However, in the event of a financial crisis a provision must be made for emergency loans from foreign commercial banks or from a monetary authority of an industrial country, presumably the FED or ECB, and/or the fiscal situation has to be robust enough to obtain financing in case of a financial emergency. Fourth, any successful hard peg requires a solvent government, in which country-risk-augmented interest rates do not crowd out private demand. Furthermore, the government has to have the capacity to carry out counter-cyclical fiscal policy in situations when the country faces shocks that result in a reduction in aggregate demand. This is the functional fiscal policy of Corden (2002). Nevertheless, the discipline inherent in a hard peg means that a government must be ready, and must have the political support to live with the temporal high real interest rates (and high unemployment) that are an integral part of an adjustment to a drop in foreign reserves. Playing around with reserve requirements, impeding market determined increases in the interest rate or reducing the backing of the monetary base in a currency board scheme fire back on reserve losses and/or higher interest rates, as the credibility of the system starts to be questioned.

Hard pegs of the weaker currency board type are not fully protected from the effect of financial contagion. Indeed, financial turmoil and contagion in open economies that have adopted currency boards (e.g. Argentina and Hong Kong), and protracted high exchange-rate risk premiums after 9 years of Argentina's currency board (reflected both directly and indirectly through large country-risk premiums, Powell and Sturzenegger, 2000) mark some recent disillusion with currency boards. Thus, some believe that, to reduce the cost associated with distrust with regard to the authorities' ability to maintain a currency board, it is necessary to renounce one's domestic currency and adopt that of a larger country with a history of monetary discipline, such as the dollar. Indeed, this option was openly discussed in Argentina at the end of the Menem administration as a way of reducing the growing currency risk in spite of having a currency board system. However, if fiscal

solvency and a sound financial system are not in place the market default risks will still be in place with high economic costs in terms of unemployment and output losses.

There is a related question of the most appropriate exchange rate regime to provide a nominal anchor to reduce high inflation for a country that is prepared to introduce a fiscal adjustment compatible with low inflation. Here a hard peg has the advantage that it provides a clear and transparent signal of the course of policy and provides also a direct anchor for the price of imports and exports. However, early on and once inflation has been reduced to low levels, it could become advantageous to move towards a flexible regime – accompanied by inflation targeting with strong institutional backing- to facilitate adjustment to external shocks. The longer it takes to exit the fixed peg, the higher the cost of the transition, as agents will gradually adjust to the fixed peg. Here there is a clear trade-off between credibility and flexibility. Again, this could be a mayor advantage for countries where there are many prices that are rigid in the downward direction. Otherwise, the high unemployment costs that usually accompany the adjustment to a negative shock could become just too costly to live with.

4. Exchange Rate Systems in the Americas: What is said and what is actually done

Within the Americas there is a great variety of countries, ranging from large industrialized countries such as the US, Canada and Brazil, to the small island countries in the Caribbean. Also, the variety of exchange rate regimes adopted during the 20th century is quite impressive. The current distribution of exchange rate regimes in the region is very wide, ranging from the long-standing full dollarization of Panama and Puerto Rico, to the FBAR and crawling pegs of Bolivia, Peru and Nicaragua, to the floating with rare intervention of Chile and Canada, and the free floating of its largest country, the United States. A broad view on the exchange rate systems of the region can be obtained drawing on the results presented in three recent papers: Berg et al.'s (2002) study of monetary regimes in Latin America, and the Levy-Yeyati and Sturzenegger (2002) and Reinhart and

Rogoff (2002) studies, which provide an overview of the different exchange rate system in the world.[9]

To define the type of exchange rate system that a country has is not an easy task as in many cases the announced system is different from the actual one. The first paper mentioned above presents a classification of exchange rate regimes for the Latin American countries that corresponds to the official classification of the IMF (based on the countries' official announcements, adjusted by the views of the IMF staff). The latter two papers provide independent classifications of exchange rate regimes, over a very long span of time, contrasting the official announcements and the effectively observed trajectories of the exchange rates and other variables related to the exchange rate regime. Reinhart and Rogoff (2002) also take into account the presence of parallel exchange rate markets, using the trajectory of market-determined exchange rates rather than official rates. The focus on what is effectively done provides an opportunity to avoid some of the problems that arise from the "fear of floating" and the "fear of pegging". Both classifications differ significantly from each other and from the traditional one presented by the IMF, based upon what is officially declared by each government.

From the classification of exchange rate regimes presented in the Levy-Yeyati and Sturzenegger and Reinhart and Rogoff papers one can derive an overall classification of exchange rate regimes as of December 2001. However, one loose point remains, as the two sources group exchange rate systems into categories that do not coincide and, in particular, one is less detailed than the other. In this paper we use a classification of exchange rate systems that is closer to that presented by Berg et al[10], but we rely mostly on the country information provided by Levy-Yeyati and Sturzenegger and Reinhart and Rogoff. We use three categories of exchange rate systems: hard pegs (dollarization, currency unions and currency boards), intermediate regimes (FBAR, crawling pegs, bands, crawling bands) and floaters (managed and free). Table 1distributes the different countries into these three categories, using the individual classifications of Reinhart and Rogoff.

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[9] Two previous comprehensive revisions of monetary policy and exchange rate regimes in Latin America are Corbo et al. (1999), and Corbo and Schmidt-Hebbel (2001).

[10] See table 1 of their paper.

Table 2 does the same exercise using the classification of Levy-Yeyati and Sturzenegger and Table 3, which is used as a benchmark, is the classification of Berg et al. (2002) expanded to the whole of the Americas using IMF (2002) information.

As can be observed from the three tables, the distribution of countries among different categories is very different in each work. In fact, the results of Reinhart and Rogoff show a high concentration of countries in intermediate regimes. So, after a first examination there is no explicit evidence of the "bipolar view" or the "hollowing-out hypothesis" in the Americas[11]. But, the results from Berg et al. show a different distribution, with more than half of the countries located in the corners of the distribution. A completely different result is obtained using the Levy-Yeyati and Sturzenegger classification of countries. However, their results could be contaminated, as they do not provide enough information to separate hard pegs from conventional pegs.

An important result that arises from the comparison of the classifications is that, apart from the differences originated by the statistical procedures used, there is a large number of countries that show fear of something, that is, they have in practice a different regime than the one informed to the IMF and reported in IMF (2002)[12]. Thus, it appears that some countries that declare to be floaters, are in fact afraid of letting the exchange rate adjust freely (fear of floating), and that other countries that declare to be pegging to something are indeed not pegging to what they were supposed to (fear of pegging).

Another result, not reported here, is that the distribution today is quite different from the existent during the previous decade or in the second half of the previous century. By reviewing the recent history of various countries one observes that an important part of them have officially moved to the corners. Unfortunately, this very coarse classification hides the fact that an important number of these intermediate regimes really are de facto crawling bands or de facto pegs, arrangements that are more flexible than an officially announced peg or band. Table 4 presents a finer classification of the countries, based on the information provided by Reinhart and Rogoff and incorporating also additional

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[11] See Fischer (2001) and Eichengreen (1994), respectively, for a presentation of these hypotheses.

information, where it can be observed that the mentioned bi-polar concentration is due to de-facto behavior more than to formal commitments to rigid schemes. The absence of a formally announced commitment allows countries to "abandon" the rigid de-facto schemes. However, as we will see below, the countries of the Americas that are more fully integrated to the world economy, especially to world capital markets, tend to be in those corners[13].

As a summary we conclude from Table 4 that as of the end of the December 2001 in the Americas Panama, Puerto Rico and Ecuador are dollarized, while El Salvador is en route towards dollarization. Ecuador, a country that dollarized in 1999 has still many pending problems and weaknesses (a weak financial system, rigid nominal wages in the formal sector, severe structural fiscal problems, etc.) that could reduce the credibility of its dollarization experiment and may lead to its abandonment. However, the dollarization could also force the flexibility and fiscal discipline that are required for its success. A group of small countries in the East Caribbean have a currency union (the East Caribbean currency union) and Argentina had up to December 2001 a currency board (which was established in April 1991). Argentina ended up abandoning its currency board in early 2002[14]. Leaving aside the East Caribbean countries that have a currency union and are pegged to the US dollar, 12 countries have intermediate regimes. These countries, except Uruguay, are not well integrated to world capital markets, which makes them less prone to speculative attacks[15]. In some countries that are classified as floaters, the exchange rate could have low volatility due to fundamentals or to movements in the interest rate. This result could be due more to a monetary policy that reacts not only to inflation but also to movements of the exchange rate. Seven countries: Brazil, Canada, Chile, Colombia, Haiti,

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[12] The number of countries would be even higher if we had compared with what the countries say that they do instead of the classifications appearing in IMF (2002).

[13] Levy-Yeyati and Sturzenegger (2002) found the same result for a larger set of countries.

[14] The abandonment was made in the middle of a profound crisis related to many factors: the increasing insolvency of its public sector, and a series of severe and persistent negative real external shocks in presence of downward inflexibility in public sector nominal wages. Interesting enough, private sector nominal wages become flexible downward when the economy had to adjust to a higher equilibrium real exchange rate.

[15] Levy-Yeyati and Sturzenegger (2002) indeed find that, using their classification of exchange rate regimes, the countries that are not well integrated to capital markets do not have corner regimes.

Mexico and the United States have a floating exchange rate regime. All these countries, except Haiti, are well integrated into world capital markets.

5. A Monetary Policy Framework for the Floaters: The Case for Inflation Targeting.[16]

The free floaters by definition have resigned -the use of the exchange rate as nominal anchor and thus have to select a monetary regime capable of delivering low inflation. Two fundamental options can be considered: a money anchor, and an inflation target anchor.[17] A monetary anchor relies on a pre-committed path for the money supply to anchor inflation. In the case of inflation targeting, the anchor for inflation is the publicly announced inflation target itself. The credibility of this policy relies on the power given to the Central Bank to orient monetary policy chiefly towards achieving the target and its willingness to use its power for this purpose.

The effectiveness of the use of a monetary aggregate as a nominal anchor for inflation depends, first of all, just as in the inflation target case, on the authority and capacity of the central bank to carry out an independent monetary policy aimed at achieving and maintaining low inflation (including that induced by exchange rate depreciations). But in this case the effectiveness of the policy depends also on the stability of the demand for the monetary aggregate that it is used as the anchor. That stability provides a link between the monetary anchor and the inflation rate. The stability of the demand for money presents a problem in cases where there is considerable financial innovation or when there is a sudden change in the level of inflation.

In particular, in an economy that has experienced a period of high and variable inflation, the demand for money becomes very unstable, as economic agents develop ways to economize in the use of domestic money balances. And, therefore, when the rate of inflation is reduced, hysteresis effects emerge, generating a breakdown in the old demand for money relationship. That is, when the inflation rate returns to previously observed lower values, the quantity of money demanded is lower than what was expected before the outburst of inflation. In cases like these, predicting the quantity of money demanded

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[16] This section draws, in part, on Corbo and Schmidt-Hebbel (2001).

becomes very difficult, and the use of a money target could be a very ineffective way to achieve a given inflation objective. Thus, it is not surprising that as countries have moved toward more flexible exchange rate arrangements, they have searched for a new monetary anchor[18]. In recent years, the anchor that is becoming increasingly popular is inflation targeting. An additional advantage of the inflation target over a monetary anchor is that as the credibility of the policy increases, the Central Bank can engage on short-term stabilization policy.

In the case of the Americas, five of the seven floaters (Brazil, Canada, Chile, Colombia and Mexico) have gradually established an inflation-targeting framework (ITF). Meanwhile another floater, the US, uses the high credibility of its central bank, the FED, as a monetary anchor, but recently there have been suggestions to move towards an explicit inflation-targeting framework (Meyer, 2001).

An ITF was initially introduced in Canada (Feb. 1991), and Chile (1991), and was later extended to Colombia (1999), Brazil (June 1999) and Mexico (1999). Under ITF, the target rate of inflation provides a monetary anchor and monetary and fiscal policies are geared towards achieving the inflation target. The advantages of this framework is that it does not rely on a stable relationship between a monetary aggregate and inflation for its effectiveness, and, at the same time, it avoids the problems associated with pegging the exchange rate. An additional advantage for emerging countries is that the trajectory of the market exchange rate provides important information on market evaluation of present and future monetary policy, such as the information provided by nominal and real yields on long-term government bonds in industrial countries (Bernanke et. al., 1999).

A well-defined IT framework has to satisfy a set of conditions (Svensson, 2000, and King, 2000). First, it has to include a public announcement of the strategy of medium-term price stability, and an intermediate target level for inflation for the relevant period in the

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[17] On monetary anchors, see Calvo and Végh (1999); Bernanke and Mishkin (1997), and Bernanke et al. (1999).

[18] One should be careful not to oversell to much this argument. As my discussant Linda Goldberg argued, inflation targeting also benefits from a stable demand for money although all that it is required is a stable relation between inflation and its determinants, including among the latter the policy interest rate. However, for this relation to be stable the money demand has to have some stability too.

future in which monetary policy affects inflation. Second, an institutional commitment to price stability must be in place, in the form of rules of operation for the monetary authority. Third, operational procedures have to be transparent and it has to exist a clear strategy of how monetary policy will operate to bring inflation close to the announced target. The strategy, in practice, usually starts from a conditional forecast of inflation for the period for which the target is set. It also establishes specific operational procedures for the central bank to adopt when the inflation forecast differs from the target. The procedures should be transparent and the monetary authority should be accountable for attaining the objective that has been established. Central Bank autonomy is an important institutional development that reinforce the credibility of an IT framework.

Given the lags in the operation of monetary policy, the inflation target has to be set for a period far enough into the future to ensure that monetary policy can have a role in determining future inflation. In practice, central banks announce a target for the next eighteen to twenty-four months. They develop a conditional forecast of inflation for this timeframe –based on the existing monetary policy stance and a forecast of the relevant exogenous variables– and provide a strategy and communicate to the public the policy actions they would adopt in response to deviations of inflation from target levels. When the conditional inflation forecast is above the inflation target, the level of the intervention interest rate is raised with the purpose of bringing inflation closer to the target. One advantage of IT is that inflation itself is made the target, committing monetary policy to achieve an explicit inflation objective and thus helping to shape inflation expectations. However, herein also resides its main disadvantage. As inflation is not directly under the control of the central bank, it becomes difficult to evaluate the monetary stance on the basis of the observed path of inflation. Furthermore, as monetary policy operates with substantial lags, it could be costly to pre-commit an unconditional inflation target – independently of changes in external factors that affect inflation – and to change monetary policy to bring inflation back to the target. Aiming at the inflation target when a shock causes a temporary rise in inflation could be very costly in terms of a severe growth slowdown and increased output volatility (Cecchetti, 1998).

To address some of these problems, several options have been proposed. First, the inflation target can be set in terms of a range rather than a point. Second, to set a target for core inflation rather than observed inflation. Third, to exclude indirect taxes, interest payments, and energy prices from the targeted price index. Fourth, to set the target for periods long enough so that short-term shocks to inflation do not require a monetary response[19].

Emerging markets that have adopted an inflation target at a time when inflation levels were well above their long-run objectives, have had to deal with the problem of inflation convergence. Usually these countries have started reducing inflation without a full-fledged IT framework in place. Once they had made enough progress in reducing inflation, they announced annual targets and gradually put in place the components of a full-fledged IT regime, as they moved toward low and stationary inflation (Australia, Chile, Canada, Israel, New Zealand and the UK are good examples here).

6. Is dollarization an option for the Americas?

Dollarization can be unilateral or as part of a currency union in which all or part of the countries of the Americas adopt the US dollar. Let us start discussing the case for unilateral dollarization. Both types of dollarization are the strongest cases of a hard peg (the third, and weakest one is a currency board). Abandoning the domestic currency eliminates the risk of devaluation, but a country that eliminates its currency and adopts that of a low inflation country, such as the US dollar, has to incur in the cost of buying back the money base (the stock cost) as well as the flow losses of seigniorage. For the case of the larger economies in the Americas, -Argentina, Brazil, Chile and Mexico- Morandé and Schmidt-Hebbel (2000) estimate these losses to be between 2.2% and 4.4% of GDP in 1999 for the first component, and between 0.12% of GDP and 0.25% of GDP for the second. However, in spite of these costs, in the case of countries that have a proven record of poor monetary management and price stability, this could be a worthwhile cost to pay. In the special case of forming a currency union, as is the case of the EMU, the member countries could negotiate the distribution of the revenues from seigniorage.

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[19] For a review of the costs and benefits of these alternative options see Bernanke et al. (1999), chapter 3.

One should ask now which are the natural candidates for unilateral dollarization in the Americas. In the first place, countries that have not been able to run an independent monetary policy capable of delivering low inflation. For these countries the main benefit from dollarization stems from importing a better way of running monetary policy. Countries that could fit into this category are Argentina, Nicaragua and Venezuela. The benefits of dollarization could also outweigh its costs in the case of the smaller countries of Central America and the Caribbean, as well as in the group of small countries that are part of the East Caribbean monetary union, all of which are characterized by highly dollarized economies, and which concentrate a substantial part of their trade in goods and services and capital flows with the US (including in some cases worker remittances). On labor market flexibility, the exception are some countries in Central America, especially Costa Rica. The benefits of dollarization for these countries are derived from: lower interest rates resulting from the elimination of currency risk and its associated premium, elimination of currency transaction costs, lower variability in relative prices of tradable goods, and the elimination of currency mismatches in foreign assets and liabilities. The reduction of all these microeconomic costs and market frictions should result in an improved integration to the world economy.

In the case of El Salvador, it was the disillusion with the performance of the late 80s and early 90s and with the high domestic interest rates of the second half of the 90s - when they had a de facto fixed peg to the US dollar but without a strong institutional backing- what moved the government to start a process of dollarization. But in this case, as well as that of other small countries of Central America and the Caribbean mentioned above, dollarization can also be justified using the standard arguments of an optimal currency area, given that its small economy is very open and that it has a high share of its trade, worker remittances and capital flows concentrated in the US. Now, after El Salvador initiated its movement towards full dollarization, Guatemala and Nicaragua are considering the possibility of following the same route. The case of Nicaragua, which we already had identified as a dollarization candidate, given its poor record on macro management, is not surprising as the financial and real crises of the 80s resulted in high dollarization and substantially reduced the demand for the local currency, severely curtailing the room for an

independent monetary policy. However, in the Central American countries the adoption of the US dollar cannot resolve the problem of the fragile condition of their fiscal and financial systems, unless it helps to generate a dynamic process in favor of more fiscal discipline. A robust fiscal situation is also required to be able to use fiscal policy to respond to real shocks associated to commodity shocks.

For some of the largest countries in the region, that have a high country diversification of their trade, pervasive nominal rigidities, and a well-run monetary policy that delivers low inflation, the advantages of dollarization are not as large. Furthermore, these countries are usually exposed to real external shocks –mostly terms of trade shocks- that are not highly correlated with the ones in the US. This is the case of Canada, Chile, Brazil, Mexico and Colombia.

The structural characteristics of the largest countries in the Americas -with respect to macroeconomic characteristics, the degree of openness and direction of their trade, terms of trade variability and cross-country correlation- are presented in Tables 5 through 7. With regard to macroeconomic indicators, Chile has the lowest government deficit and the second lowest inflation after Argentina within emerging markets. However, on the fiscal side the situation is weak in Brazil, Colombia and Argentina. Inflation has come down, but there are still important differences among countries. Recently Argentina has entered into a crisis and its inflation is back to the high double-digit annual level. Thus, on the macro side many countries in the region are far away from satisfying Maastrich type criteria. Table 6 shows that for three countries, Canada, Chile and Mexico, total trade is more than 50% of GDP. In contrast, Colombia, Brazil, Argentina and the US have the lowest trade-openness indicators in that order. In what concerns the direction of trade, more than 70% of Mexico and Canada's trade is concentrated in the US. In contrast, in the case of Brazil, Argentina and Chile less than 25% of their total trade is directed towards the US. Furthermore, for Brazil and Chile more than half of its trade is with countries outside the Americas. Thus, from a trade perspective, unilateral dollarization (or a common currency of the MERCOSUR and associated members countries) does not appear to be much of a benefit in the case of Brazil and Chile. However, from a capital flow perspective, a substantial part of the transactions is denominated in US dollars.

Another consideration when evaluating the adoption of a common currency is the degree of correlation of terms of trade. Table 7 presents the coefficient of variation of terms-of-trade and the correlation matrix of terms-of-trade for the same group of countries. The highest coefficients of variation of terms of trade belong to Mexico, Brazil, Argentina and Chile in that order. For these countries the coefficient of variation of terms of trade is more than 50% higher than those of the US. Surprisingly enough, Canada's coefficient of variation is one third of that of the US. From the results presented in Tables 5, 6 and 7 it appears that Canada is the best candidate to adopt the US dollar. Interestingly enough, Canada has decided that the benefits of keeping its own currency –to adjust to other real shocks and to run an independent monetary policy to accommodate real shocks that require a depreciation of the real exchange rate- outweigh the costs of keeping its own currency. One should also note that Canada has been able to achieve and maintain low inflation – using an ITF- and has developed a strong public finance position (Table 5).

In the particular case of Brazil, Chile and Mexico, as these countries complete the implementation of a full-fledged ITR, it will be difficult to give up the use of a flexible exchange rate –used to facilitate real exchange rate adjustments- and of monetary policy as a stabilization tool. In the particular case of Chile, where behind a solid fiscal situation, its inflation has already converged to its medium term target level, and where exchange rate and monetary policy have been used actively to stabilize the economy, the country is in the process of signing a broad trade agreement with the European Union, and unilateral dollarization is not even in the discussion agenda. [20] In Mexico, a country that has gone far to recover the credibility of its Central Bank and its monetary policy, and which has reduced its inflation to an annual rate below 6%, it does not need to tie itself to the rigid structure inherent in the dollarization of its economy. This is especially so given its high dependence on oil[21]. Indeed, the coefficient of variation of its terms-of-trade is the highest

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[20] In the case of Chile, in a recent paper Morandé and Schmidt-Hebbel (2000) conclude that, among various Southern Hemisphere countries, Chile would gain the least (or lose the most) if it gave up its currency. Subject to large idiosyncratic shocks and significant temporary wage and price rigidity, and a conservative monetary policy, it is argued that Chile has to gain most from a floating exchange rate and an independent monetary policy. A negative view on the advantages of dollarization in Chile is presented also in Fontaine and Vergara (2000)

[21] Carstens and Werner (2000) arrive to the same general conclusion for Mexico

among the seven countries included in Table 7. However, one has also to consider the high share of its trade, capital flows and worker's remittances with the US.

In Brazil, the flexible exchange rate system has played a key role -together with a responsible fiscal and monetary policy- in the surprising recovery to the crisis of early 1999. Furthermore, given the country diversification of its trade and capital flows, and the size of its economy, optimal currency area arguments are much less relevant[22].

For the particular case of MERCOSUR, there has been an open discussion about the more appropriate exchange rate arrangement to promote integration. It is well understood that any currency union type of arrangement will have to wait until enough progress is made at the country level on the macroeconomic stability front. Furthermore, given that there is no country within the union that could play the role of the anchor country, it has been recommended that any currency union will have to use the currency of a third country o group of countries (the dollar or the euro). Moreover, there is still much room to reduce barriers to trade in goods and services within the area that should precede any attempt at creating a currency union.[23]

However, if a Free Trade Zone of the Americas becomes a reality and the trade integration of the Americas increase then the question of dollarization will have to be reexamined. Here the experience of the euro will be very important.

7. Concluding Remarks.

For countries with a poor record on macroeconomic stability, that is countries that have not been able to run an independent monetary policy capable of delivering low inflation, it could be beneficial to become dollarized. Countries that could fit this category are Argentina, Nicaragua and Venezuela. Also for the smaller countries in Central America and in the Caribbean, as well as for the set of small countries that are part of the East Caribbean monetary union, that are characterized as being highly dollarized economies, with a substantial part of their trade in goods and services and capital flows with the US

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[23] On exchange rate mechanisms within MERCOSUR and an evaluation of the feasibility of a currency union see Carrera and Sturzenegger (2000), and Levy-Yeyati and Sturzenegger (2000).

(including in some cases worker remittances) it could also be beneficial to dollarize. The benefits of dollarization for these countries are derived from: lower interest rates resulting from the elimination of currency risk and its associated premium, elimination of currency transaction costs, lower variability in relative prices of tradable goods, and elimination of currency mismatches in foreign assets and liabilities. The reduction of all these microeconomic costs and market friction should result in an improved integration to the world economy, a higher income level and higher growth rates. For both type of countries the benefits of dollarization would be higher yet if labor markets are flexible and they have developed the appropriate institutions to support the financial system in case of a sudden crisis. In contrast, for open economies with a good record of financial stability and a large tradable sector, in which exports are highly diversified by country of destination and where downward nominal rigidities are widespread, dollarization could be a major hindrance to the adjustment to a negative real shock that requires a real depreciation. For this type of country, a more flexible exchange rate regime would be preferable. Indeed, the combination of prudent monetary policy and exchange rate flexibility has facilitated adjustment in most countries in the region. With capital mobility, exchange rate flexibility also leaves the door open for the use of discretionary monetary policy in response to unexpected domestic and external shocks.

After the revision of the current exchange rate regimes adopted in the Americas, we can conclude that we have today a very wide range of different exchange rate arrangements. The first group consists of countries that have hard peg systems. There is also a group of small countries that are not well integrated to world capital markets that have intermediate regimes. And at the other end of the distribution there is a group of six large countries (Brazil, Chile, Colombia, Mexico, the US and Canada) that are floaters and have succeeded in achieving an maintaining low inflation using an explicit ITR, with the exception of the US, that uses an implicit ITR.

While few countries are willing to go the avenue of dollarization, a larger number is moving towards the use more flexible systems. However, more flexible systems must be accompanied by the development of forward and future exchange rate markets, to enable market participants to hedge against exchange rate volatility. Otherwise, the real costs of

real exchange rate variability could be high. As countries move towards the use of more flexible exchange rate arrangements, they will need to make the selection of the monetary anchor more explicit. Here, much progress has been made in the region in implementing quite successful full-fledge inflation targeting regimes. Thus, for countries that have built strong macro fundamentals, and that have a safe and sound financial system, the alternative of keeping its own currency, combining a floating exchange rate system with inflation targeting may be a better choice.

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Table 1
Exchange Rate Regimes in the Americas:
Reinhart and Rogoff's (2002) Classification as December 2001

Hard Pegs	Intermediate	Float
- East Caribbean Central Bank countries* - Argentina ** - Ecuador (dollarization) - El Salvador (en route to dollarization) - Panama (dollarization)	- Bolivia (de facto crawling peg) - Canada (de facto crawling band) - Costa Rica (de facto crawling band) - Dominican Republic (de facto crawling band) - Guatemala (de facto crawling peg) - Guyana (de facto crawling peg) - Honduras (de facto crawling peg) - Jamaica (de facto crawling peg) - Nicaragua (crawling peg) - Paraguay (de facto crawling band) - Peru (de facto peg) - Suriname (peg) - Uruguay (de facto crawling band) *** - Venezuela (pre-announced crawling band) **	- Brazil [&] - Chile [&] - Colombia [&] - Haiti - Mexico [&] - United States

Notes:
* It includes the following countries: Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. In practical terms these countries are members of a currency union, which currency is pegged to the dollar.
** In 2002 moved to float.
*** There is also an official crawling band, but the authors found that in fact the Central Bank followed a narrower crawling band. In 2002 the band was widened and the central parity was adjusted to allow a faster depreciation pace.
[&] Managed floating.
Hard Pegs: dollarization, currency unions and currency board arrangements.
Intermediate: pegged horizontal bands, conventional fixed peg arrangements, crawling pegs and crawling bands.
Floats: include managed floats and free floats.

Table 2
Exchange Rate Regimes in the Americas (cont.):
Levy-Yeyati and Sturzenegger (2002) Classification as 2000

Fixed	Intermediate [#]	Float
- East Caribbean Central Bank countries *	- Costa Rica	- Canada
- Argentina	- Dominican Republic	- Colombia
- Bahamas	- Ecuador	- Chile
- Barbados	- Guatemala	- Haiti
- Belize	- Peru	- Honduras (1999)
- Bolivia	- Uruguay	- Jamaica
- Brazil		- Mexico
- El Salvador		- Paraguay
- Guyana		- Sao Tome and Principe
- Netherlands Antilles		- Suriname (dirty float)
- Nicaragua		- United States
- Panama		- Venezuela (dirty float)
- Trinidad and Tobago		

Notes:

* It includes the following countries: Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. In practical terms these countries are members of a currency union, which currency is pegged to the dollar.

[#] Correspond only to the Intermediate/Crawling Peg category presented in the Appendix 2.

Table 3
Exchange Rate Regimes in the Americas (cont.):
Berg et al.'s (2002) Classification as 2001[1]

Hard Pegs	Intermediate	Float
- Argentina	- Aruba	- Brazil
- Ecuador	- Bahamas	- Canada
- El Salvador	- Barbados	- Chile
- East Caribbean Central	- Belize	- Colombia
Bank countries *	- Bolivia	- Dominican Republic
- Panama	- Costa Rica	- Guatemala
	- Honduras	- Guyana
	- Netherlands Antilles	- Haiti
	- Nicaragua	- Jamaica
	- Uruguay	- Mexico
	- Venezuela	- Paraguay
		- Peru
		- Trinidad & Tobago
		- United States

Notes:
* It includes the following countries: Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. In practical terms these countries are members of a currency union, which currency is pegged to the dollar.
Hard Pegs: currency unions and currency board arrangements.
Intermediate: pegged horizontal bands, conventional fixed peg arrangements, crawling pegs and crawling bands.
Float: includes managed floats and free floats.

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[1] The author using the IMF classification presented in the IMF's International Financial Statistics, May 2002 added additional countries to the original classification.

Table 4
Exchange Rate Regimes: A Finer Classification as December 2001

Hard Pegs			Intermediate Regimes				Floaters
Dollarization	Currency Union	Currency board	Peg and crawling peg	De-facto peg and crawling peg	Band	De-facto band	
- Ecuador - El Salvador - Panama - Puerto Rico	- East Caribbean Central Bank countries *	- Argentina **	- Nicaragua - Suriname	- Bolivia - Guatemala - Honduras - Jamaica - Peru	- Venezuela **	- Costa Rica (crawling band) - Dominican Republic - Paraguay - Uruguay	- Brazil [&] - Canada [#] - Chile [&] - Colombia [&] - Haiti - Mexico [&] - United States

Notes:

* It includes the following countries: Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. In practical terms these countries are members of a currency union, with their common currency pegged to the US dollar.

** In 2002 it moved to float.

[&] Managed floating.

[#] Reinhart and Rogoff (2002) classified the country as a de facto band, but according to the author's view, confirmed by the IMF classification, it was reclassified as a floater.

Source: Author's preparation in base of the results presented in Reinhart and Rogoff (2002).

Table 5
Debt and Macro Indicators: Selected American Countries

	Govt. Debt (% GDP)	Govt. Deficit (% GDP)	Inflation		Interest Rates	
			1990-2000	2001	Nominal	Real
Argentina	44.9	4.0	46.3	-1.1	24.9	26.0
Brazil	49.4	5.2	237.9	6.8	17.47	10.67
Canada	103.2	-2.8	2.2	2.5	2.24	-0.26
Chile	39.7	0.3	10.2	3.6	6.81	3.21
Colombia	34.9	5.8	19.7	8.0	10.43	2.43
Mexico	28.3	0.7	18.0	6.4	12.89	6.49
USA	59.4	-0.6	3.0	2.8	3.89	1.09

Source:

Government Debt: Deutsche Bank and OECD, except for Chile that was calculated by the author using data from IMF and Central Bank of Chile. Figures correspond to 2000, except Mexico that corresponds to 1998.

Government Deficit: OECD, Chilean Ministry of Finance, and Deutsche Bank. Data correspond to 2001 values.

Inflation: IMF, World Economic Outlook Database.

Interest Rates: IMF. It corresponds to the Money rate of the International Financial Statistics. Real rates where computed as ex-post real rates. Figures correspond to 2001.

Table 6
Openness and Trade Flows: Selected American Countries

	Average Tariff, % (1)	Trade Openness (2)	Trade Flows with (3)				
			USA	Rest of America	European Union	Asia	Others
Argentina	11%	0.20	0.14	0.45	0.19	0.11	0.10
Brazil	13.6%	0.26	0.24	0.24	0.17	0.17	0.17
Canada	4.4%	0.72	0.76	0.03	0.08	0.06	0.07
Chile	10.0%	0.53	0.18	0.32	0.23	0.13	0.14
Colombia	11.8%	0.31	0.39	0.32	0.17	0.05	0.08
Mexico	10.1%	0.50	0.78	0.07	0.07	0.04	0.04
USA	4.3%	0.19	-	0.39	0.18	0.24	0.19

Source:
(1): World Bank, World Development Indicators 2001. Figures correspond to year 1999.
(2), (3): IMF, Direction of Trade-2001 (May 2002), and IMF, World Economic Outlook (April 2002). Data refers to year 2001.
　　Trade Openness was as calculated as the ratio of the sum of imports and exports and the GDP. Trade flows are the proportion of the total trade flows that are directed to the country or region identified in the columns. For example, the value of Chile under the column of USA corresponds to the ratio of the sum of the exports from Chile to USA and the Chilean imports from USA and the sum of the total imports and exports of Chile. Rest of America corresponds to the Western Hemisphere plus Canada (except for Canada, in this case includes only the Western Hemisphere).

Table 7
Correlation and Variability of Terms of Trade Shocks: Selected American Countries

	Argentina	Brazil	Canada	Chile	Colombia	Mexico	USA
Coefficient of Variation:	0.096	0.132	0.019	0.092	0.072	0.215	0.056
Correlation:							
Argentina	1.00	-0.05	0.07	0.41	0.12	0.57	-0.55
Brazil	-0.05	1.00	-0.02	-0.09	0.54	0.32	-0.20
Canada	0.07	-0.02	1.00	0.51	-0.48	0.05	-0.23
Chile	0.41	-0.09	0.51	1.00	-0.11	0.09	-0.55
Colombia	0.12	0.54	-0.48	-0.11	1.00	0.06	-0.04
Mexico	0.57	0.32	0.05	0.09	0.06	1.00	-0.78
USA	-0.55	-0.20	-0.23	-0.55	-0.04	-0.78	1.00

Source:

Author's calculations in base of World Bank's Economic Growth Database, which is available online at econ.worldbank.org.

Computed for the terms of trade in levels using annual data from 1980 up to 1999. The coefficient of variation corresponds to the ratio between the standard deviation and the average.