

*“A Currency Union for the
Caribbean”*

By

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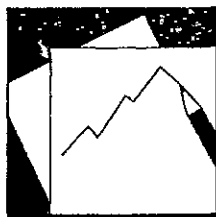
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A Currency Union for the Caribbean

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Abstract

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The experiences of Caribbean Economic Community countries show that exchange rate depreciation in these countries is inflationary, and that, while changes in the relative prices of tradables may affect exports, tourism and imports, nominal exchange rate changes have no predictable effect on those relative prices. Under these circumstances, economic literature indicates that a fixed exchange rate regime is optimal, and Caribbean countries with (quasi-) currency boards have been successful in maintaining durable exchange rate pegs. The currency board has advantages over full dollarization in terms of seignorage, liquidity support for domestic banks, and the credibility of associated fiscal policies. A common currency, a vital pillar in the unification of the Caribbean investment market, may be achieved, under the conditions already agreed by Caricom heads of government, if all members commit to currency board regimes before acceding to the union.

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I. INTRODUCTION

Forty years ago, the region that is now the Caribbean Economic Community (Caricom)¹ enjoyed monetary and exchange rate stability with currencies issued by two central banks (the National Bank of Haiti and the Central Bank of Suriname) and four currency boards, one of which covered almost one dozen British colonies and territories in the Eastern Caribbean. Today there are nine different currencies in the region, in two categories. Four currencies - in the Bahamas, Barbados, Belize and the Eastern Caribbean Central Bank (ECCB)² area - are managed as quasi-currency boards³, pegged to the US dollar, at rates which have remained unchanged since the 1970s. The remainder officially maintain floating exchange rate regimes,⁴ with or without management by their central banks. Monetary union is the explicit objective of Caricom, but an agreement for its introduction, reached in 1992, has not been implemented. This paper argues that its implementation is an important development initiative, and suggests a way forward.

A currency union among countries that meet defined criteria is the best option for Caribbean countries to secure a stable means of payment and a non-depreciating store of value. The criteria set down in the agreement for the Caricom currency union are, with one exception which is explained in the paper, sufficient. The common Caribbean currency should be pegged to the US dollar via a quasi-currency board rule, following the existing model of the Eastern Caribbean Central Bank (ECCB).

¹ The member countries of Caricom are: Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago. For most of the period under discussion Suriname and Haiti, which joined in 1995 and 1999, respectively, were not members.

² The membership of the ECCB coincides with that of the Organisation of Eastern Caribbean States (OECS): Antigua and Barbuda, Dominica, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, with the British Virgin Islands and Anguilla as associate members.

³ The term "quasi-currency board" is used to describe regimes where the currency is backed by foreign exchange intervention at a pegged rate, and where the only sources of reserve money are foreign reserves and a limited holding of marketable government securities.

⁴ Trinidad-Tobago provides a Caribbean example of what has become known as the "fear of floating" (Calvo and Reinhart, 2000). The Central Bank of Trinidad and Tobago officially maintains a floating rate regime, but in fact the central bank invariably intervenes to prevent exchange rate fluctuation, to such an extent that the IMF classifies Trinidad-Tobago in the same group of pegged currencies as the Bahamas, Barbados and Belize.

The next section is a background note on the evolution of exchange rate policies in Caricom countries. The third section explains why a stable, non-depreciating money in the Caribbean depends on an exchange rate peg to the US dollar, either in the form of : (a) dollarization involving the abolition of domestic currencies or (b) a quasi-currency board. The fourth section explains why the quasi-currency board is the better option, and the fifth section makes the argument for a common currency for the region – in preference to individual quasi-currency boards – and suggests a strategy for achieving currency unification.

II. THE EVOLUTION OF EXCHANGE RATE ARRANGEMENTS IN CARICOM

At the beginning of the 1960s the countries that now constitute the Caricom group all had stable currencies, managed, in the case of English-speaking countries, by currency boards, and denominated in sterling. The British Caribbean Currency Board (BCCB), headquartered in Port of Spain, Trinidad, issued a currency which circulated from British Guiana (now Guyana) in the south, through the eastern Caribbean to St. Kitts, Nevis and Anguilla in the north. The Jamaican currency board issued a currency which also circulated in the Cayman Islands, and there were separate boards for the Bahamas and British Honduras (now Belize). Although the majority of the region's trade and financial links were with the US – sugar and banana exports being the main exceptions – the sterling peg occasioned no market uncertainty in a world of fixed parities. However, in 1967 the devaluation of sterling against the US dollar brought an inflationary shock, as all Caribbean currency boards followed suit.

During the 1960s and 1970s countries replaced currency boards with central banks as they moved from the status of self-governing colonies to independent political units, beginning with the establishment of the Bank of Jamaica in 1961. Guyana, Trinidad-Tobago and Barbados opted out of the BCCB to set up central banks and issue their own currencies, leaving the members of the Organisation of Eastern Caribbean States as the surviving members of the common currency arrangement, which was converted to a central bank in 1983. With the break up of the global parity system in the early 1970s the sterling peg generated uncertainty in Caribbean-US dollar exchange rates, and the currencies were all switched to US dollar pegs, albeit at different rates, depending on the sterling-US dollar rate on the day of the switch (Clarke and Danns, 1997).⁵

Up to the mid-1970s the new central banks behaved very much like their currency board predecessors, issuing currency in exchange for foreign exchange and maintaining an asset portfolio composed mainly of foreign exchange, with only modest lending to government and domestic financial institutions. Although not legally bound to do so, they have consistently

⁵ All except the Bahamas dollar and the Barbados dollar were valued at the exact US dollar equivalent on conversion day. The Bahamas dollar was denominated on par with the US dollar, and the Barbados dollar was revalued five percent to a convenient exchange rate of \$2.00 Barbados per US dollar.

followed a quasi-currency board strategy, maintaining levels of foreign reserves, relative to the liabilities of the central bank, such that they were always able to intervene successfully in support of the exchange rate peg.⁶ The exchange rates of the Bahamas, Barbados, Belize and the Eastern Caribbean dollar have been managed in this way ever since. While the ECCB is the only central bank to have retained a legal prescription on the maximum holding of domestic assets, the central banks in this group have maintained reserves in excess of 50 percent of their liabilities (See Figure 1)⁷. On two occasions when there were sustained losses of foreign reserves (Belize in 1985 and Barbados in 1991-92) major fiscal adjustment (with supporting structural measures) was undertaken to sustain the exchange rate anchor.

The quasi-currency board strategy was abandoned by the Bank of Guyana and the Bank of Jamaica in the mid-1970s, and by the Central Bank of Trinidad-Tobago in the mid-1980s (see Worrell, 1987). Central bank credit to the government rose as foreign exchange reserves declined and were exhausted, and the exchange rate could no longer be sustained by foreign currency intervention. For some time an official rate was maintained, at least for some transactions, but an ever larger proportion of all transactions migrated to the parallel market over time, in spite of restrictions and foreign currency rationing. Restrictions were removed, starting in Guyana in 1988, and the exchange rates were allowed to depreciate. In the 1990s the Bank of Jamaica and the Central Bank of Trinidad and Tobago attempted to stabilise the exchange rate through interest rate policy, using indirect instruments. The Bank of Guyana has been inactive, although the pattern of exchange rate movement – though not the level of the rate – in Guyana is no different from that observed in Jamaica and Trinidad-Tobago.

Caricom central banks have maintained collaboration and cooperation among themselves, almost from their inception. However, their initiatives have not been markedly successful. A multilateral scheme for intra-Caricom transfers (the Caricom Multilateral Clearing Facility, CMCF), which was set up in 1977 and operated successfully for several years, was wound up in 1983 when Guyana accumulated large arrears as a result of a prolonged balance of payments crisis. A scheme for regional travelers cheques, denominated in Trinidad-Tobago dollars, never gained wide acceptance because the depreciation of the Trinidad-Tobago dollar rendered it unacceptable outside that country. The most recent initiative, the implementation of a monetary union in two phases, was agreed in 1992, but implementation remains stalled. Just when it appeared that countries comprising more than 50 percent of aggregate regional GDP⁸ had met

⁶ It is not possible, in the scope of this paper, to explain the divergence of exchange rate strategy (See Worrell, 1987). I have argued elsewhere, most recently in Worrell (2000), that appropriate, forward looking fiscal policy is the key ingredient in successful monetary and exchange management.

⁷ All data used for constructing the charts is drawn from the IMF *International Financial Statistics* database, except for relative prices in Figure 4, which are calculated from national accounts data from the *Central Bank of Barbados Annual Statistical Digest 2000*.

⁸ That is, all Caricom members, except Guyana, Jamaica and Suriname.

sources listed in Sub. 1.

the criteria for implementing Phase One of the agreement, Caricom's largest economy, Trinidad-Tobago, failed the crucial exchange rate stability test.

III. EFFECTS OF EXCHANGE RATE CHANGES

In the Caricom experience of the past thirty years, it has been possible to maintain stable, low inflation in economies with sustained growth only in the context of exchange rates pegged to the dollar under quasi currency board rules, either *de jure* or *de facto*. The nominal exchange rate has proven ineffective as a shock absorber or adjustment policy tool, because neither the external commodity nor the external financial market has a market-equilibrating mechanism based on the exchange rate. An increase in the price of foreign exchange does not provoke an increase in the net supply of foreign exchange, nor does a fall in the price of foreign exchange induce an increase in the net demand for foreign exchange, in either market. To see why, let us consider separately the goods-and-services and financial markets.

A. The Market for Traded Goods and Services

Conventional theory leads us to expect that an increase in the relative price of tradables induces an increase in the domestic supply of tradables, a fall in the domestic demand for tradables, a fall in the domestic supply of nontradables and an increase in the domestic demand for nontradables, if not in the short run, then in the medium or long run. A useful summary of the conventional view may be found in Isard and Faruquee (1998). In their model the current account balance is a decreasing function of the real effective exchange rate, implying that a depreciation improves the current account balance. Both exports and imports are affected by exchange rate changes, as well as by foreign and domestic real incomes, respectively.

However, consider the composition of the tradable sector in the typical Caribbean country: it comprises one or two of the following: tourism, a major agricultural staple (bananas, sugar or rice), a mineral (oil or bauxite) and the manufacture of beverages (mainly rum). In each of these activities supply is constrained by domestic capacity, while domestic demand absorbs nothing (in the case of bauxite) or a very small proportion of production (See Tables 1 and 2). The effect of changes in relative prices on net domestic supply is therefore negligible in the short run. The effect of relative price changes in the medium and long term must be considered along with other factors that affect investment decisions: changes in technology, changes in taste, marketing initiatives and changes in the international ownership of domestic capital. Let us consider each export sector in turn.

Investment in hotels in the Caribbean in recent times has been influenced by cycles in the overall growth of resort tourism,⁹ the increasing popularity of cruise tourism, the increasing

⁹ The impact of the economic slowdown in industrial countries is not yet clear. Some investment which was underway, or at an advanced stage of planning, has gone ahead, but much potential investment is on hold.

preference for pre-paid “all inclusive” arrangements, the effects of airline deregulation, the impact of computerization and the internet on travel patterns and industry organization, and the emergence of new resorts in the Caribbean and in competing tropical destinations. Poon (1993) documents the responses to these changes in tastes and technology, which have determined competitiveness in the tourism sector. Innovations include flexible travel scheduling, the development of “niche” markets such as those associated with sports or cultural activities, a demand for variety of activity and level of accommodation, and an increasing concern for the environment.

Investment in the sugar industry has been affected by changes in protective export arrangements, changes in agrarian technology and practice in the Caribbean and in competing sugar exporting countries, and ecological and health concerns impacting on production processes and consumption patterns. The supply of sugar has been heavily influenced by government intervention, and government subsidies and debt write-downs have financed a large share of investment in the industry.¹⁰ In addition, investment in the sugar industry is linked to investment in associated industries, especially rum production, which in turn has benefited from ownership changes, involving a substantial injection of foreign finance in Barbados, Jamaica and St. Kitts.

Funding for investment in the banana industry has been provided by the European Union, in anticipation of changes in negotiated agreements with the Community, for improvements in husbandry, public investment in roads for market access and other infrastructure and changes in marketing strategy. The main factors in investment in the rice industry were the liberalisation of investment and trade in Guyana in the 1980s and the provisions of the Lomé Agreement with the European Union. In addition to the impact of product-specific investment, the supply of all agricultural products was affected by weather (including hurricanes, flood and drought) and other natural phenomena.

Investment in the petroleum and bauxite/alumina industries has responded to changes in world prices, the cost of extraction of domestic deposits and the changing nature of international competition in these industries. Investment in mineral and agricultural export sectors has been seriously inhibited by market uncertainty. Except for petroleum and related sectors, there has been little or no expansion of capacity. Investment has financed rehabilitation and productivity upgrades to maintain competitiveness, sustain output levels or slow the pace of output loss.

Product prices, relative to costs and competing supplies of similar quality, have undoubtedly been a factor in investment decisions in the sectors discussed above. However, it is impossible to predict the importance of relative price changes, in view of the complexity of decision processes just described. It may be that relative prices have an effect comparable to that of the

¹⁰ In 1994 the Government of Barbados wrote off sugar industry debt to the country’s state owned commercial bank totalling BDS\$ 208.9 million, equivalent to 6 percent of that year’s GDP at market prices.

non-price factors, but they may be less significant or negligible in comparison, or they may have perverse effects, in cases where price is seen as a reflection of quality.

The typical composition of the nontradable sector in Caricom countries is wholesale and retail services, government services, business and personal services and public utilities. None of these is substitutable for tradable goods, in production or consumption. The resources – skills, machines and structures – used in the production of these nontradables may not be costlessly re-allocated to the production of the tradables mentioned above: "defenders of floating exchange rates ... point to the fact that flexible exchange rates make the adjustment of relative prices less costly, because equilibrium changes can be accommodated by a higher or a lower exchange rate with little effect on output and employment ... However, in a realistic economy there are several distinct goods, each with a *distinct* labor market: gauchos cannot be quickly retrained as nuclear physicists, and vice versa" (Calvo and Reinhart, 1999, page 21). Major initiatives for retraining were incorporated in adjustment programs for Trinidad and Tobago (1985-86), Guyana (1988-89), Barbados (1991-92) and Jamaica, on several occasions since the mid-1970s, none of which may be considered an unqualified success.

B. Nominal and Real Exchange Rates

The effects discussed above depend on changes in the relative prices of tradables. However, in the Caribbean no predictable relationship has been established between the nominal exchange rate, the policy instrument, and relative prices. A simple linear relationship would obtain only if: (a) there were no change in the fiscal deficit or government's financial requirements as a result of the exchange rate change; (b) there were no interest rate response; (c) there were no induced capital flows; and (d) there were no wealth effects on aggregate demand, credit and financial accumulation. Since none of these restrictions holds, the relationship between nominal exchange rate changes and changes in relative prices is complex. It will reflect the interrelationships of the variables, both contemporaneously and after allowing for lagged effects. No one has attempted an exchange rate model that allows for such interrelationships, for Caribbean countries.

However, there are reasons, based on the structure of Caribbean economies, why nominal devaluations are not expected to produce large changes in real exchange rates, except in the short term. Devaluation drives a wedge between domestic (i.e. nontradable) producer prices and foreign (i.e. tradable) prices, to the extent that nontradables do not require imported inputs. In the Caribbean the imported content of nontradables is very high, for all commodities produced, and the staples of the diet and other basic consumption goods are also imported. In these circumstances, the pressures to adjust nominal wages to exchange rate changes are especially strong and persistent.

Nevertheless, unless labour markets anticipate devaluations, wage costs catch up with prices only with a lag. As Lewis (1972) anticipated, this appears to have provided a temporary profit

windfall for tradables producers which was used for a one-shot investment injection, on at least one occasion.¹¹ This is not a strategy that can be repeated: unless labour markets are convinced that the new exchange rate will persist, devaluation expectations may become entrenched, causing overreaction and an eventual appreciation in the real exchange rate. Moreover, evidence is accumulating, world wide, about the disincentive effects of exchange rate uncertainty on investment (Pindyck, 1991), exports (Arize, 1996) and the long term growth of capital markets (Reinhart, 2001), though the interpretation of this evidence has occasioned controversy (See, for example, Böhm and Funke, 2001).¹²

Unfortunately, much of the empirical literature on the effects of exchange rate changes uses inadequate measures of the real exchange rate. For countries whose exports are too small a proportion to affect world market prices (or prices in the target consumption markets), the most representative measure of relative prices is the relative price of tradables to nontradables. Marsh and Tokarick (1994) and Bynoe-Mayers (1997) discuss the disparity between this statistic and the usual empirical measure, the nominal exchange rate adjusted by indices of relative consumer or wholesale prices at home and abroad. (A similar discrepancy is highlighted in Masters and Ianchovichina, 1998).

C. The Financial Market

Mechanisms exist in Caribbean financial markets for full interest rate arbitrage, allowing domestic interest rates to adjust to the level of comparable US interest rates, the expected exchange rate change and expected changes in the domestic rate itself (if, for example, the fiscal deficit or a decline in foreign exchange reserves is deemed unsustainable by market participants). These mechanisms include: foreign ownership of domestic banks and other financial institutions, foreign correspondent links by domestic financial institutions, shifts in trade credit (equivalent to 50 percent of exports of goods and services in some Caricom countries), changes in the patterns of remittances (for example, substitution between services in kind and foreign exchange transfers) and the use of informal channels of financial transfer. Through interest rate arbitrage, an expected change in the nominal exchange rate can be discounted in the domestic financial market, and it therefore provokes no change in the net supply of foreign exchange.¹³

¹¹ Anecdotal evidence exists that exporters in Trinidad-Tobago took advantage of devaluation-induced profits to re-tool for improved competitiveness.

¹² The Jamaican experience of repeated devaluation, which contrasts with Trinidad-Tobago's single major devaluation in the past decade and a half, provides anecdotal support for the disincentive effect of repeated exchange rate changes on fixed capital formation.

¹³ For a taxonomy of the interaction of interest rates, exchange rates and capital flows in the Caribbean, see Worrell (1996).

Not only do exchange rate changes tend to be offset by interest rate changes, without any foreign exchange supply response; the increased exchange rate uncertainty that comes with a flexible exchange rate brings with it a higher interest cost. Figure 2 illustrates the interest premiums which resulted from exchange rate uncertainty, in a selection of Caribbean countries. ~~In the second and third panels it may be seen that the domestic treasury bill rates in Jamaica and Guyana were very much higher than the US treasury bill rate, after their exchange regimes were liberalized in 1991 and 1988, respectively. The premium which the Government of Trinidad and Tobago paid on treasury bills, compared to US rates, was also higher after the exchange rate was allowed to float officially in 1993, although the differential is less pronounced than for Jamaica and Guyana. In the first panel it may be seen that the premium on the domestic treasury bill is much higher for Jamaica and Guyana than for the Bahamas, which maintained a fixed exchange rate.~~ The premium on the Trinidad-Tobago rate is also above that for the Bahamas, though much lower than for Jamaica and Guyana. It mirrors the relative stability of the Trinidad-Tobago dollar, which has changed much less in value since the exchange rate was floated than for the other two countries.

While expected exchange rate movements tend to be offset by changes in the interest rate, unexpected exchange rate changes have had asymmetrical effects. Unexpected revaluation of the exchange rate failed to induce any reaction in Jamaica in 1993 and 1996,¹⁴ as market participants waited to see whether the revaluation would be sustained. The reaction to unexpected devaluation has been capital flight, in Guyana, Jamaica and Trinidad-Tobago, as market participants sought to realize exchange rate gains or minimise losses.

The Caricom experience of exchange rates and the capital account follows a well established pattern. A devaluation¹⁵, rather than increasing the supply of foreign exchange on the financial market, leads to capital flight in the short term. Moreover, exchange rate expectations are heavily influenced by previous exchange rate experience. Devaluation typically is followed by a period of high domestic interest rates, relative to US rates, reflecting expectations of further depreciation. In an environment of high interest rates, the yield curve often becomes inverted, finance tends toward the short term, and the investment/GDP ratio declines. In the conventional theory of exchange rate adjustment, in an economy with rational expectations the real exchange rate would converge on its long term equilibrium value, and at this rate there would be a balance of saving and investment, determined by economic fundamentals such as income per capita, the

¹⁴ These were the only significant revaluations in the 1990s. Other revaluations that appear in Figure 2 (Guyana, 1999; Jamaica, 2000; Trinidad-Tobago, 1999) can be seen to be corrections of a previous period's devaluation (in the case of Trinidad-Tobago) or were themselves corrected in the next period.

¹⁵ Devaluation may be official, or more frequently, on the parallel market, with an unchanged official rate. Subsequent adjustment to close the gap between the official and parallel rates is referred to as exchange rate unification, rather than devaluation.

fiscal deficit, the extent of spare capacity, real wages and the ratio of dependents to the total population (Isard and Faruquee, 1998). In practice, the persistence of high interest rates may cause a financial position that would otherwise be viable to explode into crisis (Hausmann et al., 1999). A deliberate policy of fighting high inflation with high interest rates may also be destabilising, in terms of actual output (Calvo and Vegh, 1995).

D. The Empirical Evidence

The Raw Data

Guyana and countries

A preliminary examination was made to see whether the raw data reveal an apparent balance of payments response to exchange rate changes, beginning with a comparison of exchange rate changes and inflation. To the extent that changes in the exchange rate are correlated with inflation, any relative price advantage the country may have gained from a devaluation is eroded. Figure 3 compares exchange rate changes and changes in the CPI, for three countries with flexible exchange rates (Haiti, Jamaica and Trinidad-Tobago), Suriname, where the unofficial rate soared in the 1990s, and Barbados, with a fixed exchange rate since 1975. Jamaica and Suriname offer the most noticeable cases where domestic inflation is correlated with exchange rate depreciation, for Jamaica in 1978-79, 1984 and 1992-96, and for Suriname in 1994-95 and 1999. In Trinidad-Tobago, devaluations in 1985, 1989 and 1993 show less marked correlation with changes in the CPI; in the case of the 1985 devaluation, the corresponding price increase seems to have occurred about one year later. In Haiti high volatility of the exchange rate appears to be correlated with high inflation, in the 1990s.

Figure 4 compares nominal exchange rate changes with changes in the real exchange rate, measured as the ratio of the deflator for tradable goods to the deflator for nontradables. The series of devaluations in Guyana in the second half of the 1980s correlates with the depreciation of the relative price of tradables in that country, though it is the nominal exchange rate change which lags the change in relative prices. In Barbados, Jamaica and Trinidad-Tobago there is no correlation between the trends in relative prices and in exchange rates.

Figure 5 shows the relationship between change in the relative prices of tradables and changes in exports of goods and services (proportionate changes, based on exports and services measured in US dollars), for Barbados, Guyana, Jamaica and Trinidad-Tobago. In no case is there an obvious correlation: observations are scattered apparently at random around the fitted lines, and there is no convincing trend in any of the fitted lines. The same is true for changes in imports for Barbados, Jamaica and Trinidad-Tobago (based on imports measured in US dollars), shown in Figure 6, and for current account balances (in US dollars), shown in Figure 7. Only in Barbados is there a noticeable trend in Figure 7, for an improvement in the current account as the relative price of tradables falls, that is, as the country becomes less competitive.

This first look at the raw data is merely suggestive, because it takes no account of multivariate influences on prices, exports, services, imports or the current account, nor of possible lagged effects and indirect and simultaneous influences.

A Survey of Empirical Studies

There appears to have been no attempt to estimate the effects of exchange rate policy using a global approach that allows for time lags, and simultaneous and indirect effects of the exchange rate on the demand and supply of foreign exchange. Structural models exist that might have been adapted for that purpose, but none has been used to simulate the effects of exchange rate changes. All the evidence we have, therefore, relates to the partial impact of exchange rate changes, and must be approached with the caveat that these effects may be negated by other consequences of exchange rate changes which also impact the balance of payments, or that the effects may wear off with the passage of time.

In a study of the export performance of Barbados, Costa Rica, the Dominican Republic, Jamaica and Trinidad-Tobago, Harris (1994) found that depreciation of the exchange rate (adjusted for weighted changes in domestic prices relative to prices in trading partners) generated increases in exports, with an elasticity of 0.17 (a 10 percent devaluation induces a 1.7 percent increase in exports), on average for this group of countries. (Other factors contributing to export changes included capital inflows, the ratio of arable land to population and the ratio of investment to GDP.) McIntyre (1995) found that the elasticity of clothing exports with respect to the real effective exchange rates (REER), measured as above, was greater than unity, for Barbados, Costa Rica and the Dominican Republic. For total exports, the REER-elasticity was statistically significant only for Trinidad and Tobago, with a value of 0.75. McIntyre notes that the REER may be adjusted by the use of incentives, as well as by nominal exchange rate changes. (In McIntyre's tests the national capital stock also appears as an important explanatory variable, especially for clothing exports.) Worrell, Boamah and Campbell (1996) observed that repeated devaluations by the Dominican Republic, Guyana and Jamaica reduced their prices, wages and unit labour costs, relative to those for Barbados. In tourism, Barbados' earnings grew more slowly than the Dominican Republic's and Jamaica's, and Barbados' agricultural exports also grew more slowly than for the three comparator countries. In manufacturing, a minor export for Barbados, the country's exports grew more quickly than Guyana's and Jamaica's, and kept pace with growth in the Dominican Republic.

Inferences about the possible impact of a devaluation on tourism may be drawn from the price elasticity estimates to be found in Clarke, Wood and Worrell (1986), Rosenweig (1988) and Whitehall and Greenidge (2000). In the most detailed tourism demand study reported for any Caribbean country, Clarke, Wood and Worrell estimated equations for Barbados, separately by tourists' country of origin, type of accommodation and season of travel. The variable that captures competition from other Caribbean destinations – hotel rates in Antigua - has no statistically significant impact on any segment of tourism demand. In contrast, Rosenweig found significant price elasticities of substitution among Caribbean countries (1.33), between the Caribbean and Mexico (1.85), and between Europe and the Caribbean (1.78), all for visitors from the US. Elasticities of substitution among Caribbean countries and between the Caribbean and Mexico were even higher for the worldwide tourism market. Whitehall and Greenidge found a much smaller value, 0.68, for the elasticity of Barbados' tourism with respect to relative prices, measured as the Barbados GDP deflator relative to the US CPI.

Inferences about the direct, first round impact of devaluation may be drawn from the estimated coefficients of import and export equations in structural models, even though the models were not simulated for the effects of exchange rate changes. Watson and Teelucksingh (1997) found a significant import decline in response to an increase in the unit value of imports relative to domestic prices. The coefficient of export changes with respect to changes in the unit value of exports relative to a world price index is not significant. World price changes have a significant impact on domestic inflation. In a later study - Watson and Teelucksingh (2000) - the same authors estimate a significant increase in exports in response to a fall in the domestic price of exports relative to the local currency equivalent of US industrial prices. Worrell (1987) found that the price of tradables relative to that of nontradables (measured by deflators) had no significant effect on the output of nontradables in Barbados or Jamaica, or on imports to Jamaica. However, an increase in the relative price of tradables significantly depressed Barbados' imports. In a later study, Worrell (1992) completed estimates for the Dominican Republic, Guyana and Trinidad-Tobago as well, with additional observations. The relative price impact on Jamaica's imports and on the output of nontradables for Barbados were statistically significant, but all others were not. Increases in the price of tradables elicited a statistically significant increase in the output of tradables only for Jamaica.

A majority of studies indicates that changes in nominal exchange rates strongly affect domestic prices, and therefore can have only weak effects on relative prices. In the most comprehensive estimation of inflation formation for Barbados, Jamaica and Trinidad and Tobago, Holder and Worrell (1985) estimate one-to-one impact of foreign price changes on the domestic price of tradables, affecting about one-third of production in each country, plus significant effects on foreign prices on the prices of nontradables in Barbados and Trinidad and Tobago (for Jamaica the coefficient measuring this impact was not statistically significant), as well as an inflationary impact of changes in the relative price of tradables on domestic consumer prices in Barbados. Lattie (2000) obtains a statistically significant coefficient of 0.3 for the effect of lagged exchange rate changes on domestic inflation in Jamaica, and Cumberbatch (1997) estimates a high elasticity of 4.0 for the impact of foreign prices on Barbados' consumer price index. Other studies which estimate a significant impact of foreign prices on domestic prices for Barbados include Coppin (1993) and Downes, Holder and Leon (1990), with elasticities of 0.09 and 0.25, respectively.

Overall, the empirical results available in the literature indicate a vigorous domestic price response to exchange rate changes, though estimated elasticities vary from one-third to much greater than unity. In other respects the results are a mixed bag. While a majority of studies do indicate some influence of changes in relative prices on exports of goods and services and on imports, the results are not consistent across studies, and the approaches are too diverse to have produced robust inferences.

Scepticism about active exchange rate strategy for Caricom countries is reinforced by growing sentiment, reflected in the literature, that exchange rate flexibility is inappropriate for small open economies such as Caricom member states. Caricom members satisfy most of the criteria suggested by the IMF for countries for which a pegged exchange rate might be advantageous:

small size, economies that are very open to international trade and finance, a high degree of export concentration,¹⁶ an overwhelming proportion of external transactions conducted in a single foreign currency (the US dollar), low inflation (except for Jamaica and Suriname), and a relatively high incidence of domestic nominal shocks (IMF, 1997). Dornbusch (2001) makes the case for more widespread use of currency boards, including for countries much larger than Caricom members. In their advice to countries seeking greater flexibility in exchange rate management, Eichengreen et al. (1998) recognise that tourism-based economies, and economies that trade with large neighbours, gain little from independent monetary policy, and therefore recommend exchange rate pegs in these cases. Moreover, there is a growing weight of evidence that small countries around the world do in fact peg their currencies by intervention, either directly or via financial markets, irrespective of the formal status of their exchange rate regimes (Calvo and Reinhart, 2000).

IV. CURRENCY BOARD AND FULL DOLLARIZATION

The empirical survey undertaken in the last section does not conflict with the inferences drawn from the structural features of Caribbean countries, which lead us to be sceptical that flexible exchange rates will be good shock absorbers or will enhance export competitiveness. While some sectors and activities are affected by changes in the relative prices of tradables and nontradables, no systematic empirical relationship has been found between nominal exchange rate changes and changes in relative prices.

Eliminating all options involving exchange rate flexibility leaves only the quasi-currency board and full dollarization as strategies for maintaining the stability and value of domestic money. There are two well established arguments for preferring the currency board over dollarization: the former allows for limited seignorage accruing to the currency issuing authority,¹⁷ and that authority may serve as lender of last resort for domestic financial institutions, which have no recourse beyond the interbank market if the economy is fully dollarized.¹⁸ This puts domestic financial institutions at a disadvantage, in competition with banks which have recourse to an overseas head office.

¹⁶ A analysis of size, openness and export concentration appears in Carter (1997).

¹⁷ Anthony and Hughes-Hallet (1999) argue for full dollarization of Caricom countries, on the grounds that seignorage revenues are less than the transactions costs of transfers from local currencies to the US dollar.

¹⁸ Dornbusch (2001) argues persuasively that the lender of last resort function properly belongs with the treasury or with world capital markets.

There is a third and possibly stronger argument for the quasi-currency board: it lends credibility to domestic policy, especially fiscal policy (Baliño et al., 1997). In the Caribbean, this is demonstrated by the recent economic history of the Bahamas, Barbados, Belize and the OECS member states. Central banks in these countries have all followed quasi-currency board rules, *de facto* (or, in the case of member countries of the ECCB, *de jure*). On the whole, they maintained ratios of foreign exchange reserves close to or exceeding the value of their currency liabilities. Both Belize (in 1985) and Barbados (in 1991-92) came close to exhausting foreign reserves completely, but restored adequate levels by means of programs to reduce aggregate expenditure, thereby demonstrating credible commitment to the exchange rate peg. In the central banking era in the Caribbean – from the late 1960s to the present – these countries have experienced structural changes and economic shocks similar to those experienced by Jamaica and the Dominican Republic, countries where central banks did not operate *de facto* as quasi-currency boards¹⁹. The governments of the quasi-currency board countries have enjoyed ongoing credibility for fiscal policies, in contrast to the experiences of Jamaica and the Dominican Republic, and have been able to borrow at interest rates which show only a small premium over comparable US dollar interest rates (See Figure 8).²⁰

In a fully dollarized economy there is no readily available yardstick for measuring the efficiency of fiscal policy. There is a need for measures of fiscal performance which are sufficiently prominent in the public mind – as is the rate of inflation in the popular targeting framework – that expected deviations from the target will attract public sanction and induce government to take corrective action before macroeconomic disequilibrium becomes acute. Under the quasi-currency board regimen, the level of foreign reserves in relation to central bank liabilities, and in relation to foreign obligations, the two benchmarks that define the currency board, perform the tracking function, and give early warning of the need for policy adjustment.

V. A CURRENCY UNION FOR THE CARIBBEAN

A. Why a Caribbean Currency Union?

The compelling reason for a currency union in the Caribbean – in preference to individual quasi-currency boards – is to help create a Caribbean capital market of sufficient size for the development of internationally competitive firms. This capital market would be a single economic space where investors from all member countries would jointly conceive, plan and

¹⁹ Other countries which have departed from the quasi-currency board rule – Guyana, Haiti and Trinidad-Tobago – are not used in this comparison, because either economic structures or economic shocks differed significantly from those of the quasi-currency board countries.

²⁰ While the currency board provides a highly visible certificate of good conduct for governments with conservative budget strategies, it is not a substitute for, nor a guarantee of, fiscal discipline.

implement investment projects in the activities in which the Caribbean has already demonstrated a comparative advantage – tourism, export agriculture and mineral production (and manufacturing, in the case of Trinidad-Tobago only) – and those service exports where there seems to be as yet unrealized potential – information services and entertainment.

A Caribbean-wide capital market is essential if the region is to attain even this limited degree of diversification. Although export diversification has been an explicit objective of structural programs and development policies in all these countries for more than two decades, the regional export mix is no more diversified today than it was thirty years ago. No Caribbean capital market – with the probable exception of Cuba – is sufficiently large to develop indigenous enterprises that can achieve internationally competitive economies of scale even for the limited list of products and services in which the Caribbean may have a comparative advantage. Trinidad-Tobago is the only country that has more than a single export with strong medium term prospects. In all other countries there is but one export – usually tourism - with promising medium term prospects, with other exports under threat or in terminal decline.

For the most part, Caribbean enterprises are far too small to be competitive internationally. Of companies quoted on the stock exchanges of Barbados, Jamaica and Trinidad-Tobago, or traded over the counter elsewhere, only 21 had turnover in excess of US\$ 100 million in their Fiscal Year 1999 (Medianet Ltd., 2000), although the largest mineral and tourism enterprises are not quoted. Of those 21, at least 15 operate in more than one Caricom country. The average annual turnover of the three largest quoted Caribbean countries (\$ 480 million) is 3 percent of the average turnover of the three largest companies in Latin America, as reported by the *Financial Times* "FT 500: The World's Largest Companies," May 11, 2001. (Latin America had three firms in the list of the largest 500).

A strategy of export diversification, to cushion the effects of adverse external shocks, is unlikely in the absence of strong indigenous firms of regional scope. Foreign firms cannot be depended on to invest in a diverse range of products or markets. Foreign investment has tended to follow well trodden paths of demonstrated profitability, leading to concentration on single products or single markets.

A regional capital market has begun to emerge, with indigenous firms that compete in extra-regional markets, and firms that compete effectively with international firms in the domestic market, having investments across Caribbean countries, in tourism, banking, insurance and wholesale and retail services. A common currency would considerably facilitate this process, by reducing transactions costs on products and services that are shared across the enterprise.²¹ It would also add to the seignorage revenue of the regional quasi-currency board, by replacing the

²¹ Rose and van Wincoop (2001) estimate that, for a large number of countries (their sample includes the Bahamas and the ECCB member countries), the reduction of transactions costs as a result of currency union more than offsets any losses from surrendering monetary independence.

US dollar, the present common unit of account and vehicle for intra-regional settlement, with the Caribbean currency.²² The introduction of a common currency, linked to the US dollar via a regional quasi-currency board, would therefore be a landmark step in the development of the regional capital market – that is, the market for the funding of fixed investment – though other measures, notably the implementation of agreements for the free movement of persons, would be necessary to complement the capital market integration.

B. Fiscal Discipline, Financial Constraints and Convergence

The issues of fiscal discipline and economic convergence among the members of the monetary union were fully explored in the design of the existing unconsummated arrangements for Caricom monetary union. (Much of this background material appears in Farrell and Worrell, 1994.) Under these arrangements, fiscal discipline is achieved via an eligibility criterion for accession to the monetary union, instrument independence for the central bank of the monetary union, and rules governing central bank lending to member governments, as follows:

- A sustainable external debt service ratio, no higher than 15 percent of current account receipts, is one eligibility criterion for joining the monetary union;
- The central bank of the monetary union would have independence in the use of monetary instruments, including open market operations;
- The central bank will be constitutionally forbidden to lend to governments, except by way of securities issued on the open market.

It can be shown that these stipulations are sufficient, in an open economy with well informed international financial markets, to ensure fiscal discipline and eliminate pressure for money creation. An intuitive explanation is that government finance requirements, should they exceed the domestic supply of funds, will spill over into the foreign market, where government is constrained by solvency requirements. Since the international financial market is not always fully informed, and may continue to lend to governments for some time after they have exceeded prudent limits of borrowing, a stipulation is made on the external debt service ratio.²³ With open financial markets, a separate limit on domestic debt is redundant.

²² Seignorage revenues might be distributed to the members of the monetary union in proportion to the liabilities of the central bank issued in each country, following the practice of the ECCB.

²³ The limit might be stated in terms of an equivalent debt/GDP ratio, given assumptions about long term interest rates and average debt maturities, and how they might change over time. In principle the limit might be derived from the solvency criterion, given a rate of time preference, the interest rate and the rate of GDP growth, but in practice a rule of thumb must suffice.

Once the monetary union is established, the exchange rate anchor and the institutional arrangements for fiscal discipline ensure convergence of inflation and interest rates, to levels prevailing in the US. However, additional screening will be necessary of each potential member at the point of admission, to ensure there were no other sources of imbalance. Such a stipulation would be required with respect to Jamaica's accession to the monetary union under current circumstances. The Bank of Jamaica has kept the currency stable, maintained prudent fiscal balances and contained external debt service, but has been forced to sell government securities at high real rates of interest, which cannot be sustained. In this case, the domestic financial requirement has not spilled over into the international financial market because of the high interest premium on domestic currency. The reduction of this premium would have to be a precondition for Jamaican accession to the monetary union.

Efficient and transparent financial regulation and supervision are essential for the credibility of the exchange rate peg. Financial institutions should be subject to prudential limits on their net open positions in foreign currencies, and limits on exposures via currency mismatches, in the prevailing climate of world-wide exchange rate volatility. Arrangements for government borrowing from financial institutions should be fully transparent, so that the price of credit responds to any excessive demand for finance from government. In particular, there should be no directed credit, either for state-owned or private financial institutions.

Monetary union will not, of itself, promote convergence of output growth, employment growth, productivity growth or a sustainable balance of external payments. The direct impact of monetary union on these variables is neutral, precisely because exchange rate policy is not an effective allocation tool for Caricom countries. Henry and Downes (1994) found that there would be little immediate or short term effect on labour markets, and that the longer term effects, while largely speculative, might well be positive. Fiscal policy could not be the same everywhere because of structural differences among Caricom members, most obviously in the case of Trinidad and Tobago, the group's only oil exporter. (Fiscal implications are discussed in Theodore, 1994.)

C. The Path to Currency Union

The member countries of the Caribbean Economic Community (Caricom) in 1992 signed an agreement for monetary union,²⁴ with the following criteria for accession to the union: the prospective member must have –

- Maintained an unchanged US dollar value of its currency for at least 36 consecutive months;

²⁴ "Decision of the Conference of the Heads of Government of the Caribbean Community on Caribbean Monetary Integration," Port of Spain, Trinidad and Tobago, July 1992, reproduced in Farrell and Worrell (1994), pages 244-246.

- Maintained a minimum of foreign exchange reserves equivalent to three months' of imports, for at least 12 consecutive months;
- Recorded a ratio of external debt service to exports of goods and services of no more than 15 percent.

These criteria remain sufficient to assure a path towards Caribbean monetary union, with one exception: experience has proven the exchange rate criterion to be inadequate. The principal reason the agreement was not implemented was the devaluation of the Trinidad-Tobago dollar in 1995, after a little over three years when that currency's exchange rate had not changed. That experience indicated that, contrary to the implicit assumption underlying the agreed Caricom criterion, three years of an unchanged exchange rate, even when backed with reserve cover above the stipulated limit and a moderate external debt service ratio, was not enough to reduce the expected exchange rate change to zero.

The currency board rule offers an alternative, and effective, means of reducing expected exchange rate changes to zero. The recommendation of this paper, therefore, is that the agreed criteria for Caricom monetary union should be supplemented by the requirement that potential members commit to the currency board rule.²⁵ For additional credibility in the foundation years of the monetary union, the currency board requirement could be a strict one – involving a minimum of 100 percent foreign exchange cover of domestic liabilities – for any country that has recorded an exchange rate change in the past decade.

VI. SUMMARY

From a theoretical point of view, changes in the exchange rates of small, very open economies do not result in switches in expenditure, towards production for export and consumption of import substitutes, and they either have no effect on financial inflows and outflows (if the exchange rate change is anticipated) or they precipitate capital flight (in cases of unanticipated devaluation). These theoretical considerations, as well as experience over the past three decades, indicate that a fixed exchange rate regime is preferable for Caricom countries. The experiences of Caribbean countries show that exchange rate depreciation is inflationary, and that, while changes in the relative prices of tradables may affect exports, tourism and imports, nominal exchange rate changes have no predictable effect on those relative prices.

²⁵ Of the countries that do not currently operate on quasi-currency board rules, the bank of Guyana holds foreign assets equivalent to 180% of base money, and the corresponding ratios are, for Haiti 45 percent, for Jamaica 97 percent, for Suriname 90 percent and for Trinidad-Tobago 193 percent. Haiti would therefore be the only country facing a difficulty in meeting the currency board requirement. However, it may be argued that Jamaica's foreign reserves are boosted by high real domestic interest rates.

A quasi-currency board, which ensures the stability of the exchange rate by maintaining a supply of foreign exchange reserves for its defense, is the only regimen that has produced a sustainable fixed exchange rate. It has advantages over full dollarization: some seignorage accrues to the domestic monetary economy, the monetary authority may act as a lender of last resort for domestic banks, and a commitment to a fixed exchange rate lends credibility to appropriate fiscal policies.

The Caricom region needs to institute a single market for investment, to achieve the scale and capture the synergies needed to produce internationally competitive firms. A common currency is potentially a vital pillar in the unification of the Caribbean investment market. It may be achieved, under the conditions already agreed by Caricom heads of government, if all members commit to currency board regimes before acceding to the union.

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Table 1.

Exports as a Percentage of Production of Exportables, 2001 1/

	Tourism	Petroleum, Minerals	Enclave Mfg.	Other Mfg. 2/	Sugar	Other Agr. 2/	IFSCs 3/	All Exports
Antigua	100.0	....	100.0	33.3	....	33.3	100.0	96.2
Bah's 4/	100.0	....	100.0	33.3	....	33.3	100.0	86.0
B'dos 4/	100.0	0.0	100.0	33.3	93.8	33.3	100.0	84.4
Belize	100.0	....	100.0	33.3	86.1	28.6	....	87.9
Dominica	100.0	....	100.0	33.3	....	80.0	....	87.9
Gren. 4/	100.0	....	100.0	33.3	....	33.3	....	89.0
Guy. 4/	....	100.0	100.0	33.3	100.0	33.3	....	85.5
Haiti	100.0	....	100.0	33.3	n.a.	33.3	....	89.0
J'ca 4/	100.0	100.0	100.0	33.3	83.0	33.3	....	90.0
St. Lucia 4/	100.0	....	100.0	33.3	....	100.0	....	96.9
St. Vincent	100.0	....	100.0	33.3	....	33.3	....	83.5
Suriname	....	100.0	....	33.3	....	33.3	....	88.6
T' dad- T' go 4/	....	100.0	100.0	33.3	85.0	33.3	....	86.5

Sources: IMF, "Antigua and Barbuda – Statistical appendix," SM/02/70, March 2000; IMF, "Bahamas- Statistical Appendix," SM/01/231, July 2001; Central Bank of Barbados, *Annual Statistical Digest*, 2001; IMF, "Belize – Statistical Appendix," SM/02/324, October 2002; IMF, "Dominica – Statistical Appendix," SM/02/261, August 2002; IMF, "Grenada – Statistical Appendix," SM/01/192, June 2001; Bank of Guyana, *Half Year Report and Statistical Bulletin*, 2001; IMF, "Haiti - Staff Report for the 2001 Article IV Consultation," SM/02/7, January 2002; IMF, "Jamaica – Statistical Appendix," SM/01/148, May 2001; IMF, "St. Lucia – Selected Issues and Statistical Appendix," SM/01/61, February 2001; IMF, "St. Vincent and the Grenadines – Statistical Appendix, SM/02/20, January 2002; IMF, "Suriname – Statistical Appendix," SM/02/259, August 2002; IMF, "Trinidad-Tobago – Statistical Appendix," SM/01/184, June 2001.

Notes:

1/ Exports of goods and services. The notation indicates that the country does not produce that commodity.

2/ Where actual data is not available, a conservative assumption is made, that only one-third of the production of miscellaneous exportables is exported.

3/ International financial services centres.

4/ 2000.

Table 2.

Exports of Goods and Services, By Sector

	Tourism	Petroleum, Minerals	Enclave Mfg. 1/	Other Mfg. 1/	Sugar	Other Agr.	IFSCs 2/	All Exports 3/
Antigua	94.5	0.0	n.a.	5.5	0.0	n.a.	n.a.	100.0
Bah. 4/	74.1	0.0	n.a.	20.8	0.0	0.0	5.0	99.9
B'dos 4/	74.2	0.0	2.1	11.4	2.7	2.6	7.0	100.0
Belize	42.6	0.0	5.4	6.6	10.6	34.8	n.a.	100.0
Dominica	53.0	0.0	15.4	22.5	0.0	9.0	0.0	99.9
Gren. 4/	56.3	0.0	23.9	12.8	0.0	6.9	n.a.	99.9
Guy. 4/	0.0	38.0	n.a.	10.0	24.0	28	0.0	100.0
Haiti	31.4	0.0	57.0	n.a.	n.a.	11.7	0.0	100.1
J'ca 4/	48.2	25.9	8.0	14.3	2.8	0.8	0.0	100.0
St. Lucia 4/	84.1	0.0	0.7	5.6	0.0	9.6	0.0	100.0
St. Vincent	63.2	0.0	n.a.	24.9	0.0	11.9	n.a.	100.0
Suriname	0.0	77.1	n.a.	11.8	n.a.	11.1	0.0	100.0
T'dad- T'go 4/	n.a.	66.0	4.1	29.0	0.9	n.a.	0.0	100.0

Sources: See Table 1.

Notes:

1/ Where data on enclave manufacturing is not available, the conservative assumption is made that two-thirds of all manufacturing – including the enclave - is consumed domestically.

2/ Where data is not available, the international financial service sector is aggregated with tourism.

3/ Discrepancies due to rounding.

4/ 2000.

Figure 1. Ratio of Central Bank Net Foreign Assets to Reserve Money

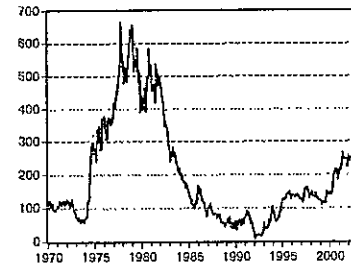
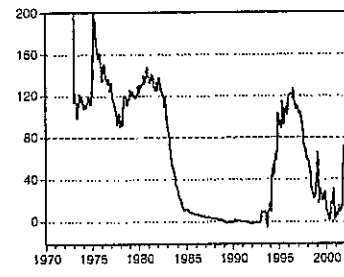
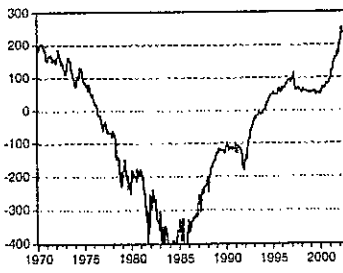
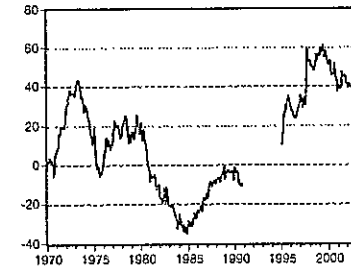
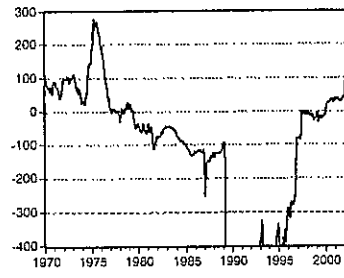
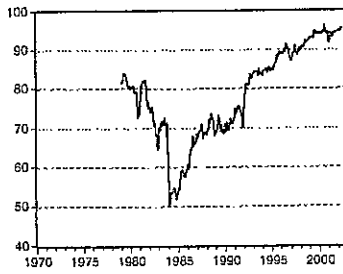
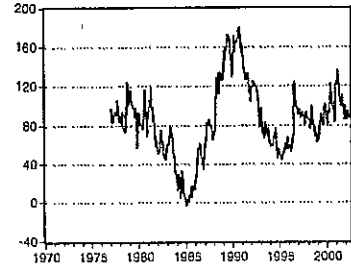
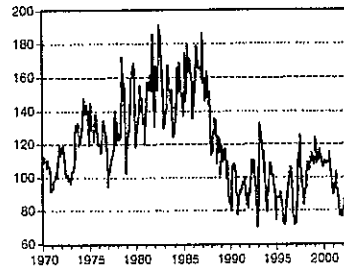
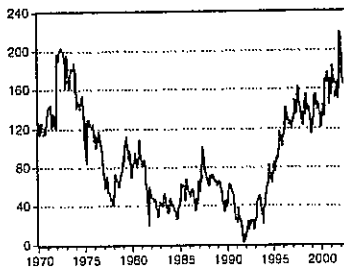


Figure 2. Treasury Bill Interest Differentials, Caricom Minus US, and Exchange Rate Changes

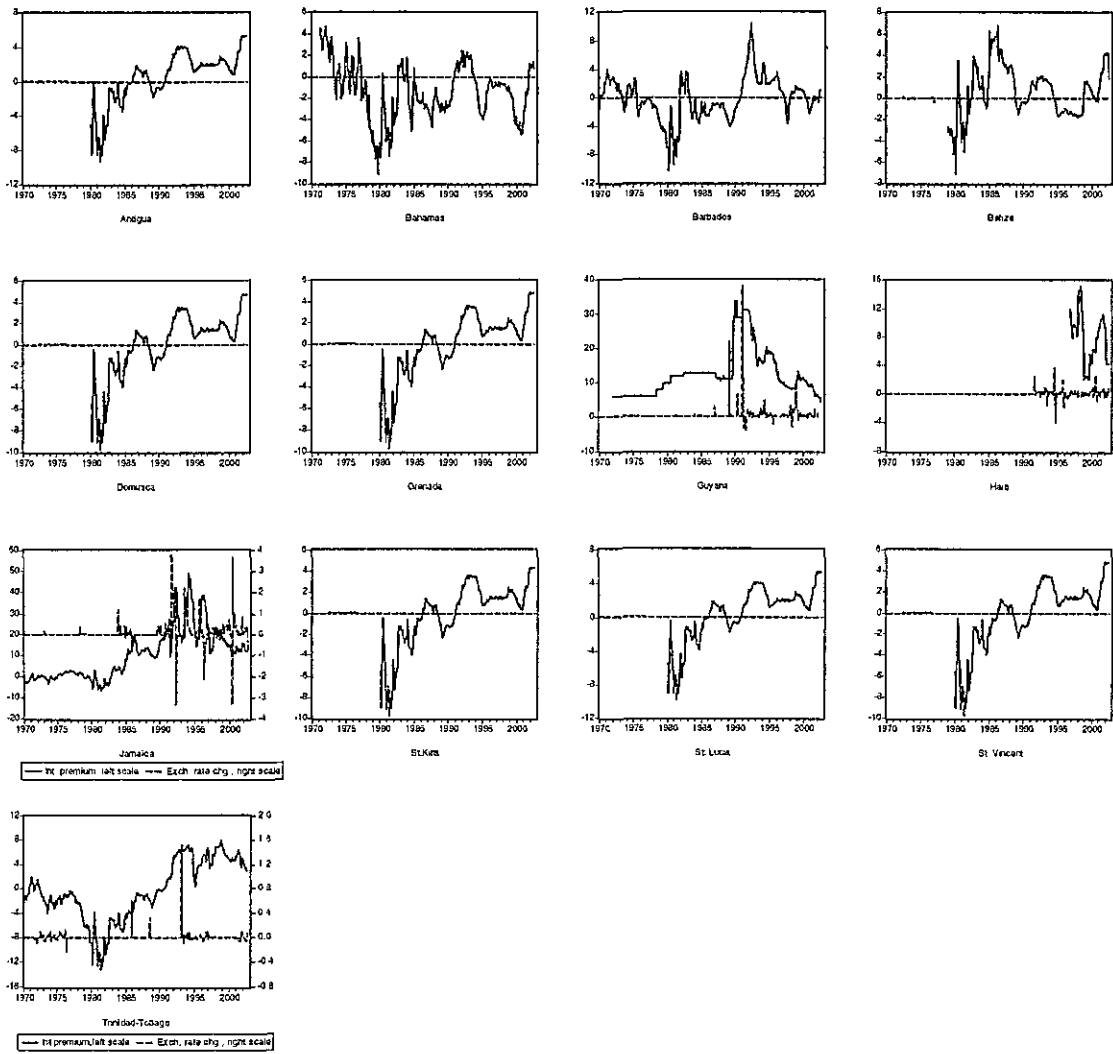


Figure 3. Exchange Rate Changes and CPI Inflation

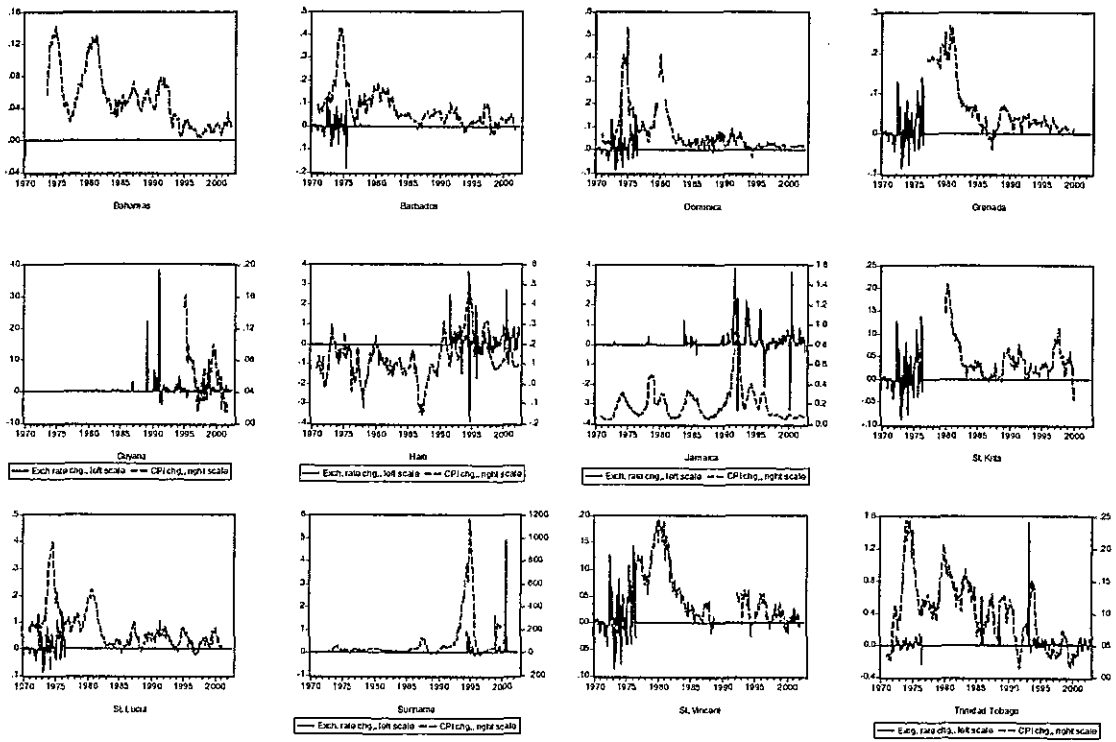


Figure 4. Trends in Relative Price Deflators (Left Scale) and Exchange Rates (Right Scale)

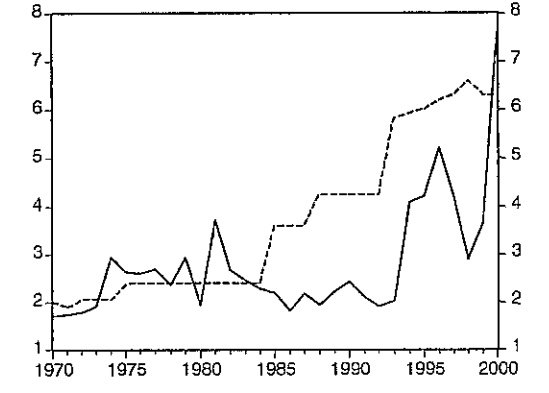
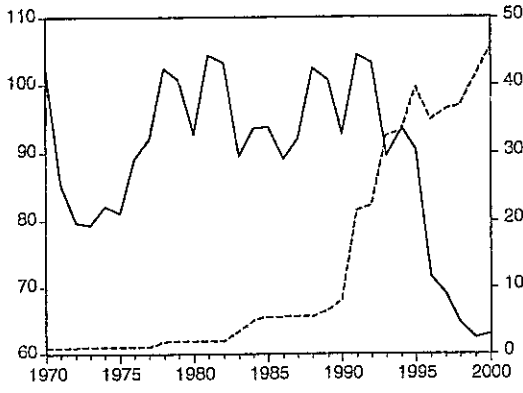
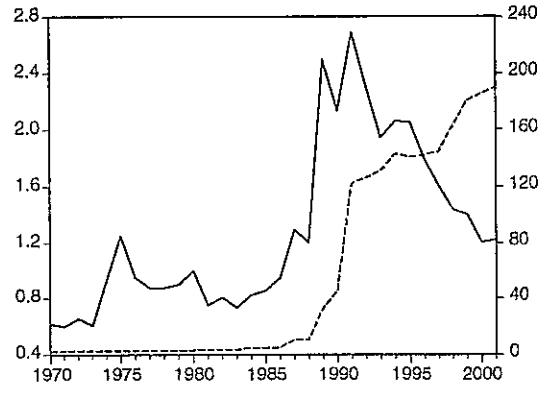
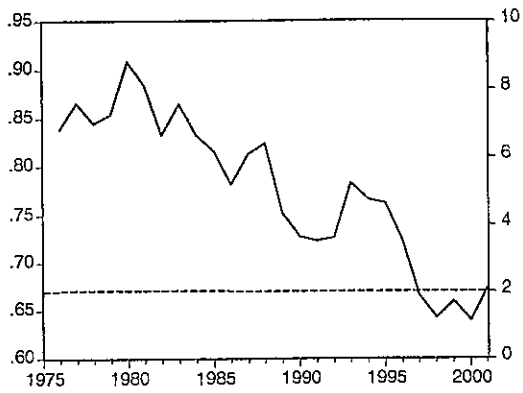
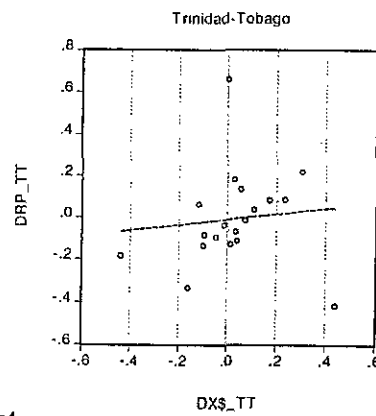
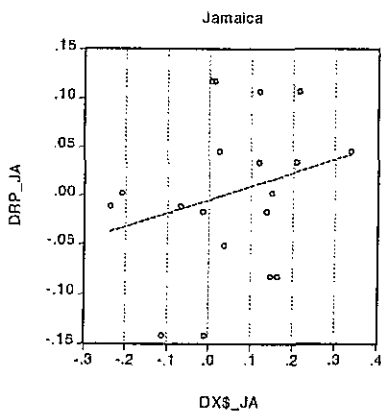
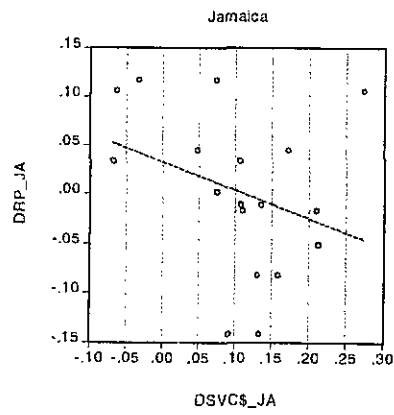
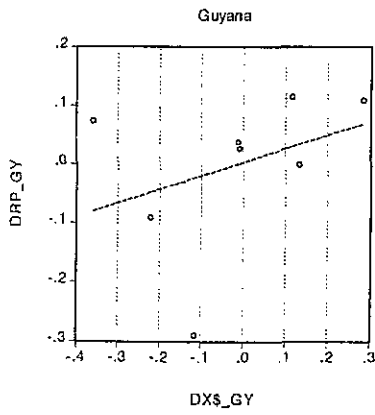
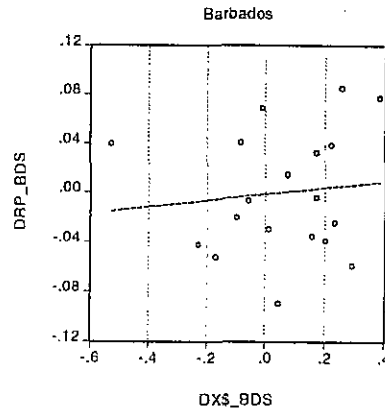
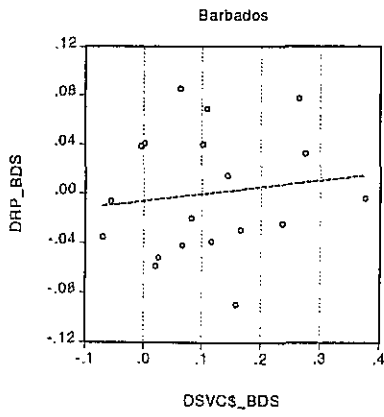


Figure 1

Exchange Rate Changes and Export Changes



gr_cu_fig4

Figure 2

Exchange Rate Changes and Import Changes

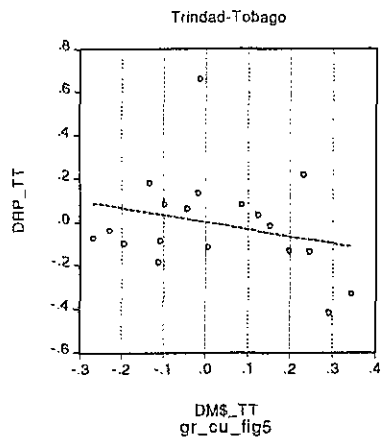
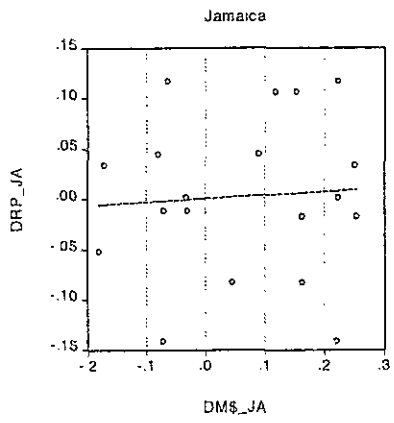
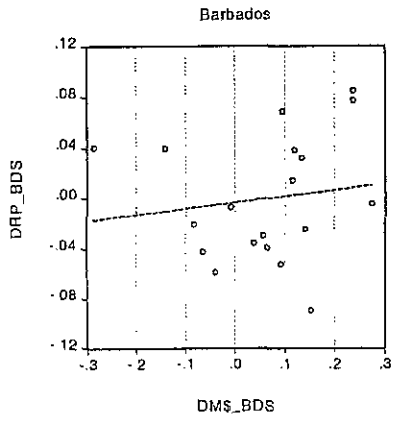
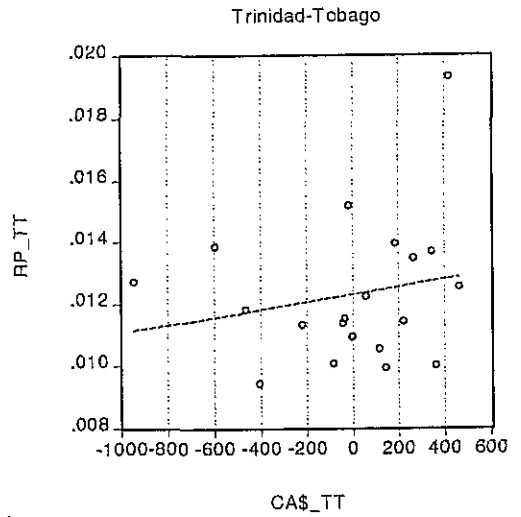
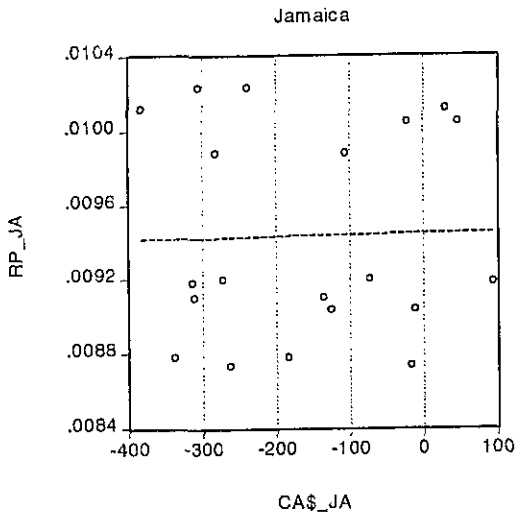
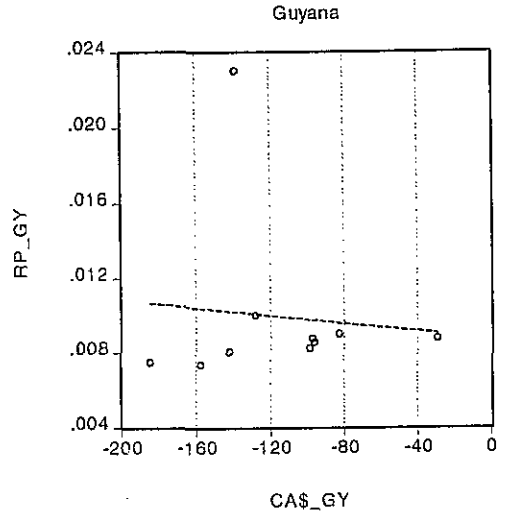
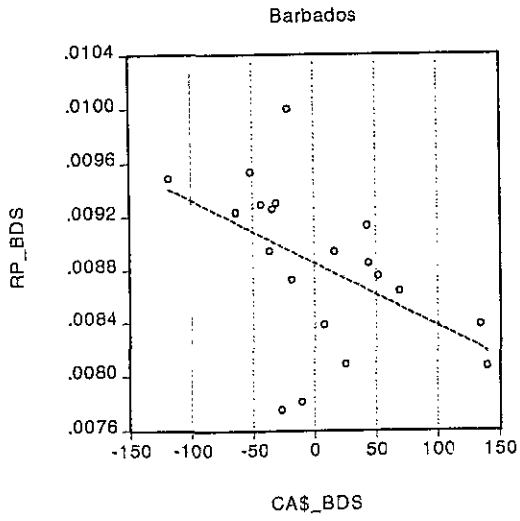


Figure 3

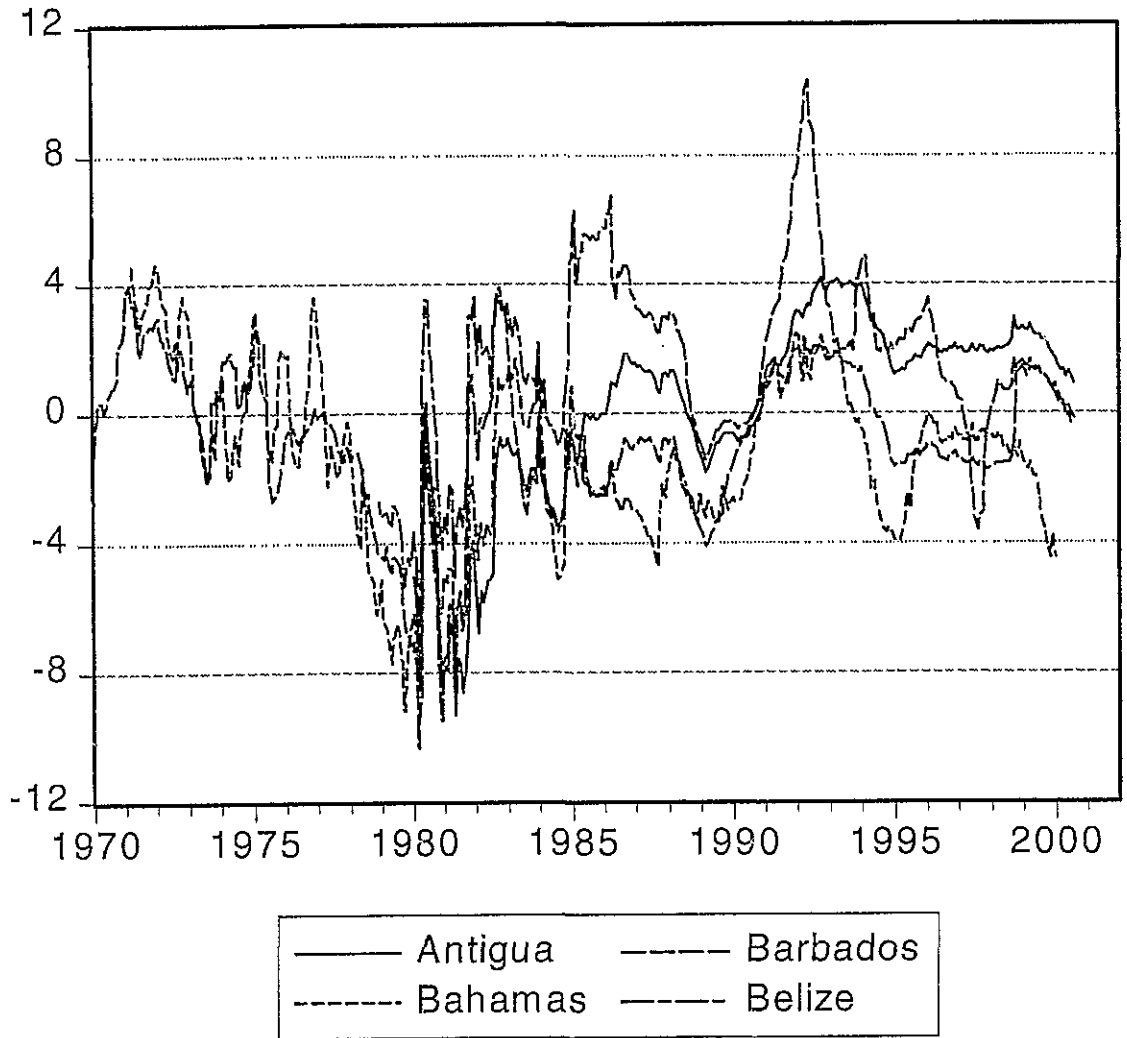
Exchange Rate Changes and the Current Account



gr_cu_fig6

Figure 8.

Interest Rate Premiums, Fixed Rate Countries Percentages



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