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REPORT ON STUDY ON ECONOMIC CONVERGENCE IN CARICOM COUNTRIES

Central Bank Research Team
Central Bank of Belize
Central Bank of Trinidad & Tobago
Eastern Caribbean Central Bank

JAMAICA CONFERENCE CENTRE

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EXECUTIVE SUMMARY

In mid-1992 in a Report of Governors of the Central Banks to CARICOM Heads of Government, recommendations were made on the mechanisms to be employed to bring about monetary union in the English-speaking Caribbean. The proposals essentially involved adoption of a two-tiered, stages approach to currency union. Countries were grouped into two categories. Included in category A were those countries which were able to maintain foreign reserves to the value of 3 months import cover for at least 12 months and which had a stable exchange rate for 3 years with a sustainable debt servicing capacity. The qualifying countries were the OECS members, The Bahamas and Belize. Category B included all other countries i.e. Trinidad and Tobago, Barbados, Jamaica and Guyana. The program outlined a series of stages and a pre-determined time-table. During the transition period to the eventual goal of a common currency, monetary policy would be coordinated and fluctuation of exchange rates limited to bands that would be progressively narrowed. Three stages were outlined. The first stage would run to 1996 and would primarily entail the conduct of sound macroeconomic policies. Stage 2 which would be between 1997 and 2000 would see the formation of a Caribbean Monetary Authority and the institution of a common currency among the Category A countries. The others would meanwhile work towards this goal, eventually attaining it by the year 2000 which demarcates the start of Stage 3. It was envisaged that a Caribbean common currency should be held fixed for the first several years of its existence. A Council of Central Bank Governors, charged with overseeing the transition period, would eventually be transformed into the Caribbean Monetary Authority. This Authority would be independent but accountable to a Council of Finance Ministers. Its primary mandate would be to achieve price and exchange rate stability. It would also be responsible for prudential supervision and regulation within the region.

At their Port-of-Spain meeting in July 1992, the CARICOM Heads of Government adopted the recommendations of the Governors for a two-tiered, stages approach. Furthermore, a commitment was made to work towards repatriation and convertibility of the national currencies between Barbados, the OECS countries and Trinidad and Tobago by January 1, 1993. At the Nassau meeting in July 1993, the Heads of Government identified the convertibility of Caribbean currencies throughout the region as the immediate goal.

This Report is intended to contribute to the understanding of the key role of convergence in Caribbean monetary union. Through analysis of the theory, the empirical evidence in other areas and the extent of convergence in economic policy and performance in the Caribbean at present, several recommendations are presented that may guide future action.

The report is divided into four sections. Section I discusses the theoretical issues surrounding economic convergence in the context of monetary integration. Section II reviews the empirical evidence on economic convergence both in the context of regions within a single country and among nation states. The evidence on convergence in the Caribbean, with regard to both policy and performance, is discussed in Section III. Some suggestions about the way forward are discussed in the concluding Section IV.

The process of monetary integration in CARICOM needs to take direct account of the issue of convergence, i.e., the drawing together of the economic policies and performances of the individual members. Essentially, monetary integration requires a great deal of harmonization and coordination of the economic policies of the member countries. However, for such harmonization and coordination to be sustainable, the economic performance of the countries must have achieved some level of convergence. Without this, disparities in economic performance would encourage pressures to depart from the currency union objective. Economic theory suggests that convergence would take place automatically given the present course of policies employed by CARICOM states. However, the process may be too slow or incomplete to achieve convergence and readiness for currency union.

Economic convergence can be considered as a process by which the economic performance and policies of a group of countries or regions of a country approach each other. Hence, the issue revolves around long run behaviour of economic variables in one country or region relative to their performance in other areas. The convergence of variables does not necessarily mean equality, since short run departures are expected, but it requires that in the long run the variables be arbitrarily close to each other. Various strands of economic theory suggest that there is a natural tendency of all economies to converge. However the automatic

process may be too slow, requiring therefore the use of deliberate policies to assist the natural forces.

Empirical examination of the experiences of monetary arrangements outside of the Caribbean setting has uncovered several interesting lessons in the sphere of convergence. These can be summarized as follows:

1. The role of politics is critical and may dominate other conditions. As in the case of Germany, even where initial economic conditions for currency union are apparently unsuitable, the political imperative dominated and resulted in a common currency between two regions at very different stages of development in a very short period.

2. Where countries are very dissimilar in terms of economic structure, the formation of a monetary union would require significant fiscal transfers to the lesser developed region for stability. This phenomenon was also apparent in the German case.

3. The spillover effects of a shock in the country that has the anchor currency would be transmitted throughout the region, as evidenced by the effect of German unification and resultant policies on the exchange rate mechanism in Europe.

4. Formal criteria are important as a measure of convergence, as demonstrated in the adoption of the Maastricht accession criteria. The economies with the stronger currencies are likely to be more insistent on their application.

5. Flexible interpretation of the criteria may be necessary, as in the case of the Maastricht fiscal rules and the widening of the exchange rate bands in 1993.

6. The convergence criteria go hand in hand with the timetable of the process of monetary integration, as recognized in the admission of a two-speed Europe. Nonetheless, the process was not open-ended as union was to proceed by 1999 even if a majority of economies had not attained the criteria.

7. The convergence criteria should be realistic, given the costs involved in too rapid convergence. Simulations in the European case showed that destabilising massive fiscal retrenchment could be implied if some countries were to attempt to attain the fiscal targets in a short time. Evidence from Europe also suggests the possibility that the unemployment and output costs involved in convergence may not be temporary.

8. Convergence of interest and inflation rates to the 'core' country, the United States in the case of the Caribbean, is likely with a common currency pegged to the US dollar, as suggested by the performance in the CFA franc and rand zones.

9. The bias towards stability of a common currency pegged to a major currency has been affected by the precedent involved in the devaluation of the CFA franc.

10. Convergence in policy accompanies monetary arrangements, as suggested by studies of the European case, in which support was given to the 'German leadership hypothesis'. This policy convergence can be expected to grow as the extent of integration deepens.

With respect to the Caribbean, formal tests were conducted on the hypotheses of cointegration of inflation and of interest rates. Tests were done with respect to the absolute levels and bilateral differences in the variables across countries. The results provide evidence supporting nominal convergence in the countries which have maintained fixed exchange rates. The countries with floating exchange rates have tended to diverge, but as the exchange rates have stabilized their inflation and interest rates have tended to move closer to the other countries. There is also strong evidence is support of the hypothesis that the United States is the core on which the CARICOM countries converge.

Currently economic policy design is conducted independently by the individual member states. This is particularly so in the fiscal arena and on matters related to exchange rate and monetary policy. Independent trade policy is circumscribed by the customs union arrangement. The similarity of the economies, shared colonial heritage and institutions, and the adoption of similar outward-looking stabilization strategies has however resulted in an unprogrammed

evolution towards a similarity of policies. The major divide is apparent with the coexistence of flexible exchange rate regimes in Guyana, Jamaica and Trinidad and Tobago and fixed exchange rates in the other territories.

Based on the analysis in the Report, several issues need to be stressed for successful monetary union to be the outcome:

1. **Nominal vs real convergence.** Nominal and real convergence should be pursued as long term goals. However in the short term, pursuit of the two objectives may be inconsistent. As an initial step countries should use macroeconomic policy in search of a low inflation goal as the primary objective. It is only in an environment of low inflation that the macroeconomic stability and realistic interest rates which are necessary to encourage real saving and investment can be consistently achieved.

   Convergence to low inflation also presupposes that there is some measure of balance of payments/exchange rate stability since volatility in the exchange rate is a major source of inflation. In fact a policy which targets balance of payments/exchange rate stability may be a necessary condition for stable prices. A focus on nominal convergence targets would facilitate the attainment of real convergence. In the presence of relatively free trade and with the dynamics of capital accumulation, real convergence would occur naturally. While policies to force real convergence should not be a major concern, mechanisms to counter polarization may have to be pursued to avoid widening the disparities which exist. Such policies are best (but not exclusively) implemented at the regional level to avoid their working at cross purposes.

2. **Fixed vs floating exchange rates.** Convergence to low inflation need not be an impossibility under floating exchange rates once exchange rates are relatively stable. Consequently, exchange rate targeting is appropriate. Thus in the current situation where both fixed and floating exchange rates exist, convergence can still be a reality. Monetary cooperation should be also be actively pursued, in areas such as exchange rate changes, the payments mechanism, the development of a regional capital market, coordination of

financial reform and regulations, etc. However, a firm commitment to floating effectively rules out monetary union, which requires irrevocably fixed exchange rates. Thus far, the countries with floating exchange rates have expressed continued commitment to floating. The clear implication is that monetary union is ruled out at this time except all of the countries commit to a floating exchange rate, vis à vis the rest of the world, which would still require intra-regional exchange rate fixity.

The level of reserves countries are required to hold under floating depend on the monetary authorities' intervention rules. Another role for reserves emerges if the countries with floating exchange rates want to pursue monetary union some time in the future. They can use the floating exchange rate as a means of rapidly building up reserves which would facilitate their entry into the monetary union.

The floating of the unified currency would have some advantages in terms of the ease of adjustment to terms of trade shocks and the facility of finding an equilibrium exchange rate. However, the uncertainty it creates and the consequent macroeconomic instability would make it a hard sell to the countries which currently have fixed exchange rates. The fact that terms of trade shocks can also be addressed by policies related to prices, wage rates and productivity will make a floating Caribbean currency less palatable. Thus political realities would suggest a fixed exchange rate.

This would create a credibility problem in the short term for the countries which have floating exchange rates. At the advent of floating, they expressed commitments to full liberalization of the exchange rate. Thus any move to enter a fixed exchange rate union would be seen as a major policy reversal. This credibility problem can be lessened if full convertibility of the unified currency can be guaranteed. This would only be the case if the common currency is backed to a sufficiently high degree by foreign exchange. This strengthens the need for them to use the floating exchange rate as a means of accumulating reserves.

3. **The appropriate anchor for convergence.** The Caribbean countries can be viewed as belonging to the US dollar optimum currency area which suggest that the US dollar ought

to be the anchor. The evidence supports the region's convergence to the inflation of the United States as the core country. Hence, logically the United States should be the anchor since the use of an existing currency or a new Caribbean currency, as long as they are pegged to the US dollar, will have the same effect. Even if the unified currency is allowed to float, but there is exchange rate targeting focussed on a US dollar parity, the United States would still be the core.

4. **Policy convergence vs convergence in performance.** The evidence suggests that although there is some degree of convergence among the CARICOM countries, there is still a long way to go in order to achieve the requisite amount for a sustainable monetary union. The earlier analysis argues that the pursuit of convergence in performance necessarily implies some divergence of policy if initial conditions differ significantly. However some amount of policy convergence should be pursued if it does not derail the process towards convergence in performance.

5. **The appropriateness of the convergence criteria.** The Report of the Governors of Central Banks to CARICOM Heads of Government (June 1992) specified four criteria for entry into the monetary union which can be viewed as being convergence criteria. The 3-12-36-15 condition required that countries maintain 3 months of import cover for at least 12 months prior to entry; should not have devalued in the last 36 months; and ratios of debt service to exports of goods and non-factor services should not exceed 15. The developments since that time have brought into question the appropriateness of these criteria. In particular, the floating of the Trinidad and Tobago dollar makes the relevance of foreign reserve requirement and the fixity of the exchange rate over a 36 month period doubtful. Under a pure float, apart from working balances and some precautionary reserves it is not necessary to hold reserves.

The changed circumstances would require some further technical work to be done on the coverage and definition of appropriate convergence criteria. The following convergence indicators are identified for consideration.

i. **Prices:** Price stability is regarded as one of the most important goals of monetary authorities and reflects stability in the other underlying variables in particular balance of payments and monetary conditions. A policy of convergence to low inflation may be indispensable to the encouragement of economic growth and investment creation. It is one of the most widely used indicators of convergence.

ii. **Reserves:** The role of reserves is by no means determinate in a system of floating exchange rates. In a free float, apart from working balances, reserves are largely irrelevant. Market forces would ensure that the demand for foreign exchange always equal the supply, hence there would be no necessity to maintain a high level of reserves. On the other hand, if the authorities anticipate some level of intervention at some point in time to avoid excessively large fluctuations, then reserves must be held. It is not clear whether more or less reserves would be required under a managed float. If the market is fairly stable, reserve holdings may be smaller. However, in an extremely volatile environment reserve holdings may exceed those under a fixed exchange rate system. The international evidence has been that more reserves have been held under the managed floating regimes than were held under the earlier Bretton Woods System. A third consideration is whether the floating exchange rate regime is a temporary situation to help the market to find an equilibrium rate and to help the country to build up its reserves level. In the latter two instances monitoring the level of reserves would be critical.

iii. **The Exchange Rate:** The nominal and real exchange rates are critical because of their impact on competitiveness and the stability of the economy in general.

iv. **Debt:** The level of external debt and the consequent debt service payments are important for their effect on the stability of the exchange rate and its effect on the growth prospect of the economies.

v. **Interest Rates:** Interest rates are important for their effect on the level of saving and investment. In a floating exchange rate system it can also be misused to prop up the exchange rate in the face of lax fiscal policy.

vi. **Growth:** Apart from being the ultimate goal of economic policy, economic theory suggests convergence would occur because the less developed economies would grow more quickly. If the converse occurs then there would be a tendency towards divergence as the polarization thesis suggests.

vii. **Wages:** International competitiveness should be the strategic objective of the Caribbean countries. The wage rate is one of the determinants of competitiveness.

viii. **Fiscal balance:** Fiscal consolidation is required to increase the level of national saving, to achieve a more efficient balance between public and private spending, improving the opportunities for private investment and reducing the cost of capital. Moreover in the Caribbean there is a strong relationship between the fiscal balance and the balance of payments.

REPORT ON THE STUDY OF ECONOMIC CONVERGENCE IN THE CARICOM COUNTRIES

by

Carla Barnet, Sydney Campbell, Nathaniel Samuel, Wendell Samuel and Alvin Hilaire[1]

INTRODUCTION

This report is presented to the CARICOM Council of Central Bank Governors to conclude the study on economic convergence undertaken by researchers from the Central Banks of Belize, the Eastern Caribbean Central Bank and the Central Bank of Trinidad and Tobago. It summarizes the work undertaken by individual researchers and the conclusions and recommendations emerged from discussions held at the ECCB offices in St. Kitts and Antigua and at the Central Bank of Belize. The chairman of the team was Dr Wendell Samuel of the Eastern Caribbean Central Bank.

The process of monetary integration in CARICOM needs to take direct account of the issue of convergence, i.e., the drawing together of the economic policies and performances of the individual members. The problem which was analyzed can be stated as follows: Monetary integration requires a great deal of harmonization and coordination of the economic policies of the member countries. However, for policy convergence to be sustainable the economic performance of the countries must have achieved some level of convergence, since disparities in economic performance would encourage pressures to depart from the currency union objective. Economic theory suggests that convergence would take place automatically given the present course of policies. However, the process may be too slow or incomplete to achieve convergence and readiness for currency union. The intention of this study is to contribute to the understanding of the role of convergence in Caribbean Monetary Union. Through an analysis

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[1] Dr Carla Barnet and Mr Sydney Campbell are from the Central Bank of Belize, Mr Nathaniel Samuel and Dr Samuel are from the Eastern Caribbean Central Bank and Dr Alvin Hilaire is from the Central Bank of Trinidad and Tobago. The authors wish to thank those who have provided research and secretarial support. The views expressed are those of the authors and do not necessarily reflect the views of their respective Central Banks.

of the theory, the empirical evidence in other areas and the extent of convergence in economic policy and performance in the Caribbean at present, several recommendations are presented.

The Report is divided into four sections. Section I discusses the theoretical issues surrounding economic convergence in the context of monetary integration. Section II reviews the empirical evidence on economic convergence both in the context of regions within a single country and among nation states. The evidence on convergence in the Caribbean, with regard to both policy and performance, is discussed in Section III. Some suggestions about the way forward are discussed in Section IV which concludes the Report.

I. THE MEANING OF ECONOMIC CONVERGENCE

Although the literature on monetary integration is replete with references to economic convergence, there is no generally acceptable definition of the concept. This may be a direct result of the dearth of studies on the matter. Although this lacuna is being addressed by recent contributions such as Tamura (1991), Barro and Sala-i-Martin (1992), Hall et al, (1992), knowledge of convergence between less developed volatile economies is even less. Only Honahan (1992) is known to the authors. The co-existence of both fixed and freely floating exchange rates in the Caribbean complicates matters even further and makes the analysis unique.

In layman's terms economic convergence can be considered as a process by which the economic performance and policies of a group of countries or regions of a country approach each other. Hence, the study of convergence is concerned with the long run behaviour of economic variables in one country or region relative to the same variables in other countries or regions. The convergence of variables does not necessarily mean equality since short run departures are expected, but it requires that in the long run the variables be arbitrarily close to each other. In other instances, convergence would only require that the variables change at roughly the same rate. This notion of convergence is similar to the concept of equilibrium, thus it is not surprising that some of the same problems are encountered.

Convergence can be viewed both as a process and a state. The process of convergence describes the path by which the value of variables under consideration approach each other. Viewed as a state, it is the end of the process when the variables have become arbitrarily close. The test for convergence would depend on whether the economies are in the process of convergence or they have already converged. If convergence is achieved then the variables would have a stable long run relationship with respect to each other, perhaps departing temporarily but always returning. This behavior is similar to a long run stable equilibrium relationship which can be tested by cointegration.

The identification of economic convergence depends on the variable involved. For variables like the interest rate and wage rate, convergence requires that the absolute levels of

the variable in different regions approach each other. In the case of the price level, both the level of prices, adjusted by the exchange rate, and the rate of change in prices (inflation rate) are relevant.

On the other hand, given differences in the size of economies or regions, convergence cannot mean that the absolute level of some variables would be equal. One cannot expect the level of GDP in Montserrat and Jamaica to converge on each other. However, what economic theory predicts is that the ratio of real output per head of population (GDP per capita) would approach each other. The process of convergence would imply that the less developed countries would grow at a faster rate, but when convergence is achieved, the rate of growth of output would be roughly equal.

Convergence Under Fixed and Floating Exchange Rates

The meaning of convergence under fixed exchange rates is clear. The nominal exchange rates would be fixed at existing parities so there could be no need for change. The real effective exchange rate on the other hand would be variable, but in the absence of any major shifts in trading patterns, convergence of the inflation rates would result in convergence in the real effective exchange rates.

Under floating exchange rates, there is no reason why convergence in real effective exchange rates would not be achieved, by either changes in the nominal exchange rate or changes in the inflation rate. If we assume that convergence in inflation rates is achieved, the convergence in the real effective exchange rates would require stability in the nominal exchange rates. Thus under floating exchange rates convergence would require policies which would tend to keep the nominal exchange rate relatively stable.

The stability of the nominal exchange rate would also assist in the achievement of convergence in inflation rates. Under a volatile float, inflation may remain high if inflationary expectations and institutional factors which cause price stickiness result in inflation persistence.

Thus an initial step would be to stabilize the nominal exchange rate to rule out the exchange rate as a source of inflationary expectations.

On the surface, the co-existence of both fixed and floating exchange rate regimes would seem to rule out convergence in the CARICOM economies. However, that negative conclusion only obtains in the presence of high volatility in the floating rates. If stability of the floating rates can be achieved then convergence can follow, since in equilibrium the effects of a stable floating rate would be almost indistinguishable from fixed exchange rates. A problem only arises when there are shocks to which the two systems would react differently.

In the case of a one time external shock, economic theory predicts that the floating exchange rate system would adjust more quickly, given the greater flexibility. Thus there can be prolonged divergence as the adjustment process under fixed exchange rates would take longer and the effect on unemployment would be more pronounced. Moreover, in the case of economies being continuously affected by external shocks, the diverse speeds of adjustment may rule out the achievement of convergence.

The superiority of the adjustment process under floating exchange rates implicitly assumes some responsiveness of exports to changes in the exchange rates and that currency speculation would be stabilizing. Neither of these assumptions can be unequivocally supported by the evidence in the Caribbean. Consequently no clear statement can be made on the relative speeds of adjustment under the two regimes.

If convergence is to be meaningful, the economies must converge to some target. In the case of the European Community, the German inflation rate is taken implicitly as the target. For the CFA Franc Zone, the target is the French inflation rate given the important role that the franc plays in that system. The CFA franc is fully convertible into the French franc and the French Treasury guarantees its convertibility.

Under fixed exchange rates and relatively few restrictions the inflation rate in small, open economies like the Caribbean countries would converge on that of their major trading partner.

Given the high import content in both consumption and investment expenditures, there is a strong relationship between domestic inflation and foreign inflation. This relationship can be weakened by floating exchange rates and heavy restrictions on imports which allow the economy to partially isolate itself from the direct pass-through effect of import prices. At this point in time, the United States is the major trading partner of most of the Caribbean countries, hence one expects that the economies would converge on the US inflation rate. Thus one logical anchor, or target for convergence, is the US inflation rate.

It may be argued that the Caribbean countries can do better than mechanistically follow the United States. After all their choice of inflation target may not be the welfare maximizing rate of inflation for the Caribbean. In these circumstances two other options suggest themselves. The first is a strong CARICOM currency whose government has a preference for low inflation. Here the Eastern Caribbean dollar is the logical anchor, comprised of the majority of CARICOM states and with a relatively independent monetary authority which can credibly pursue a low inflation target. However, as we shall show later, the ECCB member countries inflation rates have tended to converge on the US inflation rate. Consequently, using the Eastern Caribbean dollar as an anchor is tantamount to using the US dollar as the anchor at one remove.

The second option is to create a strong Caribbean currency with an independent monetary authority. To be credible this currency would have to have a substantially high foreign reserve backing and the exchange rate be fixed initially. These are precisely the two characteristics which allow the convergence on the inflation rate of the major trading partners. To achieve some measure of independence in the choice of inflation target, the Caribbean currency can be allowed to float. Under floating exchange rates monetary influences are bottled in as the nominal exchange rate adjusts. However, the economy would not be totally immune from externally generated inflation given the high import content of domestic absorption. This situation generates strong feedback relationships between the nominal exchange rate and the inflation rate. Moreover, a floating exchange rate would not engender as much policy credibility as a fixed exchange rate, and policy credibility is critical for the stabilization of small open economies.

The Measurement of Convergence

In the absence of a clear economic definition of convergence economists have turned to mathematics for the solution (Hall et al (1992)). Convergence in a deterministic sense is achieved when the difference between two or more series becomes arbitrarily small or converges to some constant over time, i.e

$$\lim_{t\to\infty}(X-Y)=\alpha$$

Most economic variables have some element of randomness hence the notion of stochastic convergence is more applicable. Stochastic convergence (weak convergence) requires that

$$E[\lim_{t\to\infty}(X-Y)]=\alpha$$

i.e. the probability that the two series differ by a specified amount is arbitrarily small.

The notion of weak convergence can be extended to cover processes integrated of order one, called I(1) processes. A process is integrated of order p if it has to be differenced p times to achieve stationarity, hence the first difference of an I(1) series is stationary. If the series are I(1), the absolute difference between them need not become arbitrarily small. In this case convergence may be defined in terms of the difference between them being of a lower order than the series under consideration. In this case the difference would be integrated of order zero, I(0).

In the context of monetary integration the convergence of a single variable may be meaningless. For example the convergence of inflation rates may be achieved at the expense of greater divergence of interest rates. In this situation the more relevant concept would be the convergence of the system as a whole or some subset of the system. Convergence of the system can be viewed in a weak sense in which some subset of the variables have converged while the others show no tendency to change their behaviour. Alternatively strong convergence is achieved when every pair of variables in the system have converged. Thus strong convergence is achieved when for a vector of variables X,

$$E[\lim_{t\to\infty}(X_i - X_j)] = \alpha_x$$

for countries i and j. Weak convergence is achieved when

$$E[\lim_{t\to\infty}(X_i - X_j)] = \alpha_x$$

holds for some variables, conditional on the fact that the other time series show no change in their behaviour.

Nominal Versus Real Convergence

Nominal convergence is concerned with the behaviour of nominal variables such as inflation, nominal exchange rates, interest rates and monetary policy. Real convergence on the other hand is concerned with the behaviour of real variables such as real exchange rates, growth, capital accumulation, real wage costs, unemployment and productivity. Although monetary integration is primarily concerned with nominal convergence, real convergence may be more important for the wider concept of economic integration. Moreover, nominal convergence may impact on real convergence. For example the achievement of nominal convergence may necessitate the imposition of policies which may temporarily result in real divergence. This would be the case if in order to achieve exchange rate and price stability some economies have to impose policies which restrict domestic absorption, reduce inflation, and reduce the real rate of growth and cause the real interest rates to rise.

A reduced rate of inflation for the country may reduce growth initially and cause some unemployment. However this adjustment may be necessary to put the economy on a path to non inflationary growth which is consistent with the rest of the economies in the integration movement. Similarly the achievement of convergence in balance of payments performance may initially require higher real interest rates to reduce absorption but the achievement of convergence in balance of payments performance may be a prerequisite for stable growth and development.

There are two strands of economic theory which inform the issue of real convergence. The first is based on the literature on economic integration from which two schools have emerged. One school of thought argues that economic integration, by reducing restrictions on the movement of goods and factors of production would result in the convergence of the economic performance of the member countries. The other school argues that the process of economic integration creates centripetal forces which would eventually result in divergent performance in the countries. This is the basic polarization thesis whereby diverse movements in capital and labour, as a result of different initial resource endowments and infrastructure would result in divergent economic performance.

The second strand of economic theory, rooted in the theory of economic growth, posits that differences in initial capital endowments will result in the convergence of the economies if similarity of tastes and technical conditions are assumed.

For the purposes of this discussion we will define real convergence as the achievement of equality in the important real variables in the economy or where they become arbitrarily close. To focus the analysis we will limit the discussion to output per head and capital per head. This focus is admittedly very narrow since it does not include other important variables but such selection is necessary to develop a rigorous analysis. Moreover, the convergence of these two variables may also imply convergence of the other variables of interest. For example equality of output per head and capital per head would imply equality of labour productivity which in the absence of distortions in the labour market would result in equality of real labour cost. Free movement of capital would also imply the convergence of real rates of interest since capital will move to equate the rates of return. Thus there is some justification in focussing on these two variables.

The real convergence of economies engaged in free trade has been demonstrated in neoclassical trade theory under some very restrictive assumptions. It was demonstrated that within the context of the Heckscher-Ohlin theorem free trade in goods would eventually result in the equalization of factor input ratios, marginal product of factors and given perfect competition also factor prices. Since factor input ratios are equalized then capital per head used

in the production of each good in each country would be equalized. The assumption of linear homogeneity of the production function also ensures that the output per head would also be equalized.

Although the logic of the theory is irrefutable, challenges to the theory have been aimed at the non-satisfaction of a number of the restrictive assumptions. The non-satisfaction of most of the assumptions generally refute absolute equality but a tendency for convergence is nonetheless preserved.

Where factor movements are permitted, the achievement of convergence is even more clear cut. Under some restrictive assumptions it can be demonstrated that marginal returns to factors of production would be equalized. More importantly since the marginal products depend only on the factor input ratios, capital per head would be equalized. Similarly output per head would also be equalized since it also depends on the factor input ratios.

The movement of factors can aggravate rather than reduce regional disparities due to agglomeration tendencies which make some regions natural poles of growth. Unrestricted factor movements will prompt a flow of factors to those regions where the existence of social and economic infrastructure and other forms of agglomeration economies contribute to higher factor returns. For example, the presence of superior infrastructure like ports, communications and airports would act as a magnet to investors. Similarly, superior social safety nets, health and education services would tend to attract labour from the less well serviced areas. The movement of labour and capital would proceed from poor to rich countries and regions, if not accompanied by appropriate regional policies. Although interregional flows of capital and labour create tendencies for the equalization of private returns among regions, social rates of return may differ as external diseconomies from agglomeration, rise in noise and pollution levels and overloading of infrastructure outweigh the economies of agglomeration. This is the crux of the polarization hypothesis which argues that integration would tend to exacerbate existing disparities and result in divergence rather than convergence.

The possibility of undesirable movements of factors which exacerbate disparities always exist but can be offset by appropriate regional policies to limit the excessive movement. These policies should aim to improve the attractiveness of the disadvantaged regions. The measures would have to be applied under a common accord to avoid policy competition among member states. The free movement of capital should be accompanied by measures to improve the business environment in disadvantaged areas such as guarantees for investment, information regarding economic conditions and the possibilities of private investment, avoidance of double taxation and other forms of distortions. The general conclusion is that if the necessary actions are taken in order to counteract the undesired movements of productive factors, the mobility of labour, capital and entrepreneurial resources results in the more efficient use of economic resources.

Another source of justification of the convergence thesis is rooted in the literature on neoclassical growth models in the tradition of Ramsey (1928), Solow (1956) Koopmans (1965) and further developed in Blanchard and Fisher (1989) and Barro and Sala-i-Martin (1992). They show that the rate of growth of output per head is greater for economies which begin with a lower level of income.

Assuming a linearly homogeneous production function of the form:

$$Y = F(K, L).$$

It can be rewritten in labour intensive form as:

$$\frac{Y}{L} = F(\frac{K}{L}, 1) \equiv y = f(k)$$

where y and k are the per capita output and capital respectively. The effective labour force is given by

$$L = Le^{gt}$$

where g is the exogenous growth rate of labour augmenting technical progress. In a closed economy, the fundamental differential equation of growth is given by

$$\dot{k}=f(k)-c-(\delta+\lambda+g_L)k$$

where c is the per capita real consumption, δ is the rate of depreciation and g_L is the growth rate of labour. The utility function of the representative consumer is given by

$$U=\int_0^{\infty} u(c)e^{g_L t}e^{-\rho t}dt$$

(3)

where

ρ

is the rate of time preference, and

$$u(c)=\frac{c^{1-\theta}-1}{1-\theta}$$

with $\theta > 0$, so that the marginal utility has constant elasticity $-\theta$ with respect to c.

In the steady state the per capita quantities y, k, and c, grow at a constant rate

λ

and the level of k satisfies the condition,

$$f'(k^*) = \delta + \rho + \theta\lambda$$

(4)

If initially k is less than k^*, then k approaches k^* monotonically (Blanchard and Fisher (1989). Furthermore Barro and Sala-i-Martin (1991) show that the growth rate of capital per worker,

$$\frac{\dot{k}}{k}$$

declines monotonically towards the steady-state value

$$\lambda$$

If it is further assumed that the production function is Cobb-Douglas the same holds for output per worker,

$$\frac{\dot{y}}{y}$$

Thus if two economies have the same parameters of preferences and technology, the poorer tends to grow faster in per capita terms.

Policy Convergence

A clear distinction must be made between economic policy which is geared towards achieving convergence of the selected variables in the economy, and the convergence of economic policies per se. Although the two sets of policies may eventually achieve convergence, the path/process of convergence may be radically different.

Policies to achieve convergence recognize differences in initial conditions and as such prescribe different actions for the individual economies. This approach was subscribed to by the Report of the Central Bank Governors (1992), which broadly indicated the types of policies each category of country should pursue.

The second approach which prescribes almost immediate policy convergence emanates from the International Financial Institutions in Washington, which propose similar policies for all of the CARICOM countries. They have, either through their structural adjustment programmes or through their considerable influence on governments attempted to impose policy convergence on all of the CARICOM economies. This is implicit in the virtually identical prescriptions for monetary, fiscal and trade policies for the CARICOM member states.

It is quite clear that if countries are starting from different initial conditions and similar policies are imposed that there would be a strong tendency for the performance of the economies to diverge initially. However, if these polices are pursued for a long enough period of time they may eventually converge. On the other hand the application of differential policies aimed at achieving convergence can result in convergence directly.

The choice then for the CARICOM countries is between the two alternatives, informed by the relative cost of the two alternatives. However, countries which have achieved some level of stability and are close to the targets would have a decided preference for differential policies which would not force them away from their target initially. Countries which have yet to be stabilized and are further away from the targets may be indifferent between the two approaches.

The Costs of Convergence

The major cost of convergence is the departure of the individual countries from their existing position relative to the targets for macroeconomic performance and policy. The costs are larger the greater the degree of deviation from the agreed targets and the faster the speed of adjustment.

The costs are mainly transitional in nature but can be quite significant compared to the perceived benefits of monetary union. For example in the case of Jamaica and Guyana the magnitude of adjustment which would be necessary to bring about such convergence can be quite costly in terms of unemployment and human suffering.

Robson (1984) argues that in principle, it would be desirable for monetary and fiscal policy to be coordinated for a sufficiently long period of time to bring about this convergence, but that this may not be a feasible approach. The threat of loss of commitment and policy reversion if the process is protracted makes the case for a relatively short adjustment period. In this case there would be a need for recourse to mechanisms to avoid inflicting unduly large transitional costs. These mechanisms include labour mobility, financial transfers through regional development institutions or an Equalization Fund and fiscal transfers within the context of regionally coordinated fiscal policy.

The cost may, however, be long term if the economic performance targets are too ambitious. Countries may be forced to depart on a long term basis from the welfare maximizing position. Blanchard and Summers (1986) and Gordon (1988) have shown that rapid disinflation may have 'hysteresis' effects. This is the phenomenon of long run output losses associated with temporary unemployment caused by disinflation. One explanation for the phenomenon is that vocational skills and knowledge of workers decay rapidly when they are unemployed. Thus when they are re-employed they are much less efficient and may even be difficult to re-employ.

On the other hand, convergence targets which are not strict enough may cause countries to delay the necessary adjustment. It would therefore require careful analysis to arrive at the appropriate performance targets.

II. REVIEW OF EMPIRICAL EVIDENCE ON CONVERGENCE

This Section examines the empirical evidence in selected regions in order to draw out the implications for the Caribbean region. The primary areas of concern would be the distinction between nominal and real convergence, the issue of whether convergence should precede monetary union, convergence criteria, the role of politics, and the relationship between convergence and the speed of transition to monetary union. The principal areas selected for study are Europe as a whole, Germany and the CFA franc zone. Reference is also made to the rand zone in South Africa and the United States.

Europe

Within Europe, a variety of exchange rate mechanisms culminated in the Maastricht Treaty of 1991 which specified the timetable and conditions for the adoption of a European common currency. A large debate centered on the necessity of convergence prior to union, with the "Monetarists" on the one hand arguing that monetary union would facilitate real convergence by allowing for nominal convergence initially, while the "Economists" argued that premature linkage of dissimilar economies would create tension and instability and so undermine the process. This concern eventually found expression in the recognition that countries were not at the same degree of preparedness, and in the Maastricht Treaty formal convergence criteria were outlined which countries had to satisfy before being eligible for admission to the common currency arrangement.

de Grauwe and Vanhaverbeke (1993) found that the optimum currency conditions held for Europe provided some nuances were made. At the level of the regions of the same country (monetary union) they found that labour mobility played a role in the adjustment process. Although the degree of real exchange-rate flexibility between regions was limited, it appeared to play some role in the adjustment process of regions. At the national level, there was almost no labor mobility but significantly more exchange rate variability. Additionally, there was no evidence that asymmetric shocks occurred less at the regional than at the national level. National growth rates of output and employment tended to diverge less than the same growth

rates at the level of regions of the same countries. Thirdly, two models of regional development were apparent in Europe. One was northern as typified by (then) West Germany, the other southern. The northern model of regional development was balanced, involving a relatively large regional mobility of labour and low divergences in output and employment. Consequently, regional unemployment rates were relatively uniform. The southern model was one where labour was relatively immobile, divergences in output and employment relatively pronounced, and large regional concentrations of unemployment existed.

Several studies have tested for convergence within Europe under prior and existing exchange rate arrangements. Using co-integration techniques, MacDonald and Taylor (1990) examined the degree of policy convergence of members of the European Monetary System (EMS) relative to some non-EMS countries. They discovered convergence for the nominal and real exchange rates and money supplies of the EMS members, but not for the non-EMS countries. Support was also given to the "German-leadership hypothesis" in the context of intra-EMS policy convergence. Hall, Robertson and Wickens (1992) employed both cointegration and time-varying parameter analysis to test for nominal and real convergence within the EC. Their evidence of convergence in exchange rates seemed to have also implied some divergence of interest rates.

The Maastricht Treaty incorporated precise definitions of convergence criteria. The four conditions were:

(a) an inflation rate no higher than 1.5 percentage points above the average for the three countries with the lowest inflation rates;

(b) average nominal long-term interest rates no more than 2 percentage points above those for the three countries with the lowest inflation rates;

(c) stability of nominal exchange rates, defined as no realignment for at least two years before monetary union; and

(d) fiscal convergence rules defined in terms of two ratios: a general government deficit to GDP ratio of 3 per cent or less. and a public gross debt (including the monetary base) to GDP ratio limited to a maximum of 60 per cent.

The fiscal convergence rules are less strict than the rules for inflation. the interest rate and the exchange rate. A deficit of over 3 per cent of GDP may not be considered excessive if it is exceptional and temporary and remains close to the reference value. or if it does not exceed public investment expenditure, or if it is declining continuously to the reference value. Similarly, a debt to GDP ratio of over 60 percent may be acceptable if it is approaching the reference value at a satisfactory rate.

The Treaty simultaneously specified a timetable consisting of three stages. Economic convergence should start at Stage I with the removal of barriers in the goods and factor markets. The process should be reinforced and completed throughout Stage II, which would begin on 1 January 1994. At the beginning of this second Stage a new European Monetary Institute (EMI) would be created to promote coordination and undertake technical preparations. The EMI would be governed by a council consisting of the governors of the central banks of the member states. By the end of 1996, a decision must be taken if a majority of the members meet the necessary conditions for the adoption of a single currency, and if it is appropriate to proceed to monetary union. If the decision is positive, Stage III (full EMU) will commence on 1 January 1997 with the locking of the exchange rates between the participating countries. A European Central Bank (ECB) would be created and the European System of Central Banks (ESCB) would replace the EMI. In any event the union would become effective no later than 1 January 1999, even if members meeting the convergence conditions fall short of an absolute majority.

Evidence subsequent to the Maastricht Treaty showed the difficulty of attaining the convergence criteria. Regarding the fiscal criteria, at the end of 1993 only two of the twelve member countries (France and Luxembourg) met both fiscal requirements. Five countries (Italy, Belgium, Holland, Portugal and Greece) violated both conditions, while three (Germany, United Kingdom and Spain) had deficit ratios and two (Denmark and Ireland) had debt ratios above the specified limits. The major implication was that if EMU was to become a reality even on a two-

speed track, a number of countries would need to need to make considerable fiscal retrenchments. Akyuz (1993) argues that the required fiscal adjustment, superimposed on the current weakness of economic activity, would risk a prolonged depression in Europe.

The persistence of the output costs of disinflation involved in the convergence of inflation rates under monetary union was discussed in the survey by Masson and Taylor (1993). Here they pointed to the empirical work on Europe which suggested evidence of 'hysterisis' effects, that is, the equilibrium level of unemployment or output is not independent of its time path. One explanation is that the human capital of workers decay rapidly, making them difficult to employ and less efficient after a certain period of unemployment.

On the exchange rate front, the turmoil in the currency markets in late 1993 resulted in a widening of the exchange rate bands from 2.25 per cent around central parities to 15 per cent, while some countries dropped out of the arrangement altogether. Technically, the use of larger bands limit the necessity for exchange rate realignment by allowing larger fluctuations around central parities.

German Unification

The political imperatives of German unification dominated the move towards currency unification between West and East Germany. The fall of the Berlin Wall and the formalization of the treaty of unification were surprising in terms of their speed, reversing 45 years of separation. About 63 million West Germans were to be joined by 16 million from East Germany. In many respects the two Germanys did not satisfy the optimum currency area criteria. The differences in economic structure and productivity relations pointed to a flexible exchange rate between the two regions as an appropriate adjustment device to shocks that would have asymmetric effects. Nonetheless, there were strong political forces for unification. A tremendous degree of labour movement from East to West accompanied the fall of the wall and this factor mobility worked to facilitate the merging of the Ostmark with the Deutschemark. In conditions where areas were so dissimilar, the common currency had major fiscal implications: a large increase in the fiscal deficit and the requirement for large fiscal transfers to the former

East German region. The unification process also had spillover effects on the rest of Europe, in particular as regards the stability of the exchange rate mechanism.

CFA Franc Zone

The 14 African countries of the franc zone currently consist of two separate groups of sub-Saharan countries and the Islamic Federal Republic of the Comoros. The first group includes the 7 members of the West African Monetary Union (WAMU) - Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal, and Togo - which have assigned responsibility for conducting monetary policy to a common central bank, the Banque Centrale des Etats de l'Afrique de l'Ouest (BCEAO). The second group includes the 6 members of another common central bank, the Banque des Etats de l'Afrique Centrale (BEAC) - Cameroon, the Central African Republic, Chad, the Congo, Equatorial Guinea, and Gabon. Each of the 2 groups and the Comoros maintain separate currencies - the franc de la Communaute Financière Africaine for the WAMU countries, the franc de la Coopération Financière en Afrique Centrale for the BEAC countries and the Comorian franc for the Comoros. The currencies of the two groups and the Comoros are commonly referred to as the CFA franc. The CFA franc was pegged to the French franc at a rate of CFAF 50 = F1 since 1948, the Comorian franc (CF) at CF50 = F1 since 1988. The CFA francs were devalued with respect to the French franc in early 1994. The new parities, which took effect on Jan 12, are CFAF 100 = F1 and CF 75 = F1, adjustments of 50 per cent and 33.3 per cent respectively in foreign currency terms.

Boughton (1993) notes that the economic rationale for the CFA franc zone was not based on optimum currency area arguments but as an effective monetary standard. He notes that much of the criticism of the zone was based on the observation that the two largest economies, Cameroon and Côte d'Ivoire, had experienced a severe loss of competitiveness in recent years. While Cameroon and Côte d'Ivoire had real appreciations of 37 per cent, many smaller countries like Gabon and Togo managed to avoid real appreciation through the 1980s and realized substantial gains in competitiveness. In comparison with their contiguous neighbours, five, The Gambia, Ghana, Nigeria, Sierra Leone and Zaire, have independently floating currencies, and all of these experienced relatively high inflation. The clearest advantage for the CFA countries

was price stability. Between 1980 and 1989, inflation as measured by the GDP deflators, ranged from 1 per cent annually in Gabon to a maximum of 7.5 per cent in Benin. The zone's average inflation rate was 4.2 per cent relative to 6.5 per cent in France. Four of 10 neighbours experienced inflation over 40 per cent, and two others in double digits. The overall mean for the 10 comparators was 26 per cent. The comparison of real growth rates was more mixed, but on average the franc zone countries did as well as the others in the 1980s. The degree of external imbalance was somewhat greater for the zone members than for the neighbours, due to the weaker constraints in the zone. Some members had debt servicing difficulties and had to get rescheduling via the Paris Club.

Boughton observed that the currency arrangement lent discipline and credibility to policies due to the constraints of the multinational institutional structure. Most importantly, membership gave access to France and the rest of Europe, generating much trade and allowing for maintenance of currency convertibility and open capital movements. France provided important financial support by way of overdraft facilities and substantial official development assistance.

The weaknesses of the zone derived from its not being an optimum currency area. There was a lack of intra-regional trade, which was just 10 per cent of total trade. There was limited price flexibility, in particular as regards wages. Furthermore, production and trade structures and hence the incidence of terms of trade losses varied widely across the region. While all the countries depended heavily on primary commodities, there was considerable diversity. Coffee provided 60 per cent of Côte d'Ivoire's exports, fish 30 per cent for Senegal, cotton more than two-thirds for Chad and Mali, uranium over 80 per cent for Niger while petroleum was the major export of Cameroon, the Congo and Gabon. However, labour mobility was potentially high, notwithstanding the large land mass and underdeveloped transport system. There was also a considerable uniformity in the direction of trade, Europe providing over 50 per cent of total trade for all countries.

The reasons for the 1994 CFA realignment according to the IMF Survey of February 7, 1994 were as follows. Since 1985, the economic difficulties experienced by the members were

due to a number of factors. Weakening of external competitiveness had occurred because of nominal appreciation of the French franc against the currencies of the zone's major trading partners. The zone's terms of trade had depreciated by almost 45 per cent due mainly to falls in world prices of major exports (especially cocoa, coffee, and petroleum) and increases in import prices. They also experienced deterioration in the public finances, high wage costs and capital flight. There were also limits to the internal adjustment strategies pursued, with negative growth over the previous five years and a 3 per cent annual decrease in average per capita income. The other African countries expanded by 4 per cent on average, and the zone's closest neighbours, Nigeria and Ghana, by more than 5 per cent. The parity adjustment was to be accompanied by far-reaching programs of fiscal, wage, monetary and structural measures to ensure the restoration of competitiveness.

In an examination of convergence in the CFA franc zone, Honohan (1992) emphasized that a currency union would impose significant macroeconomic disciplines on its members. The law of one price, for example, should lead to convergence of price levels for tradeable goods. Likewise arbitrage would imply convergence of interest rates. He examined convergence of inflation and interest rates in the African currency unions - the franc zone and the rand zone. Each of the African currency unions has a dominant or 'core' member, France in the case of the franc zone and the Republic of South Africa in the case of the rand zone. He focused on the small members in the 'periphery', for whom there was the additional presumption that inflation and interest rates would be imported from the core. Despite some rather wide short-run divergences, and although convergence was slow, he found that, in the long run, consumer price inflation is largely determined in the core. The limited evidence also suggested that uncontrolled interest rates also converged to core country levels.

United States

Barro and Sala-i-Martin (1992) utilized the neoclassical growth model to study convergence across the 48 contiguous US states. They employed data on personal income since 1840 and on gross state product since 1963. They report clear evidence of convergence in the sense that poor states tended to grow faster than rich ones in per capita terms. These findings

are consistent with the model if diminishing returns to capital set in very slowly. The findings for the US states could be reconciled with those for a broad cross section of countries if allowance is made for the notion of conditional convergence in the underlying growth model.

Implications for Caribbean Monetary Union

Drawing from the experiences in several areas, important implications may be derived for monetary integration in the Caribbean region.

1. The role of politics is critical and may dominate other conditions. As in the case of Germany, even where initial economic conditions for currency union are not apparently suitable, the political imperative dominated and resulted in a common currency between two regions at very different stages of development in a very short period.

2. Where countries are very dissimilar in terms of economic structure, the formation of a monetary union would require significant fiscal transfers to the weaker economies for stability. This phenomenon was also apparent in the German case.

3. The spillover effects of a shock in the country that has the anchor currency would be transmitted throughout the region, as evidenced by the effect of German unification and resultant policies on the exchange rate mechanism in Europe.

4. Formal criteria are important as a measure of convergence, as demonstrated in the adoption of the Maastricht accession criteria. The economies with the stronger currencies are likely to be more insistent on their application.

5. Flexible interpretation of the criteria may be necessary, as in the case of the Maastricht fiscal rules and the widening of the exchange rate bands in 1993.

6. The convergence criteria go hand in hand with the timetable for the process of monetary integration, as recognized in the admission of a two-speed Europe. Nonetheless, the

process was not open-ended as union was to proceed by 1999 even if a majority of economies had not attained the criteria.

7. The convergence criteria should be realistic, given the costs involved in too rapid convergence. Simulations in the European case showed that destabilising massive fiscal retrenchment could be implied if some countries were to attempt to attain the fiscal targets in a short time. Evidence from Europe also suggests the possibility that the unemployment and output costs involved in convergence may not be temporary.

8. Convergence of interest and inflation rates to the 'core' country, the United States in the case of the Caribbean, is likely with a common currency pegged to the US dollar, as suggested by the performance in the CFA franc and rand zones.

9. The bias towards stability of a common currency pegged to a major currency has been affected by the precedent involved in the devaluation of the CFA franc.

10. Convergence in policy accompanies monetary arrangements, as suggested by studies of the European case, in which support was given to the 'German leadership hypothesis'. This policy convergence can be expected to grow as the extent of integration deepens.

III. CONVERGENCE IN THE CARIBBEAN

This Section of the paper examines the extent to which economic convergence has been achieved in the CARICOM countries. It presents some results from tests for convergence in the performance of these economies and a matrix of comparative economic policies in the CARICOM member countries. The formal tests of the convergence of economic performance are limited to two nominal variables for which data was available for all of the countries. These are the inflation rate and the rate of interest.

The CARICOM countries have practiced some form of economic integration for more than twenty-five years and this should provide the basis for at least some tendency for convergence. The countries started the Caribbean Free Trade Area (CARIFTA) in 1968. This provided for the removal of tariffs on products which were designated to be of regional origin. For products to satisfy the origin criteria, 50 per cent of the value added had to be created in the more developed countries while only 40 per cent of the value added had to be created in the less developed countries. All the countries still maintained their existing levels of tariffs with respect to third countries. There was an implicit agreement that non-tariff barriers would not be applied to intra-regional trade except in the case where the country was experiencing balance of payments difficulties.

The integration movement was further deepened in 1974 with the signing of the treaty of Chaguaramas which establised the Caribbean Community (CARICOM). In addition to the free movement of goods, it provided for the establishment of a Common External Tariff (CET), the harmonization of fiscal incentives to industry, double taxation and tax sparing agreements and a regional approach to industrial programming. The economic integration of the region was to be achieved by six integration instruments.

1. Integration of the regional markets;

2. Coordination of joint action in production;

3. Joint action in extra-regional trade and economic transactions:

4. A special regime for the less developed countries;

5. Functional cooperation (cooperation in the provision of common services); and

6. The coordination of foreign policy of the member states.

At the same time, the Eastern Caribbean States were developing closer forms of cooperation and formed the Eastern Caribbean Common Market which became the Organization of Eastern Caribbean States (OECS) in 1981. The OECS agreement covers foreign affairs, defence and security, and economic affairs very broadly defined. The major objectives and activities are the promotion of economic integration, the issuance and management of a common currency through the Eastern Caribbean Central Bank, the coordination of judicial activities through the OECS supreme court, the coordination of civil aviation activities and the establishment of joint overseas missions.

Thus the CARICOM countries have experienced some amount of economic integration which has deepened slowly over time (most people say too slowly). This experience suggests that there should be some amount of economic convergence among the economies in both real and nominal terms. In addition all of the countries have had US dollar pegs and a preponderance of their trading relations is with the United States. As a logical consequence of the foregoing, the US economy is the core towards which the countries will converge and the US dollar provides an anchor for the regional currencies. The fact that the OECS countries use a common currency means that they constitute a de facto currency union and hence a greater measure of economic convergence is expected between these economies.

Table 1 and Chart 1 show the changes in nominal exchange rates relative to the US dollar over the past 7 years. There is considerable variation. There was a 30-fold increase in the amount of Guyanese currency to the US dollar, a four-fold increase for the Jamaican dollar, a

one and a half time increase for the Trinidad and Tobago dollar, and absolute fixity of the exchange rate of the other countries.

In terms of inflation, Table 2 and Chart 2 show the similarity in rates among the OECS countries. This is consistent with the basic prediction that a single currency leads to convergence in price level variations. Inflation rates in the OECS region averaged approximately 5 percent between 1987 and 1992, just above the US inflation rate over the period. Strict limits on ECCB financing of government deficits contributed to the fiscal discipline often absent in some of the larger economies. Outside of the OECS, the fixed exchange rate countries had similarly low rates of inflation though with greater variability. Trinidad and Tobago's inflation crossed into double digits in 1987, 1989 and 1990. The 1993 inflation rate was also above 10 percent with the depreciation that accompanied the switch to floating.

Jamaica and Guyana have proved to be significant outliers with domestic price levels reflecting the steep declines in the value of the local currencies. In Guyana the price level more than doubled in 1987 and again in 1988. Relative stability of the exchange rate at a level about G$ 126=US$ 1 in 1992 translated into a dramatic lowering of inflation to about 14.2 percent. Furthermore, the change in the consumer price index from January to August 1993 has been of the order of 4.7 percent. Inflation in Jamaica has also been quite high and climbing, to over 75 percent in 1992. The clear picture that emerges in the Caribbean is one where exchange rate stability provides a strong anchor for the price level.

Examination of commercial banks' prime lending rates shows a closeness in the levels and similarity of the movement among the OECS countries, with Antigua and Barbuda generally slightly above the rest (see Table 3 and Chart 3). Prime lending rates have been relatively steady in the Bahamas while Barbados and Belize have exhibited more variability and higher levels. Initially similar to the OECS, interest rates in Trinidad and Tobago have demonstrated a continuously upward trend since the end of 1989. Meanwhile, rates in Guyana and Jamaica have been much higher than the rest of CARICOM, the result of a period of sustained expectations of depreciation. The prime reached a peak of 57.6 percent in Jamaica in June 1992

and 37.5 percent in Guyana in March 1990. While still high, indications are that rates in the two countries are declining.

For those countries with fixed pegs, it is interesting to compare their interest rates with the United States. Honahan (1992) found that interest rates in the periphery countries converged on the core in the rand zone. In the OECS independence of movement vis-à-vis the United States is apparent due to controls on the capital account transactions. In relation to the US similar independence is suggested for Belize and Barbados while changes in interest rates in The Bahamas appear to be much closer.

More formal tests utilizing co-integration analysis tend to support the conclusions from the casual empiricism embodied in the foregoing Charts and Tables. The Dickey-Fuller test for unit roots was performed on the bilateral differences between the inflation rate in the Caribbean countries and the United States. The rate of change in the consumer price index (CPI) was used for the Caribbean countries but the US producer price index (PPI) was used to compute the US inflation rate to avoid the distortions due to the weighting of the index. The tests largely support the observation that for those countries which maintained fixed exchange rates, there was a strong tendency of domestic inflation rates to converge on the US inflation rate. The surprising case is the Bahamas which does not appear to converge on the US inflation rate. It is surmised that this could be related to the composition of the basket of consumer goods.

An error correction model was used to test whether the United States played the role of a core for the Caribbean countries. Following Honahan (1992), the model estimated was of the form:

$$\Delta logP_d = \alpha + \lambda \Delta logP_{us} - \beta GAP_{-1} + \mu$$

where $logP_d$ is the logarithm of the domestic price level, $logP_{us}$ is the logarithm of the price level in the USA and GAP is the difference between the domestic price level and the US price level. The contemporaneous change in the US price level reflects the immediate effect of US

inflation on the countries. The lag of the GAP can be interpreted as a catch-up mechanism due to incomplete pass through of prices in the current period.

Although the overall regression results of the error-correction model are a little disappointing due to their low explanatory power, they show that in almost all cases there was a long run tendency for convergence to the US inflation rate. The coefficient on the catch-up coefficient is positive in all cases except The Bahamas and Jamaica. These two cases reconfirm the results from the cointegration test. Due to the volatility of the exchange rate in Jamaica, the catch up coefficient is negative which indicates a tendency to diverge from the United States and the other CARICOM countries.

The test for convergence of interest rates (Table 6 and Table 7) was less encouraging. Table 6 shows the Augmented Dickey-Fuller statistics for the differences between the 12-month fixed deposit rates which shows little evidence of convergence. Only in a couple of OECS countries was there any evidence of convergence. Table 7 shows test results for the commercial banks' prime lending rate, and a similar lack of convergence is observed. The case of the OECS may be surprising given the use of a common currency and the absence of restrictions on the movement of money across the countries. However, the behavior of commercial banks in the determination of interest rates and the low level of capital movement across the OECS countries may explain the lack of convergence.

The co-integration techniques could not be applied to the nominal exchange rates since most were fixed during the period. The data on real effective exchange rates is too sketchy to conduct any meaningful tests. The same is the case with most of the real variables.

In conclusion it can be stated that there is some evidence supporting nominal convergence in the countries which have maintained fixed exchange rates. The countries with floating exchange rates have tended to diverge but as the exchange rates have stabilized their inflation and interest rates have tended to move closer to the other countries. There is also strong evidence is support of the hypothesis that the United States is the core on which the CARICOM countries converge.

Policy Convergence

Currently economic policy design is conducted independently by the individual member states. This is particularly so in the fiscal arena and matters related to exchange rate and monetary policy. Independent trade policy is circumscribed by the customs union arrangement. The similarity of the economies, shared colonial heritage and institutions, adoption of similar stabilization strategies has however resulted in an unprogrammed evolution towards a similarity of policies.

The treaty of Chaguaramas makes provision for more coordinated policy dialogue. In addition several other fora currently exist for this activity. These include the CARICOM Council of Ministers, Standing Committee of Ministers of Finance, etc. Similarly, the Council of Central Bank Governors was established in 1992, charged with coordination of monetary and exchange rate policies.

In terms of monetary policy, while all countries utilize reserve requirements, the required ratios and bases differ. For example the ECCB reserve requirement is limited to six percent of deposits while Jamaica has a liquid asset ratio of 50 percent of deposits, of which 25 percent must be in cash. Interest controls vary as evidenced by the absence of controls in Trinidad and Tobago and the existence of both ceilings and floors in the case of Barbados. There is also a variety of regimes for selective credit controls.

In recent years, the diversity of the tax regime of the CARICOM countries has been reduced as tax reforms have tended to shift towards a greater reliance on consumption based taxes at the expense of taxes on income. The fiscal stance of the countries is also becoming increasingly similar as they pursue expenditure controls and revenue enhancing measures.

All of the CARICOM countries are committed to the adoption of externally oriented trade policies and are moving towards the liberalization of their trade regimes. This involves the progressive removal of quantitative restrictions, generally accompanied by a regime of temporary

import charges. The signatories have also agreed to the implementation of a staged reduction of the CET to 5 - 20 percent range by 1998.

In terms of exchange rate regimes, there is considerable heterogeneity. Belize, The Bahamas and Barbados maintain fixed pegs with the United States dollar, at levels unchanged since the initial switch to from the pound sterling in the 1970s. Jamaica, Guyana and Trinidad and Tobago have independently floating regimes. The Jamaican and Guyanese floats emerged after years of continuous currency depreciation. Trinidad and Tobago switched abruptly from fixed to floating in April 1993 after two discrete devaluations in the 1980s. The seven OECS countries maintain a monetary union under the aegis of the Eastern Caribbean Central Bank (ECCB) with a single currency, the Eastern Caribbean dollar (EC$), functioning as legal tender and pegged to the US dollar.

At their Port-of-Spain meeting in July 1992, the CARICOM Heads of Government adopted the recommendations of the Governors for a two-tiered stages approach. Furthermore, a commitment was made to work towards repatriation and convertibility of the national currencies between Barbados, the OECS countries and Trinidad and Tobago by January 1, 1993. At the Nassau meeting in July 1993, subsequent to the floating of the Trinidad and Tobago dollar, the Heads of Government identified the achievement of convertibility as the immediate goal of monetary cooperation.

Issues in Economic Convergence

If the desirability of economic convergence is accepted, there are number of issues which policy makers would have to clarify before policies to enhance convergence can be contemplated. Some of these issues and a brief discussion of the pertinent considerations are identified below.

1. Nominal vs Real Convergence.

As discussed earlier nominal and real convergence should be pursued as a long term goals. However in the short term pursuit of the two objectives may be inconsistent. As an initial step countries should seek to converge on a low inflation goal as the primary objective. It is only in an environment of low inflation that the macroeconomic stability and realistic interest rates which are necessary to encourage real investment can be consistently achieved.

Convergence to low inflation also presupposes that there is some measure of balance of payments/exchange rate stability since volatility in the exchange rate is a major source of inflation. In fact a policy which targets balance of payments/exchange rate stability may be a necessary condition for stable prices and a stable macroeconomic framework. Thus, the countries should focus on nominal convergence and allow real convergence to take its normal course. In the presence of relatively free trade and with the dynamics of capital accumulation, real convergence would occur naturally. While policies to force real convergence should not be a major concern, policies to counter polarization may have to be pursued to avoid widening

the disparities which exist. Such policies are best (but not exclusively) implemented at the regional level to avoid them working at cross purposes.

2. Fixed vs Floating Exchange Rates.

Convergence to low inflation need not be an impossibility under floating exchange rates. It is easily achievable if the exchange rate is relatively stable. This would require that policy be targeted at the exchange rate. Thus, in the current situation where both fixed and floating exchange rates exist convergence can still be a reality. Neither does the current situation preclude monetary cooperation. In fact, monetary cooperation should be actively pursued. Cooperation can still be pursued in a wide range of activities, for example coordination of exchange rate changes, the payments mechanism, the development of a regional capital market, coordination of financial reform and regulations, *etc.* However, a firm commitment to floating effectively rules out monetary union, since it requires irrevocably fixed exchange rates.

The level of reserves countries are required to hold under a floating exchange system depends on the countries' intention with respect to large exchange rate fluctuations. Another role for reserves emerges if the countries with floating exchange rates want to pursue monetary union some time in the future. They can use the floating exchange rate as a means of rapidly building up reserves which would facilitate their entry into the monetary union.

The floating of the unified currency would have some advantages in terms of the ease of adjustment to terms of trade shocks and the facility of finding an equilibrium exchange rate. However, the uncertainty it creates and the consequent macroeconomic instability would make it a hard sell to the countries which currently have fixed exchange rates. The fact that terms of trade shocks can also be addressed by policies related to prices, wage rates and productivity will make a floating Caribbean Currency less palatable. Thus political realities would suggest a fixed exchange rate.

A limited currency which is pegged would create a credibility problem in the short term for the countries which have floating exchange rates. At the advent of floating, they expressed

a commitment to full liberalization of the exchange rate. thus any move to enter a fixed exchange rate union would be seen as a major policy reversal. This credibility problem can be lessened if full convertibility of the unified currency can be guaranteed. This would only be the case if the common currency backed to a sufficiently high degree by foreign exchange strengthening the need for them to use the floating exchange rate as a means of accumulating reserves.

3. The Appropriate Anchor for Convergence.

As was argued in Section I of the paper, the Caribbean countries can be viewed as belonging to the US dollar optimum currency area. The evidence in Section III also supports the region's convergence to the inflation of the United States as the core country. Hence, logically the United States should be the anchor since the use of an existing currency or a new Caribbean currency as long as they are pegged to the US dollar will have the same effect. Even if the unified currency is allowed to float, once there is exchange rate targeting focussed on a US dollar parity, the United States would still be the core.

4. Policy Convergence vs Convergence in Performance

The evidence suggests that although there is some degree of convergence among the CARICOM countries in policy performance, there is still a long way to go in order to achieve the requisite amount of convergence for sustainable monetary union. The earlier analysis argues that the pursuit of convergence in performance necessarily implies a divergence of policy if initial conditions differ significantly. However some amount of policy convergence should be pursued if it does not derail the path towards convergence in performance.

5. The Appropriateness of the Convergence Criteria

The Report of the Governors of Central Banks to CARICOM Heads of Government (June 1992) specified four conditions for entry into the monetary union which can be viewed as being convergence criteria. The famous 3-12-36-15 condition required that countries maintain a

months of import cover for at least 12 months prior to entry; should not have devalued in the last 36 months; and that ratios of debt service to exports of goods and non-factor services should not exceed 15. The developments since that time have brought into question the appropriateness of these criteria. In particular, the floating of the Trinidad and Tobago dollar makes the relevance of foreign reserve requirement and the fixity of the exchange rate over a 36 month period doubtful. Under a pure float apart from working and precautionary balances it is not necessary hold reserves.

The changed circumstances would require some further technical work to be done on the definition of appropriate convergence criteria. The following convergence indicators are identified for consideration.

i. **Prices:** Price stability is regarded as one of the most important goals of monetary authorities and reflects stability in the other underlying variables. For example, both balance of payments and monetary instability result in price instability. A policy of convergence to low inflation may be indispensable to encourage economic growth, real saving and investment creation. It is one of the most widely used indicators of convergence.

ii. **Reserves:** The role of reserves is by no means determinate in a system of floating exchange rates. In a free float, apart from working balances, reserves are largely irrelevant. Market forces would ensure that the demand for foreign exchange always equals the supply, hence there would be no necessity to maintain a high level of reserves. On the other hand, if the authorities anticipate some level of intervention to avoid excessively large fluctuations, then reserves must be held. It is not clear whether more or less reserves would be required under a managed float. If the market is fairly stable, reserve holdings may be smaller. However, in an extremely volatile environment reserve holdings may exceed those under a fixed exchange rate system. The international evidence has been that more reserves have been held under the managed floating regimes than were held under the earlier Bretton Woods System. A third consideration is whether the floating exchange rate regime is a temporary situation to help the market to

find an equilibrium rate and to help the country to build up its reserves level. In the latter two instances monitoring the level of reserves would be critical.

iii. **The Exchange Rate:** The nominal and real exchange rates are critical because of their impact on competitiveness and the stability of the economy in general.

iv. **Debt:** The level of external debt and the consequent debt service payments are important for their effect on the sustainability of fiscal consolidation, the stability of the exchange rate and the growth prospect of the economies.

v. **Interest Rates:** Interest rates are important for their effect on the level of saving and investment. In a floating exchange rate system it can also be misused to prop up the exchange rate in the face of lax fiscal policy.

vi. **Growth:** Apart from being the ultimate goal of economic policy, economic theory suggests convergence would occur because the less developed economies would grow more quickly. If the converse occurs then there would be a tendency divergence as the polarization thesis suggests.

vii. **Wages:** International competitiveness should be the strategic objective of the Caribbean countries. The wage rate is one of the determinants of competitiveness.

viii. **Fiscal balance:** Fiscal consolidation is required to increase the level of national saving, to achieve a more efficient balance between public and private spending, improving the opportunities for private investment and reducing the cost of capital. Moreover in the Caribbean there is a strong relationship between the fiscal balance and the balance of payments.

A CLOSING STATEMENT

Differences in initial conditions may require that policies diverge initially if convergence in economic performance is to be achieved most directly. On the other hand, immediate policy convergence would result in the divergence of economic performance initially. A pragmatic approach would suggest the line of least resistance, to select areas where policy convergence can be achieved immediately without disrupting the economies and allow policy divergence in the other areas to achieve convergence in economic performance.

Policy convergence occur as a result of either deliberate coordinated action, or in response to similar forces in a competitive environment. CARICOM's record of deliberate coordinated policy action has been dismal. On the other hand spontaneous response to changes in the environment has been more forthcoming (witness the pervasive change in financial legislation and prudential regulations). This suggests that policy convergence will best be achieved in areas in which the countries have to respond to the competitive environment.

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Table 2: Inflation Rates

	1987	1988	1989	1990	1991	1992
Antigua	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bahamas	5.8	4.4	5.4	4.6	7.1	5.8
Barbados	3.4	4.9	6.2	3.1	-2.0	2.8
Belize	1.7	5.7	0.0	3.0	5.6	2.8
Dominica	4.0	2.9	6.8	1.4	1.4	1.4
Grenada	-0.8	3.9	5.6	2.7	2.6	2.6
Guyana*	128.8	139.9	n.a.	n.a.	70.3	14.2
Jamaica	6.7	8.2	14.4	21.9	51.1	77.3
St. Kitts/Nevis	1.0	0.2	5.0	4.2	4.2	2.9
St. Lucia	7.5	0.8	4.1	4.7	5.7	5.1
St. Vincent	3.4	0.2	2.9	7.6	5.6	4.6
T'dad & T'go	11.4	7.7	11.4	11.0	3.8	6.5
United States	3.7	4.0	4.8	5.4	4.2	3.0

Source: Calculated from IMF, International Financial Statistics

** Bank of Guyana, Statistical Bulletin*

Table 3: Commercial Bank Prime Lending Rates

	Antigua	B'mas	B'dos	Belize	D'ca.	Guyana	G'da	Jam'ca	St.Kitts/N.	St. Lucia	St. Vinc.	T'dad/T'go	U.S.A.
Mar-86	13.00	9.00	9.67	14.70	10.50	15.00	11.50	23.00	n.a.	14.00	12.50	12.50	9.33
Jun-86	16.50	9.00	9.08	14.70	10.30	15.00	11.50	23.00	n.a.	14.00	12.50	12.50	8.50
Sep-86	14.33	9.00	8.75	14.70	10.20	15.00	11.50	23.00	n.a.	14.00	12.50	11.50	8.07
Dec-86	13.17	9.00	8.75	14.70	10.20	15.00	11.50	23.00	n.a.	14.00	12.33	11.50	7.50
Mar-87	13.00	8.33	8.75	14.10	10.00	15.00	11.50	23.00	n.a.	12.00	12.50	11.50	7.50
Jun-87	12.17	8.00	8.75	14.20	10.00	15.00	11.50	23.00	n.a.	12.00	12.50	11.50	8.08
Sep-87	12.33	8.00	8.75	14.20	10.00	15.00	11.17	23.00	n.a.	11.33	12.33	11.50	8.40
Dec-87	12.00	8.00	8.75	14.10	10.00	15.00	11.50	23.00	n.a.	11.00	12.50	11.50	8.87
Mar-88	11.50	7.75	9.25	13.80	10.00	15.30	10.50	23.00	12.00	11.00	12.33	12.17	8.50
Jun-88	11.50	10.00	9.50	13.70	10.33	15.00	10.50	23.00	12.00	10.67	12.00	12.50	8.78
Sep-88	11.50	9.00	9.50	13.50	10.33	15.00	10.50	23.00	12.00	10.67	12.00	12.50	9.71
Dec-88	11.50	9.00	9.50	13.30	10.00	15.00	10.50	23.00	12.00	10.00	12.00	13.17	10.16
Mar-89	11.50	9.00	9.50	13.40	10.33	15.00	11.20	23.40	12.00	10.00	12.30	13.50	11.17
Jun-89	12.00	9.00	9.50	13.80	10.50	15.00	10.50	24.23	12.00	10.00	12.10	13.50	11.36
Sep-89	12.00	9.00	9.50	13.90	10.50	15.00	10.50	25.23	12.00	10.00	12.50	13.50	10.64
Dec-89	12.67	9.00	11.17	14.00	10.50	15.00	10.50	29.37	12.00	10.70	12.50	12.75	10.50
Mar-90	14.00	9.00	12.00	13.90	10.00	37.50	10.50	31.63	12.00	10.70	12.50	12.84	10.01
Jun-90	12.00	9.00	11.67	13.90	10.50	31.50	10.50	34.34	12.00	10.70	12.50	12.88	10.00
Sep-90	11.50	9.00	11.00	14.10	10.50	31.00	10.50	34.88	12.00	10.30	12.50	12.88	10.00
Dec-90	12.00	9.00	11.00	14.30	10.50	31.00	10.50	35.74	12.00	10.50	12.50	12.88	10.00
Mar-91	14.00	9.00	11.00	14.20	10.50	32.70	10.90	37.13	12.00	10.50	14.00	12.88	9.19
Jun-91	16.00	9.00	11.00	14.20	10.30	33.50	10.50	34.91	12.00	10.50	14.00	12.88	8.67
Sep-91	16.00	9.00	12.67	14.20	10.20	34.20	10.70	32.28	12.00	10.50	12.00	13.10	8.40
Dec-91	16.00	9.00	15.00	14.30	10.20	33.40	10.50	38.11	12.00	10.50	11.00	13.83	7.64
Mar-92	13.00	8.33	15.00	14.30	10.00	33.20	10.50	51.62	12.00	10.50	11.50	14.83	6.50
Jun-92	13.00	8.00	15.00	14.30	10.00	29.60	10.50	57.60	12.70	10.50	11.50	15.50	6.50
Sep-92	13.00	8.00	13.17	14.30	10.00	25.80	10.50	65.53	13.00	10.50	11.50	15.50	6.01
Dec-92	13.00	7.75	11.00	14.40	10.00	26.30	10.50	47.94	13.00	10.50	11.50	15.50	6.00
Mar-93	13.00	7.58	10.33	14.40	10.00	23.30	10.50	42.25	13.00	10.50	11.50	15.50	6.00

Source: IMF, International Financial Statistics

Table 4

Augmented Dickey-Fuller Statistics for Pairwise Test for Cointegration
Inflation Rates

	ANG	ANT	BAR	BAH	BEL	DOM	GRE	GUY	JAM	MON	STK	SLU	SVG	TRI
Anguilla	--													
Antigua	--	--												
Barbados	-2.24	--	--											
Bahamas	-4.19*	--	-5.03*	--										
Belize	-3.60*		-4.00*	-4.56*	--									
Dominica	-4.28*	--	-4.14*	-9.57*	-4.55	--								
Grenada	-2.01	--	-2.83	-1.78	-1.70	-4.99*	--							
Guyana	--	--	--	--	--	--	--	--						
Jamaica	-2.38	--	-2.74	-2.70	-2.78	-2.83	-2.03	--	--					
Montserrat	--	--	-4.16*	-6.14*	-4.31	-2.60	--	--	-3.46	--				
St Kitts	-3.85*	--	-3.28#	-3.45#	-2.86	-4.79*	-2.74	--	-2.48	-2.67	--			
St Lucia	-2.98	--	-3.96	-4.49*	-3.98*	-5.27*	-2.41	--	-2.30	-3.60#	3.35#	--		
St Vincent	-2.48	--	-2.34	-3.36	-3.67*	4.06	-1.71	--	-2.79	-5.60*	3.60*	-3.85*	--	
Trinidad	-3.17	-	-3.89*	-3.90*	-3.24	-6.06*	-1.20	--	-3.27	-5.13*	3.39#	-19.66*	-4.38*	
USA	-2.47	--	-3.39#	-2.18	-2.95	-3.81*	-2.33	--	-2.20	-3.90*	3.64*	-2.62	-2.18	3.68

* means significant at 5% level
# means significant at 10% level

Table 5

Regression Result of Core Theory
For Inflation Rates

Country	Constant	ΔP_{us}		GAP_{-1}	R^2	DW
Anguilla	0.01	-0.03	-0.71	0.53	2.33	
	(0.78)	(-0.07)	(-3.12)			
Bahamas	0.01	0.18		0.004	0.01	1.72
	(3.19)	(0.66)	(0.15)			
Barbados	0.13	0.63		-0.32	0.18	2.16
	(2.48)	(1.13)	(-2.44)			
Belize	0.04	0.18		-0.11	0.20	2.30
	(2.37)	(0.54)	(-2.44)			
Dominica	0.02	1.36		-0.60	0.33	1.85
	(1.98)	(1.41)	(-3.43)			
Grenada	-0.02	1.08	-0.31	0.12	2.03	
	(-0.98)	(0.94)	(1.36)			
Jamaica	-0.05	0.43	0.05		0.20	1.02
	(-1.22)	(0.22)	(3.03)			
Montserrat	0.04	-0.05	-0.30	0.08	2.12	
	(1.02)	(-0.04)	(-0.98)			
St. Kitts	0.11	1.07		-0.24	0.28	2.51
	(2.33)	(1.62)	(-2.44)			
St. Lucia	0.02	0.71		-0.43	0.41	2.02
	(1.87)	(1.07)	(2.76)			
St. Vincent	0.45	0.59		-0.21	0.25	1.79
	(1.76)	(0.98)	(-1.90)			
Trinidad	0.05	6.95		-0.17	0.14	1.88
	(0.65)	(1.30)	(-2.21)			

The bracketed teams are the t-statistics

Table 6

Augmented Dickey-fuller Statistics for Pairwise Test for Cointegration
Twelve-Month Fixed Deposit Rates

	ANG	ANT	BAR	BAH	BEL	DOM	GREN	GUY	JAM	MON	STK	SLU	SVG	TRIN	USA
Anguilla	--														
Antigua	-2.18														
Barbados	-2.83	-3.58	--												
Bahamas	--	--	.	--											
Belize	-2.58	-2.42	-2.26	--	--										
Dominica	-3.57	-2.21	-2.33	--	-2.47	--									
Grenada	-2.44	-1.55	-2.00	--	-2.70	-2.76	--								
Guyana	-2.45	-2.46	-2.45	--	-2.17	-2.33	-2.21	--							
Jamaica	-1.67	-1.69	-1.86	--	-2.44	-1.63	-1.31	-2.28	--						
Montserrat	-2.10	-1.60	1.71	--	-1.95	-1.19	-1.99	-2.22	-1.42	--					
St Kitts	-2.62	-1.90	-2.00	--	-2.26	-2.67	-2.10	-2.30	-1.32	-1.93	--				
St Lucia	-1.30	-2.41	2.80	--	02.15	-1.59	-1.52	-2.38	-1.91	-1.12	-0.45	--			
St Vincent	-1.74	1.89	1.86	--	-2.63	-2.13	-2.06	-2.21	-1.29	-0.62	-1.21	-1.30	--		
Trinidad	-1.65	1.19	2.16	--	-3.42*	-1.80	-0.50	-2.23	-1.94	-0.88	-1.30	-2.40	2.23	-	
USA	-2.34	1.17	1.81	--	2.01	-1.91	-1.95	-2.45	-1.11	-1.95	-1.85	-1.02	1.79	0.98	

means significant a 10% level

Table 7

Augmented dickey-fuller Statistics for Pairwise Test for Cointegration
Prime Lending Rate

	ANG	ANT	BAR	BAH	BEL	DOM	GREN	GUY	JAM	MON	STK	SLU	SVG	TRI	USA
Anguilla	--														
Antigua	-1.79	--													
Barbados	-3.53#	-3.51#	--												
Bahamas	-2.50	-2.45	3.60#	--											
Belize	-2.83	-2.87	-4.21*	-2.35	--										
Dominica	-2.70	-2.11	-3.45#	-1.96	-3.00	--									
Grenada	-1.96	-2.27	-3.81#	-1.76	-3.67	-2.69	-								
Guyana	-1.79	-1.79	-1.74	-1.81	-1.77	-1.80	1.76	--							
Jamaica	-2.71	-3.35#	-2.15	-2.70	-3.25#	-2.63	2.63	-2.16	--						
Montserrat	-2.14	-1.98	-2.39#	-1 76	-1.83	-2.40	-2.17	-1.73	-2.36	--					
St Kitts	-1.80	-2.11	-3.44#	-1.58	-3.10	-1.99	-2.93	-1.72	-2.54	-1.91	--				
St Lucia	-1.77	-2.20	-4.56*	-1.79	-2.90	-1.48	-1.12	-1.67	-3.02	-1.30	-1.64	--			
St Vincent	-1.52	-1.28	-4 11*	-1.32	-2.71	-2.04	-2.99	-1.82	-2.61	-2.38	-2.24	-097	-		
Trinidad	-2.00	-3.47#	-2 82	-2 73	-2.72	-1.17	-1.36	-1.72	-2.93	-0.98	-1.00	-2.07	1.40	-	
USA	-1.39	-1.53	-2.07	-0.94	-1.19	-1.17	-1.45	-1.96	1.86	-1.17	-1.22	-1.53	1.31	-0.30	

* means significant at 5% level

means significant at 10% level

occurred in the models for Barbados, Trinidad and Tobago and Jamaica, respectively. Changes in exports also feed into the supply of reserves while those in imports affect reserve demand. However, since the demand for and the supply of reserves are determined simultaneously, the net effect on these variables is not so easy to ascertain. The results, nevertheless, suggest that both variables increase although the magnitude of the increases are larger for reserve demand than for reserve supply. The most significant increases were contained in the Jamaica model with recorded changes in reserve demand and reserve supply of 12.4% and 11.2%, respectively.

Withdrawing from a partial pooling scheme seemed to have had a negative impact on national income as proxied by the GDP. National Income fell by 0.21% in Barbados, 0.83% in Trinidad and Tobago and 0.59% in Jamaica. The effect on domestic prices of the loss of reserves was however positive largely on account of the falls in national income, import prices and the money supply. Domestic prices declined by 0.13%, 1.22% and 2.70% in Barbados, Trinidad and Jamaica, respectively.

The policy simulations undertaken under a zero pooling arrangement demonstrate that the loss of reserves is likely to cause a depreciation in the nominal exchange rate and tends to depress the overall level of national income in all the models. At the same time a zero pooling arrangement places a

Chart 1: Exchange Rates

(log: domestic currency to $U.S.)

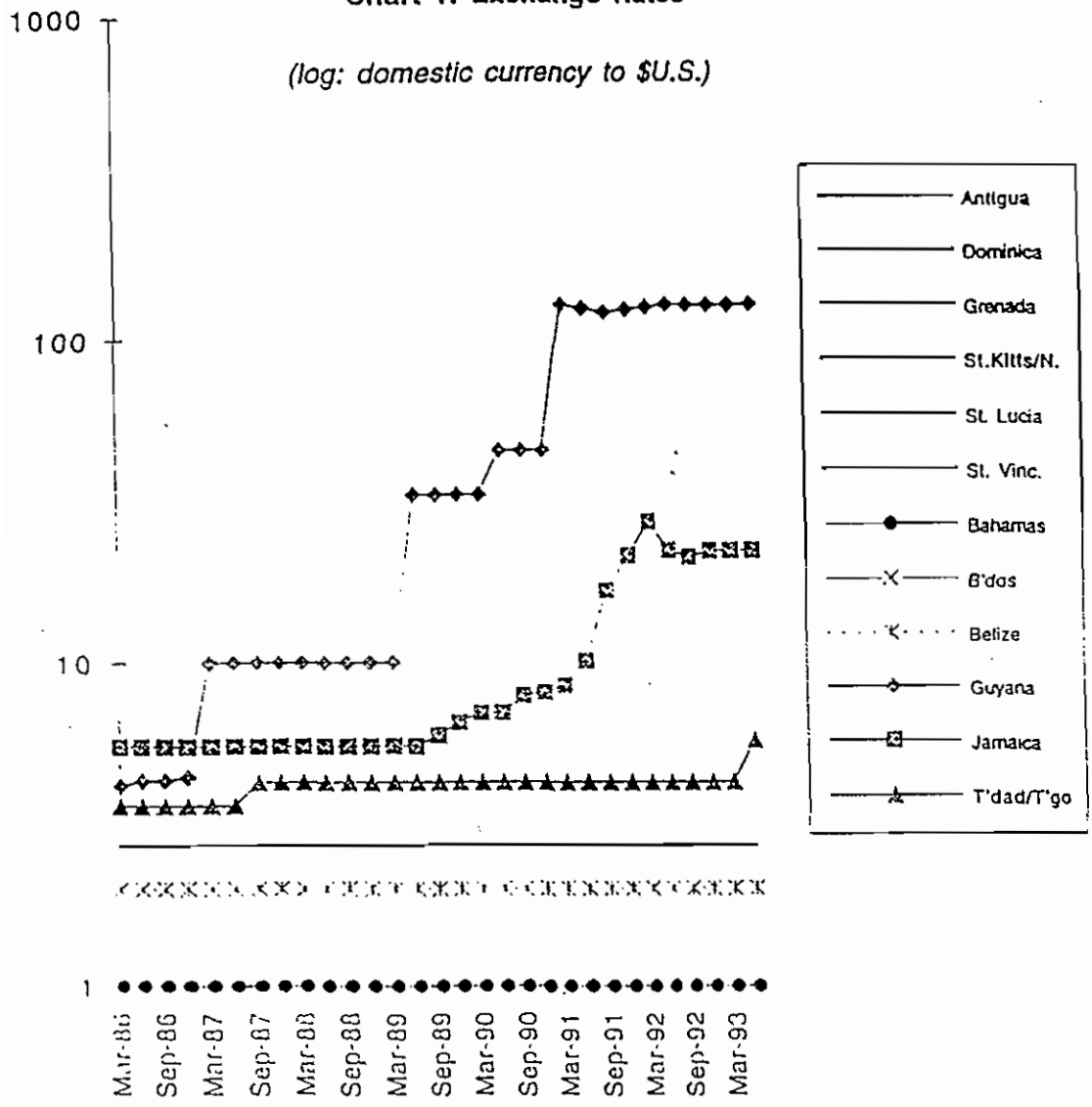


Chart 2
Inflation Rates 1992

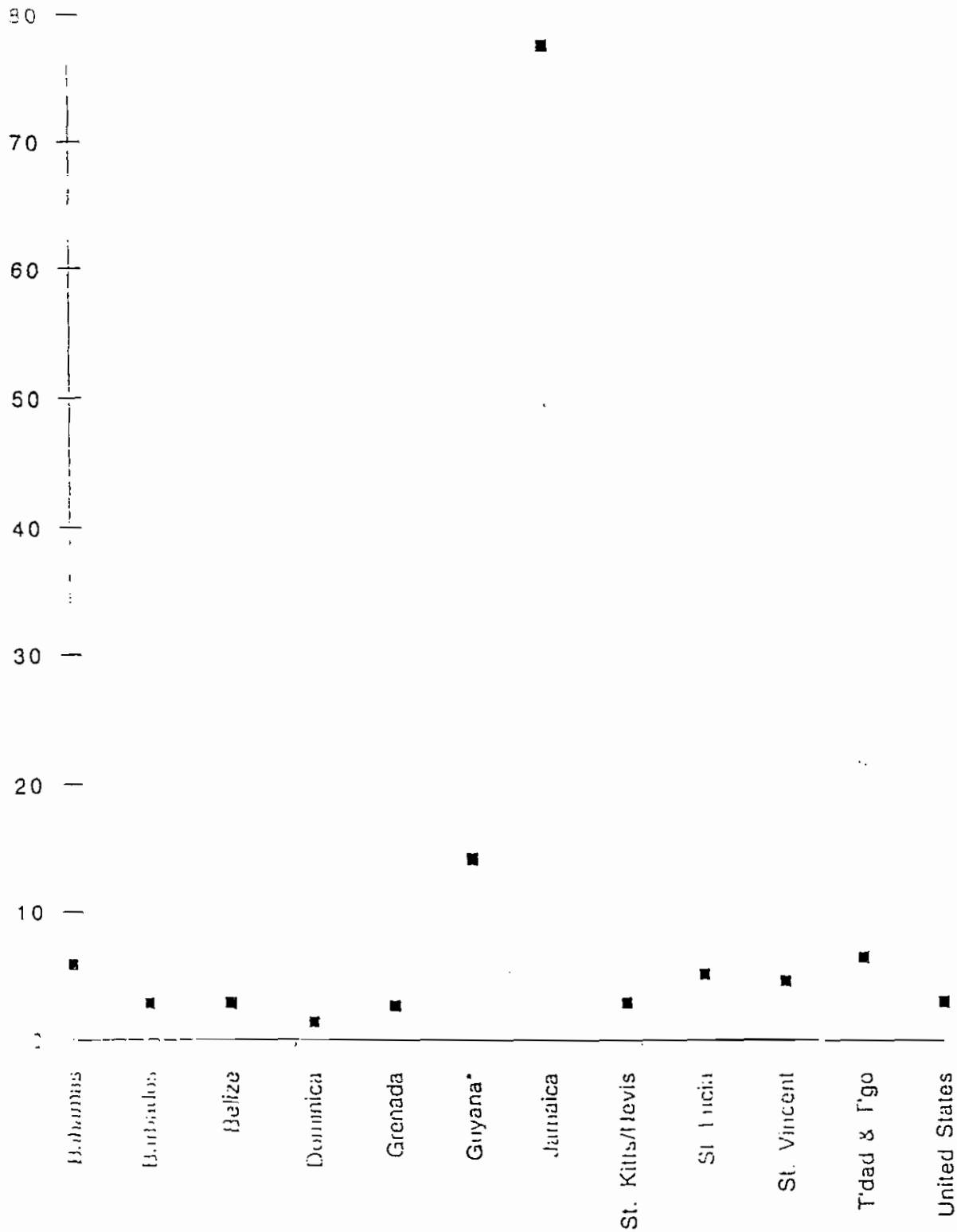
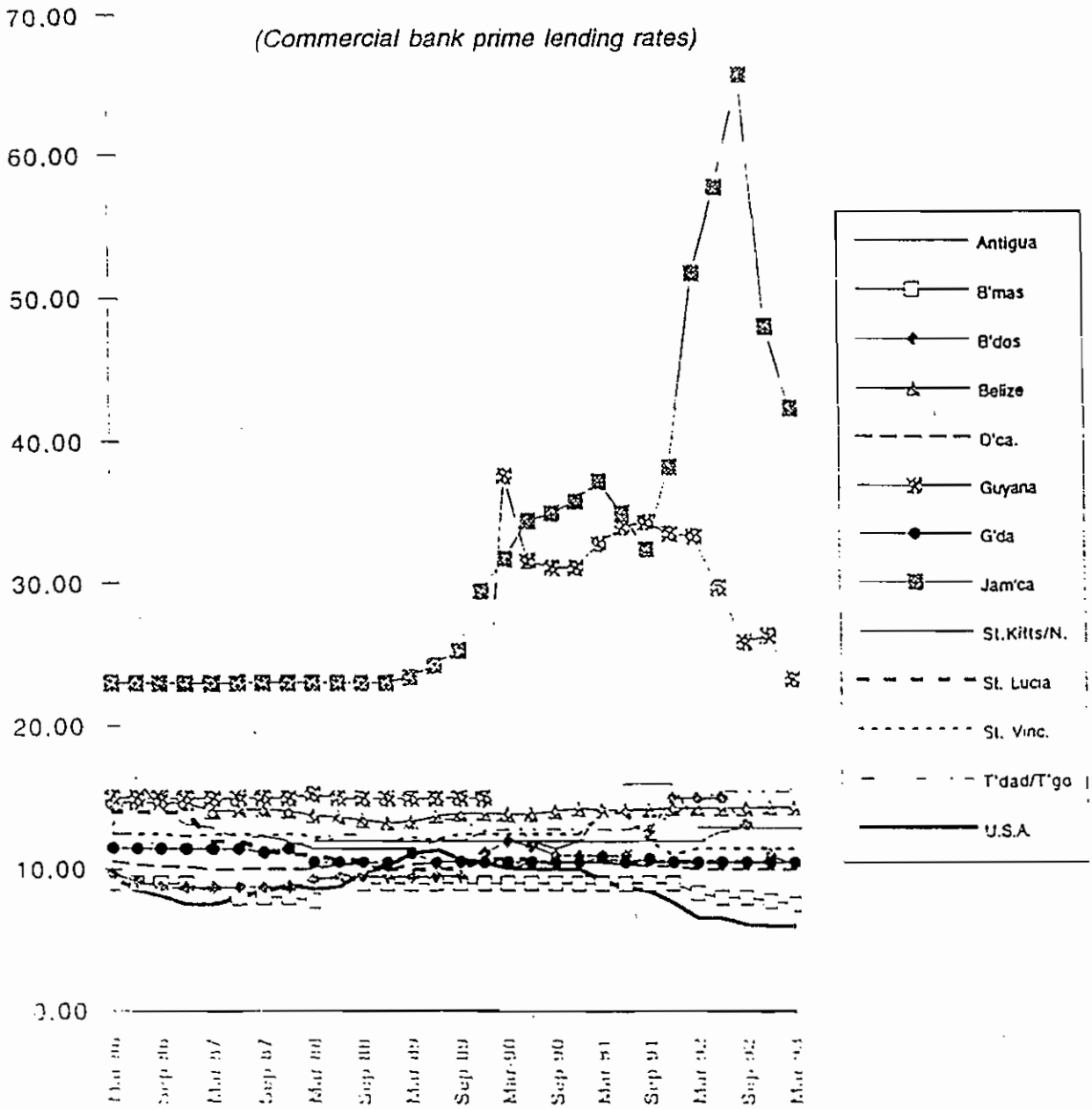


Chart 3: Interest Rates

(Commercial bank prime lending rates)



APPENDIX II

POLICY MATRIX TRINIDAD AND TOBAGO

)LICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVES	TIMING
Monetary Policy		
1. Interest Rate: Prime rate - 15.5%		
2. Liquidity Requirement: Primary: per cent of total deposit - 16% since September 1993.	To ensure that high levels of liquidity did not result in credit expansion leading to unmanageable excess demands for domestic products and imports.	
Secondary Requirement: per cent of total deposits in treasury bills. Discounted 1991.	Secondary requirement discontinued in 1991, as a conditionality of the IMF Arrangements.	
3. Rediscount Rate: Increase from 6% in 1966 to 13% in 1993.	To ensure that the business sector was given priority over lending to the household sector.	
Fiscal Policy 1. Government Budget 1992: Revenue - TT$6,176.0m Expenditure - TT$6,943.4m Deficit - TT$767.4m	Sustainable growth of the economy; Reduction of unemployment, restoring an adequate level of foreign reserves.	
2. Financing: External - ($126.6m) Domestic - $894.0m	Increase in investment and exports. Encourage investment in agriculture, oil and gas, tourism and other services and construction and manufacturing. Government hope to raise the level of saving to achieve acceptable levels of investment. Incentives will be offered to encourage investment.	
Trade Policy CET implemented January 1991 on basic food items.	The elimination of quantitative import restrictions.	By 1995
1. Import Duty 5 - 35% non agriculture goods 40% agricultural products.	Restrictions, reduction of negative list and imposition of temporary import surcharges. By 1995, the only import charge would be CET.	
2. Other duties and quota Surcharge on goods formerly requiring import licenses. Range is 10, 15 and 25 to be reduced to 0 by 1995.		

POLICY MATRIX TRINIDAD AND TOBAGO continued

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
[illegible] agriculture products are no the [illegible]itive list. •A stamp duty of 10 - 20%, to be reduced by 1995 *Exchange Rate Policy* Prior to april 1993, there existed a fixed exchange rate. Since 1993, the rate is determined by market forces. This new system resulted in a 35% depreciation of TT$1 - US$4.25 to TT$1 - US$5.76.	Since 1985 exchange rate policy was geared to conserving foreign exchange and protecting the external value of local currency.	

POLICY MATRIX GUYANA

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Monetary Policy		
Interest Rate, flexible rate arrangement. Determined by competitive bidding in month auction of 3-month treasury.		
Liquidity Requirement: Required liquid assets was set at 25% of demand deposits and 20% of time deposits on May 15, 1991.		
Reserve Requirement: Effective May 16, 1991 rose from 6% demand deposits and 4% time deposits to 11 and 9% respectively.		
Fiscal Policy		
Deficit 1993 - G$3,994.9m		
Financing of deficit: External Financing - 28% Domestic Financing - 72% of which banking system - 22%		
Trade Policy		
CET is expected to be implemented during November 1993.		
Import Duty: Range from 5 to 45%		
Other Duties: Consumption Tax ranging from 0 - 50% Purchase Tax on vehicles 22.4 to 50% Stamp Duty G$1 per every G$1,000 value of goods imported from non-Caricom		
No quota restriction in place		
Exchange Rate Policy		
Exchange rate determined by free market forces in cambio market.		
Weekly rates are quoted for Caricom currencies by the Bank of Guyana		

POLICY MATRIX ANTIGUA AND BARBUDA

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Monetary Policy		
1. Interest Rate: Market determined Prime rate 11 - 13% Treasury Bills rate 7%	Encourage efficiency, saving and investment	Always been the case
2. Liquidity requirement percent of deposit liabilities. Prime requirement 6% No secondary requirement.	Prudential	Since 1993
3. Other: Saving rate fixes at 4% Discount rate reduced from 10% to 9 % in April 1993.	Protection of small savers Stimulate investment	Since 1984
Fiscal Policy 1. Government Budget FY 92/93 Current account Deficit/surplus EC$1.1m Percent of GDP 0.1% Overall Deficit/surplus EC$ -7.7m Per cent of GDP -0.8%	To achieve current account savings through expenditure restraint and enhance revenue collection. (Government faces severe debt burden an low capital expenditure outlay)	
2. How was deficit financed Domestic EC$6.4m Foreign EC$-24.7m External debt EC$6.77.7m Per cent of GDP 67% Debt service EC$125.3m Per cent exports 11.8% Direct tax per cent of total revenue is 13%	Treasury bill to commercial banks. Payment of arrears.	

POLICY MATRIX ANTIGUA AND BARBUDA continued

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Trade Policy CET not implemented. Import duty range 0 - 45% Consumption Tax 5 - 45%		May be implemented by end 1993
Quota restrictions item under Article 56	Development of the manufacturing industry	Since 1974 until.
Exchange Rate Policy		
Fixed exchange rate EC$2.70 = US$1	To maintain a stable macroeconomic environment for both domestic and foreign investment.	Since 1976

POLICY MATRIX DOMINICA

OLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
eary Policy		
1. Interest rate Market determined Prime rate 9.5% Treasury bill rate ___	Encourage efficiency, savings and investment	Always the case
2. Liquidity requirement per cent of deposit liability Prime requirement 6% *No secondary requirement*	*Prudential*	Since 1983
3. Other: Saving rate fixed at 4% Discount rate reduced by 1% to 9% since April 1993.	Protection of small savers	Since 1984
Fiscal Policy		
1. Government budget FY 92/93 Current account Surplus EC$7.3m Per cent of GDP 1.7%		
Overall Deficit EC$-3.3%		
How deficit was financed: nternal EC$8.4m External EC$-5.1m		
External debt EC$252.1m Per cent of GDP 58.7% Debt service EC$15.6m Per cent exports 9.6%		
4. Other: Direct tax per cent of tax revenue 29.1%		
Trade Policy		
CET implemented September, 1993 Import Duty 0 - 40%		
Other Duty: Consumption 5 - 35%		
Quota and Restrictions items under Article 56	*Development of manufactures*	Since 1974 until phased out
Exchange Rate Policy		
Exchange rate fixed at EC$2.70 = US$1	To maintain a stable macroeconomic environment for both domestic and foreign investment.	Since 1976

POLICY MATRIX GRENADA

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Monetary Policy		
1. Interest rate: Market determined Prime rate 10.5%	Encourage efficiency, saving and investment	Always been.
2. Liquidity requirement per cent of deposit liability. Prime requirement 6% No secondary requirement	Prudential	Since 1983
3. Other: Saving rate fixed at 4% Discount rate reduced by 1% to 9% in April 1993	Protection of small savers	Since 1984
Fiscal Policy		
1. *Government Budget* FY 92/93 Current Account deficit EC$-4.1m Per cent of GDP -1% Overall Surplus EC$3.4m		
2. Deficit finance N/A		
3. External Debt EC$226.9m Per cent of GDP 53.7% Debt service EC$27.8m Per cent exports 9.6%		
4. Other: Direct tax per cent of tax revenue 9.8%		
Trade Policy		
1. CET implemented July 1993 Import duty range 0-40%		
2. Other Duty: VAT 5-55%		
3. Quota and Restrictions: Items under Article 56	Development of manufactures protection of these industries	Since 1974 until phased out.
Exchange Rate Policy		
1. Fixed Exchange Rate EC$2.7 = US$1	To maintain a stable macroeconomic environment for both domestic and foreign investment	Since 1976

POLICY MATRIX MONTSERRAT

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Monetary Policy		
1. Interest rate: Market determined Prime rate 10%	Encourage efficiency, saving and investment	Always been.
2. Liquidity requirement per cent of deposit liability. Primary requirement 6% No secondary requirement	Prudential	Since 1983
3. Other: Saving rate fixed at 4% Discount rate reduced by 1% to 9% in April 1993	Protection of small savers	Since 1984
Fiscal Policy		
1. Government Budget FY 92/93 Current Account deficit EC$-2.2m Per cent of GDP 1.5% Overall Surplus EC$-4.0m Per cent of GDP -2.7%		
2. Deficit finance Domestic EC$2.6m Foreign EC$1.4m		
3. External Debt EC$8.9m Per cent of GDP 0.6% Debt service EC$1.2m Per cent exports 6.5%		
4. Other: Direct tax per cent of tax revenue		
Trade Policy		
1. CET not implemented. Import duty range 0-40%		
2. Other Duty: Consumption tax 2.5 to 35%		
3. Quota and Restrictions: Items under Article 56	Development of manufactures.	Since 1974 until phased out.
Exchange Rate Policy		
1. Fixed Exchange Rate EC$2.7 = US$1	To maintain a stable macroeconomic environment for both domestic and foreign investment.	Since 1976

POLICY MATRIX ST KITTS AND NEVIS

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Monetary Policy		
1. *Interest rate:* *Market determined* Prime rate 10 to 13% Treasury bill rate 8%	Encourage efficiency, saving and investment	Always been.
2. *Liquidity requirement per cent of deposit liability.* Primary requirement 6% No secondary requirement	Prudential	Since 1983
3. *Other:* Saving rate fixed at 4% Discount rate reduced by 1% to 9% in April 1993	Protection of small savers	Since 1984
Fiscal Policy		
1. Government Budget FY 92/93 Current Account surplus EC$3.9m Per cent of GDP 8.6% Overall deficit EC$-6.2m Per cent of GDP -1.5%		
2. Deficit finance Domestic EC$7.2m External EC$-1.0m		
3. External Debt EC$102m Per cent of GDP 24.7% Debt service EC$8.4m Per cent exports ____%		
4. Other: Direct tax per cent of tax revenue 26.2%		
Trade Policy		
1. CET implemented July 5, 1993 Import duty range 0-40%		
2. Other Duty: Consumption tax 15%		
3. *Quota and Restrictions:* *Items under Article 56*	Development of manufactures.	Since 1974 until phased out.
Exchange Rate Policy		
1. Fixed Exchange Rate EC$2.7 = US$1	To maintain a stable macroeconomic environment for both domestic and foreign investment.	Since 1976

POLICY MATRIX ST LUCIA

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Monetary Policy		
1. Interest rate: Market determined Prime rate 9.75% Treasury bill rate N/A	Encourage efficiency, saving and investment	Always been.
2. Liquidity requirement per cent of deposit liability. Primary requirement 6%	Prudential	Since 1983
3. Other: Saving rate fixed at 4% Discount rate reduced by 1% in April 1993	*Protection of small savers*	Since 1984
Fiscal Policy		
1. Government Budget FY 92/93 Current Account surplus EC$85.2m Per cent of GDP 8.6% Overall deficit EC$-17.1m		
2. Deficit financed Internal EC$30.2m External EC$-17.1m		
3. External Debt EC$262.9m Per cent of GDP 24.7% Debt service EC$30.9m Per cent exports 3.4%		
4. Other: Direct tax per cent of tax revenue 31.9%		
Trade Policy		
1. CET implemented July 1. 1993 Import duty range 0-40%		
2. Other Duty: Consumption tax 5 to 35%		
3. Quota and Restrictions: Items under Article 56	Development of manufactures.	Since 1974 until phased out.
Exchange Rate Policy		
1. Fixed Exchange Rate EC$2.7 = US$1	To maintain a stable macroeconomic environment for both domestic and foreign investment.	Since 1976

POLICY MATRIX ST VINCENT AND THE GRENADINES

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Monetary Policy		
1. Interest rate: Market determined Prime rate 9 - 11% Treasury bill rate N/A	Encourage efficiency, saving and investment	Always been.
2. Liquidity requirement per cent of deposit liability. Primary requirement 6%	Prudential	Since 1983
3. Other: Saving rate fixed at 4% Discount rate reduced by 1% in April 1993	Protection of small savers	Since 1984
Fiscal Policy		
1. Government Budget FY 92/93 Current Account surplus EC$18.5m Per cent of GDP 3.6% Overall deficit EC$-23.6m Per cent GDP -4.6%		
2. Deficit financed Internal N/A External N/A		
3. External Debt EC$185.1m Per cent of GDP 35.8% Debt service EC$10.5m Per cent exports 4.7%		
4. Other: Direct tax 33.3% of tax revenue		
Trade Policy		
1. CET implemented June 1, 1993 Import duty range 0-40%		Until December 1994
2. Other Duty: Consumption tax 5 to 40% 65% on exceptional vehicles		
3. Quota and Restrictions: Items under Article 56	Development of manufactures.	Since 1974 until phased out.
Exchange Rate Policy		
1. Fixed Exchange Rate EC$2.7 = US$1	To maintain a stable macroeconomic environment for both domestic and foreign investment.	Since 1976

POLICY MATRIX BAHAMAS

ICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
etary Policy		
Interest rate: Term deposit rate 6.25% Prime rate 7.25% Treasury bill rate N/A	The primary objective is to prevent competitive influence on the rate of lending to housing sector Recent rate change geared to stimulate activity in the real sector.	1/1/188 ceiling 8% set on deposit rate.
2. Liquidity requirement per cent of deposit liability.		Change in 1992 to 7% and again in 1993 to 6.25%
Primary requirement 6%. 4% in balances at the Central Bank and 1% may be held in cash.		
Secondary: 20% of demand deposits plus 15% of saving and fixed balances to be held in primary reserves plus government securities and other approved securities.		
Fiscal Policy	Present focus is deficit reduction and reduced rates of borrowing vis-a-viz expenditure restraint and improved efficiency in the administrative process.	
1. Government Budget FY 92 Deficit EC$71.7m		
2. Deficit financed Internal EC$86.2m ternal and other net liabilities were reduced by $0.2m and $14.3m spectively.		
Trade Policy	The current duty structure reflects four main postures: improve government recurrent revenue flows, protection of light industries, measures to increase tourism expenditure through duty free shopping, more tax relieve for lower income households.	
1. Not a signatory to the CET Import duty range 35 - 65% ad valorem Concessional rates 0 - 25% apply for most consumer goods. Rates 40 - 50% apply for most import sold in competition with domestic goods.		
2. Stamp duty of 6% is levied on most imports.		In May 1993
3. No restriction or quota in place		
4. Returning residents are allowed up to $300 duty exemption. Items under Article 56		
Exchange Rate Policy	Parity with US dollar facilitates transactions in tourism and is consonant with the Bahamas trading relationship with US proportion of visitors originating from North America.	May '93 exchange control was relaxed. Bank can approve FX up to $0.1m for import Since 1976
1. Fixed Exchange Rate B$1 = US$1 Investment market operated by the Central Bank facilitates overseas investment at rate B$1.25 = US$1.00		

OLICY MATRIX JAMAICA

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Monetary Policy		
1. Interest rate: N/A Treasury bill rate		
Liquidity requirement: Cash reserve ratio of banks 25% Liquid assets ratio 50%		1/7/92 1/7/92
Cash and liquid ratio of PDA 16%		1/7/93
Fiscal Policy		
1. Government Budget FY 92/93 J$26.2bn		
Treasury bills ceiling increased $6.5bn to 7.5bn		14/7/93
Trade Policy: N/S		
CET implemented Import duty		
2. Other Duty: Consumption tax 5 to 40% 65% on exceptional vehicles		
3. Quota and Restrictions: Items under Article 56		
Exchange Rate Policy		17/8/92
BOJ discontinue to issue rate to FED. Rates to be market determined.		
FED submit information to BOJ regards to: daily buy and sell rates for major hard currency, the volume sold and bought and weighted average purchase and selling rate. ECS2.7 = US$1		21/6/93

ICY MATRIX BELIZE

ICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Monetary Policy		
Interest rate: flooring rate Saving 4.5% Time 6.5%	*Simplifying the interest rate structure*	March 1994
Lending rate: Prime rate 12% Discount rate of CBB 11%		
Liquidity requirement per cent of average deposit liability	To reduce the rate of credit creation in order to reduce the demand for goods and services imported and to manage the official reserve.	1/11/93
Liquid assets ratio 28% Cash reserve ratio 7%		
Fiscal Policy		
1. Government Budget FY 94/95 Current surplus BZ$3.2m		
Overall deficit BZ$146.2m		14/7/93
Financing the deficit: Domestic $42.7m External $103.5m		
External Debt BZ$332.6m Per cent of GDP 40.2 Debt Service Per cent exports 5.3		
New taxes: 5% on interest paid on time deposits. Gross receipt 1% and 2% on companies. professional and self employed	To increase GOB revenue and to make tax system more equitable.	1/4/94
Trade Policy: N/S		
CET not implemented 2 years grace period to start.		
Import duty 0 - 78%		
Other Duties: Stamp duty 12% RRD 15 - 25%		
Quantitative restriction	To protect the local producers of certain items.	

)LICY MATRIX BELIZE continued

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Exchange Rate Policy		
Exchange rate fixed at BZ$2.00 = US$1.00 Liberal exchange control policy.	To maintain a stable macroeconomic environment for both domestic and foreign investment.	1976

_ICY MATRIX BARBADOS

POLICY AREAS AND MEASURES	PRINCIPAL STRATEGIES AND OBJECTIVE	TIMING
Monetary Policy		
Interest rate 4% on deposits Prime rate 8.75% - 9%	To correct deficiencies in structure of interest rate: fixed deposit rate was significantly lower than saving and demand rates.	From 15/3/94
Liquidity requirement per cent of deposit liability Prime requirement 6% Secondary requirement 23%		Since May '93 September '92
Fiscal Policy		1/4/94
Government budget FY 92/93 Deficit $50.4m		
How deficit was financed: Commercial banks Project funds Divestment Amortisation	To keep fiscal deficit to around 1 - 2% of GDP	
Trade Policy:		
CET implemented August 1, 1973 Import duty tariff range 0 - 45%		
Other duties charged Stamp duty 12% RRD 15 - 25%	20% stamp duty on extra regional goods to provide protection to local manufactures after trade liberalization.	To be phased out in 4 years.
Other restrictions	Licensing system in place.	
Other	100% surcharge on selected items.	
Exchange Rate Policy		Since Sept 91
Exchange rate fixed at BD$2.00 = US$1.00	Initially to address the rising importance of the US in Barbados merchandise trade.	In place since 1975.