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Dollarisation as an alternative exchange rate regime for emerging countries

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Over the past three decades exchange rate volatility has motivated a renewed search for stable and predictable exchange rate regimes. As a fixed exchange rate regime, dollarisation has increasingly been suggested as such an alternative, and is currently receiving renewed attention. This article is aimed at investigating the nature and rationale for such a regime, and also analysing its advantages and disadvantages. Furthermore, a critique of dollarisation, together with an analysis of its suitability for various circumstances and types of economies, is offered in order to determine its specific niche on the exchange rate spectrum. The regime is found to have merit, but to be applicable only to a limited number of countries with specific features.

Dollarisering as 'n alternatiewe wisselkoersstelsel vir ontluikende lande

Wisselkoersonbestendigheid gedurende die afgelope drie dekades het 'n hernieude soeke na wisselkoersstelsels met stabiliteit en voorspelbaarheid gemotiveer. Dollarisasie, as 'n vaste wisselkoersstelsel, word toenemend as sodanige alternatief voorgestel en geniet hernieude aandag. Hierdie artikel ondersoek die aard en rasionaal vir die stelsel, maar analiseer ook die voor- en nadele daarvan. Voorts word kritiek op dollarisering, gepaardgaande met 'n analise van die toepaslikheid daarvan vir uiteenlopende omstandighede en soorte ekonomieë, eweneens aangebied ten einde die spesifieke nis daarvoor op die wisselkoersspektrum te bepaal. Die bevinding is dat die stelsel gewis meriete het, hoewel dit slegs op 'n beperkte aantal lande met bepaalde eienskappe toepaslik is.

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A wide array of exchange rate regimes currently exists in economies around the globe.[1] Commencing from the fixed pole, the continuum of exchange rate regimes ranges from currency unions/dollarisation to currency boards, truly fixed exchange rates, adjustable pegs, crawling pegs, basket pegs, target zones or bands, managed floats, and free floats (Frankel 1999: 2-4). As a result of volatile capital flows, global financial and exchange rate crises as well as sharp decreases in living standards, much energy has been channelled into finding suitable exchange rate regimes for emerging countries. This action has been further supported by the fact that a number of countries have lost their access to international financial capital resources because of a decline in their credit ratings, depleted reserve levels, and international debt arrears.

Over time an alleged hollowing-out of the middle ground of exchange rate systems has occurred (Fischer 2001: 11). Emerging countries, in particular, have emigrated towards either more flexible or more fixed exchange rate systems, having realised that hybrid systems are not suitable for them and are moreover inherently crisis-prone over the longer term. Dollarisation has been one of the recently emphasised options for countries contemplating a move towards a more fixed exchange rate system and has gained increasing importance since the 1990s. This system replaces the domestic currency with the US dollar (or the euro, in the case of euroisation) and makes sense for countries which, on account of distrust in the local monetary unit, already have large amounts of dollars circulating in their economies.[2] The primary intention of dollarisation is to obtain a fixed anchor of monetary stability by importing it from another country. More than 25 countries have already done so, among others Panama (from 1904), Ecuador and El Salvador.

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2 Bergsten (1999: 1-2) remarks that approximately two-thirds of all dollar currency is held outside the USA, and that during 1990-1995 ratios of between 30%-60% in respect of dollarisation prevailed in most of the transitional economies of Eastern Europe and the former Soviet Union, as well as in Latin America (Bolivia's, for example, 82%).

In the first section of this paper dollarisation will be investigated by a discussion of its meaning and rationale. In section two, the arguments in favour are dealt with, and in section three the arguments against dollarisation. In section four a critique of dollarisation is provided while in section five its implications for the USA are addressed. In section six the countries likely to be candidates for dollarisation are identified, while the discussion is concluded in section seven.

1. The meaning of, and rationale for dollarisation

By fully dollarising its economy, a country officially adopts the monetary system of a foreign country by importing that country's currency as legal tender. This type of dollarisation is also known as official dollarisation and involves a decision by the government legally to adopt a foreign currency (the US dollar) instead of the local currency. Thus, full dollarisation implies the abolition of the country's own currency and making the foreign currency the legal tender, unit of account and store of value of the local economy (Bogetic 2000: 18). This also means the virtual abolition of the central bank, since several of its core functions, namely the conduct of monetary policy, the issuing of notes and acting as lender of last resort, cease to exist. Some remaining functions may be transferred to the Treasury. One of the main aims of dollarisation is to eliminate currency risk and the risk of contagious currency crises.

One rationale for dollarisation is that having and managing their own money creates so many problems for some countries that their governments should be prevented from issuing it. Dollarisation would eliminate a weak domestic monetary authority's poor credibility as manifested in violations of exchange rate pegs, a history of easy finance of government, as well as high inflation. These aspects spark expectations of exchange rate depreciation or devaluation, further inflation, chronic high interest rates and a flight to foreign money and assets. Dollarisation can alleviate these problems and prevent the heavy losses in the banking and financial sectors that follow devaluation or depreciation.

Governments generally understand the long-term benefits of stable money, but are tempted by incentives to create inflation because it enables them to generate revenue through seigniorage without the consent of either the public or the parliament. Currency crises in East Asia, Russia, Brazil and elsewhere have illustrated that inappropriate fiscal and monetary policies in emerging market countries have produced many disasters (Schuler & Stein 2000: 4). However, dollarisation ties the hands of the authorities in the same way as the former gold standard, thereby eliminating the harmful policies of a fragile and dependent central bank.

Dollarisation can also benefit countries in desperate situations where immediate changes and profound restructuring are needed, but socio-political conditions and internal political disunity preclude them. In times of dramatic politico-economic crisis accompanied by social and factional conflict, dollarisation can be an effective defensive move with which to enforce a drastic change of regime within a short period. In view of the operation of the system (described below), the speed with which it can be instituted, the likely immediate improvement of credibility in policy-making and the trust it creates in external stabilising forces, dollarisation can buy time to restore political and economical stability.

Literature on the choice of an exchange rate regime often fails to take into account the current situation of a country. Such a situation might entail financial frictions, extensive unofficial dollarisation and a lack of credibility, thus providing a strong rationale for dollarisation. Dollarisation also takes cognisance of the situational background of a country, such as hyper-inflation, transitional political and economic circumstances and the doubtful sustainability of an exchange rate regime. The circumstances can be extended to contagion, the existence of a weak financial system, volatile capital flows, imperfect market information, the presence of rational herding, the existence of asymmetric information, and questions regarding the policy-makers' expertise in handling large inflows of foreign capital. These aspects provide a different perspective on the choice of an exchange rate regime and transform the entire debate about what motivates dollarisation as an exchange rate system (cf Calvo 2001: 313). Emerging countries, in particular, reflect conditions, structures and institutions different from those for which the criteria for an optimal currency area (OCA) may be valid. These conditions reveal that flexible exchange rates may not be the most suitable regime for emerging economies.

Another rationale for dollarisation (cf Joint Economic Staff Report 1999: 2) is that, unlike other regimes, it does not require an international agreement that may take several years of negotiations and encounter many political obstacles. Yet a further rationale for full dollarisation is embedded in the belief that it helps a country to detach itself from the financial and economic instability in other countries as well as any associated contagion, thus lowering the country's risk in the absence of currency risk. Emerging countries are particularly prone to crisis when it comes to the volatility of capital flows and exchange rates. The ensuing detrimental impact on their real economic aggregates makes them opt for dollarisation with its "imported policy credibility".

Another reason why countries select dollarisation is their fear of a floating exchange rate regime (Antinolfi & Keister 2001: 30). This fear is based on high levels of dollar-denominated debt, high levels of exchange rate pass-through effects on inflation and the adverse effect of currency instability on international credit market access in the face of a depreciation in the exchange rate. Dollarisation may convince financial operators that the country is determined to fulfil its promise of fixing the exchange rate under all circumstances and persuade them not to speculate against the currency. In this way, access to international capital markets is enhanced. Dollarisation therefore amounts to the institution of a substitution mechanism in order to create credibility and stability (Mendoza 2002: 5), although it will not completely rule out a banking crisis or solve all fiscal problems.

The presence of time inconsistency in the policy-making process is another reason why countries consider dollarisation. This phenomenon results from currency pegs or currency zones announced by policy authorities. These may be appropriate at a specific stage or time, but tend to become troublesome and burdensome later. The adjustments and sacrifices in support of the initial intentions become too costly. Consequently, the necessary adjustments are not implemented or are delayed. Dollarisation can assist in ending this.

The discussion on the meaning of dollarisation having now been completed, the focus in the next two sections will shift to the two sides in the debate on dollarisation. In the first section arguments in favour of dollarisation will be highlighted, as advanced by the advocates of the regime, while the second will contain the criticism levelled against dollarisation.

2. Arguments in favour of dollarisation

2.1 International financial integration

Since dollarisation eliminates, or at least substantially reduces, foreign exchange crises and brings about increased exchange rate certainty, it not only eliminates the need for foreign exchange controls but also attracts more international financial institutions providing sophisticated financial expertise and instruments. Such institutions not only provide additional liquidity and financial support to the domestic economy but also promote faster international financial integration of the country with the rest of the world. Consequently, the dollarised country can avail itself of increased amounts of foreign capital at reduced cost. Improved country risk ratings stemming from dollarisation may support this development, thereby facilitating more investment in fixed capital and a concomitantly higher rate of economic growth and employment.

2.2 Increased credibility, less exchange rate volatility, lower interest rates and inflation

Some emerging market countries have a poor track record when it comes to using their own independent macro-economic policies for stabilisation purposes. However, dollarisation allows them to increase their policy credibility (Visser 2000: 158) and limit their exchange rate volatility. Other benefits include reducing the risk of currency crises and the accompanying devaluations, as well as averting capital flight and its potential for concomitant financial crisis.

Currency crises that have occurred in the absence of dollarisation have had dramatic effects on the local economies of emerging countries. Serious recessions with losses ranging from 7 to 15% of annual GDP have been recorded (Berg & Borensztein 2000: 14), but dollarisation can mitigate these. Since dollarisation *per se* implies no possibility of devaluation, it immediately decreases the currency risk or risk premium. This, in turn, stabilises inflation (cf Edwards & Magendzo 2001: 13) and, more importantly, inflation expectations at lower levels, thereby promoting economic growth and employment. It is important to note, however, that dollarisation will not necessarily equate the inflation rates of the anchor country and the dollarising country. Countries with higher growth will typically also have higher rates of inflation.

Moreover, dollarisation removes government's power to create inflation at will, thereby fostering sounder fiscal policy (Joint Economic Committee 2000: 13). Dollarisation also improves the transparency of the government's tax and general budgetary policy and assists in preventing the monetisation of government debt.

2.3 Improved credit and finance conditions

As long as a possibility of significant currency depreciation exists in an emerging country, domestic players will be reluctant to borrow on account of the dangers of default and bankruptcy. Consequently, the local financial markets will probably lack liquidity and depth, thus remaining undeveloped. However, by contributing to a drop in real interest rates by lowering the expected inflation and currency risk (Salvatore 2003: 197), dollarisation reduces the risk premia on foreign loans and renders foreign bank loans cheaper.[3] Combined with increased credibility of policies, this will stimulate local economic investment and growth. Dollarisation will also enhance the availability of continuous long-term domestic finance on account of greater certainty about inflation and increased economic stability.

2.4 Lower transaction costs, improved information, and increased discipline

Dollarisation has the micro-economic benefit of extending the utility of money as a cost-reducing production factor by increasing the realm of applicability of a specific currency, thereby providing more useful market information together with reduced costs of transactions in a broader area and with less uncertainty. Transaction cost is an important determinant of trade volumes between countries, and dollarisation will lower the transaction costs relating to the conversion of national currencies (cf Alesina & Barro 2001: 381), especially if the dollarising country has extended trade and investment links with the anchor country. In this regard, Rose (2000: 31) has aptly demonstrated that the use of the same money or a common currency enhances trade in goods and services.

3 A risk premium may nevertheless persist due to the structural features found in emerging countries (Mann 1999: 2).

Dollarisation also lessens the informational and institutional frictions that cause imperfections in credit markets (Mendoza 2001: 471), and lowers both information costs and the incidence of contagion (Calvo 2001: 319). Credit market friction amplifies the distortions introduced by a non-credibly managed exchange rate regime while introducing distortions of its own. In addition, dollarisation also effects a better match between financial assets and liabilities in terms of currency domination, ending the "liability dollarisation" which has had disastrous effects in many emerging market crises. By increasing the cost of reneging on the chosen exchange rate regime, dollarisation imparts more policy credibility and discipline than other less fixed or pegged exchange rate regimes.

2.5 Promoting structural adjustment

In countries with weak political institutions and a lack of the political will or power to institute the necessary structural reform in the economy, dollarisation can create the necessary climate for such steps. Countries, particularly those in Latin America, in which the required structural reforms are continuously postponed, take refuge in dollarisation in order to overcome inertia in respect of renewal and adjustment by opposing sections of the population. Under such conditions, dollarisation serves as a hidden strategy to achieve a social and fiscal discipline that would otherwise not be possible. In this sense, dollarisation can also function as a device to defuse the social and political tension that may cause political and economic crises. By calming emotions and allaying popular suspicion of domestic policies by means of promises of imported external stability, dollarisation can not only improve investor confidence but also facilitate much-needed economic adjustment in an orderly way.

To ensure objectivity in evaluating the viability and suitability of dollarisation as an alternative exchange rate regime, the foregoing pro-dollarisation arguments must be balanced by a discussion of the costs and disadvantages of the system, as adumbrated by its critics.

3. Arguments against dollarisation

3.1 Political costs

The loss of an important national symbol of identity is an emotional and psychological issue. A common domestic currency may help to unite an otherwise diverse community and social groups. Along with other symbols, the local currency therefore contributes to a country's national pride. Schuler (2003: 144) points out that "[a] currency, like a language, flag, and government, can foster the cohesion among a group of people that melds them into a nation". Dollarisation may jeopardise this and elicit emotional, cultural and social dissatisfaction. The loss of pride is also reflected in the fact that another country's politicians and policy-makers (in the case of dollarisation, the USA's) now co-determine the prospects for the future economic growth and development of the dollarised country. More importantly, the anchor country can even impose its will on the dollarised country in various forms (trade sanctions, etc), should it act against the wishes of the hegemonic power.

For the sake of balanced debate and in rebuttal of the above, it may be argued that dollarisation may not necessarily entail a threat to national pride or a loss of political sovereignty. According to Dornbusch (2001: 239), as far as the quality of money is concerned sovereignty is not an issue but as far as national pride is concerned it should not be an issue in most emerging countries. Furthermore, the political cost of dollarisation is minimal in countries where recurrent bouts of hyper-inflation make the local citizens increasingly willing to sacrifice their pride in return for stable inflationary expectations and the absence of looming depreciation of their currency. Schuler (2003: 150) is furthermore of the opinion that dollarisation compensates for the supposed loss of monetary sovereignty by increasing consumer sovereignty. This is enhanced by freedom of choice: consumers may use any currency of their choice without restrictions, thereby escaping from exchange controls and badly managed domestic money.

The economic cost of the loss of seigniorage (discussed below) also entails a political cost. For some countries seigniorage is not only an important source of revenue for the government, but also an emergency source of revenue, a kind of insurance policy or revenue of last resort (Cohen 2000: 3-5). It is a very flexible tax instrument which becomes particularly useful in times of emergency or threat. Furthermore, dollarisation does not affect all domestic political and economic groups in an economy in a similar way. It has redistributive consequences, which will benefit some economic sectors and injure others. This brings a public choice angle into the debate: political factors may override the importance of purely economic considerations. Depending on which sector(s) may carry the most weight, the feasibility and sustainability of dollarisation will be decided by political considerations related to factional and regional voting powers and the impact on wealth transfers. If the future and the survival of politicians are threatened because of the prohibitive political costs of dollarisation, it may be called off, despite a possible convincing economic rationale.

3.2 The loss of seigniorage

Currency is akin to non-interest-bearing debt, and the power to issue it is a source of income for government because it can be invested in interest-bearing securities. However, dollarisation means that the dollarising country loses its seigniorage profit to the USA since the dollar now circulates as the official currency. This implies that the advantages of importing the external superior discipline of the USA must outweigh the seigniorage loss of the dollarising country.

It is important to note, however, that the dollarising country need only convert its domestic currency in circulation into some kind of dollar monetary base, and necessarily adopt broader measures such as M2 or M3. Gross seigniorage is the average monetary base multiplied by some measure of inflation or the interest rate over a given period. Nett seigniorage is the difference between the cost of putting money into circulation and the value of the goods the money will buy. More precisely, seigniorage can be measured as a stock since the dollarising central bank has to repurchase the local stock of money and thus return the accumulated seigniorage of the past. The flow cost of seigniorage over time reflects the sacrifice of future earnings from seigniorage (from the annual flow of new local currency) if the country had not dollarised. For G7 countries, the seigniorage on annual new currency circulation is 0.3% of GDP, which must then be added to the lump sum buy-back amount.[4] On the other hand, financial innovation, the information revolution and major technological advances are rapidly reducing the amount of base money in circulation, thereby reducing the loss of seigniorage in the case of dollarisation.

However, care must be taken when calculating the seigniorage "cost" of dollarisation since part of the rationale for adopting the dollar is to lower the inflation rate. The real loss in seigniorage is the amount which could have been earned at the lower rate of inflation. For a full perspective, the real loss of seigniorage must also be viewed in a relative sense in that the monetary loss in dollar terms must be compared to the country's gains in stability and credibility. The projected increase in economic growth (bringing increased tax income for government), investment, foreign direct investment and other results of dollarisation will compensate for the loss. In practice, therefore, dollarised countries are actually buying stability with their seigniorage loss, and are compensated for it by having a better-run economy. If by means of negotiation with the USA the dollarising country can regain part or all of the seigniorage, the loss is reduced. Kurt Schuler (Joint Economic Committee Staff Report 1999) is of the opinion that the resultant higher economic growth generates many more benefits for a dollarising country than it loses in seigniorage income.

It follows from the above that the choice of favouring a foreign currency over a local one in terms of the seigniorage loss depends on two factors, namely high transaction cost in exchanging local currency for foreign money, and a government that cannot control itself and therefore wishes to import external discipline and forego seigniorage. The latter is the most important factor in determining the choice (Fischer 1982: 296). However, where government lacks discipline, adopting a foreign currency can impose a useful discipline and the losses due to dollarisation may not be as extensive in view of all these qualifications.

4 For the US, too, it amounts to approximately $25 billion a year, which is less than 1.5% of the total federal government revenue, and constitutes only about 0.3% of GDP (Berg & Borensztein 2000: 17).

3.3 The loss of the lender of last resort (LOLR) function

A central bank's LOLR function is intended to stabilise the financial system. If, in times of crisis, a central bank uses its power to print currency to inject liquidity into a distressed banking system, it supports and stabilises the system. The central bank can therefore avert a worsening of the crisis stemming from a run on the banks and a loss of confidence by fulfilling its classical LOLR role in a non-dollarised country. This is not the case with dollarisation, where the LOLR function will be either eliminated or severely constrained, imparting a sense of insecurity to the financial system (Antinolfi & Keister 2001: 34).

However, this threat need not be as serious as it seems. If alternative lines of credit or resources can be arranged from foreign banks, these will naturally compensate for the loss of the LOLR. Even the IMF can, and probably should, adjust its facilities to provide assistance of a semi-LOLR kind. The monetary authority can also hold a surplus of foreign reserves in excess of those circulating for normal economic activity, which will then serve as a liquidity buffer in times of short-term illiquidity in individual banks. Furthermore, a contingent repurchase facility can be created to establish a temporary source of funds for the banks. This gives the country the option of selling bonds to a group of international banks under a repurchase agreement (Altig & Humpage 1999: 2). The country can also mitigate a crisis by lowering prescribed reserve requirements. As Fischer (2001: 9) notes, fiscal resources can also be mounted for a stabilisation fund and that the banking supervision and prudential controls can be sharpened.

Another strategy worth contemplating is the institution of some kind of deposit insurance scheme (there are many varieties) to prevent a run on the banks. As mentioned earlier, the dollarising country is also in a position to negotiate with the USA to retrieve part or all of the lost seigniorage, which can be deposited into a special fund kept for purposes similar to the LOLR function.

Despite the fact that the above compensatory measures may soften the impact of the loss of the LOLR, they do not provide as much flexibility as is found in a conventional LOLR dispensation. Moreover, they may not be available in the midst of a deepening banking and currency crisis when they are needed the most.

Viewed from another angle, the existence and availability of a classical LOLR can create rather than solve a problem in some emerging countries. It can cause inflation if it leads to the creation of money that is simply pumped into the banking system — in some countries bank rescue finance has exceeded 40% of GDP (Bogetic 2000b: 199). Investors and depositors are aware of such a possibility and will anticipate it, knowing that the exchange rate will be the first thing to deteriorate after inflation has commenced. They will therefore withdraw their money from the banks, thereby precipitating and aggravating the crisis (which the LOLR will not be able to solve). Consequently, interest rates will rise sharply, choking economic growth and employment.

The presence of a central bank dealing with a system-wide banking crisis may therefore compel the government (and the taxpayer) to rescue the system at a higher cost than would have been the case without a LOLR. In such instances, not being able to print money for LOLR purposes may not be a disaster, but rather a blessing in disguise because it avoids the inflated public debt and moral hazard that might have followed. Dollarisation can provide the cure to this situation, thereby converting the "disaster" of abolishing the central bank and its LOLR function into an advantage.

3.4 Asymmetric shocks and inappropriate policies

A further issue relating to dollarisation is the intimate linking of the business cycles of the dollarising country with those of the USA (or the anchor country). That the USA has a sound and appropriate countercyclical economic policy does not mean that the same is true for the dollarising country in the long term, since the two countries may experience asymmetrical shocks, and their internal economic structures and conditions are naturally different. Conditions pertaining to long-term resource allocation, productivity growth and relative price movements will affect the two countries differently at some point. Unless relative price movements are allowed to develop independently in the two countries, the development process as well as the allocation of resources will be distorted (Mann 1999: 3).

Dollarisation will be more detrimental to unemployment and capacity non-utilisation when prices and wages in the dollarised country are inflexible. But if closer trade integration is the purpose of dollarisation, the beneficial possibility of depreciating the exchange rate will have to be sacrificed in order to acquire the benefits of trade and financial integration. Thus, a clear trade-off needs to be considered in this case.

It must be acknowledged, however, that depreciation or devaluation is not an attractive option for beleaguered emerging countries with a high pass-through rate of inflation. Furthermore, if a country has major dollar liabilities on hand, devaluation can lead to huge bankruptcies involving significant social costs (Calvo 1999: 8). Devaluation in the case of an emerging country can thus have more serious effects and costs than those consequent upon dollarisation.

3.5 The loss of an independent monetary and exchange rate policy

By adopting full dollarisation, a country eliminates its national monetary and exchange rate policy. Consequently, the central bank cannot independently influence its money supply, interest rates or exchange rate in order to adjust its internal economy. Neither can monetary policy be applied in response to an external supply-related shock (such as a sharp increase in oil prices). The monetary policy of the US becomes that of the dollarised country. Factor and product markets, rather than changes in nominal exchange rates, have to bear the brunt of the adjustment to external shocks. As a result, the political costs of dollarisation may rise: the loss of independent monetary and exchange-rate policies means that short-term economic downturns cannot be alleviated, thus resulting in more serious recession and unemployment, which negatively affect the popularity of the incumbent political party, particularly if an election is looming.

Furthermore, changes in international interest rates and capital inflows and outflows swiftly manifest themselves in changes in the availability of credit to the economy under dollarisation, as well as the terms (Bogetic 2000b: 189). A change in fiscal policy or in wages and prices has to be resorted to instead of using monetary policy. However, if the labour and goods markets are inflexible this may, as mentioned earlier, result in a serious recession manifested in a decline in economic growth and output and increased unemployment. This in turn may result in higher real interest rates and large transfers from debtors to creditors (Berg & Borensztein 2000: 18). In some cases, this may be as stressful as a sharp devaluation.

However, it is important to note that, in any event, small open-economy countries have no scope for truly independent monetary policy in the presence of capital mobility and volatile capital flows. Even countries that do possess flexibility in monetary policy sometimes have persistently unstable policies and a lack of credibility, implying that they do not gain from that flexibility. The loss of a central bank and of policy flexibility is therefore only relative, and the loss of flexibility may even improve economic stability and performance, as indicated by the economic performance of dollarised countries (Bogetic 2000: 31). There is, in fact, evidence that developing countries without their own central banks have not suffered from a lack of monetary flexibility, and have had higher economic growth rates with no more increase in vulnerability to external shocks than other countries (Hanke & Schuler 1999: 13). The opinion of these authors resembles that of Dornbusch (2001: 239): that the loss of monetary policy as a macro-economic policy tool has limited effects on emerging countries, since their ability to drop interest rates is, in any event, limited by the minimum rates in large financial centres such as New York and Frankfurt.

4. Critique of dollarisation

In addition to the disadvantages or costs mentioned above, a balanced evaluation of dollarisation as an alternative exchange rate system requires an overview of the following critique. Since space does not permit a full discussion of all the criticism levelled against full dollarisation, only some of the major points are briefly highlighted below.

- Dollarisation has no impact on many of the aspects that determine the political and economic environment of a country, such as political insecurity and risks, legal insecurity and corruption, a lack of transparency, and other poor economic and political policies.
- Dollarisation does not directly address the defects or structural shortcomings that underlie macro-economic problems.
- Dollarisation may change neither the country's social structure, cultural habits and technological level nor any basic element that will contribute to creating more wealth. It can never be a quick substitute for other important reforms that might be unpopular and painful to implement.

- The costs of dollarisation can only be evaluated in conjunction with assumptions about the policy-making process (Chang & Valesco 2002: 2-21). Seigniorage loss cannot be calculated in the absence of the determination of government policy. Moreover, the benefits of dollarisation are dependent on the attainment of permanent credibility. This is not realistic, because governments change positions from time to time and the public is aware of this.
- Since there is a residual incentive for government to reintroduce a national currency, dollarisation is not necessarily as unbreakable a commitment device as is often assumed. Dollarisation does not strengthen the needed political discipline either, to ensure that the regime will be maintained and sustained. There is no absolute method for imposing discipline on governments inclined to avoid it.
- In case of exogenous shocks on dependent countries that produce a small number of commodities and that have small open economies, the adjustments under dollarisation can be devastating. Price changes will be minimal and adjustments will take place in quantities such as an increase in unused capacity and the closure of firms that are unable to boost competitiveness.
- The price stability that flows from dollarisation may enhance, but will not guarantee either economic growth or fiscal equilibrium.
- Dollarisation tends to be recessionary because the new fiscal and monetary discipline it brings may cause increases in real interest rates and unemployment.
- Dollarisation will not necessarily create new skills and knowledge fast enough to deal with the developmental and macro-political requirements.
- There are no reasonable exit strategies for dollarisation, and attempts to take such action may create renewed doubt and speculation.
- Equating the inflation rates of the US and the dollarising country is not the only issue that counts; the relative optimal inflation rate of a country is likewise important because the optimal inflation rate for the US is not necessarily that of the dollarising country.
- Banking and financial crises are still possible under dollarisation. A banking crisis could disturb the equality between bank money and the dollar currency, and the country could end up with a two-

currency system (Mendoza 2002: 27). Full dollarisation does not therefore eliminate all problems and structural deficiencies.

- The removal of the nominal exchange rate as a means of adjustment under dollarisation is also its major weakness. Adjustment to an external or internal shock via differential inflation can be slower than that which would have been obtained by means of a viable change in the nominal exchange rate (Fischer 2001: 8). Domestic prices and costs may be very slow to adjust.
- Countries may also have different optimal policies, institutions and contracts, as well as different pressure groups and sentiments. These may be more important issues than short-term inflation differences and economic fluctuations.
- As was the case with Argentina under a currency board, it is not safe to assume that the implementation of a fixed exchange rate will provide the necessary fiscal commitment and confidence in a country.

5. Implications of dollarisation for the USA

Dollarisation involves the debate not only on benefits and costs to the dollarising country, as outlined earlier, but also on its consequences for the anchor country. Its potential positive or negative impact on the USA will not only determine that country's attitude and inclination towards co-operation with the dollarising country, but also the extent of the resulting benefits and costs to the dollarising country. A brief discussion on the implications of dollarisation for the USA is therefore appropriate.

One benefit of dollarisation for the USA is an increase in the seigniorage income derived from the circulation of the US dollar. The extent of this will depend on whether the dollarisation is unilateral, bilateral or multilateral. In the first instance, the USA stands to benefit the most because it will lose no seigniorage in the absence of any negotiation to share it. A dollarising country's acquiring dollars as its local currency amounts to its granting an interest-free loan to the USA. The dollarisation of small, emerging countries does not, however, affect the USA since the amount of seigniorage is too small and the effect on USA monetary policy is minimal. However, if countries such as Argentina or Mexico opt to dollarise, the effect would depend on the way the USA views the cost and benefits. In this case seigniorage would be significant, as might be the impact on the USA of economic developments in those countries. Nevertheless, since unofficial dollarisation in many countries has reached high levels, the extra amount of seigniorage consequent upon official dollarisation might not prove to be particularly significant.

In the case of bilateral dollarisation, the participating countries have to negotiate the seigniorage with the USA, which may have to return some of it to them. (For instance, the sharing of seigniorage on the rand was agreed upon between South Africa, Lesotho and Namibia because of its circulation as a parallel and legal means of payment in those countries.)

Multilateral dollarisation probably also requires negotiations aimed at distributing seigniorage in accordance with participation ratios. In any event, the USA would in all probability follow a certification process in such cases (cf Schuler & Stein 2000: 9). A country need not fulfil all the conditions in order to receive seigniorage benefits, but, by the same token, the certification should not be viewed as an endorsement of the dollarising country's policy by the USA.

Dollarisation can further benefit the USA by increasing economic growth and stability in the entire dollar area. The USA also stands to benefit from increased trade with the dollarised country because of the lower trade and investment costs, as well as the absence of exchange controls or any exchange rate competition with the country. Dollarisation can also lead to the stabilisation and expansion of export markets. In addition, the hedging cost of USA banks and firms will be eliminated when dealing with newly dollarised countries. The increase in trade should not be over-emphasised, however, since no Latin American country accounts for more than a very small share of the USA's trade. Even the aggregate of their trade with the USA comprises only a small percentage of the USA's total trade.

Extension of the dollar area assists in protecting the US dollar against erosion of its international key currency position against the euro, thus helping to buttress its dominance in the provision of international liquidity. As in the past, this allows the USA to finance its current account deficits by means of less painful adjustments than those applicable to other countries — one of the major benefits of being a key currency country. The dominant position of the US dollar, furthermore, bestows on the country political, strategic and military benefits which are enhanced by a wider use of the currency as a store of value, a unit of account and a medium of payment.

A possible cost of dollarisation for the USA is that it may make it harder for the US Federal Reserve Bank (Fed) to apply its domestic monetary policy. Since its policy options and decisions will be constrained by having to consider a wider spectrum of outcomes across the whole dollar area, the ultimate policy decision may not be optimal for the USA. If the Fed has to provide LOLR facilities to dollarised countries and also grant them a place or seat on the (FOMC), the cost to the USA will of course be higher and a new dispensation for monetary policy in the USA may arise. The country may become more involved in adjusting the economic policies of the other participating countries. It will have to take into consideration developments in the financial markets and the banking sector in those countries, which may require steps in opposition to those needed by its own economy. Dollarised countries may apply pressure on the USA to take responsibility to help solve their economic problems. Furthermore, dollarised countries may petition the Fed not to increase interest rates but to maintain these at a low level in the interests of growth.

However, it is difficult to foresee such an outcome because the Federal Reserve Bank will in all probability act independently, favouring its own domestic policy priorities, and not allowing itself to be prescribed to by situations in other countries. If the policy objective entails maintaining price stability, even though dollarised countries can apply pressure in favour of a specific policy, the Fed is sovereign and will not succumb to pressure. The Fed and the US treasury can, moreover, explicitly refuse to accept responsibility for LOLR and banking supervision in the dollarised countries. Alternatively, the USA can simply apply benign neglect and focus exclusively on its own affairs. As the USA is an independent and dominant world power, it is highly unlikely that the country would relinquish its independence in monetary affairs. In summary, it is difficult to imagine that the USA would be expected to take responsibility for the banking supervision of other countries as conditions are normally unique to a particular country, and intertwined with local political aspects and issues.

Finally, there is the remote cost or risk that a large dollarised country or group of dollarised countries may decide to abolish dollarisation and exchange all their dollars for another currency. This would apply pressure on the value of the dollar and might force the Fed to increase interest rates, while also raising the money supply and inflation in the USA (Salvatore 2003: 204), forcing the country to apply a differently orientated monetary policy. It should be noted, however, that the USA monetary policy already influences those of countries intending to dollarise and that the "new" effects would not be considerable. A steady, stable monetary policy on the part of the USA might be what these countries require, so that, instead of pressurising the USA, they might merely accept its monetary policy. As long as the USA's monetary policy is stable, the dollarising countries may not need anything further. Moreover, since the dollars in the dollarised countries are held largely as currency in circulation, the chances are slim that they would be converted in the event of a widespread dumping of dollars or a sharp deterioration in the USA's economic situation (Bergsten 1999: 5). The possibility of such an occurrence would depend on the trustworthiness of the dollar and the availability of a suitable alternative, but such an alternative is unlikely to materialise soon.

6. Likely candidate countries for dollarisation

The above arguments for and against dollarisation facilitate the identification of probable candidates for dollarisation. Debating the suitability of dollarisation for countries involves political as well as economic considerations. In countries where people have no strong political pride or sovereignty, a change to dollarisation is relatively easy. Countries in which globalisation has already eroded the importance of national symbols or where the importance of national autonomy has been lessened by government corruption and crime may show less opposition to dollarisation. In cases where monetary and exchange rate policies have caused hyper-inflation and resulted in decreasing levels of respect for the political and monetary authorities, the introduction of dollarisation is likely to meet with less resistance.

For Frieden (2001: 1), however, dollarisation entails a political decision and he accordingly emphasises the importance of the political aspects and contents of dollarisation. Contrary to the usual debate on dollarisation, credibility (which is very important from an economic point of view) is overshadowed by political trade-offs when the feasibility of dollarisation is debated. Consequently, the principal determinant of countries likely to dollarise is expected to be the relative socio-economic and political importance of those interested in stabilising currency values for trade enhancement, on the one hand, and of those concerned about the impact of the currency's value on relative prices, on the other.

As far as economic factors and the relevance of OCA criteria for the choice of the dollarisation as an exchange rate regime are concerned, Hawkins & Masson (2003: 1) argue that dollarisation may be considered for small open economies that at least to some extent resemble the OCA criteria. However, OCA criteria (labour mobility, the existence of fiscal transfers, symmetry of shocks, diversified industrial structure, and so forth) do not perform well as predictors of the formation of currency areas or of what exchange rate regime a country should implement (Willett 2003: 154). Political considerations, institutional considerations, and foreign policy are often more important determinants. There are, nevertheless, a number of country characteristics and OCA criteria that will affect the suitability of dollarisation. Although there is no definition of an OCA, it may involve a large, dominant country with many smaller ones that share trade, labour and investment flows. Despite the fact that intensive trade between areas, similar industrial structure, asymmetric shocks, high labour mobility and price flexibility are important in the OCA literature when dollarisation is contemplated, it appears that no single criterion is available for assessing the desirability of a monetary union or of dollarisation (Visser 2000: 170). However, these OCA issues were in any case not instrumental in the increased interest in dollarisation, which stemmed primarily from banking and exchange rate crises. Insofar as OCA criteria feature in the choice of dollarisation, indications are that small open economies which have the USA as a dominant trading partner and which have a poor history of inflation performance are likely candidates for dollarisation.

A related aspect is the issue of credibility as a driver of dollarisation. Credibility (or the lack thereof) is country-specific, and lies at the core of the dollarisation debate. In this regard the OCA theory is not unvaryingly applicable to the dollarisation debate. The modern approach to dollarisation has given priority to the credibility issue over the "trade gains versus shock insulation" trade-off implicit in the traditional

OCA literature (Levy-Yeyati & Sturzenegger 2002: 6). Furthermore, countries that have recently considered dollarisation did so because of a need to reduce their vulnerability to financial shocks, rather than for trade reasons (as in OCA).

Countries with a high level of unofficial dollarisation should seriously contemplate official dollarisation on account of the relatively small loss of seigniorage involved. This is particularly relevant for some Latin American countries as well as for some of the transitional economies. It is also especially suitable for countries whose assets or liabilities are largely denominated in dollars of a short-term maturity, and where abrupt reversals or sudden stops in capital inflow are a possibility (Calvo & Reinhart 1999: 13). Such circumstances and the possibility of an accompanying currency crisis may quickly force a country into bankruptcy and/or a banking crisis, with devastating consequences for its real economy if a significant nominal exchange rate depreciation takes place. Such a depreciation would lead to a sharp increase in the domestic currency value of foreign currency debt values, increasing the possibility of debt default and the concomitant potential for crisis (Hausman *et al* 2000: 2). Any possibility of default will moreover sharply increase the currency risk premium incorporated in the country's interest rates and thus in the cost of capital. Many cases of capital flow reversals have in fact been accompanied by banking and financial sector crises that took a long time to filter out of the economy.

In addition to the above, a high level of unofficial dollarisation also tends to undermine the efficacy of monetary policy. It dilutes the impact of the central bank on the remaining stock of domestic money and the stability in the relation of the latter with economic aggregates. Official dollarisation would reduce both the uncertainty in terms of the predictability of monetary impacts and the currency risk and ensuing risk premiums on interest rates.

Calvo (1999: 15) extends the above argument by contending that the plausibility of dollarisation is enhanced by the fact that an initial condition of liability dollarisation is likely to grow over time in those countries that are dependent on foreign savings. This is the case in many emerging countries because of the deficits on their current accounts. Such a situation renders devaluation very dangerous and difficult since they will be unable to repay debt, which will possibly lead to a financial crisis.

Bogetic (2000b: 205) points out that the choice to dollarise is also determined by policy constraints and objectives such as how far the country desires to be integrated into a wider currency and trade area or whether it needs the discipline to eliminate discretionary policy and its presumed lack of credibility. These must then be balanced against the loss of national sovereignty and the government's views on policy constraints. The trade-off of the above determinants will vary from country to country. For smaller countries the trade-off is between the elimination of currency risk and financial as well as trade integration with the dominant country, on the one hand, and the political and economic cost of giving up the domestic money, on the other. If the former outweighs the latter, dollarisation is called for.

A country with a higher degree of commodity diversification is a better candidate for dollarisation on account of its ability to insulate itself from external shocks.

Countries with either hyper-inflation or a need to escape from a history of persistent high inflation due to a lack of monetary and fiscal policy credibility, and which are moreover faced by financial crises that cause severe recessions are also candidates for dollarisation.

Countries characterised by a lack of reliable market and official information are also likely candidates for dollarisation. Calvo (1999: 6) is of the opinion that contagion may be explained mainly by a lack of information, particularly on the macro-economy and the financial sector of a country. Such a lack of information creates uncertainty and a lack of trust in the sustainability of a country's stabilisation efforts — the peso problem — stemming from the fact that, despite the country's pegging its exchange rate, financial agents do not regard the regime as sustainable and thus expect a fundamental regime change in the future. This in turn causes premia on interest rates and a lack of credibility in the overall policies of the authorities. Even if sound policies are adopted in support of the local currency, unofficial dollarisation will remain at high levels because of a remaining lack of trust in the politicians and the sustainability of the policy regime. Likewise, even if the current policy regime reflects low exchange rate volatility and confidence is high, expectations about the future monetary policy in the face of a possible crisis play a preponderant role in determining the extent of dollarisation (Ize & Parrado 2002: 26). Countries plagued by these features may be rescued by dollarisation, which promotes credibility, market information and the belief in sustainability.

Another feature underlying the decision to dollarise is related to the shape of the banking system. If banking supervision does not reflect the latest international principles of best practice and if the banking system is, moreover, fragile, dollarisation, by enhancing credibility and reducing exchange rate risk, can assist in averting financial crises and contagion. Dollarisation is also advisable when currency devaluation — because of the danger of imported inflation and the probability of speculative attacks on the currency — is not a viable option due to its destabilising ripple effects that undermine a fragile banking system by means of contagion.

Since both a country's initial conditions at the time of choosing an exchange rate regime and its specific characteristics are crucial to the decision as to whether to dollarise or not, the consideration of dollarisation must be preceded by a thorough investigation into the economic and political state of the country's economy, as well as into its initial conditions. Furthermore, a decision to dollarise requires great caution because it may appear to be suitable and be validated by policies that are desirable in the short term, but may become sub-optimal in the long term. Current crisis factors may prescribe dollarisation but their passing may make a less constrained policy more appropriate after a transitional phase. Cognisance should also be taken of the fact that the OCA criteria comprise an endogenous feature that evolves over time. Therefore, it is not only the current values of these variables that must be taken into account, but also what they are going to become after the exchange rate is fixed through dollarisation (cf Frankel 1999: 23). Likewise, Ize & Parrado (2002: 27) point out that a dollarisation trap can occur, as increasing dollarisation and an increasingly constrained policy regime feed back on each other. Agents may borrow in dollars expecting that this will tie the hands of the authorities. This trap is difficult to resolve and may last a long time — another reason for great caution before implementing dollarisation.

The discussion on possible candidate countries for dollarisation requires an even broader perspective, however. Despite the benefits of dollarisation, the problem of a lack of property rights and the absence of a rule of law may still exist. This will impair investment and contracting because economic agents and lenders will feel unsafe in markets where their claims might not be enforceable. The existence or institution of formal legal codes to define the rights of outsiders and the enforcement of such codes are crucial in this respect. There is increased evidence that the legal environment critically influences the development of the financial sector and, hence, long-term growth. A conglomerate index for measuring outsiders' legal rights indicates a strong relation between legal status and financial development (Levine & Carkovic 2001: 357). A legal system that protects outside investors against expropriation by insiders will improve financial development and enhance economic growth. Therefore, dollarisation alone will not suffice; it needs to be accompanied by legal and institutional reforms.

In summary, it may be stated that the likely candidate countries for dollarisation are those with:

- a history of high and variable inflation and in need of a strong anchor for domestic monetary stability;
- a lack of policy credibility (the "peso problem");
- a high volume of international trade, especially dollar-denominated, particularly with the anchor country (the USA) whose currency is to be adopted;
- a small, very open and dependent economy that is profoundly affected by continuous exchange rate fluctuations;
- business cycles that co-vary substantially with a potential anchor country and with shocks similar to those experienced by the country whose currency is to be adopted;
- reasonably stable relative prices with respect to a potential anchor;
- a high current state of liability dollarisation (that is, a high level of current domestic borrowing denominated in terms of the dollar);
- volatile capital flows;
- domestic support for stabilisation and a willingness to sacrifice monetary independence in exchange for the partner country's monetary credibility;
- an economy and a financial system that already rely extensively on a partner country's currency;
- insufficient banking supervision and market information;

- flexible wages and prices, and
- low levels of involvement in international capital markets.

Since relatively few countries satisfy the above criteria or are likely to integrate to the extent described, not many countries are likely candidates for dollarisation. Despite the recent interest in, and propagation of, dollarisation as an alternative exchange rate system, noted in the introduction to the paper, the process has only limited applicability.

7. Conclusion

The dollarisation debate has received renewed attention in recent years with countries such as Ecuador and El Salvador, for instance, converting to dollarisation in 2000 and 2001, respectively. The increased interest in dollarisation was sparked off by its potential benefits, such as increased credibility for the policy-making authorities and accompanying lower levels of inflation and interest rates, as well as increased economic growth and investment, trade integration, and fiscal discipline. Other potential benefits include reduced budget deficits, lower interest rate premia, decreased exchange rate volatility and capital flight, the absence of fear of floating, and enhanced access to crucial information. The benefits, however, have to be compared with the alleged disadvantages, such as the loss of political sovereignty, the loss of an independent monetary and exchange rate policy, and the loss of seigniorage and the LOLR function.

The costs and benefits discussed above not only vary from country to country, but are also difficult to calculate and compare. Some of them are not quantifiable at all. Moreover, a decision on dollarisation entails more than merely comparing its costs with its benefits. It also concerns the issue of credibility. However, dollarisation, along with the strengthening of institutional and legal arrangements, the creation of strong currency areas, the internationalisation of the financial sector, and the prevention of government from exploiting time-inconsistency strategies, could help to eliminate the distorting effects and the contagion arising from the collapse of a managed exchange rate regime that lacks credibility.

Not all developing or emerging countries are suitable candidates for dollarisation. Small open-economy countries which maintain extensive trade with a dominant trading partner (the anchor country whose currency will be used) and which experience volatile exchange rate and capital movements as well as a lack of credibility and a lack of central bank independence appear to be likely candidates. If they have a history of high and variable inflation and an already high level of unofficial dollarisation, together with business cycles and shocks similar to those of the anchor country, as well as considerable flexibility in prices and wages, and if they are willing to sacrifice political sovereignty and pride, they are more likely to be candidates. Not many countries fit this description, which implies that the move towards dollarisation is not likely to become a flood.

It is also important to note that it will not suffice to adopt dollarisation as a sole remedy; in order to be successful it must be supported by the political, social and economic reforms necessary to create an environment conducive to the process. Dollarisation is not, therefore, a complete monetary panacea for all the ailments of a country. It can never be a painless substitute for the other important reforms that might be unpopular and painful to implement. One final doubt in terms of dollarisation is whether governments previously known for reneging on promises rather than for discipline can in fact be compelled to abandon their old ways by an external force such as dollarisation.

Bibliography

ALESINA A & R J BARRO
2001. Dollarisation. *American Economic Review Papers and Proceedings* 91(2): 381-85.

ALTIG D E & O F HUMPAGE
1999. Dollarisation and monetary sovereignty: the case of Argentina. 15 September, Research Department, Federal Reserve Bank of Cleveland.

ANTINOLFI G & T KEISTER
2001. Dollarisation as a monetary arrangement for emerging market economies. *Federal Reserve Bank of St. Louis Review* Nov/Dec: 29-39.

BERG A & E BORENSZTEIN
2000. The pros and cons of full dollarisation. Working Paper WP/00/50. Washington, DC: IMF.

BERGSTEN C F
1999. Dollarisation in emerging-market economies and its policy implications for the United States. Statement before the Joint Hearing of the Subcommittee on Economic Policy and the Subcommittee on International Trade and Finance, Committee on Banking, Housing, and Urban Affairs, United States Senate, Washington, DC, 22 April.

BOGETIC Z
2000. Full dollarisation: fad or future? *Challenge* 43(2), March/April: 17-48.

2000b. Official dollarisation: current experiences and issues. *Cato Journal* 20(2): 179-213.

CALVO G A
1999. On dollarisation. Research paper, University of Maryland. <http://www.bsos.umd.edu/econ/ciecalvo.htm>

2001. Capital markets and the exchange rate, with special reference to the dollarisation debate in Latin America. *Journal of Money, Credit and Banking* 33(2) (Part 2): 312-34.

CALVO G A & C M REINHART
1999. Capital flow reversals, the exchange rate debate, and dollarisation. *Finance and Development* Sept: 13-5.

CHANG R & A VALESCO
2002. Dollarisation: analytical issues. Working Paper 8838. Cambridge, MA: National Bureau of Economic Research.

COHEN B J
2000. Political dimensions of dollarisation. Unpubl remarks prepared for a conference on dollarisation, Federal Reserve Bank of Dallas, 6-7 March.

DORNBUSCH R
2001. Exchange rates and the choice of monetary-policy regimes. *American Economic Review Papers and Proceedings* 91(2): 238-42.

EDWARDS S & I MAGENDZO
2001. Dollarisation, inflation and growth. Working Paper 8671. Washington, D C: National Bureau of Economic Research, December.

FISCHER S
1982. Seigniorage and the case for a national money. *Journal of Political Economy* 90(21): 295-313.

2001. Exchange rate regimes: is the bipolar view correct? Distinguished lecture on economics in Government, American Economic Association and the Society of Government Economists, delivered at the meetings of the American Economic Association, New Orleans, 6 January.

FRANKEL J A
1999. No single currency regime is right for all countries or at all times. *Essays in International Finance*, 215. Princeton University, Princeton, NJ: International Finance Section, August.

FRIEDEN J A
2001. The political economy of dollarisation: domestic and international factors. Unpubl presentation at the conference on Dollarisation and Euroisation: viable policy options? London School of Economics, 24 May.

HANKE S H & K SCHULER
1999. A dollarisation blueprint for Argentina. *Foreign Policy Briefing*, 52. Washington, DC: Cato Institute.

HAUSMANN R, U PANIZZA & E STEIN
2000. Why do countries float the way they float? Washington, DC: Inter-American Development Bank. Research Department.

HAWKINS J & P MASSON
2003. Economic aspects of regional currency areas and the use of foreign currencies. *Regional currency areas and the use of foreign currencies*, Bank for International Settlements, Working Paper, 17, May 2003.

IZE A & E PARRADO
2002. Dollarisation, monetary policy, and the pass-through. IMF Working Paper, 188. Washington, DC: IMF.

JOINT ECONOMIC COMMITTEE STAFF REPORT
1999. Encouraging official dollarisation in emerging markets. Office of the Chairman, Senator Connie Mack, Prepared by Kurt Schuler.

2000. Basics of dollarisation. Office of the Chairman, Senator Connie Mack. <http://users.erols.com/kurrency/basicsup.htm>

LEVINE R & M CARKOVIC
2001. How much bang for the Buck? Mexico and dollarisation. *Journal of Money, Credit, and Banking* 33(2): 339-63.

LEVY-YEYATI E L & F STURZENEGGER
2002. Dollarisation: a primer. Unpubl presentation at the conference on Dollarisation and Euroisation: viable policy options? London School of Economics, 24 May.

MANN C L
1999. Dollarisation as diet. Statement before the Joint Hearing of the Subcommittee on Economic Policy and the Subcommittee on International Trade and Finance, Committee on Banking, Housing, and Urban Affairs, US Senate, Washington, DC, 22 April.

MENDOZA E G
2001. The benefits of dollarisation when stabilisation policy lacks credibility and financial markets are imperfect. *Journal of Money, Credit, and Banking* 33(2): 440-73.

2002. Why should emerging countries give up national currencies: a case for 'institutions substitution'. Unpubl presentation at the conference on Dollarisation and Euroisation: viable policy options? London School of Economics, 24 May.

ROSE A
2000. One money, one market: the effect of common currencies on trade. *Economic Policy* April: 9-33.

SALVATORE D
2003. Which countries in the Americas should dollarise? The dollarisation debate. Salvatore *et al* (eds) 2003: 196-205.

SALVATORE D, J W DEAN & T D WILLETT (eds)
2003. *The dollarisation debate*. New York: Oxford University Press.

SCHULER K
2003. What use is monetary sovreignty? The dollarisation debate, Salvatore *et al* (eds) 2003: 140-53.

SCHULER K & R STEIN
2000. The Mack dollarisation plan: an analysis. Unpubl paper for the Federal Reserve Bank of Dallas Conference on Dollarisation: a common currency for the Americas?, 6 March.

VISSER H
2000. *A guide to international monetary economics, exchange rate theories, systems and policies*. 2nd ed. Cheltenham: Edward Elgar.

WILLETT T D
2003. The OCA approach to exchange rate regimes. Salvatore *et al* (eds) 2003: 154-71.