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INDEPENDENT MONETARY POLICY IN A VERY OPEN ECONOMY: Challenges, Costs and Benefits

JOHN W. ROBINSON*

ABSTRACT

Much of the difference in the region with respect to growth, inflation and trade can be traced to the choice of exchange rate regime. This paper reviews the options that were open to policy-makers and the implications of each of the choices made across the region. It also sets out the conceptual and operational framework used in the process of formulating monetary policy and the way it was used to deal flexibly with challenges from capital flows, fiscal impulses and real shocks in Jamaica. The paper assesses the nature of the costs - interest costs, reserve accumulation, financial restructuring - and looks at ways to minimise these over the medium-term. The paper concludes that the issue of a long-term framework for monetary stability has not yet been settled and that in the final analysis, it will depend more on a resolution of the role of Government in the economy and on structural and production issues, rather than on exchange rate and monetary regimes.

1. Introduction

This paper has three objectives. The first is to establish the circumstances under which independent monetary policy is warranted, even where a country is a small, satellite economy connected to a large hub. This description fits virtually all the countries in Central America and the Caribbean, where patterns of trade and factor movements are bound

* The author is a Chief Economist in the Research Department of the Bank of Jamaica.

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up and interwoven with developments in the US economy. Nevertheless, these countries have adopted different monetary and exchange rate regimes since 1971, some persisting with pegging arrangements and others subsequently adopting floating regimes in order to pursue some monetary policy independence. The first part of the paper is devoted to a review of the options open to countries in the region and the broad consequences of the choices that they made.

Against that backdrop, the second objective is to explain the current approach to the design and conduct of monetary policy in Jamaica. Over the past three years, policy has been focused on fostering a climate of low and predictable inflation – seeking much the same benefits as those offered by a fixed rate regime – but retaining the ability to respond flexibly to the shocks that inevitably arise. Over the short period, Jamaica has had to contend with speculative attacks, heavy and volatile capital flows, disturbances in the real sector and significant problems in the financial sector. Despite these challenges, however, inflation objectives have been met.

It is a story of macroeconomic policy coordination around the objective of price stability. The motivation has been to lay the foundation for a new era in the country's development – to establish a climate in which investors feel more comfortable in undertaking long term projects, workers and employers share similar expectations about the future path of inflation and the broad populace is less vulnerable to swings in real income. The framework for this coordination is a multi-year financial programme through which a consistent path is defined for the fiscal, monetary and external sectors. Monetary policy implementation in Jamaica over the past two years is also a story of institutional re-engineering in which the Central Bank has honed its organizational structure and operating procedures to focus on monetary stability. Hence its research effort, financial programming and market operations have all been formally coordinated through policy committees, with performance measured against weekly, monthly and quarterly targets. Through close interaction with and analysis of developments in financial markets, policy has been able to overcome the potential disruption from strong financial challenges and shocks to the real sector.

These successes have come at some cost, both immediate and postponed. The last section of the paper looks at the nature and

sustainability of these costs. Reducing them without abandoning the low inflation goal will mean transferring the onus of adjustment to the fiscal authorities. In the end, though, we find that the real solution lies in making the transition to a more modern economy, as reflected in the absorption of more and more of the population into efficient and competitive pursuits. Some progress has been made and a plan has been elaborated by the Government that could double per capita incomes in a decade. That prospect justifies the series of reforms and adjustments which current monetary policy seeks to solidify.

2. The Exchange Rate Regime as the Basic Determinant of Monetary Policy

The degree of latitude that policy makers have with respect to influencing domestic monetary outcomes is primarily conditioned by the exchange rate regime in place. We will show in this section of the paper that in the search for credibility and predictability on the one hand and responsiveness to changing conditions on the other, the optimal choice of regime is not clear-cut. Indeed, the recent experience of South East Asia has muddied the water even more and has made generalization more difficult. It remains generally true, however, that opting for constancy in a fundamental economy-wide price like the exchange rate implies the need for more flexibility in other variables.

2.1. Fixed versus Flexible Rates

There is no consensus in the large literature on exchange rate regimes as to whether a small country is better off with a fixed or flexible rate system. Any exchange rate regime has costs and benefits. "In general, the optimal management of the exchange rate depends upon the policymaker's economic objective, the source of shocks to the economy, and the structural characteristics of the economy in question" (Aghevli, Khan and Montiel, 1991). Although it is an empirical question as to which regime would be best for a country, theory can help to sort out the empirical issues and to devise ways to test them.

Optimality in these discussions is usually defined around the criterion of macroeconomic stability - minimizing the variability of real output, the

price level, or real consumption - in the face of various types of disturbances from which no economy is exempt. An important result of the theoretical literature is that neither of the two extremes of permanently fixed or of completely flexible rates optimally achieves this goal.

Early arguments for flexible exchange rates, which are still considered important, emphasized the insulating properties of a variable rate against external shocks. Thus, when foreign nominal shocks predominate, flexibility in exchange rate management has been seen as desirable. But this rule of thumb also has to take into account the expected duration of the disturbance - that is, whether it is a temporary or long-lasting change - and the source of the shock - i.e. whether it emanated in the goods or money market. The principal distinction is whether an adjustment to the pattern of demand in foreign markets or in the terms of trade is temporary (say, four years), or whether it requires a fundamental adjustment in relative prices at home to accommodate the change. The need to adjust to more long lasting changes to external conditions can be effectively signaled by discrete exchange rate adjustments, which are especially useful where a quick response is advantageous and where nominal wages are relatively rigid (downwards).

On the other hand, temporary shocks can be smoothed with a fixed rate by financing if they are negative or by saving the windfall if they are positive. Domestic monetary shocks result in an offsetting adjustment in the net international reserves. In fact, an important advantage of a fixed rate is that it limits the scope for domestic authorities to generate domestic money supply shocks. If domestic shocks emanate from the real sector, (e.g. crop failure, or a productivity-increasing innovation), the exchange rate should be adjustable in order to moderate (or generate) external demand. A set of general rules thus emerges: where shocks originate abroad and are viewed as long-lasting, they can be best countered by flexible rates; to the extent that financing is available, temporary shocks not resulting from bad policy should be financed or sterilized. When real supply disturbances are of domestic origin, and temporary, a fixed rate is adequate. A real demand shock, whether domestic or external, requires long term measures which even a one-time adjustment of the exchange rate would not facilitate.

Structural characteristics such as openness to trade, the degree of capital mobility, and rigidities in the labour market, all affect the efficacy of the chosen regime. With respect to openness, it has been argued that the

more open the economy, the stronger the case for fixing the exchange rate because of the potential costs to transactions of frequent exchange rate changes.[1] Further, as McKinnon (1963) emphasized, agents in a very open economy often use the foreign price level as a benchmark in setting contracts, thus making exchange rate changes less useful in adjusting the real exchange rate. In these circumstances, giving up the exchange rate option may be relatively costless in terms of aggregate demand management.[2] By the same token, however, more openness implies more exposure to external shocks and hence a strong role for the insulating effects of a flexible rate in moderating or stimulating demand. All the Caribbean countries rely heavily on trade and although the US is the major destination for exports and the leading source of imports and tourists in most cases, there is considerable diversity in trading patterns. The link with the US is strong but is neither exclusive nor uniformly important across the Caribbean. Thus openness, per se, does not unambiguously determine the choice of regime.

The degree of financial integration with the major international centres, and the amount of flexibility in domestic real wages are well known determinants of the effectiveness of exchange rate adjustments. Under a fixed rate regime, changes in international interest rates alter domestic financial conditions and, as such, may have an amplified impact on domestic demand and on the current account. In the case of a domestic monetary shock, however, a high degree of capital mobility makes a fixed rate more effective in stabilizing output by limiting the change in domestic interest rates that would occur in a less open environment. The arguments surrounding the limited usefulness of devaluation in the face of real wage rigidity are even more well known.

In sum, a variety of circumstances can swing the balance in favour of one regime or the other. If the incidence of volatile and progressively changing external conditions are regarded as the biggest threat to

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1 These price setting practices apply equally to producers setting output prices, workers negotiating wages and in the rate of return desired by investors.

2 The government itself is likely to have much of its cost fixed by nominal contracts in the short term, particularly debt and wages, and inflation surprises are a frequently used vehicle for emergency fiscal adjustment. The longer term consequences are of course adverse and serious (World Bank, 1996).

Table 1. Taxonomy of Economic Disturbances and Appropriate Response Mechanisms

Type of Shock				Example	Best Containment Mechanism
1. Internal	Real	Supply	Temporary	Hurricane	Fixed: finance/sterilize
			Permanent	Change in technology	Flexible rate catalyses real adjustment
		Demand	Temporary	Investment boom/bust	Fixed
			Permanent	Expansion of govt.	Flexible
	Monetary	Supply	Temporary	Domestic credit expansion	Fixed
			Permanent		Fixed
		Demand	Temporary	Christmas spending	Fixed
			Permanent	Financial deepening	Fixed
2. External	Real	Supply	Temporary	Bad grain harvest	Fixed
			Permanent	New technology	Flexible
		Demand	Temporary	Recession in OECD	Fixed
			Permanent	Preference for beet sugar	Flexible
	Monetary	Supply	Temporary	Monetary	Fixed
			Permanent	Policy	Flexible

macroeconomic stability, then exchange rate adjustment is likely to be a useful tool. However, if domestic inflationary expectations constitute the most pressing problem, a fixed exchange rate is more likely to create stability. An important strand of the literature on assessing the feasibility of monetary arrangements has therefore grown around the analysis of the type and frequency of the disturbances that economies experience, as a guide to whether relinquishing the exchange rate option would be excessively costly in the long run.[3]

2.2. The Macroeconomy under Different Exchange Regimes

When a small open economy fixes its exchange rate, assuming constant velocity of circulation of money, the rate of growth of domestic money is determined by the rate of growth of real output plus the rate of world inflation. If domestic credit is allowed to grow faster than the rate of money, the foreign reserve backing for the currency will fall and will eventually reach a threshold where the peg is no longer credible. The commitment to a fixed rate therefore imposes financial discipline on the authorities which is loosened only to the extent of a change in world inflation, higher real income or a larger income elasticity of demand for money. Transitory episodes of rapid credit expansion are possible only to the extent that the private sector expects them to be reversed. Extraordinary expansion may also be facilitated by external borrowing which, in turn, will be easily available as long as creditors perceive the government to be solvent (i.e. possessing the ability to generate future surpluses with a present value equal to the public debt). Fixed exchange rates therefore impose limits on private and public sector expansion in exchange for low inflation.

The disciplinary potential of a fixed rate regime is only realized if the exchange rate is permanently fixed and is not adjusted periodically. Recurrent devaluations allow the government to reduce that part of its debt denominated in local currency. This raises the issue of the incentive structure facing policymakers.

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3 See especially the pioneering methodology of Blanchard and Quah (1988) for separating demand from supply shocks; and Bayoumi and Eichengreen (1994) for extensions and applications to the NAFTA area.

This structure of incentives is often formalized as the potential for inflation "surprise" in which government takes advantage of low-inflation expectations embedded in wage contracts and then generates an expansion in money.[4] This expansion lowers real wages, creates a greater demand for labour, and a higher supply of output. In an open economy, such inflationary surprises would lead to recurrent devaluation of the currency. The public's adaptive response would be to adjust their expectations (wage contracts) and real money holdings to the point where the marginal welfare cost from an inflation "surprise" is just equal to its benefit. In the new, long run Nash equilibrium, actual and expected inflation is higher without any corresponding increase in output.

In principle, an exchange rate rule could be designed according to which a devaluation would be undertaken only in response to large exogenous shocks. Such a rule, however, is likely to fall hostage to fiscal expansion since the separate effects of an exogenous shock are sometimes difficult to isolate. The first-best solution is to grant autonomy to a central bank which has a reputation for financial conservatism. This approach would signal to the public a stronger commitment to price stability than that warranted by the social cost of inflation, but still retain the flexibility to respond to external shocks and to exogenous changes in the policymaking environment.

2.3. Institutional Issues

Part of a solution to the credibility problem can be the adoption of institutional arrangements which convince the public that the government is committed to price stability. It is in this context the discussion of the relative merits of currency boards, independent central bank or some supranational arrangement comes into play. The value to any particular country of relinquishing direct control over monetary policy will vary with the inflation record of the currency to which it might peg. The need for it will vary with the ability of the existing national central bank to pursue price stability independently.

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4 Barro-Gordon (1983).

(i) Central Banks in the Caribbean

Current monetary and supervisory arrangements in the Caribbean and Central America have evolved from the colonial heritage which these countries inherited and the particular forms of government. With the exception of ECCB, where multilateralism has diluted the potential influence of any particular government, central bank arrangements allow for the domination of monetary policy by elected officials. Monetary policy - interest rates, inflation, and the availability of credit - is therefore subject to the uncertainties of political cycles and has an upward inflation bias.[5]

The value of the low inflation anchor is likely to be greatest in countries with floating currencies and whose central banks lack the mandate and the autonomy to independently pursue price stability. Indicators of legal central bank autonomy have been introduced into the literature by Cukierman et al (1992) based on four categories of differences among these institutions: the appointment and dismissal of the chief executive officer; control over policy formulation; the specificity of the bank's objectives; and, importantly, limitations on lending to the government.

Our assessment of the degree of legal autonomy among Caribbean countries does not explain the variability of inflation outcomes in the Caribbean, which is the same result that Cukierman *et al* found for a world-wide sample of countries. The actual degree of autonomy and the strength of the anti-inflation mandate in practice often diverges considerably from what the law says, and this divergence between law and practice is typically greater in developing countries, especially those that experience transitions between democratic and authoritarian regimes (Cukierman et al, 1992; Cukierman and Webb, 1995). The ECCB, which requires unanimous consensus to amend its relatively tight restrictions on lending to governments or to make any other major policy change, has the least exposure to government influence and has had great success in sticking to an anti-inflation stance. In other fixed-rate regimes, the degree of autonomy is less but the commitment to the peg has constrained fiscal imprudence or brought prompt reversal of fiscal policy slippage (World

5 Kydland and Prescott (1977), Rogoff (1985). Empirical confirmation in the OECD has been provided by Alesina and Summers (1993) and by Cukierman (1992) for a broad sample of countries.

Bank, 1996). The central banks of the Dominican Republic, Central America, Jamaica, Guyana and Trinidad and Tobago have suffered the double jeopardy of having a market-determined exchange rate, as well as little autonomy over inflation objectives. To the extent that lower and more variable growth and investment resulted from uncertainties about inflation, these countries would gain from a stronger institutional commitment to stable prices.

The emerging literature on the redesign of central banks follows two strands - the delegation of monetary policy to a conservative central banker who then determines policy consistent with his low inflation preferences; or the formulation of strict principal-agent contracts where inflation targets are still set by elected officials but their achievement is contracted to a central banker empowered with the instruments to implement this. The Federal Reserve Board of the US is an example of the first while New Zealand is often cited as an example of the latter type. Their relative merits are still unfolding but given the dependence of the reputational solution on a single personality, the institutional option holds out greater promise of a credible, long-term, apolitical solution.

(ii) Currency Boards

A currency board is one such arrangement. Adopted as the norm among British colonies, follow a rule for money creation that allows issuing of domestic currency only against the full backing of a designated reserve currency at a fixed rate. This reserve backing does not extend to commercial bank deposits. Hence, the notes and coins issued by the board are the base money of the system and the rule governing its issue ensures that all the money in circulation can be redeemed for foreign currency at the fixed rate. At the same time, money created by commercial banks is treated as private money, with no guarantee of convertibility on demand.

Argentina's monetary regime resembles a traditional currency board and is a good example of both the stabilizing and destabilizing potential of this type of system. Since the board cannot make advances to banks without increasing base money, commercial banking systems in a currency board environment are more volatile and vulnerable, and their credibility relies on the faith of the depositors. If, as occurred following the Mexican devaluation in 1994/95, depositors lose faith in the solvency of their banks,

they quickly withdraw deposits, exchange these for the foreign currency available on demand from the currency board and move their assets abroad. Argentine banks are reported to have lost 18% of their deposits over the first four months of 1995. Correspondingly, money supply fell sharply, along with employment and real output, while political pressure to abandon the currency board rose. The authorities there chose to honour their commitment to low inflation, hoping that long-run credibility in the system would build stability in the financial system; but in the short run, their inability to support solvent institutions exacerbated the "Tequila" effect and placed a large adjustment burden on the labour and goods markets. Both Argentina and Mexico also received major international financial support to help re-capitalize their banking systems.

(iii) Monetary Union

The term monetary union describes a group of countries linked by a common currency or permanently fixed nominal exchange rates with guaranteed convertibility. There are different classifications of monetary union - weak, semi-strong, or strong. These are based on whether there is (i) one currency or multiple currencies; (ii) one central bank or multiple central banks (iii) independent or coordinated policies and (iv) freedom or restriction on capital flows. Whichever the category, membership implies the surrender of the use of the exchange rate as an instrument of policy and imposes constraints on the use of monetary policy by participating countries along the same lines as discussed above in reference to fixed exchange rates.

The usual starting point for considering the efficacy of a monetary union is to determine whether the proposed grouping constitutes an optimum currency area (OCA). Fundamental work by Mundell (1961), McKinnon (1963) and Kenen (1969) has led to wide acceptance of the following key criteria for OCAs: the volume of transactions among members should be high *vis-a-vis* non-members; high factor mobility to take advantage of a virtual single market; and diverse production among members.

The Caribbean hardly qualifies as an OCA on these grounds, but, as first suggested by Mundell, neither does the United States, the largest currency area. In fact, Ghosh (1994) could identify no more than three

OCAs in the world. A theoretical justification for Caribbean union has been posited as the potential for balance of payments stability which, given the cost and the vulnerability of these highly open economies to the transmission of external shocks, is seen as a heavily weighted argument in the welfare function of policymakers, and may be as important as macroeconomic stability or price stability (Worrell, 1990). Monetary union also introduces issues of real convergence and political/fiscal interdependence which do not arise when the individual countries independently fix their exchange rates with the main partner - in the case of the Caribbean, the United States.

Most analyses of monetary unions have focused on the implications for individual economies of the loss of policy instruments in the face of different kinds of shocks. If some development affects all members fairly equally, such as a general decline in demand or a deterioration of the terms of trade, a single monetary policy is convenient and nothing may be lost when the individual gives up the exchange rate instrument. But asymmetric shocks are more common-place, affecting industries and countries differently. Political developments in one country, for example, could lead to an outflow of capital and an overvaluation of the currency at the official fixed parity. Corden (1994) asserts that asymmetric shocks are quite likely, especially if countries preserve political and fiscal independence, as would be the case between the United States and Caribbean states, individually or as a group.

The feasibility of both monetary union and independently fixed pegs depends on factor mobility and on the political acceptability of the increased variability in growth and employment that could follow from the loss of this policy instrument. These problems would be greater if fiscal, monetary, and labour market conditions differ greatly among the countries in the union. Consequently, as is the case in Europe, pre-union mechanisms and measures may be required to assure convergence of conditions across the union.

Compared to independently fixed rates, the main benefits of a Caribbean monetary union are balance of payments stability, reduced costs of financial management, the pooling of reserves, and the boost that monetary integration offers to the achievement of full scale integration. In the recent empirical literature, estimates of the benefits of monetary union have focused on the savings in transaction costs from sharing currencies,

while the importance of the macroeconomic benefits has only been considered in a qualitative way.

(iv) Summary of the Main Issues

The feasibility of permanently pegging the exchange rate between a small open economy and a large trading partner is, in summary, a function of the types and the correlation of disturbances they encounter and the strengths of the links between the labour, capital and product markets of the two countries. To go further and widen the network of permanently pegged rates into a currency union strengthens the institutional safeguards of the arrangement, but also complicates the issues of asymmetry, specialization, and factor mobility. On the other hand, models of central banking are emerging which accommodate credible exchange rate stability and the ability to respond to shocks.

Table 2 draws together the menu of options and the main benefits and costs of each.

3. The Conceptual Framework Underlying Monetary Management in Jamaica

3.1. From National Goals to a Financial Programme

Setting national macroeconomic goals and objectives is the purview of the elected Government. This is an executive function with the formulation of sectoral plans delegated to the Planning Institute and allied agencies. The current edition of the framework document which is expected to guide long-term planning has been published under the title "National Industrial Policy" and sets out the strategy for growth and investment in sectors in which the economy is deemed to have a strong competitive advantage. In this process of setting broad, sectoral targets, the passive role assigned to monetary policy is that of maintaining relative price stability and exchange rate competitiveness.

It is recognized, however, that in any fiscal year, there is a clear need to closely coordinate fiscal and monetary policy around an average exchange rate that is consistent with these goals. This coordination is done within the ambit of a rolling three-year financial programme in which

Table 2. Alternative Monetary Arrangements : Costs and Benefits

Institutional Framework	Benefits	Costs
1. Announced Parities Traditional Central Bank or Monetary authority e.g. Bahamas, Belize, Barbados	• Credibility grows over time • Provides anchor for prices • Facilitates commerce, planning • Encourages savings, investment given faith in domestic assets • Allows for some monetary flexibility - as between NIR and NDA	• Tends to lead to real appreciation over time • Economy adjusts slowly to changes in environment • Adjustment costly in terms of unemployment, output contraction
2. Currency Boards e.g. Argentina	• As in 1. above, plus • Greater credibility as monetary rule replaces discretion • Obviates domestic monetary shocks	• As in 1. above, plus • Loss of ability to lend liquidity support to the banking system • Higher risk of financial crises • Economy more likely to experience rapid deflation as NIR falls • Credibility even more difficult to recover if e.r. adjusted or board abandoned
3. Monetary Union e.g. ECCB	• As in 1-2. above, plus • Greater credibility given diffusion of control across governments	• As in 2 above, plus • Asymetric shocks may affect conditions in partner countries differently leading to polarization of resources • Requires policy convergence, cooperation • Difficult to reach agreement on e.r. adjustment when required Requires free mobility of factors

Table 2. Alternative Monetary Arrangements : Costs and Benefits - Continued

Institutional Framework	Benefits	Costs
3. Monetary Union e.g. Panama	• As 1-3 above, plus • Maximum credibility	• Economy subject to foreign policy control w/out representation • No accompanying federal safety net • Total loss of seignorage • Minimal ability to respond independently to domestic policy environment • Political sovereignty easily compromised
5. Flexibility Exchange Rate Autonomous and anti-inflationary central bank e.g. New Zealand, Bundesbank	• Most benefits of stable rate (as in 1 above) • Allows for adjustment to fundamental changes while minimizing variability in real sector performance • Can maintain international competitiveness without intervention • Market determination reduces economy-wide distortions	• Requires strong institutional and apolitical framework to establish credibility • More susceptible to interest group lobbies than fixed rate systems • Can create conflict with fiscal/political goals • Is more likely to generate inflation differential than fixed rate system • Higher exchange risk than more rigid arrangements => tendency towards higher domestic interest rate to maintain interest rate parity

annual targets for inflation, the exchange rate, growth and reserve accumulation are established. This detailed synchronization of financial flows is led by Bank of Jamaica, working closely with Ministry of Finance officials.

The financial programme is a comprehensive blueprint which simulates the balance sheet and cash flows of the banking system consistent with economic activity in the private sector, public finance, and external capital flows. A fully elaborated programme includes national accounts, balance of payments accounts, the public sector budget and the accounts of the banking system. A carry-over from years of IMF-assisted programmes, the process has been developed and elaborated into a detailed guide to the implementation of Government cash management, monetary intervention and foreign exchange budgeting.

The foundation of the monetary programme is the estimation of the annual demand for money. The expectations with respect to GDP growth (from the sectoral projections) and inflation (Minister of Finance/BOJ) are incorporated into a broad quantity theory framework, where the rate of growth of money is approximated to the expected growth in nominal income. The implicit assumption of relatively stable velocity has been justified by ex-post observation over many years. Stability in the demand for Jamaica dollars is critical to actual programme management, as shifts in demand induced by changing expectations, shocks to income or prices will quickly alter portfolio decisions in the private sector. Very often, these occur in ways and at speeds that increase the onus on monetary policy to recognize these swings and respond accordingly. As a starting point, however, the inflation-consistent increase in money forms the basis for the allocation of the corresponding growth in the assets of the banking system between local and foreign assets, and between the public and private sectors.

Another corner-stone in the construction of the programme is the determination of the desired level of foreign reserve accumulation. The feasible level needs to be consistent with several benchmarks. The first is the level of import cover that the projected stock of gross reserves offers. The minimum desired level is 12 weeks of imports of goods and non-factor services, chosen both as adherence to an international standard and as a level of comfort which both local and international investors enjoy. The NIR of the Bank of Jamaica also represent the overall balance of payments

– the outcome of the current payments and capital flows. It therefore needs to be consistent with projections for exports, imports, tourism, service payments, as well as official and private capital inflows that are identifiable. Gaps between the desired reserve level and estimated net inflows would point to the need for policy adjustments which could range from the exchange rate and interest rates to fiscal adjustment or debt financing. The joint determination of the liabilities of the banking system and the level of net foreign reserves residually determines the net domestic assets of the system.

The two main domestic assets in the banking system are the stock of advances made to the private sector and credit extended to the public sector in various forms. The projections for sectoral investment and growth alluded to at the beginning of the planning process also imply a need for bank credit by the private sector. That potential demand is explicitly accommodated in the simulation of commercial banks assets. In practice, credit follows both seasonal and cyclical patterns, as well as responding to the direction of lending rates and special financing arrangements. Established patterns of bank portfolio preference and risk management practices also help in estimating annual private sector credit demand. The availability of loanable funds to the public sector is treated as a residual.

The macroeconomic parameters and the allocation of resources to the private sector define the limits of domestic financing available to the public sector. To the extent that the projections for Government revenue and expenditure imply a gap that cannot be filled by the sum of known official loan inflows and the residual domestic financing emerging from the process outlined above, there is an implied need for further policy adjustment and fine-tuning. Arrival at a perfect balance between surplus and deficit sectors, between money demand and supply and between foreign exchange inflows and requirements is an iterative process. Once achieved and approved as feasible in the short-term and is consistent with the longer term goal, the implementing agencies set their operating targets in line with the programme.

3.2. Considerations in Monetary Policy Formulation

Whether in respect of developed or developing countries, the goal of monetary policy is now generally accepted to be the attainment of price stability. But the link between monetary policy and the goal or objective of that policy is not a direct but an indirect one. Hence, a central bank often needs an intermediate target of monetary policy. Two basic criteria determine the selection of an intermediate target. The first is that there should be a high degree of correlation between the policy goal and the intermediate target. Secondly, the central bank should be able to control the intermediate target. An intermediate target, if properly chosen, can therefore make an important contribution to achieving the goal of monetary policy.

Indicators play an important role in the concept and design of monetary policy. They provide a macro-economic background to policy formulation, and also indicate the extent to which the policy goal is being achieved. Thus, they provide some guidance on the prevailing stance of monetary policy, and show the extent to which a change in direction may be needed to reach the desired policy goal. An indicator can be an intermediate target, and vice versa, depending on the particular design of the monetary policy framework.

Instruments of monetary policy are the variables which are subject to the daily, weekly or monthly operational control by the central bank. They occupy a high profile in the central bank's normal range of activities, since they generally encompass a wide range of transactions which are carried out in the money market.

Policy Objective

The definition of price stability is open to various interpretations. An acceptable operational definition for Jamaica would be that rate of inflation which is equal to the average rate of our main trading partners. This is not the ideal but, if it can be achieved, it ensures that the external competitiveness of the Jamaican currency can be preserved in the context of relative exchange rate stability. Clearly, the ultimate goal of price stability should be a rate of inflation which is so low that it does not enter materially into either household or business sector decision making.

The ***Consumer Price Index (CPI)*** is the most suitable means of monitoring the above definition of price stability. But the unadjusted index currently compiled by the Statistical Institute of Jamaica (STATIN) is subject to various influences, such as changes in indirect taxes, public sector administered prices, or even by supply shocks originating from changes in climatic conditions that cause volatility in the price of some agricultural commodities. These factors create some difficulty in reconciling changes in the index with any intermediate target of monetary policy that may be chosen by the central bank. Hence, there is a need to adjust the CPI for these distortions by developing some measure of "underlying inflation" which can be more closely correlated with the intermediate target of monetary policy. To be useful, such a measure of underlying inflation must account for the major share of the CPI basket of goods and services, but it would exclude factors that distort changes in the index, such as those referred to above and which have no direct relationship to the implementation of monetary policy. BOJ economists have developed such an index as a gauge for underlying inflation by trimming sharp outlier changes in prices among the basket of items in the CPI. The resulting index of core inflation bears a strong correlation to changes in base money.[6]

Intermediate Targets

In many countries, money supply aggregates were regarded in the past as intermediate targets of monetary policy. But most countries have now abandoned the policy of monetary targeting. The reasons for this are related, in some cases, to the weak relationship which has been found recently between traditional measures of money supply and inflation and, in other cases, to the difficulty of controlling the money supply aggregates.

The weak relationship between money supply aggregates and inflation is not due to the fact that the link between money and inflation no longer exists. It is due to the fact that certain institutional changes – the deregulation of financial markets and the increased mobility of international capital flows, as well as the development of new payments mechanisms and cash management techniques – have increased the difficulties of

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6 See C. Allen, "Measuring Core Inflation in Jamaica" (mimeo) Research Dept. BOJ, 1997.

establishing a predictable link between inflation and any particular measure of money supply. Jamaica has been experiencing some of these changes. For example, there is the increasing use of credit cards as a medium of payment in Jamaica. In addition, capital inflows into Jamaica have accelerated since the deregulation of the financial market in 1991. This is partly reflected by the rapid build-up of foreign currency deposits in the commercial banking system since that time. The use of these balances is likely to be contributing to an increase of demand pressures in the economy. Another new development is the expansion of the commercial paper market in response to the high level of nominal interest rates in the commercial banking system. This can be seen as the manifestation of new cash management practices by the business sector.

Based on these considerations, and keeping in mind the above-mentioned conceptual framework, the money supply aggregates should be regarded as indicators rather than as intermediate targets of monetary policy. Instead of the money supply, the stability of the nominal exchange rate appears to be a more suitable intermediate target of current monetary policy implementation in Jamaica. Because the nominal exchange rate is determined within an inter-bank market, "stability" of the rate assumes that there will be marginal deviation around a certain average rate over time. This is in contrast to the policy objective of a "fixed" rate, which is administratively determined. The appropriateness and importance of the exchange rate in managing the inflation process is strongly supported by research into the transmission mechanism of monetary policy.[7] The stability of the nominal exchange rate as an intermediate target of monetary policy appears to correlate more closely with the goal of price stability than any of the current money supply aggregates.

Policy Indicators

The classification of the monetary aggregates as indicators rather than intermediate targets hardly lessens their importance in the overall design of monetary policy. They remain as the major indicators of future inflationary pressures in the economy, although they lag between changes

7 Barnes (1996), W. Robinson (1997).

in the money supply, and changes in prices are irregular. Investigations carried out between 1992[8] and 1996 indicate that they lag between changes in M_2 and inflation is at least about six months. Nevertheless, as indictors, it will be necessary to monitor more than one measure of the money supply – possibly M_1, M_2, M_3 and M_4 – to obtain reliable guidance on the development of such pressures.

Other indicators of inflationary pressure include the balance of payments statistics, credit expansion by financial institutions and government's deficit position. The balance of payments statistics are of special importance if the exchange rate is the intermediate target. These data, particularly the change in the current account balance, provide supplementary information for assessing the over-or under-valuation of the currency.

Indicators of inflationary expectations can also help to provide forecasts of future inflation, but it is difficult to derive such indicators in the absence of reliable data on long- term interest rates. Partial indicators of inflationary expectations are, however, available in respect of wage claims and wage settlements for a wide cross-section of workers.

With regards to the expansionary impact of short-term monetary policy, indicators can be derived from the growth of the monetary aggregates themselves in relation to available indicators of money velocity and income. Short-term interest rates, both nominal and real, are also useful indicators of the expansiveness of monetary policy. A different perspective on this is provided by the relative movement of short-term interest rates in the USA (e.g. US Treasury Bill Rate) compared with similar rates in Jamaica.

Policy Instruments

BOJ currently follows a mixed monetary policy strategy, as is the case with other central banks. This is reflected by its use of policy instruments of both price (interest rate) and quantity (money supply aggregates). Nevertheless, the dominant influence appears to be based on monetarist theory, because the focus of most of the policy instruments is on the absorption of liquidity and control of the monetary aggregates. Interest

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8 Shaw (1992), Barnes op.cit.

rate instruments will need to be more fully incorporated into the formulation of policy, as the stability of the nominal exchange rate becomes more sensitive to relatively small changes in domestic monetary conditions. Moreover, there is evidence to suggest that market participants generally evaluate monetary policy and form expectations more accurately on the basis of changes in interest rates rather than on changes in the monetary aggregates.

(a) Base Money Management

An abbreviated version of the balance sheet is set out below in Table 3 showing the relationship among base money and its counterpart assets. Quarterly changes in the main items are shown for 1996. The monetary base comprises the Bank's monetary liabilities which are matched on the asset side by the sum of the Net Domestic Assets (NDA) and the Net International Reserves (NIR). The main domestic assets consist of net credit extended to the public sector and to the banking system, less the domestic liabilities contracted through open market operations. For any reduction in base money, therefore, one can identify a corresponding set of changes in the NIR or in a reduction in one or more of the main items in the net domestic assets. In sum, Base Money = Currency + Statutory Reserves + Commercial bank current accounts = NIR + NDA.

In practice, base money management implies taking action to bring the NIR and the NDA in line with the desired level of base money. These decisions are taken on the basis of balance sheet information of the form presented above which is prepared each morning before the markets open. The daily review of the balance sheet allows for an assessment of the impulses to base money growth and the appropriate response to ensure their alignment with monetary targets. This review and intervention process, in its present level of refinement, has been in force since April 1996.

Table 3
Bank of Jamaica Balance Sheet, 1996
(Summary Changes - In Millions of Jamaica Dollars)

	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Total
Net Intl. Reserves	**2998.0**	**4085.5**	**2340.8**	**955.1**	**10379.4**
Net Domestic Assets	**-4218.7**	**-3996.5**	**-2155.8**	**2988.2**	**-7382.8**
Net Claims on Public Sector	919.1	-2308.4	969.4	6142.5	5722.6
Net Credit to Banks	484.7	100.1	2217.1	-1949.5	852.4
Open Market Operations	-6226.3	-1785.2	-5470.3	-1006.3	-14488.1
Other	603.8	-3.0	128.0	-198.5	530.3
Monetary Base	**-1220.7**	**89.0**	**185.0**	**3943.3**	**2996.6**
Currency Issue	-1696.6	31.4	49.7	2972.5	1357.0
Cash Reserve	569.6	120.9	18.1	975.5	1684.0
Current Account	-93.8	-63.3	117.2	-4.7	-44.6

Source: Bank of Jamaica.

The intervention process influences both the domestic money market and the foreign exchange market. Open market sales of Government securities have the effect of reducing Jamaica dollar liquidity in the banking system, which in turn limits the expansion of money through the commercial bank credit. Most of these transactions in securities contain a repurchase clause which enhances their attractiveness as stores of liquidity, deepens the local money market and allows for a wide variation in the maturity structure of these instruments. Because of this, it then becomes possible for BOJ to finely tune the degree of intervention required to manage base money, within the targets consistent with the ultimate inflation objective.

In a similar vein, intervention in the foreign exchange market will have an effect on the availability of Jamaica dollar liquidity. Sales of foreign exchange not only smooth supply conditions in the market but also extract Jamaica dollar liquidity. The achievement of the base money targets,

therefore, allows for intervention choices which are compatible with orderly conditions in both the domestic money market and foreign exchange market.

Base money movements have not been congruent with changes in the money supply in the short-run. The main reason for the divergence appears to be the instability of the short-term money multiplier relationships. This involves both the currency/deposit and reserves/deposit ratios. The currency/deposit ratio tends to inject substantial shocks into the money supply process, because of seasonality in the demand for currency, as well as demand for currency for various uses in the underground economy, such as drug trafficking and the hoarding of foreign currency. As to the reserve/deposit ratio, this can fluctuate sharply in and out of the commercial banking system. In general, attempts made to control the monetary base have consequences for interest rates and liquidity, which by themselves can cause volatility in the money multiplier relationships in the short-run. Over the longer run, (one year and over) however, changes in the money multiplier exhibit greater stability. This indicates that base money management is still an important instrument of money supply control over this period. Hence, base money control remains an important policy instrument, vigilance has to be maintained especially when market sentiments are volatile, but its effectiveness has to be evaluated over the longer rather than the shorter run.

(b) Direct Instruments: The Cash Reserve Requirement

For many years, monetary control in Jamaica relied upon the use of direct instruments – high reserve requirements, special deposits and sectoral credit ceilings, which were effective and appropriate in an environment when prices, incomes, interest rates and the exchange rate were centrally set and controlled. A financial reform programme in the mid-1980s shifted the burden of monetary control to market instruments with BOJ creating and marketing its own certificate of deposit. Cash and liquid asset requirements were lowered and short term interest rates took on a strong signalling role while providing a profitable haven for commercial bank liquidity.

In the hiatus which accompanied the decentralization of the foreign exchange market and the abandonment of exchange control, the Central Bank once again resorted to heavy reliance on direct instruments while

continuing to issue its own liabilities. The distortionary impact of a 25% cash reserve ratio became more pronounced as inflation and nominal interest rates rose, but by the same token, became more difficult to remove. Given the relative stability of the past two years and the resolve to minimize distortions in the banking system, the current stance is to implement a step-wise reduction in the ratio to 17% - the requirement applicable to non-banks – and to continue the reduction process for all institutions as quickly as is feasible.

The minimum cash reserve requirement creates a demand for central bank high-powered money, and therefore affects monetary expansion. It also provides a pool of funds that can cushion the effects of liquidity shocks in the banking system. But the stabilizing role of the reserve requirement depends on the way it is implemented. A consideration in the application of the cash reserve ratio is to require coverage on the basis of the average liabilities rather than the current practice of imposing a daily reserve requirement. Such a method would tend to eliminate liquidity shocks as reflected in the volatility of the short-run money multiplier. The gradual reduction in the cash reserve requirement and its administration should also contribute to the development of an active inter-bank market. Its prudential function has been recently eclipsed by the introduction of a deposit insurance scheme.

(c) Open Market Operations

The main focus of open market operations is on the liquidity aspect of policy. The outright sale of government securities thus results in the absorption of liquidity within the banking system. But liquidity absorption is only guaranteed if there is continuing roll-over of these instruments. Liquidity absorption can be increased, however, if a market can be developed within the non-bank sector for longer term government instruments. Current open market operations are focused on ***repos*** and ***reverse repos***, (backed by GOJ securities), which allows BOJ to fine-tune the short-term reserve or liquidity position of the commercial banks. Based on the available data, it also appears that these instruments have been used to satisfy and adjust the short-term funding needs of some institutions. Thus, their prime use at present is to act as a liquidity policy instrument. But they are also used to give BOJ greater leeway in the

shaping of interest rate policy and to alter the shape and slope of the yield curve as appropriate. If there is flexibility in the movement of government deposit balances between the commercial bank and BOJ, the impact on banking system liquidity would be the same as normal open market operations. Coordinating these measures with other open market operations can greatly affect bank liquidity, and increase their usefulness to influence interest rate changes in the short-term money market.

(d) Interest Rates

With the nominal exchange rate as the intermediate target of monetary policy, prompt interest rate adjustments are necessary in order to send explicit signals to market participants. This is necessary for balancing currency flows and stabilizing the movement of the exchange rate. The mechanism for implementing such interest rate changes lies in the further development of the short-term money or inter-bank market. The network of primary dealers through which BOJ markets its securities has advanced the process significantly. Now that the bulk of government deposit balances are held in the commercial banks, the BOJ has a possible additional instrument at its disposal, which in coordination with the use of ***repos*** and ***reverse repos***, can provide the available means for influencing short-term liquidity in the banks and therefore changes in short-term interest rates. The BOJ, as the monopolist in that market, would be able to determine the quantity of reserves to supply in relation to the existing demand. Thus, it could leave the market in a situation of scarcity or oversupply, from which higher or lower rates could be generated. Some interest rate forecasting will be required, however, based on the link between liquidity changes and interest rate movement. Operationally, this requires close coordination between Government cash flow management and the scheduling of market operations.

3.3. The Transmission Mechanism of Monetary Policy

The transmission mechanism of monetary policy is a complex process, because it is affected by uncertainty and the expectations of market participants, which may not always be correct. If the money supply is the intermediate target, then the path of the transmission process moves from

changes in the monetary base to the monetary aggregates and then spreads to aggregate demand and the process of price setting, involving substitution, income and asset effects, as well as expectations. However, as was stated above, the relationship of base money to the monetary aggregates may not be stable enough, particularly in the short-run, to support policy formulation along these lines. Instead, we suggest a transmission process that moves from base money to interest rates and the exchange rate, and from these financial market prices to inflation. The link between interest rates and the exchange rate, on the one hand, and inflation, on the other hand, depends on the strength of aggregate demand and expectations. Thus there is no real difference between the two transmission channels at this stage. However, when the exchange rate remains stable, substitution, income and assets effects tend to be minimized.

Currency market intervention can help to stabilize exchange rates in the short-run. Such transactions relate to the buying or selling of US dollars in exchange for Jamaican currency, with the aim of maintaining a particular rate of exchange. In the longer run, however, our focus is on interest rates as the main instrument for stabilizing exchange rate movement. Interest rates have to be adjusted in such a way as to keep currency flows in proper balance. The relationship between instrument and target will therefore be unambiguous when the exchange rate functions as an intermediate target of monetary policy. However, in this scenario, because monetary policy is focused on stabilizing the exchange rate, fiscal policy has the important complementary role of helping to stabilize aggregate demand.

The beginning of the transmission process in which a stable exchange rate is the intermediate target starts with the way in which policy can be used to influence interest rate changes in the market for bank reserves. Like any other market, there are demand and supply conditions which affect the market for bank reserves. As the monopolist in this market, BOJ has the power to steer money market rates by creating the conditions in which it will supply reserves to the banks to cover their money market needs.

Another important item is the flow of net foreign reserves. An increase in these reserves increases liquidity in the banking system and therefore augments the supply of bank reserves, whereas a decline has the opposite

effect. Forecasts of these changes will also be required in order to assess their impact on the overall supply situation for bank reserves.

The major impact on the supply of reserves is related, however, to transactions involving the central government. An increase in net government expenditure as well as maturing government debt augments the supply of bank reserves, whereas an increase in government deposit balances in BOJ has the opposite effect. Much of current open market operations (*repos*, *reverse repos*) is directed to offsetting the liquidity effect of government expenditure and keeping the supply of bank reserves under control. If government deposit balances held in the commercial banks can be transferred to BOJ, they will have a further contractionary effect on the supply of bank reserves. All these transactions will therefore need to be coordinated to ensure that the supply of reserves in the short-term money or inter-bank market is exactly consistent with policy requirements. This is either to stabilize that market or to create a scarcity or an over-supply in it, that is consistent with the need for stable, higher or lower short-term interest rates.

Interest rates generated in the market for bank reserves represent a marginal cost of raising funds. It is on the basis of this principle of marginal cost pricing that these rates are expected to influence other bank rates, as well as the treasury bill rate, and eventually influence exchange rate movements.

The final impact on inflation is expected to come from the stabilizing effect of the exchange rate on prices. As was mentioned before, however, much will depend on the strength of aggregate demand. Expectations will also play a significant role, depending on how convinced the public is that exchange rate stability can be maintained.

4. Challenges and Responses

Table 4 below highlights the moderation in inflation over the past two fiscal years along with the reduction in the pace of monetary expansion. These are also consistent with the modest change in the nominal exchange rate.

Table 4. Monetary Conditions in Jamaica, 1996/97 To 1997/98

	Q1	Q2	Q3	Q4	FY96/7	Q1	Q2	Q3	Q4	FY97/8
Inflation										
CPI point to point	2.9	2.7	1.8	1.8	**9.5**	1.8	3.9	1.4	1.5	**8.8**
3-mth avg	4.5	2.3	2.1	2.0	**21.5**	1.8	3.0	2.6	1.1	**9.1**
Core infl point to point	2.3	1.8	1.6	1.5	**6.9**	1.0	1.7	1.2	1.1	**5.0**
Monetary Aggregates										
Base Money	0.4	0.7	15.2	-1.1	**15.2**	5.0	0.3	10.0	-5.5	**9.4**
M1	1.0	4.3	8.8	4.1	**19.6**	0.8	-1.5	13.7	-12.3	**-0.9**
M2	3.3	3.6	10.9	7.8	**28.0**	1.1	1.0	4.5	-4.0	**2.4**
M3	2.3	3.9	10.4	7.1	**25.8**	1.3	0.0	8.5	-2.8	**6.8**
FX deposits					**-5.9**	4.1	6.3	9.7	1.2	**22.9**
Pvt Sec liabilities	0.1	2.6	7.8	7.9	**18.5**	1.8	1.2	8.7	-2.0	**9.8**
Interest Rates										
30-day BOJ	42.0	33.0	27.0	18.0	**18.0**	18.0	22.0	29.0	29.0	**29.0**
3-mth deposit	32.8	25.2	21.9	14.6	**14.6**	13.5	13.5	15.2	18.0	**18.0**
6-mth T-Bill		27.3	26.4	18.1	**18.1**	17.9	25.3	28.9	28.0	**28.0**
Interbank rate	44.3	35.7	28.9	16.9	**16.9**	18.4	18.5	27.1	31.5	**31.5**
Lending rate	60.0	58.5	55.2	47.9	**47.9**	44.9	44.2	44.2	44.2	**44.2**
Exchange rate										
J$/US$ eop	35.73	35.08	35.03	35.07	**35.07**	35.37	36.03	36.59	36.51	**36.51**
% change (US$)		1.9	0.1	-0.1	**1.9**	-0.8	-1.8	-1.5	0.2	**-3.9**
Current a/c balance	-19.1	-29.6	-167.7	-33.2	**-249.6**	-86.8	-173.1	-163.4	-22.5	**-445.8**
Net capital flows	121.3	96.5	195.1	-10.9	**401.8**	2.2	194.7	118.4	77.1	**392.4**
Change in reserves (-=inc)	- 102.2	-66.9	-27.4	44.1	**-152.2**	84.6	-21.6	45.0	-54.6	**53.4**
Commercial Banks										
LA/Pres Liab (eop)	47.6	46.6	53.5	59.7	**59.7**	55.0	51.5	48.8	51.3	**51.3**
Pvt sec credit/ Pres Liab	66.4	72.6	67.4	65.9	**65.9**	60.0	60.7	56.0	52.1	**52.1**
FX/J$ deposits				25.9	**25.9**	26.5	28.1	29.1	29.7	**29.7**

Source: Bank of Jamaica.

Movements in the short term interest rates and in the official reserves present clues to the severe challenges to stability to which policy had to respond. The monetary targets for fiscal year 1996/97 envisaged very slow expansion in the first half of the fiscal year, some seasonal expansion in the December quarter and a reversal in the final quarter to end the year, with overall growth of 11%-15%. Base money growth was constrained in the April to September period, as almost all of the expansionary effect of the extraordinary growth in the NIR was countered by a contraction in the NDA. This reduction was achieved mainly through open market operations but was assisted by a net increase in government deposits in the Central Bank. Apart from the liquidity impact of foreign exchange inflows, these operations also had to counter an increase in liquidity support to commercial banks, particularly in the September quarter. Importantly, the injection of liquidity accommodated a flight to quality within the domestic banking system rather than external capital flight. The heavy foreign exchange inflows, the accumulation of liquidity in a few large banks and the abatement of inflation expectations, allowed for a sharp decline in interest rates through December 1996 and further reductions to 18% in the January to March quarter.

The build-up in reserves in 1996/97 was fuelled by the improvement in the current account and very strong inflows of private capital. The Central Bank was called upon to purchase excess supply to the foreign exchange market to attenuate the trend appreciation to December 1996. The resulting injection of Jamaica dollar liquidity was also sterilized and with growing banking system liquidity, could do so at reduced interest rates on BOJ reverse repos. The challenge represented by the inflows to BOJ was interpreted as an endorsement of the low inflation policy, as much of the sales to the market were by Jamaican residents who opted to shift their portfolio towards holding more Jamaica dollar assets.

As nominal interest rates declined, the rate payable on BOJ 30-day paper held at 18%. Other short-term rates fell even more sharply and yielded a negative real return when measured against the average inflation over the previous 12 months. With continuing support for a few weak banks and growing expectations of an early election announcement, wealth holders began to diversify into foreign currency denominated assets at the margin. Although the supply of foreign exchange was boosted by the raising of government debt abroad, which temporarily relieved the need

for the Central Government to source funds from the interbank market, there was a sustained shift in the demand for foreign exchange by the private sector. This was reflected in a steady build-up in the proportion of foreign currency deposits in local banks, as well as the continuous sale of foreign exchange into the market by BOJ. In response, monetary policy was tightened. BOJ reverse repos rates were raised and penal rates increased on overdrafts. With the passage of the general elections in December 1997, the supply of foreign exchange from private sector earners and holders had increased so much that by the end of the fiscal year the Bank began to buy blocks of lumpy inflows to arrest what might have been a strong appreciation of the Jamaica dollar.

A clear cost of the process of disinflation and the lengthening period of monetary and exchange rate stability has been the exposure of the weakness of some institutions in the commercial banking system. While some of these weaknesses in capital adequacy existed prior to the 1996/97 low-inflation thrust, the loss of confidence in some parts of the system placed the onus of a blanket guarantee of deposits on the public sector. Restructuring the system is likely to lead to a much stronger banking sector but will also leave the debt burden of the Government significantly higher, even after assets have been sold and some liabilities retired. The weakness in the asset portfolio of the banks also reflected the uncompetitiveness of the borrowers and their inability to adjust their operations and activities to keep pace with the changing circumstances. In a sense, the fall-out epitomizes the degree of change that has to take place in the industrial sector for the economy as a whole to compete in regional and hemispheric markets.

Related to the need for financial sector reconstruction was the sharp increase in the domestic debt of the public sector. A holding company Financial Sector Adjustment Company (FINSAC) was formed to manage the assets of the banking system against which the Government had guaranteed the safety of deposits and pensions. The refund of deposits, settlement of advances made by the Central Bank and the injection of capital into weak banks were all financed by the issue of Government guaranteed securities of more than J$50 billion or 20% of GDP. Although more than half of this is expected to be retired through the proceeds of the sale of assets, the longer it takes before these sales are realized the greater the likelihood that Central Government will be called upon to service this

debt. In any event, the increase in the public sector debt via FINSAC is starting to be viewed by investors as a factor to be considered in the bid price of new issues of Government securities. A part of the increase in Government debt over the period was also attributable to the need to supply the Bank of Jamaica with sufficient securities, to be able to deal with the flows of foreign exchange and the management of the associated Jamaica dollar liquidity.

The impact of disinflation and the fall-out in the financial sector was also reflected in two years of decline in real GDP. In 1996, the financial sector showed the sharpest decline but the slow-down in real activity was more widely distributed in 1997. The fall in real activity has also raised the issue of the cost being paid for monetary stability in terms of corporate restructuring and failures. There is virtual consensus on the benefits of low inflation but there are sharp differences of opinion as to how low inflation needs to go and remain before the expansion envisaged in the Industrial Policy takes off.

Throughout the various episodes over the two year period, a need arose for more intelligence on the expectations and intentions of market participants and for more information to be shared with the market on government policy. From the BOJ operational standpoint, interaction with primary dealers and bankers has increased, the dissemination of economic information to the market widened and more use was made of indicators that could be gathered at greater frequency. These included monitoring changes in the yield curve on domestic securities to capture shifts in expectations, assessing changes in the maturity structure of OMO liabilities, and detailed information on Central Government's cash flows. A clear gain emerging from the experience is a more intimate knowledge of the dynamics of the money and foreign exchange markets and with the normalization of each challenging episode, an increase in the credibility of the Central Bank.

5. Conclusion

We began by exploring the issue of whether independent monetary policy is warranted in a small island economy such as Jamaica. Many of the considerations suggested that the value of certainty in international exchange was important but that the ability to adjust to frequent and often

asymmetric shocks ought to lead to less variability in the growth of output. Furthermore, in the reality of the Americas where policy signals need to lead the process of modernization, a flexible exchange rate helps to signal and sustain the direction of change. In any event, we saw that there were institutional arrangements which could deliver the best of both worlds – a credible, stable monetary framework alongside responsiveness to changing conditions. These are the benefits that monetary policy in Jamaica is designed to exploit.

The conceptual framework, design and implementation of monetary policy in Jamaica are not unique. There is, however, an emphasis on macroeconomic consistency and detailed planning from the broadest long-term perspective, down to the expected balance in Government accounts at the end of each week. That process also implicitly allocates the burden of adjustment between fiscal policy, external policy and monetary policy. As money markets continue to deepen in a context of open borders and increasing sophistication, there is an even stronger role for close monitoring and surveillance. We note, however, that the pursuit of exchange rate stability places a great deal of responsibility on the design and conduct of fiscal policy which is consistent with this framework.

There can be no controversy concerning the goal of monetary policy, but there may be differences of opinion about how that goal should be achieved. The paper has described the formulation of policy using the stability of the nominal exchange rate as the intermediate target of monetary policy. This is in line with the practice followed by many small open economies and the product of the research work in the Bank of Jamaica. Nevertheless, the important role of money as an indicator of future inflation cannot be underestimated. In particular, the control of base money as an anchor to the expansion of broad money has proven to be an effective approach to close monitoring and signalling.

As regards the transmission mechanism with the exchange rate as the intermediate target, the results of recent research have been put forward showing how this might operate to influence interest rates and interest rate signalling so as to have an impact on the intermediate target. The focus is on the short-term money market, through the demand which exists for bank reserves. But it is the Central Bank which has created most of this demand by its statutory cash reserve requirement. It is therefore in the manipulation of the supply of reserves to meet this demand and the setting

of a price (interest rate) for satisfying this demand that the Central Bank, as the monopolist in this market, will be able to control interest rates and therefore influence the movement of the exchange rate.

Monetary stability is a worthwhile goal in itself, and needs to be a cornerstone of macroeconomic policy. But regardless of the rigidity or appropriateness of the monetary arrangements, it is the ability of the real production process to keep pace with the consumption needs of the population that underpins real stability. Inefficient, uncompetitive industries waste resources and place pressure on the country's ability to maintain living standards without accumulating debt. In countries such as Jamaica, the pressure to make the transformation while keeping the ship afloat is reflected in the fiscal deficit and the growth in public debt. As awareness grows that no one can be isolated from the broad sweep of change, monetary stability can at least minimize the extent to which high and variable inflation shifts most of the burden to the most disadvantaged.

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