Occasional Paper Series Number 5

The Impact of US Dollar Deposits on Caricom Economies

by Karl M. Bennett

Caribbean Centre for Monetary Studies

The US dollar, has, since the mid-seventies, been intervention currency for CARICOM economies. More recently, the emergence of US dollar deposits as a significant feature of the banking system in Jamaica, Trinidad and Tobago and to a lesser extent some of the countries of the Eastern Caribbean Currency Area, has given rise to questions concerning what impact this development has had on the cost and availability of credit and the ability of the central banks to perform their monetary management functions. These issues are explored in this study.

The presence US dollar deposits had a positive impact on the economies of the respective countries and complemented rather than substituted for domestic currency.

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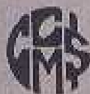
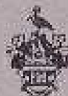


Caribbean Centre for Monetary Studies.

Established under the joint auspices of the Central Banks of the Caribbean Community and The University of the West Indies.



Printed by the Multimedia Production Centre,
Faculty of Humanities and Education, The University of the West Indies,
St. Augustine, Republic of Trinidad & Tobago.

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Published by the
Caribbean Centre for Monetary Studies
The University of the West Indies
St. Augustine, Trinidad
Republic of Trinidad and Tobago

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ISBN 976-620-110-2 (pbk)

Printed by the Multimedia Production Centre
Faculty of Humanities and Education
The University of the West Indies
St. Augutine, Trinidad and Tobago
Republic of Trinidad and Tobago

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Foreword

The economies of most of the countries of the Caribbean Community (CARICOM) are in the process of economic reform. Indeed, financial and foreign exchange market liberalisation are key components of a new development strategy in a changing global environment. This strategy is partly characterised by the removal/relaxation of restrictions on foreign exchange regimes. The liberalisation policies being pursued together, in cases with high and volatile inflation and exchange rates have given rise both to a growth in foreign currency deposits and to a broader phenomenon known as 'dollarisation', evident in Latin America in the 1980s. 'Dollarisation' is particularly evident when residents lose confidence in local currency and are able as well to hold foreign currency deposits as part of their investment and operating portfolios. In effect, dollarisation in an economy can take place when the ability of the national currency to effectively perform the functions of money is seriously restricted and is replaced by another currency. Yet the presence of foreign currency deposits, especially US dollars, does not necessarily suggest dollarisation.

As the Caricom region ponders participation in the Free Trade Area of the Americas (FTAA) and approaches the new millennium, the dollarisation issue will be among the many challenges to policymakers with respect to the conduct of monetary and exchange rate policies.

This study, initially delivered in a preliminary version by Dr. Karl Bennett, a research associate of the Caribbean Centre for Monetary Studies, to the XXIX Annual Monetary Studies Conference, takes a look at the evolution of US dollar deposits in the economies of Caricom countries and ascertains how much of a concern is this feature and the related 'dollarisation' issue in Caricom countries.

The Caribbean Centre for Monetary Studies is indeed delighted that Dr. Karl Bennett has been able to share his thoughts within the region on this issue, as part of the Centre's Occasional Paper Series publications.

Laurence C. Clarke
Executive Director
CCMS

Patsy Russell
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Preface and Acknowledgements

The US dollar, has, since the mid-seventies, been the intervention currency for CARICOM economies. More recently, the emergence of US dollar deposits as a significant feature of the banking system in Jamaica, Trinidad and Tobago and to a lesser extent some of the countries of the Eastern Caribbean Currency Area, has given rise to questions concerning what impact this development has had on the cost and availability of credit and the ability of the central banks to perform their monetary management functions. These issues are explored in this study.

The study was facilitated by financial support from The Caribbean Centre for Monetary Studies. I would like to thank the Executive Director, Dr. Laurence Clarke and the Staff at the Centre for their support. In particular, I would like to express my sincere appreciation for the invaluable assistance in the collection of data and the scheduling of interviews in the different countries provided by Mr. Glenn Khan, Junior Research Fellow.

The central banks in the three territories assisted in providing a great deal of the data necessary to carry out the study. In this regard I would like to acknowledge the support received from Dr. Penelope Forde of the Central Bank of Trinidad and Tobago, Mr. Eustace Liburd of the Eastern Caribbean Central Bank and Mr. John Robinson of the Bank of Jamaica. Senior management officials at the commercial banks were very generous with their time and provided very useful insights into how they approached some of the unique issues associated with management of these deposits. I would like to express my sincere appreciation to the management officers in the following countries.

Trinidad and Tobago: *Mr. Richard Young of Scotia Bank, Messrs. Roopnarine Singh and Ronald Ramkissoon of Republic Bank, Messrs. James McKenzie and Nazir Ali of Royal Bank, Mr. Colin Ramkissoon of First Citizens Bank and Mr. Rawle Ramlogan of Bank of Commerce.*

St. Kitts/Nevis: *Mr. E. Lawrence, National Bank, Mr. Pinard, Royal Bank of Canada and Mr. W. Christie, Bank of Nova Scotia.*

Jamaica: *Mr. Denzil Barnes and Mrs. Jennifer Thorpe, National Commercial Bank, Mr. Dave Jackson, Citizens Bank, Mrs. Eva Lewis, Citibank, Mr. Devon Barnett, Island Victoria Bank, Mr. Dwight Richardson, Scotia Bank and Mr. C.T. Brown, Jamaica National Building Society.*

The Impact of US Dollar Deposits on CARICOM Economies

Karl M. Bennett

Introduction

Since 1990, there has been a significant growth in the value of US dollar deposits held by residents in the banking systems of Jamaica and Trinidad and Tobago. There has, also, been an increase in the value of similar deposit holdings in some of the countries of the Eastern Caribbean Currency Area, in particular, Anguilla, Antigua and St. Kitts and Nevis. The growth in the value of these deposits in Jamaica and Trinidad and Tobago followed the decisions taken by the governments of those countries to liberalize their foreign exchange markets.

The willingness of residents to hold US dollar deposits in the domestic banking system, as opposed to foreign centres, could contribute to an overall expansion in lending activity by the banking system and could also contribute to a reduction in borrowing costs. The positive impact on the volume of lending activity would be further enhanced if the reserve requirements for foreign currency deposits were lower than that for domestic currency deposits. However, the existence of US dollar deposits in the system could undermine the ability of the central bank to exercise effective control

over the cost and availability of credit. This arises from the fact that, given the liberalisation of foreign exchange markets, they would be unable to exercise any controls on deposits and withdrawals from these accounts.

In this study there will be an evaluation of the impact on the availability and cost of loans and the ability of the central banks to carry out their credit management functions, in those CARICOM countries in which there has been a growth in holdings of US dollar deposits by residents in recent years. The study will be organised as follows. In the first section, attention will be directed toward an assessment of the size and characteristics of US dollar deposits held by residents in the banking system in Jamaica, Trinidad and Tobago and the Eastern Caribbean Currency Area. In the second section, there will be an assessment of the potential impact of these deposits on the availability and cost of credit. The final section will be devoted to an exploration of the extent to which there is evidence that these deposits worked to limit the ability of central banks to exercise meaningful control over the level of lending in the respective countries. In addition, there will be some attention directed to the issue as to whether in these economies there is any significant diminution in the role of the domestic currencies in financial transactions, namely, evidence of the so called dollarization phenomenon.

US Dollar Deposits in the Banking System

The operation of exchange controls by governments in the region meant that residents could not be assured of having automatic access to foreign currency on demand. However, in the Eastern Caribbean Currency Area, the absence of a foreign currency shortage in the banking system, meant that residents experienced little difficulty in gaining access to foreign currency. In the case of Jamaica and Trinidad and Tobago, the deterioration in the external payments position starting in the seventies and eighties, respectively, gave rise to situations in which most residents would normally expect to experience difficulty in gaining

access to foreign currency. As a result, not only did these conditions encourage businesses in Jamaica and Trinidad and Tobago to maintain foreign currency balances in banks outside of the region, **see Table 1,** but it also encouraged individuals, for example those who received remittances to engage in hoarding of foreign currency. The devaluations of the currencies during the decade of the eighties, especially in Jamaica, meant that residents experienced a constant decline in the value of their financial savings denominated in local currency. The abolition of exchange controls was accompanied by a decision to adopt a flexible exchange rate regime in both countries. In light of these factors, one would expect that residents would view the ability to establish US dollar accounts as enabling them to more easily make optimal consumption, savings and investment decisions. In other words, there would be both a transaction and asset motive for establishing US dollar accounts.

Table 1. External Bank Deposits Held by Residents of Jamaica and Trinidad and Tobago Millions of US Dollars

Year	Jamaica	Trinidad & Tobago
1981	50	60
1982	140	290
1983	140	300
1984	140	320
1985	190	380
1986	360	620
1987	270	450
1988	400	520
1989	340	480
1990	580	580

Source: International Monetary Fund, *International Financial Statistics* Annual Edition, 1995.

In both Trinidad and Tobago and Jamaica, as indicated earlier, the removal of restrictions on holdings of US dollar deposits was quickly followed by a sharp growth in the value of such deposits. In the case of Trinidad and Tobago, where the restrictions were removed at the end of the second quarter of 1993, by the end of the fourth quarter of that year the value of these deposits stood at US$152.5 million. As indicated in **Table 2,** there was a continued rapid build up in the value of these deposits over the next three years. By the end of the fourth quarter of 1996, the value of US dollar deposits was, approximately, 24 percent of domestic currency deposits.

Table 2. Trinidad and Tobago: Commercial Banks US Dollar Deposits

Year		Deposits US$ Millions	Percent Domestic Currency Deposits
1993	(iv)	152.5	9.1
1994	(i)	180.0	10.1
	(ii)	204.1	11.7
	(iii)	222.6	13.0
	(iv)	312.9	16.2
1995	(i)	390.2	21.1
	(ii)	427.6	20.9
	(iii)	409.1	19.3
	(iv)	414.9	18.6
1996	(i)	463.4	21.3
	(ii)	494.8	22.2
	(iii)	584.2	24.7
	(iv)	496.2	23.9

Source: Central Bank of Trinidad and Tobago, *Quarterly Statistical Digest.*

The change in the regulatory enviornoment clearly encouraged the large institutions which would, traditionally, have maintained foreign currency balances in banks outside the country to maintain such accounts at home. The number of deposit accounts with a value in excess of US$500,000 more than doubled and there was a more than three fold increase in the value of these accounts between the end of 1993 and 1996. These large deposits accounted for in excess of 40 percent of the overall value of USdollar deposits in the banking system. Nevertheless, as indicated in **Table 3,** institutional deposits amounted to less than one percent of the total number of deposits.

Table 3. Trinidad and Tobago: Number and Size Distribution of US Dollar Deposits

End of Period	No.	Percent	Value US$M	Percent
1993				
Under $5,000	8,114	72.3	14.4	9.4
$5,000-$50,000	2,375	24.4	33.2	21.8
Over $500,000	42	0.3	65.7	43.1
Total	11,218		152.5	
1994				
Under $5,000	17,331	75.5	24.3	7.8
$5,000-$50,000	5,024	21.9	65.0	20.9
Over $500,000	73	0.3	154.0	49.2
Total	22,936		312.9	
1995				
Under $5,000	24,215	76.3	31.7	7.6
$5,000-$50,000	6,673	21.0	89.2	20.8
Over $500,000	86	0.3	202.0	48.6
Total	31,730		414.9	
1996				
Under $5,000	30,216	76.0	41.0	8.3
$5,000-$50,000	8,456	21.3	116.3	23.4
Over $500,000	98	0.2	216.3	43.6
Total	39,738		496.2	

Source: Central Bank of Trinidad and Tobago, *Quarterly Economic Bulletin*. Various Issues

The removal of restrictions seemed to have had the greatest impact on the savings decisions of individuals as opposed to the institutional depositor. Deposits with a value of less than US$5,000 accounted for, approximately, 75 percent of the number of US dollar deposits, although representing, on average, less than 10 percent of the value of deposits. The response of the non-institutional saver led to the total number of US dollar accounts in the banking system standing at just under forty thousand at the end of 1996. The next largest number of deposits was in the $5,000 to $50,000 range.

It was argued earlier that residents of the country would hold foreign currency balances to facilitate expenditure on foreign goods and services, as well as to secure the value of their savings. One might expect that balances held in demand deposits would be used to facilitate expenditure, while balances held in time and savings deposits would be for the purpose of securing the value of financial assets. In the period immediately following the removal of restrictions on the holding of US dollar deposits by residents, over 50 percent of deposits with a value exceeding US$500,000, were held in demand deposits. Moreover, as shown in **Table 4,** even small deposits holders held a relatively large share of their deposits in demand deposits. However, by the end of 1994, there was a sharp decline in holdings of demand deposits, especially among large deposit holders. In the case of the large deposit holders, which would be, primarily, the institutional depositors, the largest share was held in time deposits. This would not necessarily be a reflection of a reduction in the level of transaction demand. Rather, the higher earnings on time deposits, coupled with the ability to coordinate the deposit time period with payment requirements reduced the necessity for holding demand deposits to facilitate foreign currency settlements. By the same token, the fact that most small deposits, those with a value of less than US$5,000, were held in savings accounts might also be a reflection of the fact that there was now an alternative to hoarding for those who wished to hold foreign currency to support future expenditure.

Table 4. Trinidad and Tobago:
Distribution of Deposits by Type and Value Percent

End of Period	Demand		Time		Savings	
	No.	Value	No.	Value	No.	Value
1993						
Under $5,000	10.4	15.7	11.7	14.0	78.0	70.3
$5,000-$50,000	16.6	18.0	19.6	24.6	63.8	57.4
Over $500,000	52.4	48.2	38.0	46.0	9.5	5.8
1994						
Under $5,000	1.6	1.8	11.4	18.1	86.9	80.1
$5,000-$50,000	6.4	7.6	26.8	30.9	66.7	61.6
Over $500,000	23.3	10.4	65.8	84.3	11.0	5.3
1995						
Under $5,000	2.0	2.6	11.5	20.0	86.6	77.4
$5,000-$50,000	4.2	5.8	32.5	35.6	63.3	58.6
Over $500,000	12.8	7.0	79.1	88.9	8.1	4.1
1996						
Under $5,000	1.4	7.0	11.2	19.2	87.4	73.8
$5,000-$50,000	3.1	5.1	33.4	35.4	63.5	59.5
Over $500,000	14.3	16.0	75.6	75.1	10.2	8.9

Source: Central Bank of Trinidad and Tobago, *Quarterly Economic Bulletin,* various issues.

If the primary motive for holding US dollar deposits was to hedge against exchange risk, the question arises as to the costs deposits holders were prepared to bear in order to secure this insurance. The costs could be measured in terms of the interest earnings foregone should interest rates on foreign currency time and savings deposits be lower than that for similar deposits in domestic currency. The higher the expected rate of depreciation of the exchange rate the lower the interest rate banks would be required to offer on US dollar deposits, leading to a widening in the differential

In Jamaica, the removal of restrictions on US dollar accounts was followed by a rapid increase in the value of holdings by residents of such accounts in institutions in the financial sector. The total value of deposits, as indicated in **Table 6,** increased from US$84 million at the end of 1991, to US$770.9 million at the end of 1996. By far the largest share of deposits were held in the commercial banks. However, there was also a significant increase in the value of deposits held by the building societies. The value of US dollar accounts in the commercial banks peaked during the last quarter of 1995, reaching a value of US$663.3 million. The growth in US dollar deposits exceeded, by a significant margin, the growth in domestic currency deposits for most of the period. These deposits which represented, approximately, 7 percent of the value of domestic currency deposits at the end of 1991, rose quickly to more than 30 percent in 1994. Although, there was a modest decline in the value of US dollar deposits in the commercial banking system in 1996, these deposits still accounted for 25 percent of the value of domestic currency deposit at the end of that year . The decline in US dollar deposits in the commercial banking system was offset by increases in deposits in the building societies, where the value of such deposits increased by more than 30 percent in 1996. The other institutions in the sector to attract these deposits, the merchant banks, accounted for a minor share of total deposits. They experienced a rapid increase in deposits, up to the end of third quarter of 1995. However, the value of deposits at the end of 1996 was approximately 50 percent of the peak 1995 value. This could be linked to the collapse of two major merchant banking institutions in that period.

Initially, the largest share of US dollar deposits held in commercial banks, in terms of value, was in demand deposits. This might be indicative of the fact that in the early period these deposits were held for the purpose of facilitating foreign expenditure. However, as was the case in Trinidad and Tobago, the share of demand deposits declined very rapidly. By the end of 1996, as shown in **Table 7,** Demand

Table 6. Jamaica: US Dollar Accounts
US$ Millions

End of Period	Commercial Banks	Building Socities	Merchant Banks	Total	% Domestic Currency Deposits: Commercial Banks	% Domestic Currency Deposits: Merchant Banks
1991						
(iv)	59.9	23.5	0.04	83.5	7.3	..
1992						
(i)	223.5	21.1	0.05	244.6	29.9	..
(ii)	218.4	29.9	0.05	248.4	20.5	..
(iii)	264.2	32.7	1.5	296.7	21.6	..
(iv)	279.4	37.1	1.7	316.6	19.8	..
1993						
(i)	336.1	51.5	2.5	388.8	23.1	..
(ii)	396.6	59.9	4.0	459.3	26.2	1.5
(iii)	409.4	63.0	3.2	474.3	29.9	1.2
(iv)	428.4	65.6	4.6	497.3	32.3	2.1
1994						
(i)	517.7	63.2	3.7	584.7	35.1	1.8
(ii)	552.6	68.8	3.1	624.4	35.6	1.4
(iii)	562.4	75.0	5.4	642.8	32.6	2.4
(iv)	598.0	76.6	13.7	691.4	32.2	7.0
1995						
(i)	570.0	84.4	14.3	668.7	29.2	6.6
(ii)	596.0	90.4	16.7	703.0	29.6	7.8
(iii)	590.9	97.0	23.6	711.5	28.1	12.2
(iv)	666.3	102.6	14.7	783.6	32.3	8.5
1996						
(i)	631.3	104.6	12.9	748.8	30.7	7.2
(ii)	615.0	120.2	14.5	749.7	27.3	7.5
(iii)	634.9	129.7	13.1	777.6	26.6	6.7
(iv)	623.3	134.8	12.7	770.9	25.0	6.6

Source: Bank of Jamaica, *Statistical Digest,* various issues.

Table 7. Jamaica: Size Distribution of Deposits

End of Period	Commercial Banks			Merchant Banks		Turn over Ratio[1]
	Demand	Time	Savings	Time	Savings	
1992	40.3	21.4	37.8	..	..	..
1993	26.7	28.1	45.2	..	..	91.3
1994	24.6	30.2	45.3	81.5	18.5	96.0
1995	27.2	26.5	46.3	87.5	12.5	99.1
1996	16.2	38.0	45.8	93.3	6.7	100.1

[1]Ratio of withdrawals to deposits.

deposits accounted for only 16 percent of total US dollar deposits. The rapid rate of turnover of these deposits over the period suggests that they were held in large measure to support expenditure on foreign goods and services. The switch to higher income earnings deposits might, as suggested in the case of Trinidad and Tobago, reflect a greater appreciation on the part of residents of the possibility of dovetailing time and savings deposits with external payments schedules. Information on the size distribution of deposits was not available for Jamaica. However, the fact that the largest share of deposits were held in savings accounts might be indicative of the fact that non-institutional savers were responsible for a larger proportion of US dollar accounts.

It was indicated earlier that deposit holders in Trinidad and Tobago paid a high price in terms of earnings foregone to hedge against exchange risk in light of the relatively stability of the exchange rate over the period. There was much greater variability in the exchange rate for Jamaica. There were substantial depreciations over the third and fourth quarters of 1993, the first quarter of 1994 and the third and fourth quarters of 1995. Moreover, even in those periods of relatively stability in the exchange rate, concerns about relative stagnant growth in exports led to

considerable debate concerning potential overvaluation of the currency and the need for a depreciation to enhance the competitive position of exporters. This concern about the competitiveness of the country's exporters tended to dominate other considerations such as the changes in currency flows on the foreign exchange market. On the occasions on which there were major depreciations, the depreciation, as shown in **Table 8,** was almost equal to the interest differential in favour of domestic currency deposits. The upsurge in currency inflows and the revaluation of the currency during the second and third quarters of 1996, appeared to have temporarily dampened expectations of currency depreciation. During this period there was actually a slight decline in the value of US dollar deposits in the commercial banking system.

In the Eastern Caribbean Currency Area, US dollar deposits in the banking system approximately doubled in value between January of 1992 and December of 1996. Unlike Jamaica and Trinidad and Tobago, the increase in the value of these deposits was very much in line with the overall expansion in deposits in the banking system in the area. There was only a very modest increase in the ratio of US dollar deposits to total deposits during this time period, rising from 7 percent to 9 percent. There was relative stability in the amounts allocated to demand, time and savings deposits, with the share allocated to demand deposits being substantially larger than that for Jamaica and Trinidad and Tobago. Indeed, as indicated in **Table 9,** more funds were held in demand deposits than in savings deposits. This suggests that a primary motive for holding such deposits was for the purpose of facilitating payments in foreign currency.

The pattern of deposit holdings was in large measure a reflection on the fact that throughout this period, approximately 50 percent of the US dollar deposits held by the commercial banks in the area was held by banks in Anguilla. In fact, three countries, Anguilla, Antigua and Barbuda and St. Kitts and Nevis, accounted for around 85 percent of the total US dollar deposits and just under 90 percent of the increase in the value of those deposits. The domestic currency played a relatively minor role in the economy of Anguilla. US dollar deposits increased from 66 percent of total deposits in 1992, to more than 70 percent in 1996. This indicated that most of the traditional monetary functions, medium of exchange, unit of account and store of value was carried out in foreign currency, US dollars. The unique situation in Anguilla is indicative of the fact that a significant share of income is earned from work in the nearby US Virgin Islands. In the other two countries, Antigua and St. Kitts and Nevis, as indicated in **Table 10,** US dollar deposits accounted for an increasing but much smaller share of total deposits. These were two of the countries in the region where there was a strong tourist industry. The increase in deposits can be directly linked to those businesses associated with the tourist industry. In summary, the growth in US dollar deposits in the Eastern Caribbean Currency Area can in large measure be attributed to the unique situation of Anguilla. This is hardly surprising in that concerns with respect to access to foreign currency on demand and exchange risk have not been issues of pressing concern to residents of the area.

Table 10. Eastern Caribbean Currency Area:
Countries With Largest F.C. Deposits

	1992	1993	1994	1995	1996
Anguilla F.C. Deposits					
Value. US$M	52.4	64.3	71.4	88.3	94.5
% ECCA Total	52.7	53.8	52.3	50.0	51.5
% Total Deposits	66.0	68.8	68.3	71.0	71.0
Antigua & Barbuda F.C. Deposits					
Value. US$M	13.4	11.8	15.9	21.1	28.8
% ECCA Total	13.5	9.9	11.7	12.2	15.7
% Total Deposits	4.5	3.7	4.4	5.1	7.0
St. Kitts & Nevis F.C. Deposits					
Value. US$M	19.4	24.8	27.5	40.3	37.1
% ECCA Total	19.5	20.7	20.1	23.2	20.2
% Total Deposits	10.8	12.5	12.4	15.8	14.0

The Determinants of the Size of Deposit Holdings

In the previous section it was argued that there were two primary factors which seemed to have encouraged residents of Jamaica and Trinidad and Tobago to hold US dollar deposits. The first was to provide them with access to foreign currency on demand. The second was related to the fact that accumulating balances in US dollar deposits was, potentially, a more remunerative and secure way of saving in light of the uncertainties surrounding the stability of the exchange rate. Given these two broad considerations, it would seem reasonable to expect that such factors as movements in the exchange rate, the difference in interest

rates on domestic and US dollar deposits and the domestic rate of inflation, should have an impact on the amounts held in these accounts. In order to determine the significance of these factors on the size of these deposits estimates were made of the following equation

$$USD = a_0 + a_1 Xrate - a_2(i_{dc} - i_{us}) + a_3 Infl. \qquad (1)$$

where USD is US dollar deposits held in the commercial banks, Xrate the exchange rate, defined as number of units of domestic currency per US dollar, $1_{dc} - i_{us}$ the difference in interest rates paid by the commercial banks on domestic currency and US dollar deposits and Infl, the domestic rate of inflation. The equation was estimated in logarithmic form by ordinary least squares.

The greater the number of units of domestic currency required to buy a US dollar in any period, i.e., the greater the rate of currency depreciation, should encourage residents to build up US dollar balances in order to establish the future cost of meeting US dollar payments. The larger the interest premium on domestic currency deposits the higher would be the opportunity cost of holding US dollar deposits, hence one would expect an inverse relationship between the premium and deposit holdings. The higher the domestic rate of inflation, the lower the value of domestic money relative to US dollars. Accordingly, one would expect residents to increase their holdings of US dollar deposits in periods of rising inflation.

The equation was estimated for Jamaica using monthly observations covering the period from July of 1993 to December of 1996 and a shorter period covering January of 1995 to December of 1996. In the case of Trinidad and Tobago, the estimate was based on quarterly observations covering the period from the third quarter of 1993 to the fourth quarter of 1996. The results are reported in **Table 11.** In the case of Jamaica, it would appear that changes in the exchange rate had a significant impact on holdings of US dollar deposits by residents. In the case of the regression

Table 11. Determinants of Changes in the Value of US Dollar Deposits

Variables	Jamaica July 1993- Dec. 1996	Jamaica January 1995- Dec. 1996	Trinidad & Tobago Q3 '93 - Q4 '96
Constant	2.50	3.56	-21.33
	(3.00)	(6.08)	(-2.44)
Xrate	1.20	0.56	15.23
	(10.27)	(5.87)	(3.11)
$i_{dc} - i_{us}$	-0.14	0.24	-0.21
	(-0.63)	(1.21)	(-3.12)
Infl	-0.07	0.01	-0.53
	(-4.61)	(0.31)	(-0.57)
Adjusted R^2	0.82	0.68	0.79
Durbin-Watson	0.63	2.30	1.61

Figures in parentheses below the estimate coefficients are the t- statistics.

covering the longer period, the coefficient for the interest differential was not significant. The coefficient for the inflation rate, although significant, had the wrong sign. The low value for the Durbin Watson statistic is indicative of a high degree of correlation of the residuals, which despite the high value for the coefficient of determination suggests that limited significance should be attached to the results derived. In the regression covering the shorter period, from January 1995 to December 1996, the exchange rate was the only significant variable. The overall goodness of fit was reasonable as reflected in the high values for the coefficient of determination and the Durbin- Watson statistic. The failure of the variables linked to earnings to be significant

seems supportive of the arguments outlined in the previous section suggesting that earnings was not a primary consideration in the decision of residents as to the amounts to be held in US dollar deposits.

In the case of Trinidad and Tobago, both changes in the exchange rate and the interest premium on domestic currency deposits appeared to have had a significant impact on balances held in US dollar deposits. The fact that, unlike Jamaica, changes in the interest premium on domestic currency deposits appeared to have had an influence on the amounts held might be a reflection of the fact that time deposits constituted a much larger share of total US dollar deposits. This combined with the fact that large deposits, institutional deposits, accounted for the largest share of deposits in value terms, would help explain why the opportunity cost of holding US dollar deposits would be important.

The Management of US Dollar Deposits

The introduction of foreign currency to the financial system raised a new set of issues for managers of the financial institutions. First of all, in deciding on the way in which deposits could be managed to generate income, their risk assessment procedures had to be broadened to explicitly incorporate the matter of exchange risk. In addition, since depositors were free to switch between domestic and foreign locations, the institutions, in assessing the amount of free reserves available for loans and investments, would have to be conscious of the possibility of sudden transfers and develop an appropriate strategy for minimizing the possibility of such occurrences. In summary, the principal management issues are how to attract and retain deposits and how to pursue an income earning strategy without undue exposure to exchange risk.

Interviews were conducted with representatives of the commercial banks in Jamaica, St. Kitts and Trinidad, to determine how they coped with the unique management

problems associated with US dollar deposits. The issues discussed in the interviews are set out in **Appendix A.** In addition, discussions were held with the Managing Director of the largest building society in Jamaica. The building societies, as indicated earlier, had been very successful in mobilizing US dollar deposits.

There was a broad consensus that the principal reason why residents would open US dollar accounts was to secure a hedge against exchange risk and the convenience in having access to foreign exchange on demand. All the bank representatives argued that in order to attract and retain deposits they had to offer a rate which was at a premium over the rates in competing offshore centres and which was competitive with the rate offered by other domestic institutions. Since a significant share of deposits were held in short term time deposits, such a strategy was essential to ensure renewal of deposits on maturity.

The commercial banks in Jamaica and Trinidad approached the issues of the use of free reserves somewhat differently than those in the Eastern Caribbean. Those in the Eastern Caribbean, by and large, did not consider US dollar deposits as providing additional resources to support domestic lending. In most instances US dollar deposits were offset by offshore holdings. In assessing the credit worthiness of a loan applicant the commercial banks in Jamaica and Trinidad placed primary emphasis on foreign exchange earning potential. This was deemed prudent as they wished to minimize their exposure to exchange risk. They all admitted that in the early post liberalization period, they adopted a very cautious approach to lending, given that their staff had little or no experience in managing foreign currency loans. Nevertheless, with one notable exception, the Bank of Nova Scotia Jamaica Ltd., they claimed to have experienced little difficulty in finding an adequate number of creditworthy loan applicants.

It was reported that the vast majority of applicants for foreign currency loans were attempting to raise funds to

defray foreign payment obligations. Since the proceeds from these loans were quickly transferred into the accounts of non-residents in offshore banks, there was limited scope for secondary deposit creation. There were occasions when the attempt to secure a foreign currency loan was not linked directly to payment obligations in foreign currency. This occurred when there was an increase in the interest premium on domestic currency loans. In those instances the proceeds would be quickly converted into domestic currency. If the borrowers were not engaged in foreign exchange earning activity, they would be fully exposed to exchange risk.

The legal cash reserve requirement on deposits in Jamaica was deemed to have imposed a useful constraint on the lending activity of the institutions in light of their inexperience in operating in this area. Furthermore, the cost of the cash reserves was much less onerous than the cost of satisfying the cash reserve requirements on domestic currency deposits, since interest was paid on these reserve deposits by the Bank of Jamaica.

The building societies in Jamaica adopted an approach to the management of these deposits which was somewhat similar to that of the commercial banks in St. Kitts. These deposit liabilities were offset by balances held with the banks off shore and to a lesser extent by balances with domestic banks and Jamaican US dollar bonds and not by foreign currency loans to residents. This approach was followed because these institutions felt they did not have the necessary expertise to engage in foreign currency lending. The building societies wee able to compete aggressively for such deposits in light of the fact that they were subject to much lower reserve requirements. Furthermore, since a prime motive for opening an account with a building society was to secure a building loan in the future, they could attract deposits by offering lower rates of interest than the commercial banks. A large part of the inflow arose from remittances from overseas nationals.

The management strategy which the institutions in Jamaica and Trinidad claimed to have adopted would suggest that introduction of US dollar deposits to the system would not have had a major impact on the overall availability of credit.

The Impact on Lending

The impact of US dollar deposits on overall lending will be determined by the legal reserve requirements and the criteria used by the institutions in assessing the credit worthiness of loan applicants.

In Jamaica, commercial banks were initially required to maintain a cash reserve of 20 percent. This was increased to 25 percent in 1992, reduced to 22 percent in 1994 and returned to the 20 percent level in 1995. In addition, there was a liquid asset requirement of 20 percent, which may be held in the form of foreign currency bonds and bank balances. The reserve requirements for non-bank financial intermediaries, as well as building societies were lower. The rate for non-bank financial intermediaries was in the form of a 17 percent cash reserve ratio and a 3 percent liquid asset requirement. In the case of building societies there was a 1 percent cash reserve requirement and a 5 percent liquid asset requirement. There were no legal cash reserve requirements imposed on US dollar deposits in the commercial banking system in Trinidad and Tobago. The banks were, however, required to hold liquid assets, normally consisting of high grade government securities denominated in US dollars, equivalent to 25 percent of the value of their deposit liabilities.

The credit worthiness of an applicant for a foreign currency loan will be assessed more highly if the extension of the loan is seen to leave the lending institution exposed to minimal risk. This would be the case where the borrower is engaged in an activity associated with the earning of foreign exchange. As indicated in the previous section, firms engaged in the export of goods and services would normally receive

the highest ranking, although broader criteria in the assessment of credit worthiness would be applied by the institutions in an effort to maintain business with their most faithful clients. The ratio of foreign currency loans to deposits in any time period, could then be used as an indicator of the extent to which the financial institutions were able to find borrowers who satisfied their eligibility criteria. Such information for Jamaica and Trinidad and Tobago is set out in **Table 12.**

The relatively low ratio of foreign currency loans to deposits in Jamaican institutions in the period immediately following the removal of exchange controls was indicative of the learning experience which the institutions explained they had to go through in managing what for them was a new form of asset. However, the period of caution was short lived. By the end of 1995, foreign currency loans amounted to 60 percent of US dollar deposits and remained above the 60 percent level throughout 1996. This suggests that institutions were operating very close to the limits permitted by the legal cash reserve and liquid asset requirements. The behaviour of the institutions in Trinidad and Tobago was somewhat different than that of those in Jamaica. The ratio of foreign currency loans to deposits was on the whole higher in the periods immediately following the removal of exchange controls. Whereas, in that period, loans as a percentage of deposits ranged between 40 and 50 percent, during 1995 and 1996, it was between 30 and 40 percent. Furthermore, given that there were no legal cash reserve requirements and only a 25 percent liquid asset requirement, it is apparent that the amount of lending did not reflect the legal framework within which the institutions functioned.

Table 12. Foreign Currency Loans/US Dollar Deposits (Percent)

		Jamaica[1]	Trinidad and Tobago[2]
1991			
	(iv)	21.1	..
1992			
	(i)	18.8	..
	(ii)	25.3	..
	(iii)	25.3	..
	(iv)	32.6	..
1993			
	(i)	39.7	..
	(ii)	36.2	..
	(iii)	39.4	41.3
	(iv)	33.9	40.2
1994			
	(i)	31.1	44.5
	(ii)	38.0	48.9
	(iii)	46.2	50.0
	(iv)	50.6	39.1
1995			
	(i)	59.6	27.9
	(ii)	56.3	37.1
	(iii)	59.0	38.5
	(iv)	55.6	38.3
1996			
	(i)	63.2	38.9
	(ii)	61.5	34.8
	(iii)	64.4	35.5
	(iv)	68.3	38.9

[1]Commercial banks and merchant banks.

[2]Commercial banks.

Source: Bank of Jamaica, *Statistical Digest*, Monthly.
Central Bank of Trinidad and Tobago, *Quarterly Statistical Digest*.

The individual institutions in each of the countries used the legal reserve requirement as a reference point on which to establish their own guidelines as to what would be a prudent level of lending. The more aggressive institutions would operate close to the legal limits, while others would operate with reserves well in excess of that required by law. It is apparent, that during this period, the institutions in Jamaica adopted a more aggressive approach to foreign currency lending, than those in Trinidad and Tobago. This difference in behaviour might be attributed to the fact that there are a larger number of banks and non-banks financial intermediaries in Jamaica, leading to more competition in the sector. Furthermore, in Jamaica, most of the new firms entering the sector were domestic firms. The subsidiaries of foreign financial institutions operated within lending guidelines laid down by their head offices. Interviews conducted with officials representing these institutions confirmed that these guidelines restricted them to much lower levels of lending than that which would have been permitted in the context of the legal reserve requirements or, indeed below levels which they thought would have been prudent. The difference in lending strategy adopted by foreign and domestic banks in Jamaica is reflected in their respective loan deposit ratios. At the end of 1996, two of the foreign affiliated banks, Citibank and Bank of Nova Scotia, had the lowest ratio of foreign currency loans to deposits, 19 and 36 percent, respectively. In the case of the third bank, CIBC Jamaica Ltd., loans amounted to 62 percent of deposits. On the other hand, as shown in **Table 13,** several of the domestic banks had loan/deposit ratios exceeding 70 percent, with the Workers Savings and Loan Bank operating with a ratio well in excess of 100 percent. Moreover, whereas the ratio for the aforementioned foreign banks followed a downward trend over the course of the year, the ratios for the domestic banks, with the exception of the Island Victoria Bank, were at or above the levels prevailing at the end of the first quarter.

Table 13. Jamaica: Commercial Banks: Foreign Currency Loan/Deposit Ratios (1996)

	Q1	Q2	Q3	Q4
Bank of Nova Scotia	45.2	43.8	36.7	36.0
Citizens Bank	67.3	68.2	77.6	69.6
Citibank	30.6	19.6	17.8	18.9
CIBC Jamaica Ltd.	47.1	56.2	55.8	61.8
Eagle Commercial Bank	42.7	39.8	40.2	44.1
Island Victoria Bank	71.6	69.1	92.5	58.6
National Commercial Bank	82.9	75.5	80.0	75.9
Trafalgar Commercial Bank	63.2	73.9	74.1	72.7
Workers Savings & Loan Bank	108.4	103.3	136.3	163.5
Total	59.6	59.0	60.8	61.3

Source: Bank of Jamaica, "Quarterly Assets and Liabilities of Commercial Banks" in the *Daily Observer*, Thursday, May 8, 1997, page 11.

To this point attention has been directed solely to the underlying determinants of the supply of loans. The actual volume of loans will also reflect demand considerations. A borrower who has to meet a foreign currency payment obligation, instead of negotiating a loan in foreign currency, could secure a domestic currency loan and purchase the required foreign currency on the foreign exchange market. The borrower could be expected to select the option which minimizes cost. The cost of a foreign currency loan will consist of the interest rate on the loan plus the additional cost arising from a potential depreciation in the exchange rate at the time of repayment. The exchange risk would be avoided in the case of a borrower, for example, an exporter who expects to receive foreign currency payments and hence would not have to enter the foreign exchange market in order to repay the debt. A similar attempt to minimize cost could make it attractive for a borrower to secure a foreign currency loan even when not faced with a foreign currency payment obligation. In this case, the decision would be based on whether the cost savings associated with the lower interest

rate charged on foreign currency loans more than compensated for the expected depreciation in the exchange rate. In open economies, such as those of Jamaica and Trinidad and Tobago, the demand for foreign currency will be stable, hence it will be variations in supply which are likely to result in the imbalances leading to a depreciation in the exchange rate.

Throughout the period there was a substantial interest rate premium on domestic currency loans. In Jamaica, as indicated in **Table 14,** the average quarterly premium remained in excess of 100 percent over the period from 1994 to 1996. In the case of Trinidad and Tobago, the premiums were significantly lower, ranging from 32 to 69 percent. The exchange rate for Trinidad and Tobago was on the whole very stable with quarterly movements substantially less than 1 percent, except for the last quarter of 1996, when the currency depreciated by a relatively modest 2.7 percent. The overall relative stability of exchange rates in that country over this period is indicative of an absence of significant imbalances between demand and supply on the foreign exchange market. There was greater exchange rate volatility in Jamaica. Nevertheless, even in the periods with the greatest depreciation, the first quarter of 1994 and the third and fourth quarters of 1995, the interest premium on domestic currency loans vastly exceeded the depreciation in the rate. Furthermore, since expectations of future movements in exchange rates are heavily influenced by past movements, there would appear to have been a strong incentive for borrowers in Trinidad and Tobago to secure loans in foreign currency.

The overall value of foreign currency lending by the financial institutions, as shown in **Table 15,** increased steadily over the period. In spite of this development, there was very little change in ratio of total loans to Gross Domestic Product in either of the countries. This would suggest that there was some substitution by borrowers of foreign currency for domestic currency loans. In the case of Jamaica, by the end of 1994, foreign currency loans amounted to 30 percent

Table 14. Foreign Currency Loans Interest Rate Premiums and Exchange Rate Variation (1994 Q1 to 1996 Q4)

Period Average	Jamaica			Trinidad & Tobago		
	F.C. Loans US$M	Int. Prem. D.C. Loans[2] %	Ex. Rate Changes[1] %	F.C. Loans US$M	Int. Prem D.C. Loans[3] %	Ex. Rate Changes[1] %
1994						
(i)	157.0	212.7	7.8	73.1	69.3	1.2
(ii)	195.2	208.7	1.0	93.8	65.7	1.5
(iii)	237.1	194.6	-0.0	108.5	58.3	-0.3
(iv)	305.0	172.3	-0.2	116.7	50.7	0.04
1995						
(i)	331.8	147.1	-0.1	119.5	40.9	0.2
(ii)	343.9	121.3	1.5	154.6	44.5	-0.08
(iii)	347.5	150.2	5.2	159.9	39.9	-0.3
(iv)	351.9	171.5	11.1	152.3	37.9	0.8
1996						
(i)	357.7	178.4	1.1	165.5	34.0	0.5
(ii)	367.5	145.6	-4.9	173.2	31.5	-0.4
(iii)	378.6	149.1	-7.2	192.7	45.9	0.4
(iv)	401.2	123.1	-0.5	200.1	45.4	2.7

[1] - = appreciation.

[2] Interest rate for commercial loans in domestic currency - highest interest rate on foreign currency loan during the quarter.

[3] Weighted average interest rate on domestic currency loans - weighted average interest rate on foreign currency loans.

Source: Bank of Jamaica, *Statistical Digest*, Monthly, *Economic Statistics*, Monthly. Central Bank of Trinidad and Tobago, *Quarterly Statistical Digest.*

of the value of domestic currency loans. The increase in the significance of this form of lending is also revealed in the fact that by the end of 1995 it amounted to 9 percent of Gross Domestic Product. The impact on the overall volume of lending was, however, less than one would expect from observing the growth in value of foreign currency loans. There was a relatively modest increase in the ratio of total loans, foreign and domestic currency, to Gross Domestic Product.

Table 15. The Contribution of Foreign Currency Loans to Domestic Credit

	Jamaica			Trinidad & Tobago		
Year	F.C. Loans Percent D.C. Loans	F.C. Loans Percent GDP	Total Loans Percent GDP	F.C. Loans Percent D.C. Loans	F.C. Loans Percent GDP	Total Loans Percent GDP
1991	1.8	0.6	34.2	..	..	..
1992	11.3	2.8	27.5	..	..	..
1993	17.3	5.0	33.9	5.0	1.5	31.7
1994	30.0	7.9	34.5	11.2	2.6	25.7
1995	31.1	9.2	38.8	13.6	3.1	26.5
1996	26.8	8.0	38.5	16.5	3.7	26.5

Source: Bank of Jamaica, *Statistical Digest*, Monthly. Central Bank of Trinidad and Tobago, *Quarterly Statistical Digest.*

In Trinidad and Tobago, foreign currency loans increased from 5 to 16.5 percent of domestic currency loans. Nevertheless, total domestic and foreign currency loans as a percentage of Gross Domestic Product remained virtually unchanged over the period from 1994 to 1996.

An attempt was made to determine the extent to which residents of both countries would be encouraged to substitute US dollar loans for domestic currency loans as a result of changes in the interest premium on domestic currency loans and changes in the exchange rate. In the case of those borrowers who are engaged in foreign exchange earning activity, the lower cost of borrowing in US dollars would always make efforts to secure loans in that form a priority, since they would not have to consider exchange risk. On the other hand, those who were not engaged in foreign exchange earning activity would be highly sensitive to exchange risk and hence could be expected to switch between the two types of loans based on an assessment of relative costs incorporating exchange risk. As a result one might expect that a widening in the interest premium on domestic currency loans would encourage borrowers to switch to US dollar loans, since a greater devaluation of the currency would be required to offset the advantage of the lower cost of borrowing in this manner. By the same token, to the extent to which expected rates of depreciation or appreciation in the exchange rate will be influenced by current changes, one would expect an inverse relationship between changes in the exchange rate and the demand for US dollar loans. This hypothesis was tested by estimating the following equation:

$$D_{lus} = \beta_o + \beta_1 I_p - \beta_2 Xrate \qquad (2)$$

where I_p is the difference between the interest rate charged on domestic currency and US dollar loans in percentage terms and Xrate the exchange rate measured in terms of units of the respective domestic currencies per US dollar. The equation was estimated in logarithmic form by ordinary least squares, using quarterly data covering a period from the first quarter of 1994 to the fourth quarter of 1996. The results are reported in **Table 16.**

Table 16. Determinants of the Demand for US Dollar Loans

Variables	Jamaica	Trinidad and Tobago
β	4.67	-15.48
	(1.87)	(-2.15)
β_1	-1.17	-0.76
	(-5.33)	(-4.10)
β_2	1.97	13.04
	(3.33)	(3.36)
Adjusted R^2	0.79	0.78
Durbin-Watson	1.78	2.14

Figures in parentheses below the estimated coefficients are the t- statistics.

In both countries the coefficients for the interest premium and the exchange rate were highly significant. However, the signs of the coefficients were not supportive of our hypothesis. In both countries it would appear that an increase in the premium on domestic currency loans would lead to a decrease in demand for such loans. This suggests that the expected rate of devaluation of the domestic currency would offset the lower nominal cost of borrowing in US dollars. Such expectations might arise from a recognition of the fact that higher domestic interest rates reflect attempts on the part of the central bank to stabilize the exchange rate by reducing the demand for credit. A higher premium might then lead to heightened expectations of possible currency depreciations and hence dampen the incentive to secure loans in US dollars. The direct relationship between current changes in the exchange rate and the demand for US dollar loans might be indicative of the perception that current rates of devaluation of the currency are moving the exchange rate towards a sustainable level, whereas current rates of appreciation are not likely to be sustainable.

As indicated earlier, there were three countries in the Eastern Caribbean Area, Anguilla, Antigua and Barbuda and St. Kitts and Nevis, where holdings of US dollar deposits by residents was significant. However, there is in effect a dual currency system in operation in Anguilla, with the US dollar being the dominant currency. As a result, there was a consistent high ratio of foreign currency loans in the overall loan portfolio of the commercial banks. Foreign currency loans accounted for 73 percent of the value of the loan portfolio of commercial banks in Anguilla in 1996, a reflection on that country's unique situation. In the case of Antigua, the value of foreign currency loans outstanding in June of 1996, EC$39.1 million, was less than that at the end of December 1990, EC$49.6 million. In St. Kitts and Nevis, there was significant growth in the foreign loans portfolio of the commercial banks. Whereas, at the end of 1990, foreign currency loans amounted to less than 1 percent of total loans, by the end of the second quarter of 1996, they represented 12 percent (Liburd, 1996). Discussion with representatives of the commercial banks revealed that the increase in foreign currency lending was in large measure independent of their holdings of US dollar deposits. In the case of the foreign banking subsidiaries, most of the lending was supported by funds from their head offices, as most of their free reserves were held in offshore accounts.

The Implications for Central Bank Operations

In this section there will be an assessment of the extent to which the existence of US dollar deposits undermined the ability of the central banks in Jamaica and Trinidad and Tobago to manage lending activity by the financial institutions under their jurisdiction. The central banks in both of these countries employ such traditional central bank tools as variations in legal cash reserve requirements, open market operations and liquid asset requirements to control the amount of free reserves available for lending. The effectiveness of these measures would be weakened if, for example, there were lower cash reserve and liquid asset requirements imposed on US dollar deposits.

Even in the absence of differential reserve requirements, the effectiveness of these instruments of control could be undermined in light of the fact that the central banks in the liberalized financial environment in existence in both countries, exercises no control on the flow of funds into such deposits. As a result, the institutions could be able to maintain lending activity in the face of central bank action designed to restrict lending if they could maintain or increase inflows to US dollar accounts.

The central bank uses its ability to influence interest rates to control the cost and hence the demand for loans. In light of the fact that financial institutions are able to mobilize US dollar deposits at substantially lower cost than domestic currency deposits, the interest rates charged on foreign currency loans are substantially lower than that charged on domestic currency loans. To the extent that borrowers can substitute foreign currency for domestic currency loans, this would offset the potential impact of interest rate increases on the cost and demand for loans.

In Jamaica, uniform cash reserves of 25 percent were imposed on domestic and US dollar deposits held by commercial banks in 1992. However, in 1994 and 1995 the reserve requirements on US dollar deposits was reduced to 22 and 20 percent, respectively, while that for domestic currency deposits remained unchanged. The overall liquid asset requirement, including the cash reserve requirement was at all times higher for domestic currency deposits. The liquid asset requirement for commercial banks remained at 50 percent from July of 1992 to June of 1995, when it was reduced to 47 percent. There was, on the other hand a suggested prudential liquid asset requirement of 40 percent of US dollar deposits.

Using the Treasury Bill rate as an indicator, there were two occasions in the period from July of 1992 to December of 1996, when the monetary authority in Jamaica would appear to have attempted to tighten credit conditions by engineering an increase in interest rates. The first occurred from April of 1993 to May of 1994. As indicated in

Table 16, the Treasury Bill rate increased at an average monthly rate of 5.7 and 8.7 percent during the respective periods.

Table 16. Jamaica: Selected Financial and Economic Indicators

	July '92 to March '93	April '93 to May '94	June '94 to April '95	Sept. '95 to Feb '96
Average Monthly Changes				
Inflation Rate	1.1	2.6	1.5	3.1
T. Bill Rate	-9.3	5.7	-7.4	8.7
Commercial Bank Domestic Lending Rates	-2.0	1.8	-1.9	3.2
Increase in Domestic Loans	3.7	3.4	2.7	2.3
Increase in Total Loans	4.6	3.8	3.4	2.4
Average Monthly Excess Liquidity	9.7	4.4	8.9	-0.5
Other Economic Indicators				
Change in Exchange Rate	0.0	50.8	0.0	13.1
Change in Imports[1]	...	18.0	6.4	21.8
Change in Trade Deficit[2] (- = lower deficit)	..	39.3	-4.4	43.0

[1]Average change based on a comparison of quarterly outlays in the current year with outlays for the corresponding quarter in the previous year.

[2]Based on a comparison of quarterly deficits in the current year with those in corresponding quarters in the previous year.

Source: Bank of Jamaica, *Statistical Digest,* Monthly.

Interest rates charged on domestic currency loans also increased during these periods, although at a much lower rate. The increase in interest rates and the maintenance of high reserve requirements had a minimal impact on lending activity by the commercial banks. The banks operated with substantial excess reserves for the greater part of the period and hence were not constrained in their lending activity. The two periods during which lending rates were increasing were also associated with increasing rates of inflation. On both occasions, the monthly rate of inflation exceeded or was equal to the average monthly increase in interest rates. This might explain why the increase in interest rates failed to dampen the demand for loans.

The existence of US dollar deposits in the banking system also helped to undermine the effort of the central bank to control lending activity. Foreign currency loans helped to increase the overall portfolios of the commercial banks by 15 percent, between April of 1993 and May of 1994. In fact, the largest increase in lending occurred during that period, when the banks increased their domestic and foreign currency loans portfolios by 67 percent.

It is evident, however, that it was the existence of substantial levels of excess liquidity in the system, rather than US dollar deposits, which worked to undermine the ability of the central bank to exercise effective control over the lending activity of the commercial banks. The maintenance of high level of lending in periods when the central bank was clearly trying to exercise control over lending led to substantial increases in outlays on imports. Since this usually occurred after periods when the exchange rate was maintained at an unchanged level, or allowed to appreciate, the pressure on the trade balance inevitably led to the central bank allowing a substantial depreciation in the exchange rate in an attempt to provide a stimulus to exports. However, between September of 1995 and February of 1996, when the central bank engineered a sharp increase in interest rates, on that occasion the increase in lending by the commercial banks was much less than in the earlier period and foreign

currency loans made a minimal contribution to their overall level of lending.

The Central bank of Trinidad and Tobago raised the legal reserve requirements for the commercial banks from 16 to 18 percent at the end of the first quarter of 1994 and raised it again to 20 percent at the beginning of July. They remained at that level until October of 1996, when it was raised to 23 percent. At the same time, the bank did not attempt to exercise an influence over the demand for loans through interest rate adjustments. The bank rate remained unchanged at 13 percent for the entire period.

The increases in reserve requirements in 1994 did not lead to an immediate reduction in domestic currency lending. Over the period from May through to the end of July, as shown in **Table 17,** there was an average monthly increase in domestic lending of 0.8 percent. However, starting with the month of August, there was a steady decline in lending. The value of loans outstanding at the end of December of that year was 2 percent below the value for the end of July. There was an increase in lending during the first half of 1995 followed by a contraction in the second half of the year. There was very little change in the total value of the loan portfolio of the commercial banks during the first eight months of 1996. Following monthly increases of 1.9 and 1.6 percent in August and September, respectively, the increase in reserve requirements in October led to a modest decline in lending in November and December. The increases in cash reserve requirements imposed on the commercial banks by the Central Bank of Trinidad and Tobago thus appeared to have been effective in controlling lending by the banks. This could be related to fact that the banks in Trinidad and Tobago did not operate with the high level of excess reserves. For example, during 1994, they operated with the legal minimum cash reserve requirements, except for the period from April through July, when they operated with less than the minimum requirements. These shortages, however, never exceeded 1 percent. For the remainder of the period under review they operated close to the legal minimum, with excess reserves never exceeding 1.7 percent.

Table 17. Trinidad and Tobago: Selected Financial and Economic Indicators

	1994	1995	1996
Inflation Rate	8.8	5.3	3.3
Commercial Banks Average Monthly Lending Rates			
Minimum	13.6	13.1	13.5
Maximum	14.2	13.8	14.9
Liquid Asset Ratios	6.9	6.8	8.2

	1994		1995		1996
	April/ July	**Aug./ Dec.**	**Jan./ July**	**Aug./ Dec.**	**Jan./ Dec.**
Average Monthly Change					
D.C. Loans %	0.8	-0.4	1.7	-0.9	0.9
Total Loans	1.4	-0.1	1.9	-0.9	0.6

Source: Central Bank of Trinidad and Tobago, *Quarterly Statistical Digest.*

The commercial banks would have been able to circumvent the impact of the cash reserve constraint on lending by converting a part of their liquid assets holding into loans. In Trinidad and Tobago, unlike Jamaica, the commercial banks were not required to hold liquid assets, apart from their cash reserves. The average monthly holding of liquid assets held by the commercial banks, Treasury Bills and vault cash, was 6.9 percent of deposit liabilities in 1994, 6.8 percent in 1995 and 8.2 percent in 1996. These ratios appear to be within the range of what might be considered normal prudential holdings. The relatively small size and stability of these holdings suggest that they would not provide

an avenue for the commercial banks to circumvent the constraint of the legal cash reserve requirements.

When the commercial banks were reducing lending in domestic currency, between August and December of 1994, the impact of these reductions on the overall availability of loans was substantially offset by foreign currency loans. As a result, there was virtually no change in the value of total loans outstanding, including US dollar loans. In this instance, the evidence of a measure of substitution of foreign currency for domestic currency loans could not be viewed as undermining the ability of the central bank to pursue its monetary management objectives. The period from 1994 to 1996 witnessed a reversal of the negative rates of GDP growth of the previous two years. One would expect that a return to positive growth would have been associated with an increase in demand for loans. The fact that average lending rates of the commercial banks for domestic currency loans remained relatively stable, ranging between 13.1 and 14.9 percent, suggest that a relative balance was maintained between demand and supply for such loans. Foreign currency lending may have worked to maintain overall balance between demand and supply for loans.

In summary, given that this was a period of positive growth, declining inflation rates and a relatively stable exchange rate, it is clear that the existence of US dollar deposits in the system did not undermine the ability of the central bank in meeting its responsibilities. There was a steady decline in the inflation rate, the exchange rate remained fairly stable and the growth in lending was in line with what was required to support real economic growth.

The Dollarization Issue

The question arises as to whether the growth in US dollar deposits in these economies might be indicative of a trend towards dollarization which has characterized a number of Latin American economies over the past two decades. In those instances the US dollar replaced local

currencies in performing the medium of exchange and store of value functions of money. This process of currency substitution, in which the local currency is replaced by the foreign currency, a reverse Gresham's law, would be reflective of a basic loss of confidence in the domestic currency.

In view of the fact that direct evidence on the quantity of US dollars in circulation in a country is not available, it is customary to use variations in the ratio of US dollar to domestic currency deposits as an index of dollarization. The use of such an indicator in the case of these economies might be inappropriate for the following reasons. The growth in the size of US dollar deposits in the banking system might be more related to the fact that the removal of exchange controls encouraged residents to hold such balances at home rather than in an offshore centre. As a result, the increase in US dollar deposits in the banking system after controls were lifted might not be indicative of currency substitution on the part of residents. On the other hand, to the extent that the US dollar was replacing the domestic currency as the preferred instrument for settling payments and in performing the store of value function, one might expect to observe a decline in the ratio of domestic currency demand deposits, and savings and time deposits to GDP.

In both Jamaica and Trinidad and Tobago, there was no evidence of a trend toward a decline in the ratio of domestic currency demand deposits to GDP. In Jamaica, as indicated in **Table 18,** the ratio varied between 9.5 and 11.2 percent and in Trinidad and Tobago between 6.3 and 7 percent. These findings are in keeping with the views expressed by the commercial banks representatives interviewed, namely, that although the US dollar might be employed for indexation purposes, the domestic currency was the principal mode of settlement. There was a significant increase in the ratio of time and savings deposits to GDP in Jamaica, while there was a slight decrease in the ratio in Trinidad and Tobago. This suggests there was no significant diminution in the store of value function of domestic currency. Neither of these countries had experienced the type of hyper inflation which

would cause residents to lose confidence in the ability of the domestic currency to perform the medium of exchange and store of value functions. As a result, the US dollar may more appropriately be seen as performing the role of a complement rather than a substitute for the domestic currency.

Table 18. Domestic Currency Deposits[1] as a Percent of GDP

	Jamaica		Trinidad & Tobago	
Year	**Demand Deposits**	**Time and Savings Deposits**	**Demand Deposits**	**Time and Savings Deposits**
1992	9.5	24.3	..	..
1993	11.2	27.5	..	..
1994	10.6	30.5	6.3	24.7
1995	10.2	32.9	7.0	23.8
1996	9.6	34.7	6.7	21.8

[1]Annual Averages.

Source: Bank of Jamaica, *Statistical Digest*, Monthly, Central Bank of Trinidad and Tobago, *Quarterly Statistical Digest*, *Annual Economic Survey 1996*.

Conclusions

The removal of exchange controls in Jamaica and Trinidad and Tobago had the desired effect of encouraging residents to hold foreign currency balances at home rather than in offshore centres. The benefit of such a development is that it could provide an additional source of foreign currency financing in support of investment activity as long as the financial institutions followed a management strategy which did not lead to lending in support of consumption. Given the concerns of both the lending institutions and

borrowers of the importance of minimizing exposure to exchange risk, this lead to a situation in which the eligibility criteria adopted by the institutions tended to bias lending towards foreign exchange earning activity. However, the very high ratio of loans to deposits in some of the Jamaican institutions suggests that some might have been pursuing an overly aggressive lending strategy.

Since the holders of US dollar deposits seemed to be more concerned with exchange risk aversion and convenience than nominal earnings, the financial institutions were able to mobilize these deposits at relatively low cost. This was reinforced by the fact that during this period deposit rates in the principal offshore centres were at the lowest levels in decades. As a result, US dollar loans were extended to eligible borrowers at a substantial discount as compared with domestic currency loans. This lowered the cost to businesses of financing imports. To the extent that those firms engaged in foreign exchange earning activity would receive the highest credit rating and attract the greatest share of loanable funds, such subsidization would provide an added incentive for firms to engage in export activity.

The existence of US dollar deposits and the opportunity it provided for financial institutions to extend loans in that currency in addition to domestic currency did not appear to undermine the ability of the central banks in the respective countries to control overall lending activity. There was no evidence of a major expansion in US dollar lending on those occasions when the central bank was trying to tighten lending by the commercial banks. In those periods, US dollar lending had a relatively modest impact on the overall level of lending.

On balance, it would appear that US dollar deposits and the opportunity they provided for the financial institutions to extend loans in that currency, had a positive impact on the economies of the respective countries. Such benefits are related to the fact that to this point these deposits have played a role in complementing rather than substituting

for domestic currency. This will continue as long as residents see continuing value in using the domestic currency as the principal medium of exchange and store of value. Bearing this in mind another potential positive effect of these deposits will be the additional pressure it will impose on the monetary authorities to exercise prudence in the conduct of monetary policy.

Selected References

Agenor, Pierre Richard and Mohsin Khan (1992). "Foreign Currency Deposits and the Demand for Money," IMF Working Paper, WP/92/1.

Canto, Victor A. (1985). "Monetary Policy, 'Dollarization' and Parallel Exchange Market Exchange Rates. The Case of The Dominican Republic," **Journal of International Money and Finance,** vol. 4. pp. 507-21.

Devries, Casper G. (1988). "Theory and Relevance of Currency Substitution with Case Studies for Canada and the Netherland Antilles," **Review of Economics and Statistics,** vol. 70. 3. p. 512-15.

El - Erian, Mohamed (1988). "Currency Substitution in Egypt, and the Yemen Arab Republic," ***Staff Papers,*** International Monetary Fund, vol. 35. pp. 85-103.

Giovannini, Alberto and Bart Turtelboom (1992). "Currency Substitution," **NBER Working Paper,** No. 4232.

Guidotti, Pablo and Carlos Rodriguez (1992). "Dollarization in Latin America: Gresham's Law in Reverse," ***Staff Papers,*** International Monetary Fund, vol. 39. 3. pp. 519-44.

Liburd, Eustace (1996). Foreign Currency Deposits. Unpublished, Eastern Caribbean Central Bank.

McKinnon, Ronald (1985). "Two Concepts of International Currency Substitution, in **The Economics of the Caribbean Basin,** Michael Connolly and John McDermott (eds.) pp. 101-18.

Melvin, Michael (1988). "The Dollarization of Latin America as a Market Enforced Monetary Reform: Evidence and Implications," **Economic Development and Cultural Change,** vol. 36. pp. 543-58.

Melvin, Michael and Jerry Ladman (1991). "Coca Dollars and the Dollarization of South America," **Journal of Money Credit and Banking,** vol. 23. 4. pp. 754-63.

Ortiz, Guillermo (1983). "Currency Substitution in Mexico. The Dollarization Problem," **Journal of Money Credit and Banking,** vol. 15. 2. pp. 174-85.

Ramirez - Rojas, Carlos (1985). "Currency Substitution in Argentina, Mexico and Uruguay," ***Staff Papers,*** International Monetary Fund, vol. 32. 4. pp.629-67.

Rodriguez. Carlos (1993). "Money and Credit Under Currency Substitution," ***Staff Papers,*** International Monetary Fund, vol. 40. 2. pp. 414-25.

Tanzi, Vito and Mario Blejer (1982). "Inflation, Interest Rate Policy and Currency Substitution in Developing Economies: A Discussion of Some Major Issues," **World Development,** vol. 10. 9. pp 781-89.

Appendix A

Question Raised in Interviews with Representatives of Commercial Banks Concerning their Approach to the Management of US Dollar Deposits

1. What are some of the unique management problems associated with US dollar deposits?

2. Is there a special effort made to direct foreign currency loans to borrowers likely to use the proceeds in activities geared towards earning foreign exchange.

3. What portion of free reserves is invested in foreign currency financial assets?

4. Are there difficulties in finding borrowers on the domestic market with acceptable credit risk?

5. Are surplus funds invested in foreign financial assets as a last resort or are such foreign investments evaluated on the same basis as domestic placements?

6. Are legal reserve requirements set at an appropriate level? Are legal reserve requirements necessary?

7. What impact does changes in interest rates paid on domestic currency deposits appear to have on deposits and withdrawals from US dollar accounts?

8. Are interest rates paid on foreign currency deposits set with reference to interest rates paid in foreign centres?

9. Is there evidence of borrowers substituting US dollar loans for domestic currency loans in response to an increase in domestic interest rates?

10. To what extent does the spread between buying and selling rates appear to have a bearing on the reluctance of businesses to convert foreign currency earnings into domestic currency?

11. How does the rate of turnover of US dollar deposits compare with that of domestic currency deposits?

12. Do holders of time deposits tend to favour shorter maturities?

13. Are time deposits usually renewed on maturity?

14. What forms of expenditure are most frequently supported by US dollar loans?

15. Has there been a significant growth in inter bank deposits with cheque clearance?