

FINANCIAL INTEGRATION AND INTEREST RATE LINKAGES  
BETWEEN NORTH ATLANTIC AND CARIBBEAN ECONOMIES:  
JANUARY 1968, TO DECEMBER 1976

BY

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Paper Presented at the Regional Monetary  
Conference. Nassau, Bahamas, October 10-12 1977.

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INTRODUCTION

A major controversy in Caribbean monetary economics is about the role of monetary variables and particularly about the degree of association between interest rates in the industrialised economies of the North Atlantic viz. Canada, the United States and the United Kingdom, and those in the Caribbean economies, namely, Guyana, Trinidad and Tobago, and Jamaica. Minor variants apart, there are two major streams of thought about the linkages in Caribbean interest rates; the Thomas [ 1965 ] stream and the Nevin [ 1961 ] - a la-McClean [ 1975 ] stream<sup>1</sup>. These differ, first, with respect to the behavioral assumptions underlying transnational branch-banks external borrowing and lending rates, and secondly, with respect to the relative importance of the Caribbean's banking and private non-banking sectors as providing the major link between North Atlantic and Caribbean interest rates. On the whole, however, the presumed dichotomy between the two streams of thought seems to be that while Nevin stressed the absolute predominant role of the Head Office of transnational branch-banks in determining the rate of interest that

prevails within the financial sectors of dependent economies, Thomas attaches prime importance to both structural and institutional factors.

The central issue in the dispute is partly theoretical but essentially empirical. At the theoretical level the dichotomy turns out to be much narrower when account is taken of the theoretical framework developed by Best and Levitt [1968] wherein both Thomas and Nevin theories can be interpreted as parts of a more generalised theory of a dependent macro-economic system. The controversy is however, wide open at the empirical level. Essentially at this level the matters that must be investigated are:

- (i) the impact of perturbations and institutional developments in North Atlantic economies on interest rates in the Caribbean, and
- (ii) the extent to which structural and institutional factors within the financial sectors of Caribbean economies inhibit the monetary authorities leverage over monetary policies.

It is the purpose of this article to give an explanation of the fluctuations which occurred in interest rates in the three major Caribbean territories between 1968 and 1976, and in particular to test the hypothesis that changes in these rates have occurred largely in response to the changing rate pattern in the United Kingdom . Thus, in this study we intend to do the following:

- (a) to develop and test a simple model of the U.K. money market so as to provide some explanations of the movements in the Caribbean interest rates, and

- (b) to explore the relationship between financial integration and interest as between Caribbean and North Atlantic countries by a statistical examination of some of the available data on short term interest rates within the two sets of countries.

While this study is an improvement on previous works in many ways, for example, it postulates that perturbations in the U.S. economy lead to variations in Caribbean interest rates and it takes into consideration a few of the controls and devices initiated by the U.S. Federal Reserve Board to influence the movement of capital in the post 1965 era, the analysis is restricted in three ways. First, only treasury bill rates are examined and nothing is said about commercial bank rates nor of the real sectors of the economies included in the study.<sup>2</sup> Secondly, despite rapid development of the Euro-dollar market and its influence on the borrowings and lendings of both banks and non-banks in North Atlantic economies, in the study the impact of the growth of the Euro-dollar market on Caribbean interest rates is not explored.<sup>3</sup> Thirdly, the influence of interventions by the Bank of England in support of Sterling and the impact of those measures on Caribbean interest rate is also ignored.

The article is structured along the following lines:

Section I provides the introduction to the study, while Sections II and III approximately follow the divisions given under (a) and (b) above. Specifically, in Section II we discuss the relationship between

North Atlantic and Caribbean money markets within a general conceptual framework, and this will also form the basis of certain empirical tests to be undertaken in this section. While in Section III statistical evidence as to the degree of harmonization between money markets is provided. Finally, in Section IV we present a summary of our findings and some conclusions are drawn with regard to the relationship(s) between North Atlantic and Caribbean interest rates.

## SECTION II: THE RELATIONSHIP BETWEEN THE U.K., OTHER NORTH ATLANTIC AND CARIBBEAN MONEY MARKETS.

The starting point in our examination of the relationship between North Atlantic and Caribbean money markets is an early work of Thomas (1965) wherein he expounded the view that under the Currency Board system, which prevailed in the Caribbean before the attainment of national independence, both banks and non-banks determined their borrowings and lendings on the U.K. market on the basis of a number of considerations; including the differentials in interest rates, the cost of moving funds, as well as the availability of domestic investment opportunities. He further emphasized that the major banks and non-bank business enterprises operating in the Caribbean were for the most part branches of transnational corporations having their Head Offices in the U.S. and Canada, and as a consequence of the traditional links between Caribbean and the U.K. money markets on the one hand, and between North Atlantic and U.K. markets on the other hand, the latter market acted as a financial intermediary in the transmission of funds to and from the Caribbean.

In the post 1960 era the setting up of Central Banks in politically independent territories as well as the problems that plagued the British economy and the phenomenal growth of the Euro dollar

as an international currency have probably weakened the influence of the U.K. money market as an international financial centre. But the importance of these factors is still a subject of debate. For example, in so far as the influence of the first factor is concerned Thomas (1972) claimed that the establishment of Central Banks in the Caribbean have been more symbolic of intent than achievement and 'in the strictest ways, the money and capital markets of dependent economies are intimately linked with those of their metropolitan centres'.<sup>4</sup> If this was true then the possibilities of substantial increases in the effectiveness of independent monetary policies in Caribbean economies would be seriously diminished, and perturbations in the international economy in general and in North Atlantic economies in particular ought to be reflected in the changes in Caribbean interest rates.

It follows from the preceding discussion that an econometric test of the relationship between Caribbean and North Atlantic money markets involves relating variations in the cost of funds in the latter markets to changes in Caribbean interest rates which in turn is jointly determined by the demand for and supply of Sterling. In other words, in the model we are proposing the Thomas framework will be modified to the extent that attention will be focussed on the U.K. money market so as to see the extent to which fluctuations in interest rates in North American money markets influence U.K. money markets rates and thereby Caribbean rates. If linkages between the U.K., North American and Caribbean money markets can be established by estimating a model of the U.K. money market, then

this will provide some evidence as to Thomas assertion that the U.K. money market acts as a financial intermediary. If this be the case then the restrictions on the movement of funds to and from the metropolitan economies associated with levels of economic perturbations may indeed be an effect as well as a cause of the fluctuations in Caribbean money market rates. Of course the framework as outlined is open to other modifications. For instance, the basic framework can be modified to incorporate regulations, directives and interventions by Central Banks in the Caribbean.

Further, allowances can be made for existing structural ~~in~~ imbalances within Caribbean economies in general, and on factors that impede the mobilization and utilization of capital in particular. But to do so would require the specification and estimation of a detail model of financial flows to and from the Caribbean and we feel that such an exercise is beyond the scope of this paper.

Having sketched the theoretical framework around which the model will be build, we now proceed to the operationalization of the model by making a few simplistic assumptions. For the sake of brevity let us first of all assume that only four money markets can be identified, namely, the Canadian, Caribbean, U.K. and U.S.A. markets and associated with these will be four Treasury Bill rates, respectively. In addition let us assume that North American and Caribbean interest rates are exogeneous to the model, in the sense that while they are assumed to influence the U.K. money market rate they themselves are not influenced by the



latter rate of interest.<sup>5</sup> In other words, in the model we assume that the U.K. interest rate is endogeneous. Posponing for the time being our discussion on the channels of influence between North Atlantic and Caribbean interest rates we next make a not too unrealistic assumption that the U.K. money is highly competitive, so that the level of interest rate on this market results from the interaction of factors on both the supply and demand sides.

On the basis of the preceding assumptions we can then adopt a simple approach to the determination of the U.K. rate by first identifying factors that influence borrowings (the demand side of the market), and secondly, on the supply side we can identify factors that influences portfolio choices between alternative financial assets.<sup>6</sup>

#### SYMBOLS UTILISED

$SI_{Can.}$	=	constellation of short term interest rates in Canada
$SI_{Car.}$	=	constellation of short term interest rates in the Caribbean
$SI_{UK}$	=	Sterling rate
$SI_{US}$	=	constellation of short term interest rates in the US
$SI_{CD}$	=	interest rate on US certificate of deposits
$SI_{RQ}$	=	interest rate <u>ceiling</u> on US certificate of deposits (Regulation Q)
$UK_I$	=	stock of indebttness in the UK money market
$UK_a$	=	stock of assets in the UK money market
NA	=	net autonomous demand for sterling

## THE DEMAND FOR STERLING LOANS

For the convenience of exposition we shall disaggregate Canadian and US borrowings on the UK money market from the Caribbean borrowings. Taking the US first, it would seem that the major factors which influenced her external borrowings in the immediate post 1965 period were the increased borrowing requirements created by rapidly mounting government expenditures as well as the various balance of payment limitations imposed by the Federal authorities.<sup>7</sup> As a result of these factors US banks relied more heavily on their overseas branches as sources of finance; the liabilities of US banks to their overseas branches, which increased from \$1.4 billion in 1965 to the high figure of \$2.3 billion in 1966, signifies the extremely high dependence on foreign sources for funds after the credit squeeze of 1966. Despite a slight deterioration in the trend between 1966 and 1967, the exacerbation in the demand for funds from overseas markets by US based banks continued up to the end of the 1960's. This is evident from the dramatic increase in the magnitude of the liquid liabilities of US banks to their foreign branches to \$7.0 billion in 1969. From 1970 onwards there was a significant reversal in US banks borrowings from their overseas branches, and this to a large extent corresponded with the relaxation of Federal Reserve restrictions on the extra-territorial movement of funds. In 1970 the liquid liability of overseas branches of US based banks to their Head Offices was \$6.3 billion but by 1976 the figure fell to \$1.5 billion.

Since the spread of US credit tightness to foreign money markets, such as the UK markets, is in the main determined by domestic factors, one of the key in understanding the relationship between the UK and US money markets over the period of analysis lies in a full evaluation of the role of Regulation Q ceiling rates on Certificates of Deposits (C Ds) in the US Monetary system. Basically the imposition of Regulation Q by the Federal Reserve Board leads to two distinct patterns of behaviour by US banks (and non-banks) in the domestic and foreign money markets and these can be distinguished as Case A when the regulation is inoperative and Case B when it is operative. We shall now examine each case in some detail.

In Case A, when US money market conditions are relaxed, the alternative to employing dollar balances in the U.K. market is of course to continue to keep them on time deposits in US based banks so that the rate offered on negotiable time deposits (C Ds) sets a lower limit to Sterling rate. But normally the Sterling rate exceeds the rates on (C Ds), hence U.S. banks would find it more financially rewarding to employ their excess funds in the UK market. Now if we assume that there is a sudden upsurge in the demand for capital during the slack period US banks will determine their borrowings on the UK markets by comparing the cost of funds on the latter market with the cost of obtaining funds domestically. Evidently domestic funds must be obtained either by running down accumulated profits (an internal source of funds to the enterprise), and/or by liquidating domestic assets (for example Treasury Bills),

and/or by resorting to borrowings on the Federal funds market, and/or by increasing the rate on C D's. It is apparent that the rates of interest on these sources of funds ( $SI_{US}$ ) will represent element of cost to the banks. An additional element of cost will, however, be the reserve requirements imposed by the monetary authorities in the individual money markets on different types of deposits. If for example, the assumption is made that the Bank of England imposes a high reserves requirement on funds held by US branch banks in the UK, while in the US there is no reserve requirements, then funds obtainable from US branch banks within the UK may be more costly relative to that obtainable from domestic sources (that is within the US). The higher the cost of obtaining funds from external sources relative to domestic sources, the greater the likelihood that US banks will resort to domestic borrowings. In other words, if  $SI_{UK} > SI_{US}$  then most likely than not US based banks will resort to domestic borrowings and the effective rate of interest will be the US Treasury Bill rate.

In periods of credit restraint within the US, when Regulation Q is operative, the analysis achieve added complexity. The inability of financial institutions to tap their most readily accessible source of funds, time certificates of deposits (C Ds) will be limited by the Regulation Q ceiling on C Ds rates and this can precipitate radical changes in their portfolio behaviour. For instance, if the US market rate of interest increases as a consequence of a general credit restraint the banks may run down their cash reserves if these are adequate to meet existing exigencies.

However, many institutions may seek funds from alternative sources; they may liquidate assets on the short end of their portfolio, or they may retain their short term assets and tap the federal funds market. But if the financial institutions feel that the potential loss on their earnings which result from a liquidation of short term assets and/or from the acquisition of Federal funds is too high they may very well choose to obtain funds from the UK market in which case the effective rate of interest will indeed be the interest rate on Sterling.

Given the central role played by Regulation Q in US financial institutions behaviour it can be seen then that the relationship between the C D rate and the Regulation Q ceiling is a <sup>/critical</sup> element in the demand for Sterling. In other words, the differential between the US rates and the Regulation Q ceiling may very well determine the extent to which resort is made of the Sterling market by US banks and non-banks. In the model we are proposing the difference between secondary market C D rate and the Q ceiling ( $R_q = SI_{cd} - SI_{Rq}$ ) is used as a measure of both the effectiveness of Federal monetary policies and the importance of Sterling borrowings.

#### OTHER DEMAND FOR STERLING

While recognising that a significant amount of loans are made by the UK to member countries of the Sterling Area we chose to ignore these and concentrate our attention on the loan demands of Canadian and Caribbean banks and non-banks. Over the analysis period Sterling loans to Canadian borrowers were to a large extent influenced by US restrictive monetary policies. In particular,

because US branch banks in Canada were not subjected to US regulatory constraints the policy evolved whereby US based banks circumvented the various Federal monetary regulations by borrowing indirectly from the U K money market through their Canadian branches. But because of the difficulties involved in distinguishing between Sterling loans made to Canadian banks for domestic use and loans made on behalf of the Head Office in the U.S., we simply assumed that the only factor influencing Canadian banks borrowings and lendings on the U.K. money market is the differential between Canada's domestic interest rates ( $SI_{Can.}$ ); if  $SI_{UK} \leq SI_{Can.}$  then Canadian financial institutions will obtain funds from the UK market.

Turning to the borrowings of Caribbean banks and non-banks on the U.K. money market we hold the view that these institutions indebtedness are in the main determined by the differential in interest rates ( $SI_{UK} - SI_{Car.}$ ). However, factors such as expectation of changes in interest rates, the cost of transmitting funds, and the various regulations and directives given by Central banking authority in the region also play a role but these are difficult to quantify. We assume, therefore, that any increase in Sterling rate vis-a-vis the existing interest rate in the Caribbean will lead to a shortrun fall in the stock of Caribbean indebtedness, if other variables are assumed to be constant. Correspondingly, a decrease in reserve requirements on foreign liabilities, if instituted by the Caribbean, will lead to an increase in Caribbean indebtedness on the U.K. money market. Forward market intervention by the

Caribbean Central Bank can also provide an incentive for both banks and nonbanks to borrow Sterling. On the other hand, if financial and non-financial investors in the Caribbean expect a devaluation of Sterling relative to the U.S. dollar then this can lead to a withdrawal of funds from the U.K. market to the U.S. market.

Given the fact that most Caribbean Governments have been traditional borrowers on the U.K. market allowance must also be made for such net autonomous demands. This is done by the inclusion of the explicit explanatory variable,  $NA$ , in the Sterling demand function. Finally, to account for the interventions by the Bank of England to maintain the par value of Sterling relative to the U.S. dollar we include variable,  $IN_{ns}$ , in the demand equation; an increase in  $IN$  leading to an increase in net borrowings on the Sterling market, whereas a fall have an opposite effect.

Taking into consideration the variables that have been defined and discussed above we can express the demand function for Sterling as:

$$SI_{UK_I} = \beta_1 [SI_{US} - SI_{UK}] + \beta_2 [SI_{CD} - R_q] \\ + \beta_3 IN_s + \beta_4 (SI_{Can} - SI_{UK}) + \beta_5 (SI_{Car.} - SI_{UK}) + A$$

## THE SUPPLY OF STERLING DEPOSITS

Turning now to the supply side of the U.K. money market we posit the view that the supply of funds from Canadian, Caribbean and US sources will be influenced primarily by the differential in interest rates. But evidently the various restrictions and regulations imposed by the various monetary authorities also exert an inhibiting influence on the flow of funds to the U.K. Likewise autonomous factors also play part in determining the supply of funds; inordinately high Caribbean borrowings can severely restrict the stock of assets on the UK market.

If the assumption is made that all restrictions, regulations and autonomous demands of the countries supplying funds to the U.K. can be accounted from the demand side of the U.K. market then the supply function for Sterling can be expressed as follows:

$$SI_{UK_a} = \alpha_1 (SI_{UK} - SI) + \alpha_2 (SI_{UK} - SI_{Can.}) + \alpha_3 (SI_{UK} - SI_{CAR.}) \quad (2)$$

## EQUILIBRIUM IN THE U.K. MONEY MARKET

Taking the existing demand and supply relationship developed in the preceding sectors, we assume the equilibrium exists on the UK market, so that supply equals demand. Based on this assumption the linear equation for the U.K. money market rate can be summarized as:-

$$SI_{UK} = L SI_{US} + M SI_{Can.} + N SI_{CAR.} + \frac{\beta_2}{Z} R Q + \frac{\beta_3}{Z} IN_s + \frac{1}{Z} A$$



where

$$Z = [(\beta_1 + \alpha_1) + (\beta_4 + \alpha_2) + (\beta_5 + \alpha_3)];$$

$$L = \frac{\beta_1 + \alpha_1}{Z}; \quad M = \frac{\beta_4 + \alpha_2}{Z} \quad \text{and} \quad N = \frac{\beta_5 + \alpha_3}{Z}$$

As can be seen from this equation the determinants of the U.K. interest rate will be the U.S. Treasury Bill rate ( $SI_{US}$ ), the Canadian rate ( $SI_{Can.}$ ), the Caribbean rate ( $SI_{Car.}$ ), the regulation Q variable ( $Rq = SI_{cd} - SI_{rq}$ ), an index for interventions by the bank of England ( $I_{NS}$ ), and autonomous Sterling borrowings (NA). But before passing on to the estimates of the parameters we feel that it is necessary to discuss, within the framework of the fully defined model, the possible impact of variations in the US rates on the U K rate initially and on the Caribbean rate ultimately. Since 'L' is a positive fraction the model implies that any increase in the US rate will lead to a corresponding increase in Sterling borrowings, and associated with this there will be a movement from Sterling assets into US assets. When the stock of Sterling assets decline this will precipitate an upward movement in Sterling's rate and such a movement will lead to a positive flow of funds from the Caribbean to the U.K. money market as well as a reduction in Caribbean banks and non-banks loan demands. But in the event that Regulation Q is operative then this most likely than not will

exacerbate the demand for Sterling and thereby lead to an increase in the rate. Alternatively, any increase in the reserve requirements on Sterling borrowings by financial institutions in the US, assuming that the demand for other forms of deposits remain constant, will lead to a fall in the demand for Sterling and this, *ceteris paribus*, can lead to a fall in Sterling rate.

Having discussed the likely effects of changes in the explanatory variables on the UK rates, we can now turn to the question of the relationship between the  $\alpha$  and  $\beta$  coefficients. In Equation (3) the coefficients  $\beta_1$  and  $\alpha_1$  represent flows to and from the US market to the U.K. market respectively; on the other hand the coefficients  $\beta_4$  and  $\alpha_2$  indicate the flow to and from Canada, and the coefficients  $\beta_5$  and  $\alpha_3$  highlight the flows to and from the Caribbean. If we assume that arbitrage is initiated by U.S. based banks (and non-bank) then  $\beta_1 > \alpha_1$ . Conversely, if we assume that arbitrage is initiated in the Caribbean we would then expect  $\beta_5 > \alpha_3$ . And if arbitrage is initiated by Canadian banks we would expect  $\beta_4 > \alpha_2$ . Nonetheless, with the predominance of the US in the world's economic activity it would be reasonable to expect that changes in the US rate will generate more sympathetic movements in the UK rate than any independent changes in the Canadian or Caribbean rates, hence we would expect that  $\beta_1 > \beta_4 > \beta_5$ .

If it is indeed true, as Thomas asserted, that up to the early 1970's Caribbean and U.K. money markets were almost perfectly integrated, then in terms of Equation (3) this would mean that  $\beta_5 + \alpha_3 \rightarrow \infty$  and financial perturbations, in the U.K. will

determine Caribbean interest rates. Also if U.K. and U.S. as well as U.K. - Canadian assets are perfect substitutes, as has also been implied, then one would expect  $\beta_1 + \alpha_1 \rightarrow \infty$  and  $\beta_4 + \alpha_2 \rightarrow \infty$ . In other words, the preceding relationship imply that when US and Canadian banks dominate the movement of funds across the Atlantic the only considerations that will determine the level of interest in the Caribbean money market will be the relative costs and availability of assets in the former markets. Finally the impact of autonomous borrowings on the U.K. market can be gauged from the magnitude of the coefficient  $\frac{1}{z}$ .

#### THE ESTIMATION OF THE MODEL

So far the model as specified is subjected to a number of limitations and in this respect two of the most glaring from a theoretical point of view lie in our implicit assumptions of a single Caribbean rate of interest and that no intra- Caribbean flow of funds take place. Evidently such assumptions are far from reality. For one, it is quite recognisable that each Caribbean territory has its own specific regime of interest rates and as such these may differ significantly from those of other territories. Correspondingly, available evidence also lends support to the view that substantial transfer of funds between branches of transnational branch banks have been a common place feature in the Caribbean in Post War years.<sup>8</sup>

To surmount the first shortcoming indicated above it was necessary and possible to specify individual interest rates

for Guyana, Jamaica, and Trinidad and Tobago so as to distinguish among their separate effects on the U.K. rate. The situation was quite different for the second problem area for while we recognise the importance of taking into consideration the effect of intra-Caribbean flows of funds in an exercise such as this one, we felt that in the absence of any detail analysis of such flows there is no other option but to omit these from this exercise.<sup>9</sup> We feel, however, that such an omission should not detract too much from the value of the present exercise.

A third shortcoming, and perhaps this is the most fundamental, must also be noted. While the supply and demand equations specified follow the theoretical framework upon which the study is based, because of scanty data and the general unquantifiable nature of many of the variables, for simplicity in the actual estimating equation we utilised only four variables explanatory variables. There are times when this approach would do serious violence to the description of the determination of the U.K. interest rate. Nonetheless, it seems more likely that the U.K. rate are more directly related to the U.S. rate so that the approach chosen may not be too grave a misrepresentation of money market realities. In the estimating equation presented below a monthly series of U.K. three month Treasury Bill rate (January 1968 to December 1976, 108 observations) has been regressed on the three month US, Guyana, Jamaica and Trinidad and Tobago Treasury Bill rates, a dummy variable representing speculation against Sterling, and a variable representing the effect of Regulation Q in the U.S.

The Equation is:

$$SI_{UK} = L SI_{US} + M SI_{Car.} + N SI_{Car.} + \frac{\beta_2}{2} RQ + \frac{1}{2} \cdot Dum_A + \mu$$

where the variables in order of appearance are:

$SI_{UK}$  = the three months UL Treasury Bill rate

$SI_{US}$  = the three months US Treasury Bill rate

$SI_{Car.}$  = the three months Guyanese, Jamaican and Trinidad and Tobago Treasury Bill rates.

$Dum_A$  = a dummy representing the effect of the Arab Oil Embargo, taking a value of zero in the months preceding October 1973 and unity elsewhere.

$RQ = SI_{cd} - SI_{Rq}$  = i.e. C D rate less Regulation Q ceiling rate. Effective during May 1968 to June 1970 and set at zero at all other months.

The least squares estimates based upon actual levels and first differences are set out below. Parameter estimates are given with their standard errors in parenthesis together with the (corrected) coefficient of determination  $R^2$ , and the Durbin-Watson statistic, D.W.

$$(Equ.1) SI_{UK} = 6.190 + 0.434 SI_{US} + 0.354 SI_{Car.} + 0.066 SI_{T,dad}$$

(6.284) (0.106) (0.085) (0.176)

$$+ 0.935 SI_{Jam.} - 1.313 SI_{Guy.} - 0.014 RQ$$

(0.124) (0.105) (0.132)

$$R^2 = 0.854 \quad SE = 0.969 \quad D.W. = 0.387$$

The overall goodness of fit of the model as indicated by Equation (1) is very gratifying with  $R^2$  equal to 0.854, although the test of serial correlation in terms of the Durbin-Watson statistic

(D W ) indicates the presence of serial correlation. However, despite this weakness the equation has some implications. Thus, it reveals that the UK Treasury Bill rate is directly related to the US, Canadian and Jamaican rates; and inversely related to the Guyanese rate. Both the Trinidad and Tobago, and Regulation Q variables do not seem to exert much influence on the UK rate, for apart from the coefficients of these variables, all the other variables have statistically significant coefficients. The magnitude of the Jamaican coefficient suggests that almost perfect arbitrage exists between Jamaican and UK markets, while this is not the case of the other Caribbean markets. The result also shows that the combined influence exerted by Caribbean interest rates on the UK is much less than was expected and is far less than the combined influence of North American interest rates. For instance, a one percentage point increase in Caribbean interest rate leads to a fall of 0.312 percentage points on Sterling rate. On the other hand, a one percentage point rise in North American interest rate results in a 0.774 point rise in Sterling rate when Regulation Q is operative, and a 0.788 percentage point rise when Regulation Q is inoperative.

Equation (2) offers estimates of the parameters of the UK interest rate model, using a dummy variable to capture the effects of the Arab Oil embargo of 1973.

$$\begin{aligned}
 \text{(Equ. 2)} \quad SI_{UK} &= 6.410 + 0.423 SI_{US} + 0.357 SI_{Can.} \\
 &\quad (7.952) \quad (0.115) \quad (0.107) \\
 &+ 0.071 SI_{T'dad} + 0.942 SI_{Jam.} \\
 &\quad (0.205) \quad (0.198) \\
 &- 1.359 SI_{Guyana} - 0.013 RQ - 0.034 Dum \\
 &\quad (1.501) \quad (0.133) \quad (0.740) \\
 \bar{R}^2 &= 0.854 \quad SE = 0.974 \quad D.W. = 0.387
 \end{aligned}$$

We see relatively little changes in the estimated coefficients of the specified variables, and it would seem, inferentially, that the influence of the Arab Oil embargo in Sterling rate is marginal.

Concerning the problem of serial correlation evidenced in the preceding equations, it should be mentioned that we experimented with first differences of the variables and results obtained are shown in Equations (3) and (4) below.

$$\begin{aligned}
 \text{(Equ.3)} \quad SI_{UK} &= 0.057 + 0.205 \Delta SI_{US} - 0.067 \Delta SI_{Can.} \\
 &\quad (0.055) \quad (0.093) \quad (0.172) \\
 &+ 0.408 \Delta SI_{T'dad} + 0.662 \Delta SI_{Jam.} \\
 &\quad (0.363) \quad (0.197) \\
 &+ 0.507 \Delta SI_{Guyana} - 0.003 \Delta RQ \\
 &\quad (1.629) \quad (0.126) \\
 \bar{R}^2 &= 0.173 \quad SE = 0.556 \quad D W = 1.803
 \end{aligned}$$

$$\begin{aligned}
 \text{(Equ. 4)} \quad SI_{UK} &= 0.052 + 0.206 \Delta SI_{US} - 0.069 \Delta SI_{Car.} \\
 &\quad (0.063) \quad (0.093) \quad (0.173) \\
 &+ 0.411 \Delta SI_{T' dad} + 0.680 \Delta SI_{Jam.} \\
 &\quad (0.366) \quad (0.199) \\
 &+ 0.486 \Delta SI_{Guyana} - 0.003 \Delta RQ \\
 &\quad (1.645) \quad (0.127) \\
 &+ 0.016 D_{1m} \\
 &\quad (0.113)
 \end{aligned}$$

$$\bar{R}^2 = 0.173 \quad SE = 0.559 \quad DW = 1.804$$

The overwhelming impression from the above results is that even if serial correlation is partially eliminated, Caribbean rates still have a negligible (negative) influence on the UK rate.

In sum then, the evidence as to the existence of the UK money market as a financial intermediary here reported is inconsistent with the view's generally expressed by monetary theorists in the region. It seems clear also that at least under some circumstances there is a plausibly strong relationship between the UK and North American interest rates.

### SECTION II I: STATISTICAL EVIDENCE OF INTEREST RATE HARMONIZATION

We now come to the crucial question which the study is designed to investigate. What has been the degree of interest rate harmonization over time? Has there been a relative increase in the degree of financial integration between North Atlantic and Caribbean money markets or has perturbations in economic activity in the North Atlantic economies loosened financial ties? Here we should make a clear distinction between interest rate harmonization which is induced by factors which are internal to Caribbean economies



and factors which are externally generated. Generally as direct investment by transnational banks and non-banks increase within the Caribbean there will be some increase in the degree of financial integration. But foreign investment in the Caribbean is so dispersed that careful study of the available data is required in order to identify the outlets and so measure the degree of financial integration. Another indication of enhanced financial integration is the degree to which North Atlantic and Caribbean money markets reflect the degree of substitutability between their securities. But both of these indicators do not say anything about the strength of the relationship between prices. While the increase in foreign investment in the Caribbean may imply enhanced financial integration, the dispersion of investment may vary from territory to territory. Again, even though there may be substitutability in securities, various impediments in Caribbean money markets may weaken interest rates linkages.

Therefore, the more interesting point that will be investigated is to what extent movements in Caribbean interest rates have been associated with an increase (or decrease) in metropolitan interest rates over the analysis period. Three techniques have commonly been used to indicate the degree of financial integration between countries,<sup>10</sup> namely:-

- (i) the mean, standard deviation and coefficient of variation test
- (ii) the trend test of interest rates differentials, and

## (iii) the correlation test

The first measure rests, basically, upon the idea that movements in the various interest rates take place around some average level which persists over a long period of time. It must be noted however, that while such a measure leads to an insight into the possible trends in financial integration it suffers from a major shortcoming; it does not provide an insight into the influence of internal economic development within a given country on the integration of interest rates.

The second measure which is based upon an examination of interest rates differentials between various economies is also unsatisfactory but for different reasons. It has been shown elsewhere that while this measure provides information on the trends in individual countries interest rates, it suffers from the major defects of not providing information about the degree of financial integration within a particular country as well as on the degree of financial integration between different countries.

The third measure correlation analysis, although not being without criticisms tends to surmount the basic defects evident in the other measures. For one, it has the advantage of providing some information on the degree of financial integration within a country and correspondingly it gives some insight into the trends and differences in financial integration as between the various economies.

## THE ANALYSIS

In Table 1 we present the results obtained from the application of our first test to the Treasury Bill rates for the six economies being investigated for the period 1968 through 1976. An examination of the Table shows that except for 1971 there was a substantial decline in the dispersions around the means short term interest rates of North Atlantic economies for the five years, 1968-1972. Since international foreign exchange pressure against the US dollar exacerbated in 1971, it is conceivable that the sharp increases in dispersion evident in that year may have been a reflection of the uncertainty that surrounded this currency in the capital markets of the U.K., Canada, and the U.S. From 1973 onwards the dispersion increased steadily suggesting a greater degree of divergence between North Atlantic capital markets.

Unlike the North Atlantic case, the dispersions around the mean Caribbean interest rate increased rapidly between 1968 and 1973. However, in the two years 1973 and 1974 there was a decline in dispersion, but a sharp increase again became evident in 1975 and 1976. The downswings in dispersion evident in 1973 and 1974 cannot be easily explained, but they could conceivably be attributed to an aggravation of the recession experienced in the North Atlantic countries in the late 1973 when the organization of Petroleum Exporting Countries (OPEC) imposed an embargo on oil exports.

A few tentative conclusions could be drawn from this test and these are:

TABLE 1  
INTERNATIONAL CONVERGENCE OF SHORT TERM INTEREST  
RATES 1968-1976

YEAR	MEAN		STANDARD DEVIATION		COEFFICIENT OF VARIATION (d)	
	Caribbean Economics	North Atlantic Economics	Caribbean Economics	North Atlantic Economics	Caribbean	North Atlantic Economics
1968	5.65	6.41	0.83	1.04	0.15	0.16
1969	4.85	7.13	1.90	0.72	0.39	0.10
1970	5.11	6.48	1.44	0.52	0.28	0.08
1971	4.98	4.52	1.63	1.29	0.33	0.29
1972	4.45	4.17	1.27	0.73	0.29	0.18
1973	5.00	6.57	0.96	0.95	0.19	0.14
1974	6.25	9.28	0.82	1.76	0.13	0.19
1975	5.59	7.38	1.48	1.93	0.26	0.26
1976	5.72	8.44	1.67	2.86	0.29	0.34

- (a) Average rate for June of indicated year
- (b) Guyana, Jamaica, and Trinidad and Tobago
- (c) Canada, U.S.A. and the United Kingdom. For all of the countries listed above unweighted mean and standard deviation of three months Treasury Bill has been calculated.
- (d) Standard deviation divided by mean.

Source: - Underlying data from various issues of International Financial Statistics and Caribbean Central Banks Annual Reports.

- (a) that up to 1972 Caribbean money markets experienced greater disharmony when compared to North Atlantic money markets;
- (b) recessions in the North Atlantic economies probably led to a convergence of Caribbean money markets on the two years 1973 and 1974; and
- (c) that the Arab Oil embargo and its aftermath probably played a substantial role in the divergence of North Atlantic economies after 1973.

Turning now to our second test, Charts 1-3 below highlight the movements in the uncovered interest rate differentials over the 108 months of our analysis. An examination of these Charts indicates, first of all, that the differentials in the individual UK - Caribbean rates are quite high especially after 1970. This seem to suggest that the sharp fluctuations in the sterling rate after 1972 provided substantial changes in Caribbean interest rates as well as increased interventions on short term capital movements.

Secondly, sharp increases in the Canadian -Caribbean differentials are less evident. In a large measure this implies there was a tightening of financial relationship between Canada and the Caribbean in general, but moreso with Guyana and Trinidad and Tobago over the years 1974 and 1975. Thirdly, the relationship between the US and Caribbean markets also strengthened but this only occurred after 1971. We must therefore conclude that the results of this test unequivocally reject the hypothesis that Caribbean economies are financial appendages of North Atlantic economies; more generally the results reject the hypothesis of any systematic relationship between Caribbean and North Atlantic money markets.

CHART 3. CARIBBEAN COUNTRIES - INTEREST RATES DIFFERENTIALS  
(CANADIAN RATE LESS DOMESTIC RATES) JANUARY 1968 - DECEMBER 1976  
(IN PERCENT PER ANNUM)

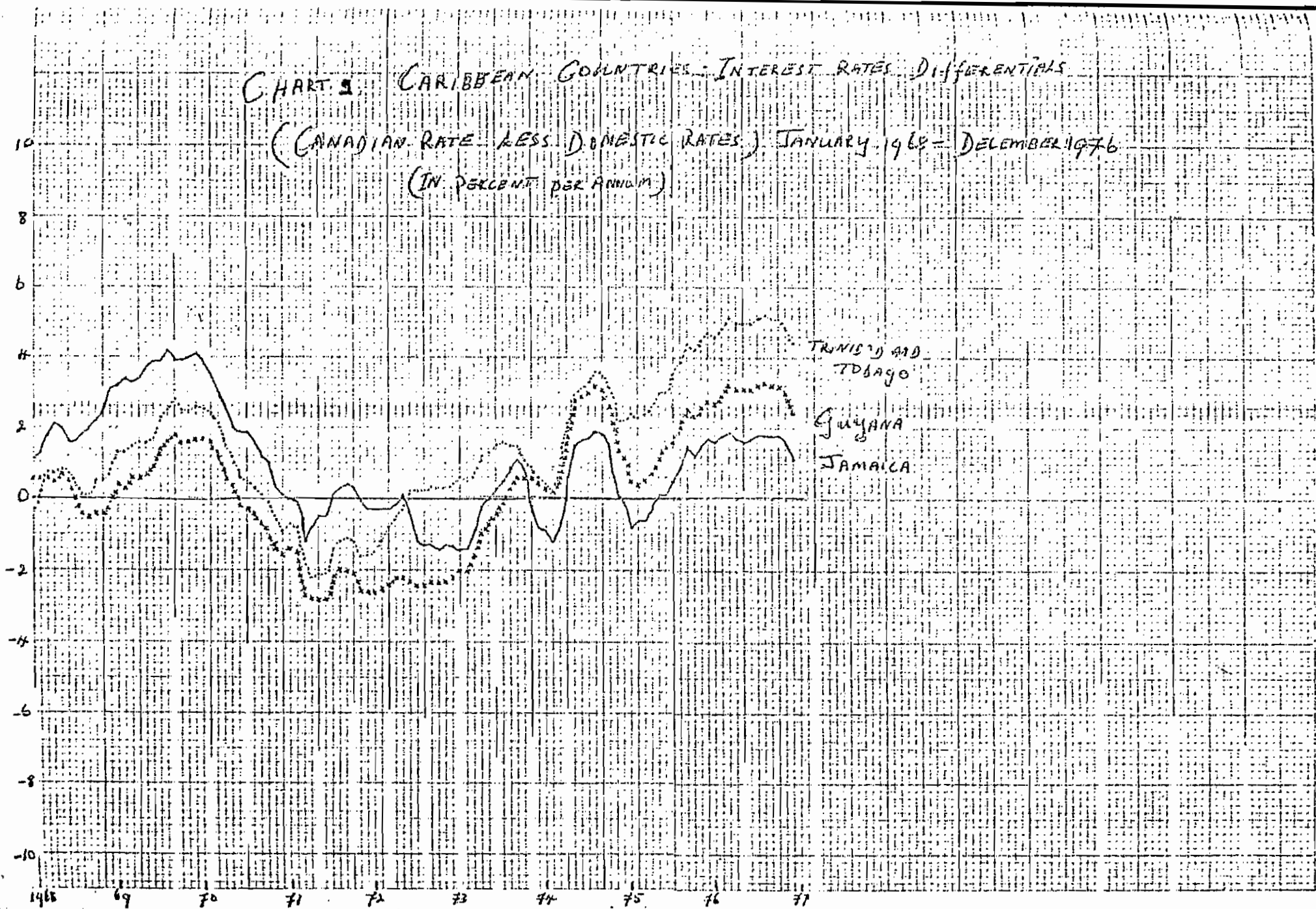
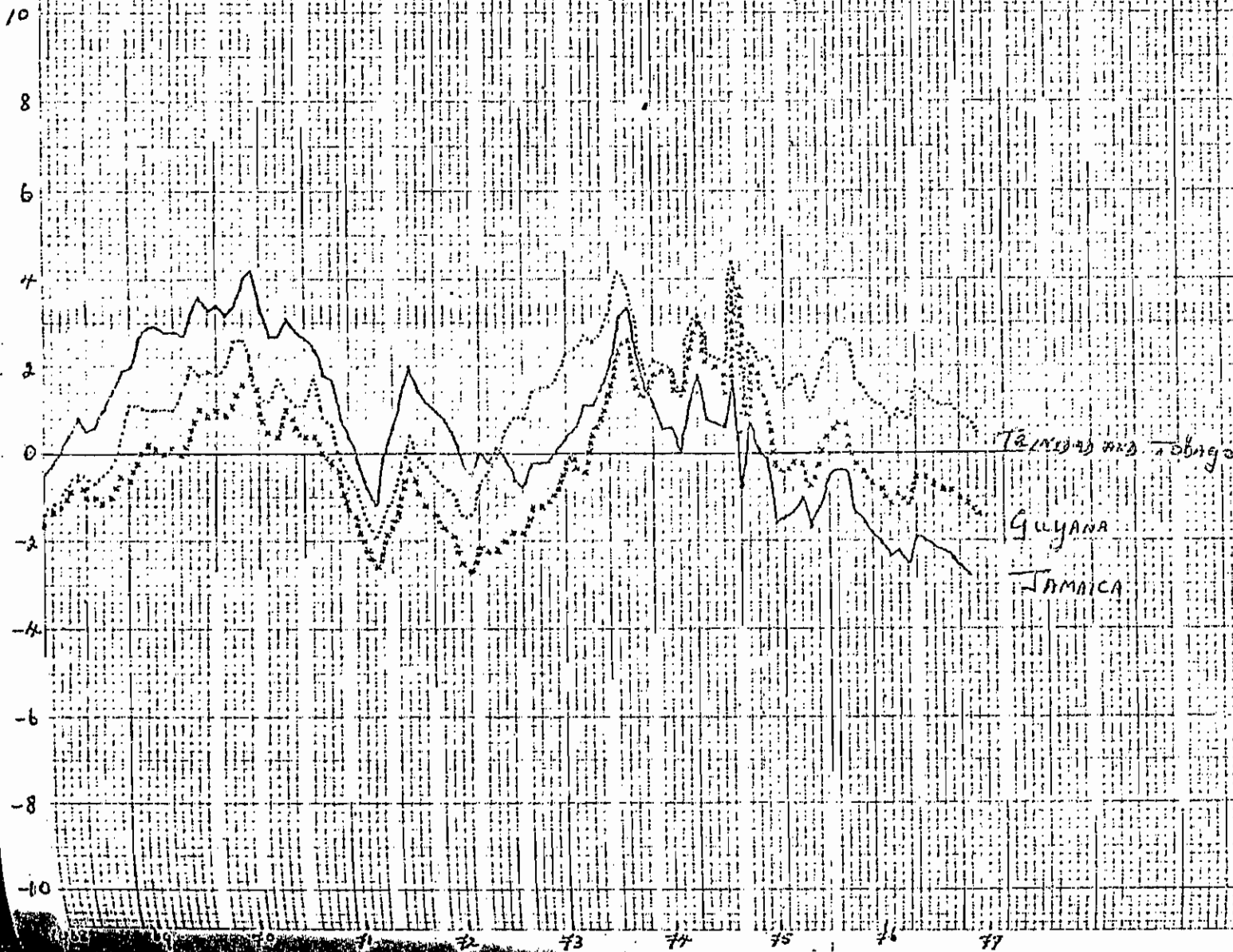


CHART 3 CARIBBEAN COUNTRIES: INTEREST RATE DIFFERENTIALS  
(U.S. RATE LESS DOMESTIC RATES) JANUARY 1968 - DECEMBER 1976  
(IN PERCENT PER ANNUM)



As a check on these conclusions, we utilised a technique suggested by Argy and Hodjera and expressed the Caribbean interest rate differentials, without regard to signs, as a proportion of the UK, US, and Canadian rates, respectively. Thus an increase in the proportionate differentials will represent a decrease in financial integration.

To probe the effects of the Arab Oil crises on the harmonization of the various interest rates, three distinct periods were defined so that comparisons could be made between periods. The first period covered January 1968 to September. This period preceded the Oil crisis and also represented the early phase in the development of Central Banking in the Caribbean. As such, we expect the estimated trend coefficients to be small. The second period covers October 1973 to December 1976 and spans the months over which the Arab Oil Embargo and its aftermath had an important influence on international financial flows. Since this was the period when financial restrictions in the Caribbean were intensified, we expect the coefficients of the trend variable to be high. For the sake of completeness, a third period was defined to cover January 1968 to December 1976.

Tables 1-9 in the appendix sets out the results of the regression analysis carried out on the proportional differentials based on a linear model with time (T) as the explanatory variable. When the trends were fitted against the US differentials for the entire period the three Caribbean countries - Guyana,



Jamaica, and Trinidad and Tobago - all showed insignificant coefficients the first and last countries showing positive signs and Jamaica's being negative. In the first subperiod, January 1968 to September 1973, however, the trend coefficients for Guyana and Trinidad and Tobago were positive and significant indicating weak harmonization with the US money market; in the case of Jamaica the coefficient was also significant but negative. Over the second subperiod negative and significant coefficients were evidenced in the case of Guyana and Trinidad and Tobago. The Jamaican coefficient behaved differently and showed a positive sign but was significant.

The rate of increase in financial harmonization between the UK and individual Caribbean money markets as indicated by the UK differentials varied widely. In terms of Guyana, and Trinidad and Tobago differences in the coefficients of the trend terms were comparatively small over the 1968-1976 period; both were less than 0.1 although significant. It is a bit surprising however, that Jamaica showed no relationship with the UK market. Over the first subperiod /<sup>the</sup> impact of the UK market on the Jamaican rate was more pronounced as the trend coefficient was negative and significant. The other Caribbean countries on the other hand, showed a decrease in financial integration. Turning to the second subperiod we see that only the Trinidad and Tobago, and UK markets were related but even so the degree of financial harmonization was even less than in the earlier period. Compared with the results based upon the US proportionate differentials, perturbations within the Canadian money

market over the period 1968-1976 seemed to have a distintegrative impact upon Caribbean money markets.

The coefficients of the trend variable for Guyana and Trinidad and Tobago reflect to some extent changes within the Canadian money market. However, the coefficient for Jamaica indicate, little, if any response to Canadian money market adjustments. When we examine the coefficients for the two subperiod there was a fair degree of disharmony between the Canadian, Guyanese and Trinidad and Tobago markets but the Jamaican market showed some interrelationship. In the second period, we see the disharmony between the Canadian, Guyanese and Trinidad and Tobago markets was strong and protected; however the reaction of Jamaica was opposite to that evidenced in the earlier period - a decline in the integration of the two markets was evident after October 1973.

We show, finally, the results of our application of simple correlation analysis between each North Atlantic economy interest rate and those of each Caribbean country. It may be noted that again the analysis extends over the three periods mentioned above and as such we expect that correlations will be high in the first period, and much lower in the October 1973 - December 1976 period.

Before passing on to the discussion of the results it may not be out of place to mention at this time that high correlations do not necessarily imply a high degree of financial integration between the various money markets.<sup>10</sup> For one it has been shown that high correlations may simply mean that the economies being investigated

TABLE 2

## CORRELATION MATRIX OF CARIBBEAN AND NORTH ATLANTIC

INTEREST RATES: JANUARY 1968- SEPTEMBER 1973

NUMBER	VARIABLE NAME		MEAN	SUM OF SQUARES
1	Guyana	1	6.02029	1. 53659
2	Jamaica	2	4.18348	31. 5216
3	Trinidad & Tobago	3	4.88739	46. 8355
4	Canada	4	5.30536	162. 958
5	United Kingdom	5	6.83565	131. 996
6	United States	6	5.57783	112. 778

## CORRELATION MATRIX -LOWER TRIANGLE

	1	2	3	4	5	6
Row 1	1.000000					
Row 2	0.080569	1.000000				
Row 3	0.780488	-0.251221	1.000000			
Row 4	0.702746	-0.081983	0.553933	1.000000		
Row 5	0.268971	0.439004	0.093615	0.612749	1.000000	
Row 6	0.246492	0.068313	0.155235	0.771090	0.782105	1.000000

TABLE 3

## CORRELATION MATRIX OF CARIBBEAN AND NORTH ATLANTIC

INTEREST RATES: OCTOBER 1973 - DECEMBER 1976

NUMBER	VARIABLE NAME		MEAN	SUM OF SQUARES
1	Guyana	1	5.88026	0. 00010
2	Jamaica	2	7.07333	3. 08707
3	Trinidad & Tobago	3	4.59333	24. 2417
4	Canada	4	7.90333	47. 0209
5	United Kingdom	5	10. 9672	68. 1436
6	United States	6	6.30718	70. 6804

## CORRELATION MATRIX -LOWER TRIANGLE

	1	2	3	4	5	6
Row 1	1.000000					
Row 2	-0.797617	1.000000				
Row 3	0.159806	-1.037839	1.000000			
Row 4	-0.205850	0.449911	-0.283661	1.000000		
Row 5	-0.036471	0.279825	0.294320	0.109862	1.000000	
Row 6	0.107586	-0.083041	0.881406	-0.277748	0.162580	1.000000

TABLE 4

CORRELATION MATRIX OF CARIBBEAN AND NORTH ATLANTIC  
INTEREST RATES: JANUARY 1968- DECEMBER 1976

NUMBER	VARIABLE NAME		MEAN	SUM OF SQUARES
1	Guyana	1	5.96963	2.02699
2	Jamaica	2	5.22704	242. 694
3	Trinidad & Tobago	3	4.78120	73. 2317
4	Canada	4	6.24352	378. 153
5	United Kingdom	5	8.32759	625. 455
6	United States	6	5.84120	196. 713

CORRELATION MATRIX - LOWER TRIANGLE

	1	2	3	4	5	6
Row 1	1.000000					
Row 2	-0.430165	1.000000	1.000000			
Row 3	0.627816	-0.233686	1.000000			
Row 4	0.073645	0.615997	0.118868	1.000000		
Row 5	-0.298023	0.846669	-0.051158	0.747498	1.000000	
Row 6	0.034823	0.253385	0.353452	0.497668	0.518268	1.000000

may have experienced similiar trends in inflation and/or their economic cycles may have been synchronized. And secondly, high correlations may simply be the result of the omission of relevant variables in the analysis. For example, exports clearly affect short term capital movements through trade finance and the omission of this variable can lead to high correlations of the interest rates. Despite these apparent shortcomings correlation analysis has been extensively used in studies of financial integration so that there is some justification for it being used here. of correlation coefficients for each of the combination of countries over the three periods are shown in Tables 2 - 4.

The evidence from the correlation analysis as to whether short term interest rates within Caribbean and North Atlantic economies moved in close harmony over the entire period January 1968 to December 1976 is not definitive. First of all we note that all of the correlation coefficients between North Atlantic interest rates were high, thus signifying a close relationship between these money markets.<sup>12</sup> However, for seven of the nine pairs of Caribbean - North Atlantic coefficients, the contemporaneous (month by month) correlations were very small or insignificantly different from zero (assuming the usual requirements that allow us to make statements about significance). In particular the Table show that the Jamaican - UK rates were closely harmonized. But on the other hand the Guyanese - UK, and Trinidad and Tobago - UK rates showed negative associations.

Further, all of the correlation coefficients between the Guyanese - North American, and Trinidad and Tobago - North American rates had the hypothesized positive sign, but the relationships between the markets were weak; the coefficients being well below ? Thus in the cases of Guyana, and Trinidad and Tobago the indication is that capital flows that occurred between January 1968 and December 1973 were insufficient to strengthen market relationships.

Turning now to the results obtained for the subperiods, we see that the Caribbean-North Atlantic coefficients varied considerably between January 1968 - September 1973 and October 1973 - December 1976. But in general the tendency seems to be that the pairs of countries with close association of interest rates and those pairs with little correlation changed from period to period. For instance, between January 1968 and September 1973 the Guyanese rate shows a high positive correlation with the Canadian rate, and positive although smaller correlations with the US and UK rates, but in the October 1973 to December 1976 period the Guyanese - UK and Guyanese - Canadian rates indicated negative associations.

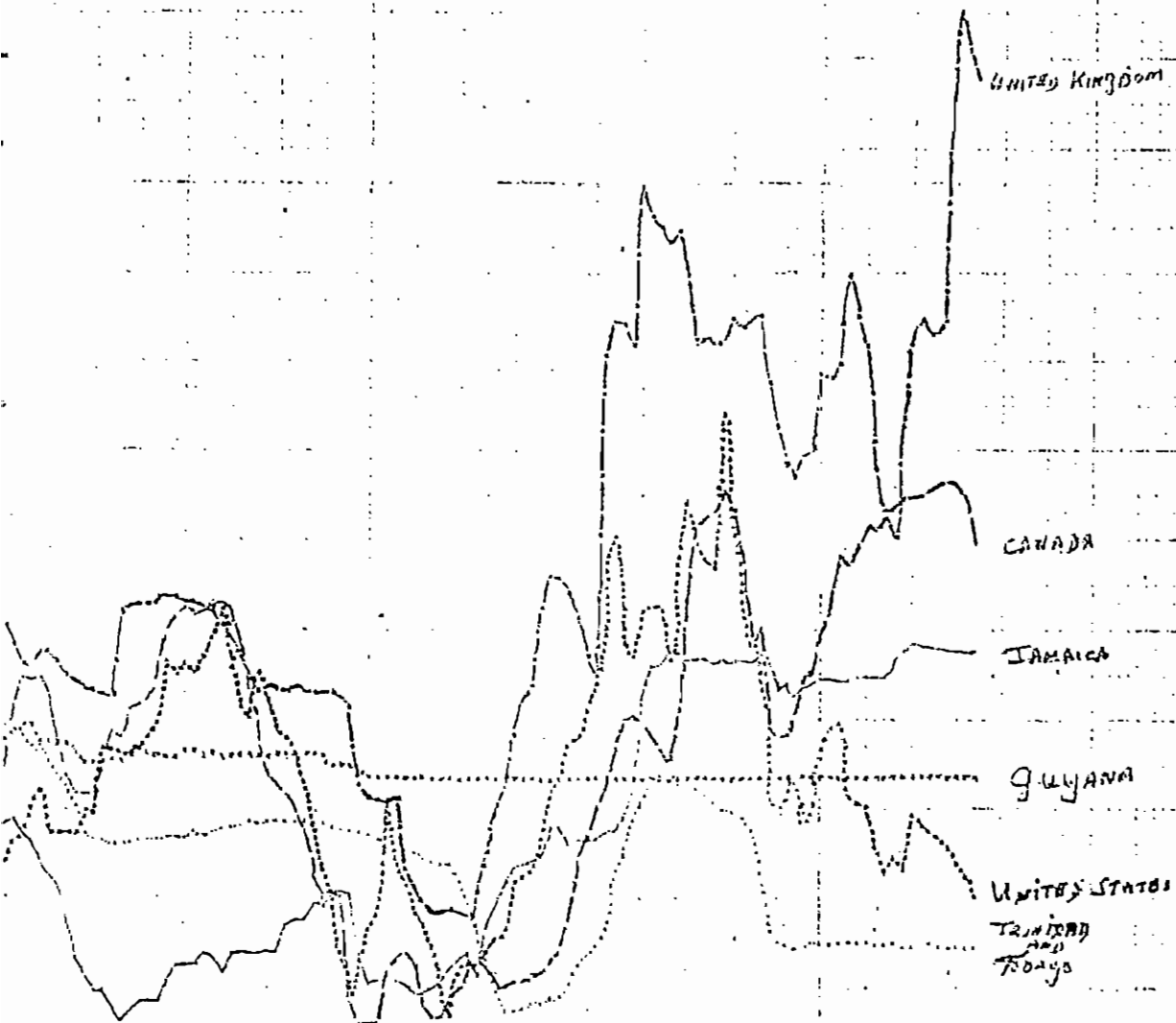
In the case of the Guyanese - US coefficient although this was positive in the latter period, it was much smaller in magnitude when compared to the earlier period. Likewise, the association between the Jamaican and UK rates while being moderate in the early period became substantially negative in the October 1973 - December 1976 period. On the other hand, the

coefficients for the Jamaican - Canadian rates increased significantly as between the two periods, from a negative value (-0.082) in the early period to a positive value (0.450) in the latter period. The Jamaican-US coefficients showed a moderate increase as between the two periods (from 0.068 to 0.280). Correspondingly in the case of the Trinidad and Tobago rates the following trends were evident a low correlation with the UK rate over both periods: a significant increase in the association with the US rate in the latter period and: a substantial fall in the correlation with the Canadian rate in the later period. These results imply an absence of strong Caribbean wide influence of North Atlantic money markets over the entire period. They also seem to indicate that the disruptions in North Atlantic money markets as a consequence of the Arab Oil Crisis were distintegrative and produced divergent movements between Caribbean and North Atlantic interest rates.

In Chart 4, we present plots of the monthly changes in Caribbean interest rates against changes in North Atlantic rates. The lack of a consistent relationship between the rates supports the variations in correlations reported in Tables 2 to 4 for in the six peak to trough periods that occurred in the UK interest rate between 1968 and 1976 the Guyanese rate increased once, while the Jamaican, Trinidad and Tobago rates increased three and two times respectively. The behaviour patterns of the individual Caribbean rates with respect to the Canadian and US peak to trough periods were also erratic with the rates showing six significant peak



CHART 4: SHORT TERM INTEREST RATES FOR THE UNITED KINGDOM, THE U.S., CANADA, GUYANA, JAMAICA, & TRINIDAD & TOBAGO, 1968-1976.



Source: I.M.F. International Financial Statistics and Various Issues of the Caribbean Central Bank Reports.

to trough movements. Since all the Caribbean interest rate series show little interrelationship with North Atlantic rates it seems that the popular hypothesis that Caribbean interest rates move in sympathy with North Atlantic rates is not supported when correlation analysis is applied to the monthly data.

A final observation that is worthy of note is the fact the the information in Chart 4 does partially confirm the correlations reported in Table 1 between Trinidad and Tobago, and US and Canadian rates; the slopes and magnitudes are closely related.

#### SECTION IV: SUMMARY & CONCLUSIONS

Despite the simplifying assumptions the present exercise appears capable of providing useful insight into various aspects of the harmonization of North Atlantic and Caribbean money markets. This paper goes some way towards Worrett (1973) recent call for a thorough examination of Caribbean financial sectors and it extends our knowledge about the relationship between Caribbean and North Atlantic money market rates. We have shown, in particular, that the fluctuations in North Atlantic rates over the period January 1968 through December 1976 do not appear to have caused similiar changes in the Guyanese, Jamaican and Trinidad and Tobago interest rates.

It is not clear from the present study the extent to which there exists lead/lag relationship between the various interest rates. Neither does the study gives a clear indication of

the degree of distortion in the allocation of resources in the financial sectors of Caribbean economies which results from changes in the North Atlantic rates. Of course comparisons between different economies are difficult; the nature of investments, the cost and availability of information, the transfer costs of funds, the expectations of entrepreneurs, and many other factors may differ between them. North Atlantic and Caribbean money may be an extreme contrast, for it is well known that North Atlantic economies are countries with high absorptive capacities for very liquid funds.

Yet one condition deserves attention here. Among Caribbean economies there are great differences in respect to the development of indigenous money markets, management systems and so on. Given such variances in money markets a potential investor within a given money market may be unaware of alternatives for the investment of his acquired capital. Such a scarcity of relevant investment opportunities, which results from the limited extent of Caribbean money markets will shift down the marginal efficiency of capital and thereby inflate the cost of funds (interest rates). In other words, the more favourable investment opportunities in North Atlantic money markets may have played an important role in the harmonization of the two sets of money markets in the past and may even continue to do so in the future.<sup>13</sup>

It would be useful to develop a much more disaggregated model of financial flows between Caribbean and North Atlantic money markets and introduce dynamic factors into the supply and demand

equations for Sterling.<sup>14</sup> This may also necessitate the following:

- (a) specifying equations for the policy choice of Caribbean monetary authorities under conditions of uncertainty about future demand and supply of funds from extra- regional sources, and
- (b) the reformulation of particular areas of monetary theory in the Caribbean.

FOOTNOTES

1. For a more detailed description and evaluation of these streams of thought See McClean [1975], especially Chapter 4.
2. By real sectors we mean the sectors of the economy that provide goods and services.
3. For discussions on the impact of changes in Euro dollar Market on International Capital Flows, See Argy and Hodjera [1973 ], Chalmers [ 1972], and Hodjera [1971 ]
4. See Thomas [1972 p.4]
5. Actually, the latter assumption may not be in strict accordance with Thomas view, but in order to investigate the impact of Caribbean monetary flows on the U.K. rate this assumption was made.
6. The model specified here is not new, as it was previously utilised by Argy and Hodjera as well as Bryant [1975 ] in their studies of financial integration.
7. See Hodjera [1971 ] for a more indepth discussion of the influence of US money market changes on the flow of short term capital to the UK during the 1960's.
8. See McClean [1972 p.25 ].
9. While Girvan [1971 ], and McIntyre and Watson [1970] investigated capital flows from metropolitan economies to Jamaica, and Trinidad and Tobago, respectively, the information contained in those studies are too aggregated for our purpose.
10. The statistical techniques adopted here can be found in Argy and Hodjera op.cit. as well as in Minott [1972].
11. See Logue et. al. [1976] for criticisms of the use of correlation analysis in studies on the integration of financial markets. See Kenen [1976] for a further discussion of the correlation problem and for an apologies for the use of this techniques.
12. It is of interest to note that our findings on the relationships between North Atlantic money market rates are quite similiar to those obtained by Argy and Hodjera [1972].

13. See Argy [1971], for a discussion of the policy options that are available to open developing economies whose money markets are closely integrated with metropolitan money markets.
14. The dynamic considerations are fully discussed in Arndt (1975).

APPENDIX ATABLE A1

1 LINEAR TRENDS IN U.S. PROPORTIONAL DIFFERENTIALS  
 JANUARY 1968 - DECEMBER 1976

Canada/U.S. = - 0.009 + 0.004 T  
 (0.036) (0.001)

$R^2 = 0.368$  S.E. = 0.184 D.W. = 0.212

United  
 Kingdom/U.S. = - 0.029 - 0.494 T  
 (0.058) (0.001)

$R^2 = 0.464$  S.E. = 0.298 D.W. = 0.271

Guyana/  
 U.S. = 0.208 - 0.001 T  
 (0.033) (0.001)

$R^2 = 0.599$  S.E. = 0.172 D.W. = 0.300

Jamaica/  
 U.S. = 0.258 - 0.0002 T  
 (0.032) (0.0005)

$R^2 = 0.001$  S.E. = 0.166 D.W. = 0.264

Trinidad/  
 U.S. = 0.184 + 0.001 T  
 (0.021) (0.0003)

$R^2 = 0.086$  S.E. = 0.108 D.W. = 0.548

TABLE A2

1.2 LINEAR TRENDS IN INTEREST RATE DIFFERENTIALS  
(AS A PROPORTION OF U.S. RATE)

JANUARY 1968 - SEPTEMBER 1973

Canada/U.S.	= 0.099	+ 0.001 T	
	(0.024)	(0.001)	
	$R^2 = 0.080$	S.E. = 0.098	D.W. = 0.451
United Kingdom/ U.S.	= 0.221	+ 0.001 T	
	(0.046)	(0.001)	
	$R^2 = 0.008$	S.E. = 0.189	D.W. = 0.390
Guyana/U.S.	= 0.114	+ 0.003 T	
	(0.046)	(0.001)	
	$R^2 = 0.110$	S.E. = 0.190	D.W. = 0.271
Jamaica/U.S.	= 0.342	- 0.003 T	
	(0.039)	(0.001)	
	$R^2 = 0.102$	S.E. = 0.158	D.W. = 0.266
Trinidad/U.S.	= 0.129	+ 0.003 T	
	(0.028)	(0.001)	
	$R^2 = 0.199$	S.E. = 0.117	D.W. = 0.496



TABLE A3

2 LINEAR TRENDS IN INTEREST RATES DIFFERENTIALS  
 ( AS A RPROPORTION OF U.K. RATES )  
 JANUARY 1968 - DECEMBER 1976

United States/U.K.	= 0.095	+ 0.004 T		
	(0.064)	(0.001)		
	$R^2 = 0.485$	S.E. = 0.330	D.W. = 1.796	
Canada/U.K.	= 0.138	+ 0.002 T		
	(0.027)	(0.0004)		
	$R^2 = 0.771$	S.E. = 0.137	D.W. = 0.192	
Guyana/U.K.	= 0.061	+ 0.004 T		
	(0.020)	(0.0003)		
	$R^2 = 0.615$	S.E. = 0.101	D.W. = 0.303	
Jamaica/U.K.	= 0.419	- 0.001 T		
	(0.021)	(0.0003)		
	$R^2 = 0.086$	S.E. = 0.107	D.W. = 0.189	
Trinidad/U.K.	= 0.100	+ 0.005 T		
	(0.023)	(0.0004)		
	$R^2 = 0.646$	S.E. = 0.120	D.W. = 0.132	

TABLE A4

2.2 LINEAR TRENDS IN INTEREST RATES PROPORTIONAL  
DIFFERENTIALS (AS A PROPORTION OF U.K. RATES)  
JANUARY 1968 - SEPTEMBER 1973

United States/U.K.	= 0.111	+ 0.003 T	
	(0.100)	(0.002)	
$R^2$	= 0.027	S.E. = 0.409	D.W. = 1.826
Canada/U.K.	= 0.018	+ 0.006 T	
	(0.027)	(0.001)	
$R^2$	= 0.542	S.E. = 0.110	D.W. = 0.326
Guyana/U.K.	= 0.106	+ 0.002 T	
	(0.024)	(0.001)	
$R^2$	= 0.168	S.E. = 0.098	D.W. = 0.182
Jamaica/U.K.	= 0.464	- 0.003 T	
	(0.028)	(0.001)	
$R^2$	= 0.182	S.E. = 0.115	D.W. = 0.155
Trinidad/U.K.	= 0.138	+ 0.004 T	
	(0.035)	(0.001)	
$R^2$	= 0.215	S.E. = 0.145	D.W. = 0.124

TABLE A5

2.3                    LINEAR TRENDS IN INTEREST RATES PROPORTIONAL  
 DIFFERENTIALS (AS A PROPORTION OF U.K. RATES)  
 (OCTOBER 1973 - DECEMBER 1976)

United States/U.K.	= - 0.361 + 0.009 T
	(0.097) (0.001)
	R <sup>2</sup> = 0.640 S.E. = 0.076 D.W. = 1.311
Canada/U.K.	= 0.751 - 0.005 T
	(0.134) (0.002)
	R <sup>2</sup> = 0.258 S.E. = 0.105 D.W. = 0.296
Guyana/U.K.	= 0.473 - 0.0002 T
	(0.089) (0.0010)
	R <sup>2</sup> = 0.001 S.E. = 0.070 D.W. = 0.371
Jamaica/U.K.	= 0.465 - 0.001 T
	(0.096) (0.001)
	R <sup>2</sup> = 0.039 S.E. = 0.075 D.W. = 0.430
Trinidad/U.K.	= 0.133 + 0.005 T
	(0.047) (0.001)
	R <sup>2</sup> = 0.713 S.E. = 0.037 D.W. = 0.524

TABLE A6

3                    LINEAR TRENDS IN INTEREST RATES PROPORTIONAL  
 DIFFERENTIALS (AS A PROPORTION OF CANADIAN  
 RATES) JANUARY 1968 - DECEMBER 1976

United Kingdom/ Canada	= 0.292 + 0.002 T (0.108) (0.002)
	R <sup>2</sup> = 0.018    S.E. = 0.555    D.W. = 1.464
United States/ Canada	= 0.070 + 0.002 T (0.025) (0.0004)
	R <sup>2</sup> = 0.258    S.E. = 0.130    D.W. = 0.389
Guyana/Canada	= 0.218 + 0.001 (0.046) (0.001)
	R <sup>2</sup> = 0.028    S.E. = 0.236    D.W. = 0.219
Jamaica/Canada	= 0.370 - 0.003 T (0.026) (0.0004)
	R <sup>2</sup> = 0.283    S.E. = 0.133    D.W. = 0.0237
Trinidad/Canada	= 0.098 + 0.003 T (0.030) (0.0004)
	R <sup>2</sup> = 0.321    S.E. = 0.154    D.W. = 0.315

TABLE A7

3.2 LINEAR TRENDS IN INTEREST RATES PROPORTIONAL  
DIFFERENTIALS (AS A PROPORTION OF CANADIAN RATES)  
RATES) JANUARY 1968 - SEPTEMBER 1973

United Kingdom/ Canada	$= 0.018 + 0.012 T$ (0.155) (0.004)
	$R^2 = 0.120$ S.E. = 0.636 D.W. = 1.744
United States/ Canada	$= 0.051 + 0.003 T$ (0.030) (0.001)
	$R^2 = 0.241$ S.E. = 0.125 D.W. = 0.466
Guyana/Canada	$= 0.055 + 0.007 T$ (0.059) (0.001)
	$R^2 = 0.278$ S.E. = 0.242 D.W. = 0.309
Jamaica/Canada	$= 0.414 - 0.004 T$ (0.037) (0.001)
	$R^2 = 0.220$ S.E. = 0.154 D.W. = 0.224
Trinidad/Canada	$= 0.171 + 0.001 T$ (0.040) (0.001)
	$R^2 = 0.021$ S.E. = 0.163 D.W. = 0.414

TABLE A8

3.3 LINEAR TRENDS IN INTEREST RATE PROPORTIONAL  
DIFFERENTIALS (AS A PROPORTION OF CANADIAN  
RATES) OCTOBER 1973 - DECEMBER 1976

United Kingdom/  
Canada = 1.454 - 0.012 T  
(0.276) (0.003)  
 $R^2 = 0.279$  S.E. = 0.217 D.W. = 0.292

United States/  
Canada = - 0.640 + 0.010 T  
(0.126) (0.001)  
 $R^2 = 0.581$  S.E. = 0.100 D.W. = 0.567

Guyana/Canada = - 0.318 + 0.006 T  
(0.116) (0.001)  
 $R^2 = 0.337$  S.E. = 0.091 D.W. = 0.268

Jamaica/Canada = - 0.041 + 0.002 T  
(0.077) (0.001)  
 $R^2 = 0.130$  S.E. = 0.060 D.W. = 0.663

Trinidad/Canada = - 0.725 + 0.013 T  
(0.089) (0.001)  
 $R^2 = 0.816$  S.E. = 0.070 D.W. = 0.302

TABLE A9

1.3 LINEAR TRENDS IN INTEREST RATES DIFFERENTIATES  
 (AS A PROPORTION OF U.S. RATES)  
 OCTOBER 1973 - DECEMBER 1976

Canada/U.S.	= - 1.674	+ 0.023 T
	(0.207)	(0.002)
	$R^2 = 0.730$	S.E. = 0.162 D.W. = 0.471
United Kingdom/ U.S.	= - 1.920	+ 0.031 T
	(0.347)	(0.004)
	$R^2 = 0.629$	S.E. = 0.272 D.W. = 0.573
Guyana/U.S.	= 0.368	- 0.002 T
	(0.115)	(0.001)
	$R^2 = 0.074$	S.E. = 0.090 D.W. = 0.944
Jamaica/U.S.	= - 0.804	+ 0.012 T
	(0.130)	(0.001)
	$R^2 = 0.642$	S.E. = 0.102 D.W. = 0.841
Trinidad/U.S.	= 0.479	- 0.002 T
	(0.085)	(0.001)
	$R^2 = 0.152$	S.E. = 0.021 D.W. = 1.373

## APPENDIX B

## TABLE B1

UNITED KINGDOM - OTHER NORTH ATLANTIC & CARIBBEAN  
 ECONOMIC: INTEREST RATE DIFFERENTIALS (U.K. TREASURY  
 BILL RATE LESS DOMESTIC RATES) JANUARY 1968 - DECEMBER

1976

	U.K./U.S.	U.K./Canada	U.K./ Guyana	U.K./ Jamaica	U.K./Trinidad & Tobago
1968					
January	2.67	1.58	1.11	2.22	1.28
February	2.31	0.76	0.98	2.04	0.97
March	1.92	0.18	0.73	1.94	0.84
April	1.58	0.17	0.87	1.99	0.66
May	1.54	0.28	0.99	2.36	1.08
June	2.00	0.49	1.00	2.53	1.23
July	1.87	0.80	0.84	2.44	1.21
August	1.76	1.14	0.70	2.71	1.22
September	1.40	0.96	0.45	2.77	1.09
October	1.01	0.86	0.48	2.89	1.32
November	1.34	1.15	0.78	3.33	1.64
December	0.58	0.83	0.77	3.30	1.66
1969					
January	0.56	0.37	0.72	3.47	1.63
February	1.63	1.40	1.70	4.57	2.65
March	1.70	1.16	1.71	4.54	2.69
April	1.63	1.12	1.68	4.44	2.67
May	1.74	1.07	1.73	4.48	2.71
June	1.41	0.86	1.78	4.56	2.77
July	0.72	0.37	1.74	4.29	2.69
August	0.79	0.15	1.73	4.06	2.62
September	0.68	0.05	1.68	4.06	2.62
October	0.70	0.04	1.60	3.93	2.51
November	0.51	0.01	1.61	3.86	2.51
December	- 0.09	- 0.08	1.58	3.88	2.49



TABLE B1

	U.K. -U.S.	U.K. - Canada	U.K.- Guyana	U.K.- Jamaica	U.K. - Trinidad & Tobago
1970					
January	-0.32	-0.25	1.44	3.87	2.27
February	0.44	-0.10	1.50	3.73	2.31
March	0.64	-0.08	1.15	3.38	1.97
April	0.42	0.12	0.82	3.09	1.59
May	-0.22	0.30	0.74	2.92	1.50
June	0.19	0.99	0.77	2.97	1.53
July	0.37	1.07	0.73	2.95	1.51
August	0.42	1.16	0.77	2.80	1.49
September	0.77	1.43	0.76	2.59	1.54
October	0.86	1.54	0.70	2.53	1.48
November	1.57	2.08	0.70	2.41	1.43
December	2.02	2.35	0.72	2.44	1.50
1971					
January	2.30	2.22	0.79	2.20	1.49
February	2.95	2.21	1.53	2.16	1.45
March	3.30	3.33	0.66	2.13	1.41
April	1.91	2.68	-0.13	1.92	0.53
May	1.51	2.59	-0.23	1.82	0.43
June	0.72	2.51	-0.28	2.01	0.45
July	0.01	1.88	-0.32	1.98	0.45
August	0.78	1.87	-0.13	2.17	0.69
September	0.13	0.93	- 1.05	1.30	- 0.19
October	0.14	0.84	-1.25	1.17	- 0.36
November	0.26	1.17	-1.40	1.03	- 0.44
December	0.43	1.12	-1.51	0.87	- 0.50

TABLE B3

	UK -US	U.K.- Canada	U.K.- Guyana	U.K.- Jamaica	U.K.-Trinidad & Tobago
1972					
January	0.96	1.11	-1.52	0.77	- 0.41
February	1.17	0.97	-1.51	0.64	- 0.27
March	0.55	0.86	-1.54	0.56	- 0.10
April	0.58	0.65	-1.58	0.41	0.20
May	0.60	0.60	-1.61	0.67	0.50
June	1.10	1.39	-0.88	0.98	1.55
July	1.50	2.08	-0.32	0.87	2.32
August	1.72	2.32	-0.09	0.98	2.55
September	1.79	2.87	0.56	1.57	3.17
October	2.01	3.17	0.86	1.81	3.45
November	2.10	3.27	1.00	1.94	3.57
December	2.70	4.10	1.88	2.79	4.45
1973					
January	2.44	4.29	2.25	2.88	4.77
February	2.25	4.16	2.18	2.81	4.66
March	1.68	3.69	2.05	2.82	4.40
April	1.39	2.77	1.79	2.53	3.94
May	0.57	2.02	1.32	2.03	3.35
June	0.23	1.52	1.12	1.84	3.03
July	2.27	4.85	4.71	5.36	6.44
August	2.47	4.80	5.10	5.74	6.28
September	3.61	4.44	5.06	5.58	5.98
October	3.47	4.16	4.79	4.98	5.30
November	4.75	6.02	6.57	5.80	6.88
December	4.36	5.79	6.26	5.00	6.35

TABLE B4

	U.K.-U.S.	U.K.- Canada	U.K. - Guyana	U.K. - Jamaica	U.K.-Trinidad & Tobago
1973					
January	4.25	5.81	6.15	4.89	6.19
February	4.63	5.75	5.94	4.59	5.96
March	3.68	5.47	6.10	4.74	6.15
April	2.57	3.84	5.60	4.32	5.69
May	3.23	2.58	5.33	4.04	5.49
June	3.40	2.49	5.36	4.07	5.58
July	3.49	2.34	5.31	4.04	5.62
August	1.33	2.13	5.36	4.04	5.74
September	4.59	2.04	5.10	3.80	5.57
October	3.00	2.40	5.01	3.71	5.48
November	3.66	3.50	5.11	3.77	5.74
December	3.88	3.87	5.11	3.79	6.07
1974					
January	4.65	3.86	4.38	3.05	6.26
February	4.32	3.51	2.94	3.83	5.77
March	3.70	3.04	3.49	2.43	5.39
April	3.52	2.66	3.36	2.49	5.30
May	4.24	2.48	3.57	2.58	5.45
June	3.81	2.49	3.60	2.57	5.49
July	4.12	3.00	4.56	3.49	6.46
August	3.72	2.44	4.43	3.34	6.34
September	3.93	2.07	4.60	3.55	6.49
October	5.81	3.25	5.58	4.49	7.47
November	5.48	2.56	5.12	4.01	7.01
December	5.43	2.20	4.75	3.66	6.65

TABLE B5

	U.K.-U.S.	U.K.- Canada	U.K. - Guyana	U.K.- Jamaica	U.K. - Trinidad & Tobago
1976					
January	4.26	0.71	3.42	2.31	5.32
February	3.88	- 0.17	2.74	1.63	4.64
March	3.52	- 0.59	2.62	1.22	4.51
April	5.06	0.90	4.00	2.60	5.90
May	5.38	1.83	4.93	3.46	6.83
June	5.65	2.01	5.11	3.68	7.01
July	5.58	1.74	4.93	3.50	6.82
August	5.79	1.75	5.00	3.57	6.90
September	7.30	3.23	6.46	5.05	8.36
October	9.65	5.43	8.62	7.22	10.52
November	9.40	5.26	8.26	6.86	10.17
December	9.25	5.34	7.87	6.48	9.78

TABLE B6

CANADA - OTHER NORTH ATLANTIC & CARIBBEAN ECONOMIES : INTEREST  
RATE DIFFERENTIALS (CANADIAN TREASURY BILL RATE LESS DOMESTIC RATES )

JANUARY 1968 -DECEMBER 1976

COUNTRY PERIOD	Canada - U.K.	Canada - U.S.	Canada - Guyana	Canada - Jamaica	Canada - Trinidad & Tobago
1968					
January	-1.58	1.09	-0.47	0.64	-0.30
February	-0.76	1.55	0.22	1.28	0.21
March	-0.18	1.74	0.55	1.76	0.66
April	-0.17	1.41	0.49	1.82	0.70
May	-0.28	1.26	0.71	2.08	0.80
June	-0.49	1.51	0.51	2.04	0.74
July	-0.80	1.07	0.04	1.64	0.41
August	-1.14	0.62	-0.44	1.57	0.08
September	-0.96	0.44	-0.51	1.81	0.13
October	-0.86	0.15	-0.38	2.03	0.46
November	-1.15	0.19	-0.37	2.18	0.49
December	-0.83	-0.25	-0.06	2.47	0.83
1969					
January	-0.37	0.19	0.35	3.10	1.26
February	-1.40	0.23	0.30	3.17	1.25
March	-1.16	0.54	0.55	3.38	1.53
April	-1.12	0.51	0.56	3.32	1.55
May	-1.07	0.67	0.66	3.41	1.64
June	-0.86	0.55	0.92	3.70	1.91
July	-0.37	0.35	1.37	3.92	2.32
August	-0.15	0.64	1.58	3.91	2.47
September	-0.05	0.63	1.83	4.21	2.77
October	-0.07	0.66	1.56	3.89	2.47
November	-0.01	0.50	1.60	3.85	2.50
December	0.08	-0.01	1.66	3.96	2.57

TABLE B7

COUNTRY PERIOD	Canada U.K.	Canada U.S.	Canada Guyana	Canada Jamaica	Canada-Trinidad & Tobago
1970					
January	0.25	0.07	1.69	4.12	2.52
February	0.10	0.54	1.60	3.83	2.41
March	0.08	0.72	1.23	3.46	2.05
April	-0.12	0.30	0.70	2.97	1.47
May	-0.30	-0.52	0.44	2.62	1.20
June	-0.98	-0.79	-0.21	1.99	0.55
July	-1.06	-0.69	-0.33	1.89	0.45
August	-1.16	-0.74	-0.39	1.64	0.33
September	-1.43	-0.66	-0.67	1.18	0.11
October	-1.54	-0.68	-0.89	0.99	-0.06
November	-2.08	-0.51	-1.38	0.33	-0.59
December	-2.35	-0.33	-1.63	0.09	-0.85
1971					
January	-2.22	0.08	-1.43	-0.02	-0.73
February	-2.21	0.74	-1.48	-0.05	-0.76
March	-3.33	-0.03	-2.67	-1.20	-1.92
April	-2.68	-0.77	-2.81	-0.76	-2.15
May	-2.59	-1.08	-2.82	-0.47	-2.13
June	-2.51	-1.79	-2.79	-0.50	-2.06
July	-1.88	-1.87	-2.20	0.10	-1.43
August	-1.87	-1.09	-2.00	0.30	-1.18
September	-0.93	-0.80	-1.98	0.37	1.12
October	-0.84	-0.70	-2.09	0.33	-1.20
November	-1.17	-0.91	-2.57	-0.17	-1.61
December	-1.12	-0.60	-2.63	-0.25	-1.62

TABLE B8

COUNTRY PERIOD	Canada - U.K.	Canada - U.S.	Canada - Guyana	Canada - Jamaica	Canada - Trinidad & Tobago
1972					
January	-1.11	-0.15	-2.63	-0.34	- 1.52
February	-0.97	0.20	-2.48	-0.33	-1.24
March	-0.86	-0.31	-2.40	-0.30	- 0.76
April	-0.65	-0.07	-2.23	-0.24	-0.45
May	-0.60	-	-2.21	0.07	0.10
June	-1.39	-0.29	-2.27	-0.41	0.16
July	-2.08	-0.58	-2.40	-1.21	0.24
August	-2.32	-0.60	-2.41	-1.34	0.23
September	-2.87	-1.08	-2.31	-1.30	0.30
October	-3.17	-1.16	-2.31	-1.36	0.29
November	-3.27	-1.17	-2.27	-1.33	0.30
December	-4.10	-1.40	-2.22	-1.31	0.35
1973					
January	-4.29	-1.85	-2.04	-1.41	0.58
February	-4.16	-1.91	-1.98	-1.35	0.50
March	-3.69	-2.01	-1.64	-0.87	0.71
April	-2.77	-1.38	-0.98	-0.24	1.17
May	-2.02	-1.45	-0.70	0.01	1.33
June	-1.52	-1.75	-0.40	0.32	1.51
July	-4.85	-2.58	-0.14	0.51	1.59
August	-4.80	-2.33	0.30	0.94	1.48
September	-4.44	-0.83	0.62	1.14	1.54
October	-4.16	-0.69	0.63	0.82	1.14
November	-6.02	-1.27	0.55	-0.22	0.86
December	-5.79	-1.43	0.47	-0.79	0.56

TABLE B9

COUNTRY PERIOD	Canada - U.K.	Canada - U.S.	Canada - Guyana	Canada - Jamaica	Canada -Trinidad & Tobago
1974					
January	-5.81	-1.56	0.34	-0.92	0.38
February	-5.75	-1.12	0.19	-1.16	0.21
March	-5.47	-1.79	0.63	-0.73	0.68
April	-3.84	-1.27	1.76	0.48	1.85
May	-2.58	0.65	2.75	1.46	2.91
June	-2.49	0.91	2.87	1.58	3.09
July	-2.34	1.15	2.97	1.70	3.28
August	-2.13	-0.80	3.23	1.91	3.61
September	2.04	-2.55	3.06	1.76	3.46
October	2.40	0.60	2.61	1.31	3.08
November	-3.50	0.16	1.61	0.27	2.24
December	-3.87	0.01	1.24	-0.08	2.20
1975					
January	-3.86	0.79	0.52	-0.81	2.40
February	-3.51	0.81	0.38	-0.57	2.26
March	-3.04	0.66	0.45	-0.61	2.35
April	-2.66	0.86	0.70	-0.17	2.64
May	-2.48	1.76	1.09	0.10	2.97
June	-2.49	0.82	0.61	0.08	3.00
July	-3.00	1.12	1.56	0.49	3.46
August	-2.44	1.28	1.99	0.90	3.90
September	-2.07	1.86	2.53	1.48	4.42
October	-3.25	2.56	2.33	1.24	4.22
November	-2.56	2.92	2.56	1.45	4.45
December	-2.00	3.43	2.76	1.66	4.65



TABLE B10

COUNTRY PERIOD	Canada - U.K.	Canada - U.S.	Canada - Guyana	Canada - Jamaica	Canada - Trinidad & Tobago
1976					
January	-0.71	3.55	2.71	1.60	4.61
February	0.17	4.05	2.91	1.80	4.81
March	0.59	4.11	3.21	1.91	5.10
April	-0.90	4.16	3.10	1.70	5.00
May	-1.83	3.55	3.10	1.63	5.00
June	-2.01	3.64	3.10	1.67	5.00
July	-1.74	3.84	3.19	1.76	5.08
August	-1.75	4.04	3.25	1.82	5.15
September	-3.23	4.07	3.23	1.82	5.13
October	-5.43	4.22	3.19	1.79	5.09
November	-5.26	4.14	3.00	1.60	4.91
December	-5.34	3.91	2.53	1.14	4.44

TABLE 11

UNITED STATES - OTHER NORTH ATLANTIC AND CARIBBEAN ECONOMICS:  
 INTEREST RATE DIFFERENTIALS (UNITED STATES TREASURY BILL RATE  
 LESS DOMESTIC RATES) JANUARY, 1968 - DECEMBER, 1976

Country Period	United States-- United Kingdom	United States-- Canada	United States-- Guyana	United States-- Jamaica	United States-- Trinidad
1968					
January	- 2.67	- 1.09	- 1.56	- 0.45	- 1.39
February	- 2.31	- 1.55	- 1.33	- 0.27	- 1.34
March	- 1.92	- 1.74	- 1.19	- 0.02	- 1.08
April	- 1.58	- 1.41	- 0.92	0.41	- 0.71
May	- 1.54	- 1.26	- 0.55	0.82	- 0.46
June	- 2.00	- 1.51	- 1.00	0.53	- 0.77
July	- 1.87	- 1.07	- 1.03	0.57	- 0.66
August	- 1.76	- 0.62	- 1.06	0.95	- 0.54
September	- 1.40	- 0.44	- 0.95	1.37	- 0.31
October	- 1.01	- 0.15	- 0.53	1.88	0.31
November	- 1.34	- 0.19	- 0.56	1.99	0.30
December	- 0.58	0.25	0.19	2.72	1.08
1969					
January	- 0.56	- 0.19	0.16	2.91	1.07
February	- 1.63	- 0.23	0.07	2.94	1.02
March	- 1.70	- 0.54	0.01	2.84	0.99
April	- 1.63	- 0.51	0.05	2.81	1.04
May	- 1.74	- 0.67	- 0.01	2.74	0.97
June	- 1.41	- 0.55	0.37	3.15	1.36
July	- 0.72	- 0.35	1.02	3.57	1.97
August	- 0.79	- 0.64	0.94	3.27	1.83
September	- 0.68	- 0.63	1.00	3.38	1.94
October	- 0.07	- 0.66	0.90	3.23	1.81
November	- 0.51	- 0.50	1.10	3.35	2.00
December	0.09	0.01	1.62	3.97	2.58

TABLE B12

UNITED STATES - OTHER NORTH ATLANTIC AND CARIBBEAN ECONOMICS:  
 INTEREST RATE DIFFERENTIALS (UNITED STATES TREASURY BILL RATE  
 LESS DOMESTIC RATES) JANUARY, 1968 - DECEMBER, 1976 - Cont'd

COUNTRY PERIOD	U. S. - U.K.	U.S. - Canada	U. S. - Guyana	U.S. - Jamaica	U.S. - Trinidad & Tob
1970					
January	0.32	0.07	1.76	4.19	2.59
February	-0.44	-0.54	1.06	3.29	1.87
March	-0.64	-0.72	0.51	2.74	1.33
April	-0.42	-0.30	0.40	2.67	1.17
May	0.22	0.52	0.96	3.14	1.72
June	-0.19	0.79	0.52	2.73	1.34
July	-0.37	0.69	0.36	2.58	1.14
August	-0.42	0.74	0.35	2.38	1.07
September	-0.77	0.66	-0.01	1.84	0.77
October	-0.86	0.63	-0.16	1.67	0.62
November	-1.57	0.51	-0.87	0.84	-0.08
December	-2.02	0.33	-1.30	0.42	-0.52
1971					
January	-2.30	-0.08	-1.51	-0.10	-0.61
February	-2.95	-0.74	-2.22	-0.77	-1.50
March	-3.30	0.03	-2.64	-1.17	-1.89
April	-1.91	0.77	-2.04	0.01	-1.38
May	-1.51	1.08	-1.74	0.61	-1.05
June	-0.72	1.79	-1.00	1.29	-0.27
July	-0.01	1.87	-0.33	1.99	0.44
August	-0.78	1.09	-0.91	1.39	-0.09
September	-0.13	0.80	-1.18	1.17	-0.32
October	-0.14	0.70	-1.39	1.03	-0.50
November	-0.26	0.91	-1.66	0.77	-0.70
December	-0.43	0.69	-1.84	0.44	-0.93

TABLE B13

COUNTRY PERIOD	U.S. - U.K.	U.S. - Canada	U.S. - Guyana	U.S. - Jamaica	U.S. - Trinidad & Tobago
1972					
January	-0.96	0.15	-2.48	-0.19	-1.87
February	-1.17	-0.20	-2.68	-0.53	-1.44
March	-0.55	0.31	-2.09	0.01	-0.65
April	-0.58	0.07	-2.16	-0.17	-0.38
May	-0.60	-	-2.21	0.07	-0.10
June	-1.10	0.29	-1.98	-0.12	0.45
July	-1.50	0.58	-1.82	-0.63	0.82
August	-1.72	0.60	-1.81	-0.74	0.83
September	-1.79	1.08	-1.23	-0.22	1.38
October	-2.01	1.16	-1.15	-0.20	1.45
November	-2.1	1.17	-1.10	-0.16	1.47
December	2.70	1.40	-0.82	0.09	1.75
1973					
January	-2.44	1.85	-0.19	0.44	2.33
February	-2.25	1.91	-0.07	0.56	2.41
March	-1.63	2.01	0.37	1.14	2.72
April	-1.37	1.38	0.40	1.14	2.55
May	-0.57	1.45	0.75	1.46	2.78
June	0.23	1.75	1.35	2.07	3.26
July	-2.27	2.58	2.44	3.09	4.17
August	-2.47	2.33	2.63	3.27	3.81
September	-3.61	0.83	1.45	1.97	2.37
October	-3.47	0.69	1.32	1.51	1.83
November	-4.75	1.27	1.82	1.05	2.13
December	-4.36	1.43	1.90	0.64	1.99

TABLE B14

COUNTRY PERIOD	U.S. - U.K.	U.S. - Canada	U.S. - Guyana	U.S. - Jamaica	U.S.- Trinidad & Tobago
1974					
January	-4.25	1.56	1.90	0.64	1.94
February	-4.63	1.12	1.31	-0.04	1.33
March	-3.68	1.79	2.42	1.06	2.47
April	-2.57	1.27	3.03	1.75	3.12
May	-3.23	-0.65	2.10	0.81	2.26
June	-3.40	-0.91	1.96	0.67	2.18
July	-3.49	-1.15	1.82	0.55	2.13
August	-1.33	0.80	4.03	2.71	4.41
September	-4.59	-2.55	0.51	-0.79	0.81
October	-3.00	-0.60	2.01	0.71	2.48
November	-3.66	-0.16	1.45	0.11	2.08
December	-3.88	-0.01	1.23	-0.09	2.19
1975					
January	-4.65	-0.79	-0.27	-1.60	1.61
February	-4.32	-0.81	-0.43	-1.38	1.45
March	-3.70	-0.66	-0.21	-1.27	1.69
April	-3.52	-0.86	-0.16	-1.03	1.78
May	-4.24	-1.76	-0.67	-1.66	1.21
June	-3.81	-0.82	-0.21	-1.24	1.68
July	-4.12	-1.12	0.44	-0.63	2.34
August	-3.72	-1.28	0.71	-0.38	2.62
September	-3.93	-1.86	0.67	-0.38	2.56
October	-5.81	-2.56	-0.23	-1.32	1.66
November	-5.48	-2.92	-0.36	-1.47	1.53
December	-5.43	-3.43	-0.67	-1.77	1.22

TABLE B15

COUNTRY PERIOD	U.S. - U.K.	U.S. - Canada	U.S. - Guyana	U.S. - Jamaica	U.S. -Trinidad & Tobago
1976					
January	-4.26	-3.55	-0.84	-1.95	1.06
February	-3.88	-4.05	-1.14	-2.25	0.76
March	-3.52	-4.11	-0.90	-2.20	0.99
April	-5.06	-4.16	-1.06	-2.46	0.84
May	-5.38	-3.55	-0.45	-1.92	1.45
June	-5.65	-3.64	-0.54	-1.97	1.36
July	-5.58	-3.84	-0.65	-2.08	1.24
August	-5.79	-4.04	-0.79	-2.22	1.11
September	-7.30	-4.07	-0.84	-2.25	1.06
October	-9.65	-4.22	-1.03	-2.43	0.87
November	-9.40	-4.14	-1.14	-2.54	0.77
December	-9.25	-3.91	-1.38	-2.77	0.53.

## BIBLIOGRAPHY

1. Ary, V. "Monetary policy and internal and external balance". I.M.F. Staff Papers Vol.XVIII (1971), pp.508-27.
2. Argy,V. & Hodjera,Z "Financial Integration and Interest Rate Linkages in the Industrial Countries". I,M,F. Staff Papers Vol.20, (March 1973) pp.1-77.
3. Arndt,S.W. "Policy choices in an open economy: Some Dynamic Considerations". Journal of Political Economy, Vol.81 (July/August 1973) pp.916-935.
- 4 Best, L. & Levitt,K. Export propelled growth and industrialization in the Caribbean, Mimeo, Department of Economics, U.W.I., Trinidad.
5. Bryant,R.C. "Empirical Research on Financial Capital Flows", pp.321-362 IN Kenen, P.B., (ed) International Trade & Finance: Frontiers for Research. Cambridge Univ. Press, Cambridge, England, 1975.
6. Chalmers,E. International Interest Rate War. MacMillan, London, 1972.
7. Girvan,N. Foreign Capital & Economic Underdevelopment in Jamaica. ISER, U.W.I., Jamaica,1971.
8. Hausufus,K. "Financial Institutions and International Capital Movements". Journal of Credit and Banking. Vol.8 (August, 1976) pp.359-374.
9. Hodjera,Z. "Short Term Capital Movement of the United Kingdom: 1968-1967. Journal of Political Economy.Vol.79 (July -August 1971).
- 10.Kenen, P.B. "Capital Mobility and Financial Integration: A Survey". Princeton Studies in International Finance No.39, Princeton University 1976.

11. Logue, D.E., M.A.  
Salant, & R.J. Sweeney International Integration of Financial Markets: Survey, Synthesis and Results" pp.91-137 in C.H. Stem et.al. (ed). Eurocurrencies and the International Monetary System. Washington, American Enterprise Institute for Public Policy Research, 1976.
12. McClean, A.W.A. Money and Banking in the Eastern Caribbean Currency Area, I.S.E.R., U.W.I., Jamaica, 1975.
13. Machlup, F. (ed) International Mobility and Capital Movements. N.B.E.R., New York, 1972.
14. McIntyre, A. & Watson, B. Studies in Foreign Investment in the Caribbean, No. 1, Trinidad & Tobago I.S.E.R., U.W.I., Jamaica, 1970.
15. Minot, W.G. "Tests for Integration between Major Western Markets". Oxford Economic Papers, Vol.26, (November, 1971) pp.424-437.
16. Thomas, C.Y. Monetary and Financial Arrangements in a Dependent Monetary Economy. I.S.E.R., U.W.I., Jamaica, 1965.
17. Thomas, C.Y. The Structure, Performance and Prospects of Central Banking in the Caribbean. I.S.E.R., U.W.I., Jamaica, 1972.
18. Worrell, D. "Comments on Three Econometric Models of the Jamaican Economy". Social & Economic Studies, Vol.22 No.2 June 1973, pp.272-286.