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EVALUATION OF THE FOREIGN EXCHANGE MARKET IN GUYANA: 1989 - 1994

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AN EVALUATION OF THE FOREIGN EXCHANGE MARKETS IN GUYANA, 1992-1994

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1.0 INTRODUCTION

Exchange rate policy has been a major part of the structural adjustment and/or reform programmes pursued by numerous governments in developing countries over the last two decades. The system adopted by most countries has been one that is progressively more market-oriented, that is, they have, either maintained some form of pegging arrangement or have floated their currencies. However, as far as the achievement of some basic policy objectives is concerned, the experience of many countries adopting the floating system, has been far from satisfactory (Goldstein, 1984). Pronounced exchange rate variability has been one of the major concerns, and accordingly, an explanation of the behavior of the foreign exchange markets has been a challenge of empirical research.

Since it adopted a floating system in 1991, Guyana has experienced turbulent fluctuations of its foreign exchange rate with a general tendency to depreciation. The exchange rate movements have produced much consternation, causing Government to institute policies directed towards limiting or eliminating excessive fluctuations. There is, however, an inherent difficulty in ascertaining what should be the nature and the timing of government intervention in the foreign exchange markets. In light of this, the focus of the paper

is on the evaluation of the foreign exchange markets in Guyana through the behavior of the foreign exchange rates. The aim is to determine the source of foreign exchange rate disturbance in order to ascertain the parameters of Government intervention geared towards smoothing out excessive exchange rate movements.

The organisation of the paper is as follows: Section 3 discusses the nature of the foreign exchange markets in Guyana; Section 2 discusses the theoretical underpinning of the determinants of foreign exchange rate from the perspective of the monetary and portfolio approaches; Section 4 assesses the determinants of short-run foreign exchange movements in Guyana; Section 5 provides some policy recommendations; and Section 6 provides a summary and concluding remarks.

2.0 THEORETICAL DETERMINANTS OF FOREIGN EXCHANGE RATE

There are two basic approaches in explaining the variability of foreign exchange rates - the monetary approach to exchange rate and the portfolio balance approach based on the asset market theory. The former approach relies on a relative money market equilibrium and implies that the foreign exchange rate is determined exclusively by prices at home and abroad. This approach is usually reflected in three models - the flexible-price model, the related sticky-price

model and the real interest rate differential model. The flexible-price model, which assumes continuous purchasing power parity (PPP) and stable money demand functions for the home and foreign countries, states that nominal exchange rate is determined by relative money supply (Macdonald and Taylor, 1992).

Specifically, the flexible-price monetary model, which is essentially the basic monetary approach model, can be expressed as:

$$Ex = (M - M^*) + a(Y - Y^*) + b(I - I^*) \qquad (1)$$

where Ex is exchange rate, M is money supply, Y is real income, I is interest rate, * denotes foreign variables and a and b are positive coefficients. Equation (1) implies that a decrease in domestic money supply relative to foreign money stock will lead to an appreciation of the domestic currency. Similarly, a decrease in relative money demand, which is reflected through an increase in domestic income and a decrease in domestic interest rate relative to the corresponding foreign variables, will lead to an appreciation of the domestic currency. One major shortcoming of this model is the assumption of continuous purchasing power parity which requires the real exchange rates to be fixed. The movements of the real exchange rates of the major currencies cannot be explained by the model (Dornbush, 1987).

The sticky-price model allows for consideration of both nominal and real exchange rate movements beyond their long-run equilibrium (PPP) levels. The model assumes that domestic goods prices are sticky and are compensated for by exchange and interest rate variability. Intuitively, in the short-run, the model implies that a decrease in domestic money supply will give rise to an increase in the interest rate to clear the market. This increase in the interest rate will subsequently induce capital inflows and an appreciation of the domestic currency. A real appreciation of the currency will be further realised from sticky prices.

However, the presence of uncovered interest parity, will slowly cause a depreciation of the exchange rate to equal the interest rate differential. Specifically, as the domestic interest rate falls with national prices in response to the decline in the money supply, the exchange rate will depreciate so as to converge to the long-run equilibrium purchasing power parity level. Equation (1) can be explicitly modified to reflect uncovered interest rate parity condition:

$$I - I^* = x \qquad (2)$$

where the equality of interest rate differential with anticipated exchange rate changes, x, is established. With the assumption of relative PPP, anticipated changes in exchange rates are equated to differentials in the rates of

domestic and foreign inflation, or

$$x = \dot{V} - \dot{V}^* \qquad (3)$$

where $\dot{V}$ and $\dot{V}^*$ denote expected domestic and foreign inflation.

The modified model can be expressed as

$$Ex = (M - M^*) + a(Y - Y^*) + b(\dot{V} - \dot{V}^*) \qquad (4)$$

Equation (4) allows for the role of expectation to be examined through the final term. Specifically, given that anticipated higher domestic inflation is associated with higher domestic nominal interest rate, reduction in real money demand is required. This will subsequently cause a depreciation of the domestic currency to sustain asset market equilibrium. The sticky-price model can therefore be used to explain the paradox of countries with high interest rates tending to experience depreciation of their currencies. Interest rate parity, however, is a characteristic of capital mobility. If citizens of two countries are completely unwilling or unable to own bonds of each other's country, exchange rate changes as outlined above will be totally absent.

The portfolio balance approach or the asset market theory which assumes income and price levels do not adjust in the short-run, asserts that exchange rates are like the prices of other assets, such as long-term bonds and stocks,

and should, therefore, be analysed in terms of supply and demand in the organised financial market. The portfolio balance approach can be impressed through a modification of Equation (4).

Specifically, the uncovered interest rate parity of Equation (4) is slightly modified to include exchange risk premium, R, or discount associated with the holding of uncovered foreign investment, or

$$I = I^* + x - R \qquad (5)$$

The portfolio model is expressed as:

$$Ex = (M - M^*) + a(Y - Y^*) + b(V - V^*) - b(R) \qquad (6)$$

Equation (6) implies that changes in the foreign exchange risk premium will generally influence interest rate differentials, relative asset demand and, consequently, the exchange rate. For example, an increase in foreign wealth relative to domestic wealth will result in a decrease in exchange risk premium and hence a depreciation of the domestic currency.

In addition to the monetary and portfolio approaches, inefficiencies in the foreign exchange markets can also be used to explain exchange rate variability (Goldstein, 1984). Little stabilizing speculation, mistaken appraisal of economic fundamentals by market participants, risk aversion and legal and regulatory constraints are some of the factors

that can magnify and prolong departures of actual rates from equilibrium rates. As a result, - the rationality of the market in correctly valuing weak currencies is increasingly being questioned because such currencies are particularly susceptible to excessive downward pressure relative to longer term equilibrium levels (Goldstein, 1984).

3.0 NATURE OF THE FOREIGN EXCHANGE MARKETS IN GUYANA

Prior to 1990, the exchange rate system in Guyana was essentially fixed and characterised by limited legal convertibility of foreign exchange. There was, however, a sophisticated parallel market. With the introduction of the Economic Recovery Program (ERP) in 1989, the system was profoundly reformed. The parallel market for foreign currency was legalised in March 1990 with the introduction of the "cambio" system. This system allowed banks and non-bank dealers to trade in foreign currencies at freely determined rates. Initially, 12 branches of commercial banks and 15 non-bank entities opened cambio operations. Between 1992 and 1993, non-bank cambios increased two-folds, while the number of bank cambios remained fixed.

During most of 1990, a dual exchange rate system existed, with an official rate for approved transactions which was substantially more appreciated than the cambio rate. In February 1991, full unification of the exchange rate

occurred, when the official rate was adjusted from G$45 for US$1 to cambio rate of G$102 for US$1. The foreign exchange market was liberalized to the point where dealers were required to submit only aggregate data on purchases, sales and posted rates.

The early weeks of the flexible exchange rate system saw substantial depreciation of the Guyana dollar to G$128 for US$1 by mid-April. The rate subsequently appreciated to G$123 to US$1 by the end of the year. Between 1991 and 1992, the nominal exchange rate depreciated 12 per cent to G$126 for US$1. Relatively stable exchange rates were experienced during the first nine months of 1993. The last quarter of 1993 and the first six months of 1994, however, saw the Guyanese dollar continuously depreciating in value. The dollar depreciated 15 per cent, reaching G$145 for US$1 in June 1994. After almost four months of virtually unchanged exchange rates, a 3.5 per cent depreciation of the Guyaneses dollar against the U.S. dollar was once again experienced in October 1994.

The latter depreciation occurred less than five months after the Government announced and subsequently implemented a number of demand and supply side policies to stem the continuing slide of the Guyana dollar. Specifically, these measures included: legislation to allow non-residents to open

foreign exchange accounts at commercial banks in Guyana; reduction of monetary growth through credit restrictions; compression of imports by legislation of standards; provision of high yielding portfolios; survelliance of foreign exchange markets; and retention of a greater portion of foreign exchange earnings by major exporters.

4.0 ASSESSMENT OF THE FOREIGN EXCHANGE MARKETS

The exchange rate (Guyana-U.S.) during the 1991-1994 period of Guyana's floating currency system has exhibited a general tendency to decline (depreciate) over time. Table 2 shows that the rate declined substantially in April 1991 but appreciated slightly during the next six (6) months. It then depreciated marginally over the next two years and substantially in the first six months of this year, with yet another depreciation after four months of relative stability. In addition to the downward movement of the Guyana dollar, exchange rate variability has also been experienced.

Exchange rate turbulence/fluctuations can be expressed by the average percentage change over a period of time. Table 2 indicates the mean absolute monthly percentage change for the three major currencies for the period, January 1992 to June 1994. The figures show that exchange rates have varying volatility during the 1992-1994 period and between the United States, British and Canadian currencies.

Specifically, Table 2 illustrates that the short-run variability of the nominal exchange rates has been relatively more volatile in 1992 and 1994 than in 1993. Similarly, variability has not been uniform across currencies. While the exchange rate between the Guyanese and United States currencies has been relatively stable, except for the 1994 period, the rates vis-a-vis the Canadian and British currencies, respectively, have been quite volatile. It is important to note that this degree of volatility have been experienced at a time when the value of the Canadian dollar and British Pound have been depreciating and relatively stable against the United States dollar, respectively.

The empirical basis for the monetary approach is in the relationship between monetary variables and exchange rate movements. The evidence seems to suggest that, in Guyana, during the 1992-1994 period there was a direct relationship between monetary growth and downward movements of the exchange rate. Specifically, during the period under study, domestic money supply increased by 67 per cent while the Guyana-United States exchange rate depreciated 16 percent. The link, however, does not appear strong as in the 1992-1993 period there was a 52 per cent increase in the money supply and only - a meagre 5.2 per cent depreciation of the Guyana dollar vis-a-vis the U.S. dollar. In a similar manner, the

average month to month absolute percentage change in the money supply, as reported in Table 2, has been greater than that of the exchange rates of the three major currencies. This suggests that changes in the money supply have not been the over-riding determinant of exchange rate changes.

The elements of relative income growth and interest rate differentials that are used in the monetary model have not proved adequate in explaining the foreign exchange rate movements experienced in Guyana. Specifically, during the period under study, higher relative growth rate of the GDP was experienced in Guyana. This was supposed to induce an increase in relative domestic money demand which is associated with an appreciation of the Guyana dollar. Instead, the opposite has been the experience with a decrease in relative domestic money demand and the associated depreciation of the Guyana dollar. One reason for this may be the higher growth in domestic money supply and the presence of substantial excess liquidity relative to the increase in domestic money demand.

Interest rate differential which also has been relatively higher in Guyana, seems to be associated with the monetary approach outcome of a depreciation in the domestic currency during the August 1992-June 1994 period. According to the monetary approach, higher anticipated inflation is

associated with a higher nominal interest rate and therefore, there is a consequent decrease in real money demand and exchange rate depreciation. The latter is required to sustain asset market equilibrium. In Guyana, the period 1991-1992 witnessed a high nominal interest rate and expected real yields increased moderately. This led to an appreciation of the domestic currency. In August 1993, there was a decline in the nominal interest rate. Inspite of this, the nominal interest rate differential was still relatively high. The slow decline in the inflation rate, however, caused expected real yields to decline. This induced a decrease in relative domestic money demand and the depreciation of the Guyana dollar.

Currency substitution also appears to be a very important factor in explaining the decrease in relative money demand and exchange rate depreciation Guyana has experienced. Specifically, during the October 1993-June 1994 period, there is evidence of an increase in the anticipated rate of depreciation of the Guyana dollar through speculative flight of funds. This obviously suggests that the cost of holding domestic currency has been higher than that associated with the holding of foreign currency. The result, therefore, must have been an increase in the share of foreign money held in currency portfolios which would have induced the depreciation

of the Guyana dollar.

The asset theory of exchange rate determination also provides an explanation of the behaviour of exchange rates. Since Guyana's financial and exchange markets are shallow, the vast majority of resident Guyanese are unable to own securities of other countries. A larger fraction of domestic wealth is therefore being held in domestic assets relative to foreign assets. According to the portfolio approach, this supposedly increases the risk premium required by investors to hold foreign securities, and should, therefore cause an appreciation of the domestic currency. The Guyana dollar's tendency to depreciate seems to contradict the presumption of the portfolio approach. However, the role of expectation offers an explanation of the Guyana experience. Specifically, the unanticipated budget and current account deficits Guyana experienced after 1991 relative to the corresponding foreign deficits seem to have reduced the foreign exchange risk premium for investors wanting to hold foreign securities. This explains the depreciation of the domestic currency as portfolios readjusted in the direction of foreign currency or assets.

The role of expectation as spelt out in the monetary approach and asset market theory also seems to adequately illustrate exchange rate variability and stability in Guyana

during the period under study. For example, the general stability of exchange rate movement during the latter part of 1992 and most of 1993 can be partly attributed to the widespread optimism about political stability as well as to the macroeconomic policies of the incoming People's Progressive Party/Civic administration. New information of an unanticipated foreign exchange shortage during the latter part of 1993 and first half of 1994, caused a revision of expectation of the future exchange rate, resulting in a depreciation of the Guyana dollar. The stability of the exchange rates during the period May-September 1994 can also be explained by the same principle of expectation. The measures announced by the Government to stop the slide of the Guyana dollar in May 1994 undoubtedly resulted in a revision of future expectation of foreign exchange movements and, hence, the virtual unchanged exchange rate.

The extent to which new information is used and expectations formed are also important in explaining movements in the exchange rates. For example, the data set out in Table 3 show that while the net balance of foreign exchange in the cambio system was generally positive during the January-June 1994 period, the Guyana dollar declined substantially when rationality suggests an appreciation or a relatively unchanged value of the Guyana dollar. Further, the

experience of a substantial negative net balance of foreign exchange in the commercial bank cambios, with a market share of 77 per cent, also suggests that there should have been considerable depreciation of the Guyana dollar in 1993, originating largely from the commercial banks. Instead the Central Bank reported that a higher depreciation of the Guyana dollar was experienced in the non-bank cambios. This, therefore, seems to suggest that the observed exchange rates movements did not reflect all current available information. It is important to note, however, that while this phenomenon is indicative of an inefficient market, it would be quite difficult in this paper to judge the efficiency of markets. This requires consideration of the preference and information sets of agents as well as available technology and transaction costs which are all beyond this analysis.

Even though it is difficult to ascertain whether the foreign exchange markets are efficient or not, the experience during the January-June 1994 period suggested the presence of destabilizing speculations among non-bank cambios. Specifically, extraneous exchange rate expectations, such as unfounded rumors that the Guyana dollar would soon depreciate drastically to G$200 for US$1, were observed. Undoubtedly, this induced a run on the Guyana dollar during the period.

Knowledge of the sources of exchange rate movements may

not be sufficient to guide policy intervention. It is imperative to discern whether the movements have been excessive. The general view was that the large variability experienced at the onset of the floating exchange rate system would have faded away. This widespread expectation seems to suggest that the subsequent variability and decline of the Guyana dollar have been excessive. One way of evaluating whether exchange rate movements have been excessive or not, is through its comparison with movements in other variables. The results, however, are mixed when comparing exchange rate variability to treasury bills, national price levels and real effective exchange rate movements. Specifically, treasury bills, being one of the few securities traded in the organised financial markets in Guyana, have experienced greater volatility in rates (see Table 2) than exchange rate movements in 1992 and 1994. This seems to suggest that exchange rate movement in Guyana has been consistent with the asset market view that exchange rates will not adjust slowly and smoothly, but will, instead follow a random walk so that exchange rate variability may not be excessive. In comparison to national price levels, however, Table 2 shows that the nominal exchange rate changes have been larger, suggesting excessive variability. The real effective exchange rate movements, reported in Table 2, also suggest that nominal

exchange rate movements have been excessive, since the latter did not move so as to offset differential exchange rates and to maintain approximate purchasing power parity of the Guyana dollar.

5.0 RECOMMENDATIONS

The empirical analysis suggests that exchange rates in Guyana seem to change in response to relative domestic money supply growth, expectations and lack of understanding of the economic fundamentals of foreign exchange markets. With no clear cut means of immediately discerning the nature of the source of exchange rate movement and with no well defined measure of equilibrium exchange rate to judge the empirical relevance of excess movements, policy intervention to smooth out fluctuations in exchange rate may be questionable, difficult and costly. In principle, however, it is necessary to have intervention in the foreign exchange market when there are situations of substantial deviations.

With the variability of exchange rate experienced in Guyana partly explained by monetary disturbances, it is imperative that policies to dampen foreign exchange fluctuation should be directed towards contracting or eliminating monetary growth. There are two basic options - changing relative money supply or money demand. Empirical evidence suggests that those policies which alter the money

supply are more effective in affecting exchange rate (Obstfeld, 1983). But efforts by the Guyana Government to decrease the money supply by way of using higher yielding bearer bonds have been far from satisfactory. The over-subscription of this issue by 100 per cent during the first hour of the bonds sale indicates a larger than anticipated excess money balance. This balance will grow as a result of the accumulated yield on these bonds.

It is imperative that measures aimed at reducing relative domestic money supply should not be formulated and/or instituted independently. These must be considered along with the other elements of macroeconomic policy to ensure that destabilizing expectations, which have contributed significantly to exchange rate variability in Guyana, are reduced. Stable, credible and balanced policies are seen as the basic ingredients for the stability required for positive exchange rate expectations. Such policies allows market participants to better gauge the medium-term course of basic policies that will provide little to form a view about future exchange rates. As a result, speculative bubbles and bandwagon effects will become less prevalent.

Consistent discipline in policy-making as well as coordinated macroeconomic policies are also seen as the anchors for foreign exchange markets. However, an efficient

and deep foreign exchange market will require development of Guyana's financial markets. Since Guyana's financial markets are in the embryonic stage, a relatively efficient foreign exchange market may not be technically feasible in the short-run.

Given the consternation over excessive foreign exchange rate variability and the underlying constraints to smoothing out fluctuations in the short-run, official forecast or target zones for exchange rates may help to alleviate the situation. Specifically, it is argued that official forecasts help to form a view and to anchor future expected exchange rates. Such forecasts, however, have to be credible under the presumption that the authorities will implement-/institute balanced and coordinated policies. Credible zones, however, will require perfect or near perfect knowledge of the determinants of exchange rate movements or of equilibrium rates. If this condition is not met, the zones would be too wide to have a value as an anchor for expectations (Goldstein, 1984). In the case of Guyana, a consensual approach in the determination of target currency zones is recommended, through consultation among Government and key actors such as cambio dealers, importers and exporters, labour, opposition parties, and academics and students.

6.0 SUMMARY AND CONCLUSIONS

In Guyana, the period January 1992-June 1994 witnessed a general tendency of sustained depreciation as well as v arying degrees of exchange rate movements, depending on the time period and currencies being examined. These exchange rate movements are not random occurrences but have exhibited certain patterns that can be explained -by- theories of exchange rate determination, such as the monetary and portfolio approaches.

This analysis of exchange rate determination suggests that short-run exchange rate movements can be explained by monetary disturbances, expectations and a lack of understanding of the economic fundamentals of the market. The role of expectations, however, has been the over-riding determinant. Extraneous exchange rate expectation as well as destabilizing speculation on exchange rate have been two of the major phenomena that caused a run on the Guyana dollar during the latter part of 1993 and first half of 1994.

While it is empirically difficult to ascertain what constitutes an excessive exchange rate change, there is the general view in Guyana that exchange rate movements have been excessive and should be offset by Government intervention. Given the sources of exchange rate variability, policies

should be directed to alter monetary growth and to provide for a firm anchor on expectations of future exchange rate. This requires policies to be stable, credible and balanced. In view of the recent and continuing depreciation of the Guyana dollar, there is an ominous need for the authorities to undertake such policies to achieve the stable currency that is vital to the country's future growth and development. It is imperative, however, to have knowledge of what constitutes excessive exchange rate changes and/or of a well defined measure of equilibrium exchange rate.

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Appendix A

Table 1: Monthly Average Market Exchange Rate 1991 - 1994 (Mid-Rate)

	US $	C $	£
1991			
February	102.75	-	-
April	127.50	-	-
August	120.00	-	-
December	122.75	-	-
1992			
January	123.47	104.45	214.21
April	123.31	100.67	206.57
August	125.80	103.63	227.88
December	125.12	95.15	190.44
1993			
January	125.02	93.51	189.80
April	125.42	95.08	181.90
August	126.46	95.39	187.90
December	129.98	94.62	189.68
1994			
January	130.99	94.62	190.64
April	134.37	96.06	195.94
August	144.21	98.16	205.05

Source: Bank of Guyana

Appendix B

Table 2: Mean Month to Month Absolute Percentage Charges

January 1992 - June 1994

Period	C$	US$	£	REER[1]	CPI	T-Bills	MS
1992	1.4	0.62	3.0	1.14	.70	3.4	3.2
1993	.81	0.58	1.44	1.18	.75	1.2	2.4
1994	1.23	1.8	1.3	-	.97	2.96	2.3

Source: Author's Calculation; Bank of Guyana: Statistical Bullentin; IMF Information Notice System

1 Real Effective Exchange Rate

Table 3: Foreign Exchange Market (Cambio)

Net of Purchases and Sales of Currencies

	Commerical Banks			Non-Bank			Total			
Periods	US$	£	C$	US$	£	C$	Total	US$	£	C$
1990	3.25	0.46	0.08	0.25	0.11	0.03	4.17	3.50	0.57	0.11
1991	0.25	-0.16	0.41	-	-0.05	-0.08	0.46	0.25	-0.21	0.41
1992	0.25	-0.31	0.32	0.07	0.56	0.08	0.91	0.26	0.25	0.40
1993	-1.8	-0.04	-0.55	0.08	-	0.01	-2.2	-1.7	-0.04	-0.54
June 1994	1.35	-0.36	0.14	-0.34	-0.04	-0.07	0.68	1.0	-0.4	0.07

Source: Bank of Guyana: Statistical Bulletin; Author's Calculation