



Does Capital Account Liberalisation Make Caribbean Economies More or Less Susceptible to Sudden Stops?

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Abstract

During the last thirty years, a number of Caribbean countries have embarked upon a process of capital account liberalization. This study explores the effect of liberalization on the “sudden stop” of capital inflows. Using a probit model framework and an index of capital account liberalization, the effect of liberalization on the probability of a sudden stop occurring was examined. The analysis produced mixed results, as increased liberalization appeared to raise the probability of a sudden stop taking place in several countries but reduce it in others. This suggests that other factors such as the speed of liberalization and the conditions under which liberalization takes place may also be important.

¹ The views expressed in this paper are those of the authors and do not necessarily represent the Central Bank of The Bahamas. The paper should be considered a work in progress and as such the authors would welcome any comments on the written text.

Section 1: Introduction - Theoretical Overview

With the substantial increase in capital flows over the past decade and the increasing integration of the global economy, capital account liberalization has attracted much debate. Discussions center on the role of volatile private capital flows in international payments and appropriate government policies. According to a World Bank report (1996), between 1990 and 1993 private flows to developing countries rose almost four-fold to approximately \$160-\$170 billion in 1994-1995. Thus, due to the volume of cross-border capital flows, the focus on capital account liberalization has garnered much attention.

The liberalization of the capital account is said to have important implications for financial markets and institutions. Johnson, Darbar and Echeverria (1997) postulated that liberalization aids in the development of deeper, more competitive and diversified financial markets. In cases where the foreign financial firms are allowed to operate directly in the country, the architecture of domestic financial markets is purported to improve. Therefore, the main benefit from capital account liberalization at the national level and from global financial integration are those derived from the increased efficiency of both national and global capital markets. Nevertheless, the efficient use of capital flows and the extent to which such flows contribute to continued advancements in economic performance is dependent on the level of development and efficiency of the financial domestic system. As a result, synchronization and sequencing the liberalization

of the capital account must be consistent with the reforms of domestic financial markets and institutions.

According to the International Monetary Fund (2004), capital controls entail an administrative cost, leads to distortions—as substitution takes place from controlled to exempted transactions—and tend to breed corruption, while giving rise to rent-seeking activities, hence another reason cited in favour of capital account liberalization. Therefore, reduced controls are said to lead to smaller administrative costs, while minimizing distortions and corruptions that are associated with maintaining controls.

Within all economies, with special emphasis on the developing countries, the potential benefits of opening the capital account encompass increased variety in the international portfolios of home country investors, augmented diversification of capital sources on the part of both public and private borrowers, greater competition and hence improved competence for their financial services sectors; deeper financial markets and the increased efficiency of intermediation, and higher domestic savings and investments. Moreover some authors have stated that free capital mobility supports an efficient global allocation of savings and a better diversification of risk, promoting enhanced economic growth and welfare.

More importantly, countries are encouraged to adopt a coordinated and comprehensive approach to capital account liberalization². Adopting an all-inclusive approach would entail coordination between the liberalization of portfolio capital flows with domestic financial sector reforms, interest rate liberalization, development of indirect monetary control procedures, and the strengthening of banks and

² See Johnson et al.(1999)

capital markets through improved regulations. The absence of synchronization between the domestic financial sector and the capital account reforms can result in distortions and regulatory incentives for movements that are unrelated to the underlying economic conditions, thus leading to greater instability in capital movements.

In addition, a comprehensive move necessitates the establishment of an appropriate and consistent mix of macroeconomic and exchange rate policies³. The re-orientation of monetary and exchange rate policy may be necessary in order to provide the appropriate autonomy of monetary policy in dealing with capital inflows. However, a gradualist approach to liberalization is still recommended, since having well-planned and sequenced reform does not necessarily imply an unhurried approach. With the gradualist approach, the slower the process the more conducive it is to minimizing the adjustment costs and building political consensus.

There is also a conventional view of capital account liberalization held in some quarters, which states that the opening up of the capital account should pattern that of the current account and the domestic financial system. Meanwhile, some theorists argue for the simultaneous liberalization of both the current and capital accounts. Other studies point to an integrated move towards capital account liberalization and financial sector reforms⁴. With such an approach there will be no distinction between the deregulation of the capital account and the regulation and development of financial markets. This theory alludes to the fact that the liberalization of the capital account should be treated as an integral part of economic reform programs. Nevertheless, the approach to the liberalization of capital inflows and

³ *ibid*

⁴ See Johnson, Darbar and Echeverria (1997)

outflows may vary depending on the particular priorities of individual countries. The speed of liberalization on the other hand may depend on a number of factors, such as institutional capacity and political considerations.

However, regardless of the noted benefits of capital account liberalization and the approach adopted, there are specific risks and potential costs associated with such a move. Capital inflows are generally welcome in developing countries for their role in financing investment, thereby assisting in long-term development and in the short-term smoothing of consumption. Nevertheless, in developing countries where there are relatively weak domestic financial markets, the surge of external capital, either inward or outward, can create difficulties. It can exacerbate the volatility in domestic markets for financial assets and real estate. Over the years, the rapid expansion in capital inflows has been associated with stock and property market booms, while massive outflows have been linked to swift declines in investment values. In cases where financial markets are weakly supervised, even modest outflows of external private capital can overwhelm both local financial institutions and their regulatory authorities, while creating additional macroeconomic management problems. It has been noted that even in relatively strong financial systems, deposit insurance can create moral hazard, thereby encouraging over enthusiastic foreign depositing in domestic banks and a similar lending pattern by banks to domestic agents.

Financial sector reforms generally involve a rapid monetization of the economy and a period during which the growth of credit exceeds that of money, as agents adjust to the elimination of financial repression⁵ defined as the constraints on investment caused by the rationing of

⁵ See Bisat, Johnson and Sundarajan, (1992)

credit. Opening the capital account is also associated with initial surpluses in the capital account of the Balance of Payments. These surpluses reflect the enhanced investor environment and the return of flight capital. Each of these factors can create problems for monetary and macroeconomic management if tackled independently. However, the adjustments in the monetary and external sectors can be offsetting to some degree if confronted together.

Further, if these private capital flows are procyclical, increasing during expansionary periods and declining, even reversing in times of recession, then such flows can create problems for macroeconomic stabilization. The surge of private capital inflows can lead to macroeconomic problems through its effect on either the exchange rate or the domestic money supply, combined with the risk of the abrupt cessation of these inflows or outflows. If international capital flows into developing countries are not the product of “one-off” stock adjustments, but reflect normal response to changing incentives, then this one track surge is likely to be reversible⁶.

Therefore, this paper seeks to explore the relationship between capital account liberalization and the susceptibility of Caribbean economies to sharp reductions in capital inflows, the so called “sudden stop” phenomenon. The remainder of the paper is organized as follows: section two discusses selected countries liberalization experience. In section three, the methods for measuring the degree of capital account liberalization over the last fifteen years for specific countries are examined and the degree of openness for specific Caribbean economies based on one of the techniques is computed. The methodology employed to measure sudden stops is examined in section four, while section five analyzes the results obtained for the

⁶ See Helleiner (1990)

Caribbean economies. The implications of the results are analyzed in section six, while the following section summarizes the study and provides a few insights into further research.

Section 2: Capital Account Liberalization - Country Experiences

During the last few decades, several developing countries have, for various reasons embarked on some degree of capital account liberalization. Countries implemented economic and financial reforms as a result of adverse conditions that prevailed prior to their liberalization attempts. Conditions ranged from severe financial repression, distortion in prices and economic imbalances. In all of the countries, the activities of the financial institutions were tightly controlled and there was a high degree of policy-induced segmentation between different types of financial institutions.

For instance, in the early 1970s **Chile** was characterized by weak GDP growth, domestic and external imbalances and extensive controls on trade, capital flows and enterprises. In addition, the financial sector was highly regulated via interest rate ceilings, quantitative controls on banks, substantial directed credit and restrictions on operations of financial institutions. However, in an attempt to address the economic ills of the country, Chile embarked upon a stabilization program and concurrently the country adopted rapid liberalization measures, which included the opening of the current and capital accounts from 1976; with the law being established in 1989 granting legal autonomy to the Central Bank of Chile (CBC). However, this first attempt at liberalization during the 1974-1979 period failed, due in part to the rapid pace of the reform, inefficient policy design and implementation, a weak supervisory framework, excessive risk taking and unsound lending practices.

Nevertheless, with the second attempt during the 1985-1996 period, Chile adopted a gradualist approach to capital account liberalization. During this time, the reform focused on the completion of the restructuring of the banking system, establishment of indirect methods of monetary control, trade reform, increased scope of transactions by banks, establishment of the autonomy of the CBC and the selective liberalization of direct and portfolio capital inflows. Emphasis was later placed on the development of financial markets, the adoption of more flexible interest and exchange rates policies and selective relaxation of controls on capital inflows and outflows (See Appendix Table 1).

Following the banking crisis of the 1980s, recovery of the banking system and the reversal of earlier trade protectionist policies were given priority in 1985-1987. The central bank eliminated the practice of announcing indicative interest rates in 1987 and began to influence the level of domestic interest rates via open market operations. Further, capital market activity was promoted gradually and pension funds were allowed to invest part of their assets in selected domestic stocks. Moreover, the pension funds were granted limited freedom to invest overseas and remittances of profits and capital earned on foreign investments were allowed in advance of pre-existing schedules under specific conditions.

In addition, non-residents were now permitted to invest in publicly offered instruments, with the repatriation of the original capital after five years—which was subsequently reduced to three years—and unlimited profit remittances. Further, in liberalizing capital outflows, residents were allowed to use foreign exchange obtained in the unofficial market to invest abroad.

Moreover, with emphasis being placed on the development of domestic financial markets and instruments, measures aimed at broadening and enhancing the efficiency and competitiveness of the stock exchange and local security markets were introduced. Furthermore, the development of both the money and foreign exchange markets were done concomitantly and the central bank improved its capacity to conduct monetary operations by expanding the range of instruments and maturities employed in open market operations. Guided by new foreign exchange regulations, all foreign exchange transactions were permitted unless specifically prohibited by the central bank and the parallel foreign exchange market became a secondary market in which the exchange rate was freely determined.

The pace of capital account liberalization accelerated in the 1990s with greater importance being placed on capital inflows and the intensification of specific restrictions on capital outflows⁷. The minimum period for which capital was required to remain in the country decreased to one year from three years; while the time limit for remittances of profits was eliminated. Subsequently, foreign portfolio investment outflows were encouraged by permitting life insurance companies, pension funds, banks and mutual funds to invest larger percentages of their portfolios abroad through the open market, allowing domestic banks to invest in financial institutions overseas and the granting of individuals access to the formal exchange market for a limited set of capital transactions. Regulations on the surrender and repatriation of foreign exchange earnings were

⁷ In 1991 the central bank implemented a 20% reserve requirement on new foreign borrowing, except for trade credits the objective of limiting short-term capital inflows. This was subsequently increased to 30% and extended to most outstanding foreign borrowing and to foreign currency deposits. In 1994 reserve requirements on foreign loans were required to be held solely in United States dollars.

relaxed and authorized exchange houses were permitted to transact forward and swap operations in the official exchange market.

In summary, Chile's liberalization of the capital account followed a distinct sequencing pattern and a gradual approach. The liberalization measures occurred over an extended period (1976-1996) and were gradually introduced. The initial focus was on the completion of the restructuring of the banking system, trade reform, liberalization of the exchange system and selective liberalization of capital inflows. Next was the development of the domestic money, bond and equity markets (See Appendix Table 1). Moreover, the capital account liberalization was combined with the evolution of macroeconomic policies and instruments. The outcome of the liberalization measures adopted was a boost in the capital account and increased capital movements. Further, indirect monetary policy instruments were strengthened and the exchange arrangement modified to permit greater flexibility of the rate within a pre-announced crawling band. At the same time, capital outflows were liberalized in response to a strengthening balance of payments and significant capital inflows.

Another country that embarked on the opening up of its capital account was **Indonesia**. The economic reform process in this country was geared towards the reorientation of the economy to decrease the dependence on the oil sector, expand the role of the private sector, create a competitive non-oil sector and foster an export oriented industrial base to absorb the rapidly enlarging labour force. The strategy employed to achieve these targets included coordinated financial and exchange rate policies—aimed at providing a stable macroeconomic environment—wide ranging structural reforms to promote sustained growth and economic diversification. In this regard, the 1982-1996 capital account liberalization measures

comprised the gradual removal of restrictions on direct investment inflows and encouragement of growth of the capital market via the granting of permission for foreigners to own listed stocks. Moreover, other measures employed included economic diversification, maintenance of a competitive exchange rate, improvements in monetary management, financial sector trade reform through liberalization of external inflows, promotion of competition in the banking sector and intensification of financial institutions.

Reforms were conducted simultaneously in the financial and real sectors. Initially the focus was on the establishment of the financial markets, institutions and instruments towards a more market-based system (See Appendix Table 2). In order to achieve the stated objectives, interest rates were liberalized, direct credit controls on the banking system partially abolished and money market instruments introduced in 1984. Further, institutional reforms were undertaken to boost the operations of the capital market, including reforms to the stock exchange and the introduction of new capital market instruments. The authorities also modified their monetary control framework by shifting toward targeting international reserves and the introduction of daily auctions of money market instruments, while allowing market forces to determine the interest and exchange rates.

The reforms also stressed the operation of the banking system, enhanced bank supervision and development of the money market. Reform of the financial sector was promoted by allowing greater foreign participation in the financial sector through the licensing of new foreign banks and branches, the creation of a level playing field for foreign and domestic banks and permitting foreign participation in other types of financial institutions and insurance business. In addition, improvements to the function of the capital market included

extending the role of the market in raising funds for investments, extending the maturity of money market instruments and broadening the range of market makers. Meanwhile, portfolio capital inflows were liberalized by the elimination of quantitative limits on banks' borrowing from non-residents. Foreigners were now allowed to invest in the stock market and to amass up to 49% of the ownership of listed stocks. Further, foreign direct investors were permitted to sell foreign exchange directly to commercial banks instead of going to the central bank.

In keeping with the general economic and financial sector developments, the authorities continued to broaden the arrangements for foreign borrowing for trade financed by private entities, including sales of securities to non-residents and liberalization of foreign direct and portfolio investment through the stock markets. These and other measures were taken to strengthen the domestic capital markets and the regulatory framework for banking operations. Regulations were issued to strengthen financial institutions via the upgrading of accounting standards to ensure compliance with prudential guidelines and to safeguard against excessive risk taking through derivatives trading.

In general, Indonesia's phased and gradual approach to reforms assisted in mitigating some of the significant risks associated with financial sector liberalisation. The initial phase involved the removal of direct credit and interest rate controls, and a shift to a more market-oriented system of credit allocation and monetary control. These market-based instruments of monetary control and capital markets evolved slowly, a reflection of the major involvement of Bank of Indonesia in credit allocation and the limited interest rate flexibility. Phase two of the deregulation notably changed the financial system

structure, with a substantial curtailment in directed credit and a large rise in the number of financial institutions (See Appendix Table 2). Also included were measures geared towards the further development of the money and capital markets, reduction of the central banks' role in credit allocation and a streamlining of the operating procedures of monetary policy and banking supervision.

Indonesia's sequencing of their liberalization illustrated the need for synchronization between financial sector reform and macroeconomic and monetary management. The challenges this country faced with effectively managing capital inflows and outflows complicated domestic monetary management and hence hastened the need for the adoption of indirect monetary policy instruments. With the introduction of indirect monetary controls, there was increased interest rate flexibility, which allowed the authorities to manage more effectively the volatile capital flows. Conversely, the expansionary impact of the initial surge in private sector credit following the liberalization was offset by a fiscal surplus, which enabled the government to repay outstanding debt obligations and hence the potentially destabilizing macroeconomic consequences of the rapid credit expansion were circumvented.

For **Thailand**, the economy embarked on major adjustments during the period 1985 to mid-1997. Priority was on promoting capital flows through tax and institutional reforms, while concurrently developing its financial markets (See Appendix Table 3). Combined with large positive interest rate differentials and a fixed exchange rate, this policy resulted in significant net capital inflows. Such inflows led to strong economic performance and increased opening of the economy. With regards to capital inflows, Thailand maintained a relatively open capital account at the beginning of the review period. Portfolio

investments inflows were treated generously, however, initially exchange controls applied to the repatriation of interest, dividends and principal. Meanwhile, foreign borrowing was conducted liberally but had to be registered with the Bank of Thailand (BOT).

Over the period 1985-1997, foreign inflows were promoted through various measures, which comprised of the elimination of restrictions on foreign investments and foreign ownership of export oriented industries, the granting of tax incentives to encourage direct investment in special sectors, the granting of tax incentives to foreign mutual funds for investments in the stock market and the creation of new closed end mutual funds. Additionally, other regulatory changes included the establishment of rules for foreign debenture issues by Thailand companies, reduction of taxes on dividends remitted abroad and the allowance of free repatriation of investment funds, loan repayments and interest payments by foreign investors. However, certain limitations on foreign ownership were retained on non-export oriented industries and on the maximum foreign ownership of companies listed on the stock exchange. Additional liberalization followed with the removal of limits on the amounts of foreign exchange that could be purchased or brought into or taken out of the country, the relaxation of surrender requirements and broadening the uses of non-resident baht⁸ accounts and resident foreign currency accounts.

Moreover, the Thai authorities approach to capital outflows was much slower than that adopted for capital inflows and the exchange system (See Appendix Table 3). Commercial banks were permitted in 1990 to lend limited amounts to non-residents in foreign currency and to approve the repatriation of proceeds from the sale of securities.

⁸ The baht is the official name of Thailand's currency.

Following in 1991, Thai residents were allowed to invest abroad or lend limited amounts to companies that had at least a 25% Thailand equity participation, which was subsequently increased in 1994. Nevertheless, purchases abroad of capital and money market securities, foreign direct investments exceeding \$10.0 million and purchases of real estate remained subject to Bank of Thailand approval. In addition, insurance companies were permitted to invest abroad under certain circumstances, but only up to 5% of their portfolio, while locally issued mutual funds were restricted to investing their portfolio in the domestic sector.

The development of the stock market was the initial focus of the reforms of the domestic financial markets. The Securities Exchange of Thailand (SET) was established in 1975 and the Securities Exchange Act was amended in 1984. Subsequently, a variety of reforms aimed at developing the SET were established in 1989. These included the replacement of manual transactions with an automated trading system in 1991 and in 1992 the Securities Exchange Act and the Public Company Act B.E. 2535 were designed to support and promote the stock market. The Securities Exchange and Public Company Acts permitted public and private companies—listed and unlisted—to issue bonds and the Thai Rating and Information Services (TRIS) was established as a credit rating agency to aid in the development of corporate debt markets.

Overall, Thailand actively encouraged capital inflows while curtailing outflows, with the aim of supplementing domestic savings and promoting investment and rapid economic growth. The country opened its economy to capital inflows, more specifically portfolio investment inflows, much more rapidly than Chile and Indonesia, but liberalized capital outflows only gradually. Resultantly, in Thailand net

private capital inflows were larger as a percent of GDP than the other countries surveyed; however, a significant portion of these inflows through the international banking facility were short-term in nature. Further, Thailand maintained a fixed exchange rate system which limited the flexibility of its monetary policy to constrain the growth of money and credit in the face of massive capital inflows. Therefore, according to Johnson, Darbar and Echeverria (1997), the country's policy of promoting capital inflows, combined with the fixed exchange rate regime, may have created unrealistic expectations about the rate of return, hence creating the environment for a sharp reversal of capital inflows when market sentiment changed and a currency crisis ensued, forcing the authorities to float the baht and adopt a managed floating exchange rate regime.

For the Caribbean, the first economies that embarked on capital account liberalization in the 1970s were Guyana, Jamaica and Trinidad & Tobago⁹. For **Guyana**, the liberalization of the capital account commenced in 1979. Initial liberalization attempts were geared more toward capital inflows, with capital outflows evolving slowly. From 1979-1990, Central Bank approval was required and was frequently granted for investors with "approved status" to remit the full value of their investment less all taxes owed. Further, permission was needed and was sometimes granted for residents to export capital and residents who migrated were not allowed to transfer their capital assets, other than a settling allowance of G\$100 per member of each family¹⁰. Emigrants to Guyana required approval, which was frequently granted, to transfer capital assets up to a maximum of G\$24,000 per family and G\$17,300 each year after.

⁹ These are the Caribbean countries that abolished the fixed exchange rate arrangement and adopted a floating exchange rate regime.

¹⁰ Guyanese dollar (G\$) is the official currency for Guyana

On the outflows side for Guyana, only foreign investors with “approved status” from the central bank, which was sometimes granted, were allowed to invest in new projects that benefited the balance of payments and the entire economy. Meanwhile, specified currencies obtained by residents through capital transactions had to be turned over to an authorized dealer and non-residents needed approval to lend funds. Further, publicly owned enterprises were encouraged to borrow abroad to finance special projects and for capital injection; however, approval had to be obtained from the Government Debt Committee. Nevertheless, from 1991 when the country moved to full liberalization, approvals were no longer required from the Central Bank for residents to export capital, to transfer capital assets and for specified currencies obtained by residents through capital transactions to be handed over to an authorized dealer. However, approval still has to be sorted and is frequently granted for some remaining transactions (See Appendix Table 4).

With regards to *Jamaica*, liberalization measures focused mainly on outflows, with the partial removal of restrictions on these outflows. Beginning in 1979, even though approval was required for direct investment in the country by non-residents, this permission was frequently granted along with written approval that at any time the original investment plus any capital gain could be repatriated. Further, permission still has to be sought and is frequently granted for non-residents repatriation of receipts for sale of land to residents. However, there is one stipulation, which states that the original amount of funds brought to Jamaica to facilitate the transaction and the balance has to be paid in ten equal installments, not exceeding \$10,000 Jamaican dollars in one year¹¹ (See Appendix Table 5).

¹¹ To date these measures still exist.

Trinidad and Tobago began its transition by pursuing limited liberalization in 1979 and then gradually moved to full liberalization in 1993. In this country, from 1979 to 1992 permission was required and was frequently granted for the repayment of commercial credit, for gifts to non-residents and emigrations allowance and for transfers to other Caricom countries. Moreover, legacies were transferred in full, but the Central Bank reserved the right to have the transfers made over a four year period. Pertinent to outflows, the proceeds from securities that were sold by residents in external markets had to be repatriated via an authorized dealer. Approval had to be sought and was frequently granted for the funds to be used to purchase the same type of security in an outside market. Meanwhile, permission was frequently and freely given for direct investment.

However, from 1993 Trinidad & Tobago moved to full liberalization and approvals were no longer required from the Central Bank for transactions pertaining to inflows and outflows. Moreover, receipts were not taxed and restrictions were fully abolished (See Appendix Table 6).

Section 3: Methodology for Creating Capital Account Index

3(a) Definition Index of Liberalisation

According to Altar et al (2005), two types of indicators can be used to measure the degree of capital account openness. These indicators are rules-based and are used to measure the intensity levels of capital flows. The rules-based category aspires to create a scale for the capital account liberalization level of each country. Based on the criteria used, each country is ranked and rated to the extent to which it meets the agreed standard. Moreover, Feldstein and Horioka (1980)

examined the savings and investments level in some countries to determine the degree of capital mobility. For instance, in cases where the capital account is not liberalized savings and investments will not equal to one and if it equals one then it can be assumed that the capital account is heavily regulated. Another useful indicator of the capital account openness is the speed of convergence between the national interest rate level and the interest rates on the international capital market.

As noted, the definitions and measurement of capital account liberalization or 'openness' is difficult and complex as stated in the various analytical work conducted by numerous academics and international organizations. However, the methodological system used in this study was based on a study by Quinn (1997) entitled "*The Correlates of Change in International Financial Regulation.*" The author utilized a coding system based on rules, both explicit and implicit, which govern restrictions on capital payments and receipts. It measures the degree to which countries restrict inward and outward capital account flows. The chosen measurement proved to be less complex than the other studies and is comprehensive in that the data allows for an enumerative value to be assigned to the level of 'openness'. This methodological choice used was the *sine qua non* condition in making this analysis more comprehensive and inclusive.

The rating system for payments and receipts followed these rules:

- If approval is rare and surrender of receipts is required, the $X = 0$
- If approval is required and sometimes granted, then $X = 0.5$

- If approval is required and frequently granted, then $X = 1$
- If approval is not required and receipts are heavily taxed, the $X = 1$
- If approval is not required and receipts are taxed, then $X = 1.5$
- If approval is not required and receipts are not taxed, then $X = 2$.

In this study, the data files analyzed were obtained from the IMF's *"Annual Report on Exchange Restrictions"*, later renamed to the *"Annual Report on Exchange Arrangements and Exchange Restrictions"*. The publication provided time series data on the general restrictions on capital account transactions for the countries used in the study. However, the data was also augmented, in some cases, by additional information obtained from the various Central Bank records.

Based on the above mentioned rules, each capital control on either a significant payment or a receipt for a particular year was evaluated and a code assigned between 0 (heavily restricted) and 2 (minimum restrictions). Once all the significant transactions were coded, the results were summed and averaged and the resultant value rounded to the nearest 0.5 of a decimal place.

The countries included in this review were Barbados, The Bahamas, Guyana, Jamaica, St. Lucia and Trinidad & Tobago. Data series were obtained for the period 1979 to 2005.

3(b) Result Based on the Technique Used

The level of capital account liberalization or openness is represented in Chart 1 (See Appendix). Some countries regulations and legislations were quite stringent, whereas others were more liberal in regards to capital flows. The most closed economy is St. Lucia, which imposed very tight controls prior to 1996. However, in 1996 the country made a significant change in its capital controls, which allowed residents to make direct investments in other countries. The Bahamas on the other hand, experienced very little change in its capital controls over the review years, showing a constant degree of openness until 2006 when the country announced a number of measures aimed at further liberalization the capital account¹². Meanwhile, Guyana seemed to have always encouraged capital inflows and outflows based on the scoring level over the years. In 1991, the country moved even further in the liberalization of its capital account by allowing the free outflow of capital with the implementation of the Cambio market, along with little taxation on investment capital gains. Whereas capital controls in Jamaica moved from tight control to a higher degree of openness. Notably in the year 1991, all explicit capital restrictions in relation to capital inflows were removed, moving Jamaica to a more liberalized economy. In the case of Trinidad and Tobago, this economy experienced rapid liberalization of its capital restrictions. The controls previously in place were not as stringent as its counterparts in the other countries and there existed little taxation. For this country, the complete transition in liberalizing the capital account occurred in 1993 and applied to inflows as well as outflows. There was a gradual change in capital controls for Barbados and this country is still in the transition phase to full liberalization. There are still quite stringent controls in place as it relates to inheritance and dowries in Barbados, while all controls as it relates to

¹² See The Central Bank of The Bahamas Annual Report and Statement of Accounts 2005, p.29.

investment on the CARICOM Stock Exchange up to a pre-set limit, allowing residents to freely investment funds, have been completely abolished.

3(c) Definition of a Sudden Stop

There is not a single comprehensive definition, which describes a sudden stop. For example, authors such as Jeanne and Ranciere (2006) and Calvo et al (2004) define a sudden stop in terms of a sharp decline in capital inflows. Catão (2006) expands the definition to take account of the overall balance of payments developments in identifying a sudden stop. The author therefore notes that a precipitous decline in capital inflows would have to be accommodated by an improvement in the current account balance or alternatively a reduction in external reserves, to conclude that a sudden stop has occurred. More notably Frankel and Cavallo (2004) incorporate the concept that a sudden stop has to also “disrupt” the wider economy. In this regard, the researchers identified a decline in net output in either the same year or the year immediately after a decline in capital flows occurs, as one of the criteria to be used in defining a sudden stop episode.

Several different definitions employed initially to analyse the frequency of sudden stop periods for the countries used in the study. Given that the paper focused on determining the importance of the degree of liberalization in determining sudden stop periods for each country, a modified version of the Calvo et al criteria was selected. This method identified several sudden stop periods for each of the countries used in the model. In this regard, the following definition of a Sudden Stop was employed in the paper. A Sudden Stop is said to have occurred if:

1. The year-on-year fall in capital flows exceeds one standard deviation below the sample mean
2. The sudden stop period ends the first time the annual change in capital flows falls one standard deviation above the sample mean

Table 7 shows the Sudden Stop periods identified for all of the countries used in the analysis. Moreover Chart 2 (See Appendix) illustrates the Sudden Stop period for each country separately as well as for all of the countries combined. Based on the definition used, the results show that all of the countries appeared to experienced sudden stop episodes during the 1981-83 period. Moreover, four of the countries, The Bahamas, Barbados, St. Lucia and Trinidad & Tobago had sudden stops in capital flows during the 1989 to 1993 period. The final major sudden stop episode occurred from 1998 to 2003 when The Bahamas, Barbados, Jamaica and Trinidad & Tobago all experienced at least one year of sudden stops.

Section 4: Methodology for Examining Sudden Stops

The next step involved the modeling of the factors which increased the probability of a sudden stop occurring for the countries included in the analysis. The explanatory equation is shown as Equation one:

$$SS_t = \alpha + \beta CL_{t-1} + \gamma X_{t-1} \quad (1)$$

where

SS = Sudden stop period

α = Intercept term

CL = Degree of Capital Account Liberalization as measured by the Index

X = Matrix of explanatory variables used in previous studies

The matrix X is compiled from a list of explanatory variables used by authors such as Frankel and Cavallo (2004), Rancière et al (2006) and Razin and Rubinstein (2006). The matrix of independent variables is shown in Table 8 of the Appendix. The variables are lagged to avoid any endogeneity problems as noted by Calvo et al (2004).

The regressions for each country were analyzed using a probit model framework. In this model the probability that $y = 1$ is given by:

$$\Pr(y_i = 1 | x_i, \beta) = 1 - \Phi(-x_i' \beta) = \Phi(x_i' \beta) \quad (2)$$

where Φ is the cumulative distribution function of the standard normal distribution,

and has a standard normal distribution function given by

$$\Phi(w) = \int_{-\infty}^w \frac{1}{\sqrt{2\pi}} \exp\left\{-\frac{1}{2}t^2\right\} dt \quad (3)$$

The models were estimated using the method of maximum likelihood.

Section 5: Results and Analysis

5(a) Liberalisation Variable

Given the short data series and the relatively large number of variables used in the analysis, two sets of results consisting of five separate models, were estimated. The first group comprised a minimum of three of the explanatory variables from the X matrix. The second set of results featured the addition of the liberalization variable to each of the five previous regression equations. The results are shown in Appendix Tables 9 to 14.

The preliminary assessment from the results of the probit models, based on the McFadden R^2 statistics¹³, show that overall the explanatory power of the regression equations increased with the addition of the liberalisation variable to the various models, as on average models with the liberalization variable were 16.8% better at modeling the dependent variable than a constant probability model, compared to just 13.8% in models without the liberalization variable. However, the impact of the variables on the various regressions changed for the various countries. As tables 9 to 14 (See Appendix) illustrate, the inclusion of the liberalisation index generally increased the probability of a sudden stop episode occurring in the following year for Barbados, Guyana and Jamaica. This was reversed for Trinidad and Tobago and St. Lucia, where the inclusion of the liberalisation variable reduced the probability of a sudden stop episode occurring in the next year.

As noted previously, due to the fact that the liberalisation index remained unchanged for The Bahamas during the review period, it was not used in the analysis; however, tests of the other explanatory

¹³ As Verbeek (2000) note, “usually goodness-of-fit is quite low for discrete choice models”.

variables were still conducted. Table 9 shows the results for the matrix of explanatory variables (See Appendix).

The increased probability of a sudden stop for Guyana and Jamaica with the inclusion of the liberalization index can perhaps be as a result of the hurried approach to liberalization that was adopted by these two countries, in addition to deteriorating BOP position and their relatively under-developed financial markets. On other hand, Trinidad & Tobago's more favourable reaction can perhaps be a reflection of the gradual and phased approach to liberalization and a relatively developed financial market. With regards to St. Lucia, where the inclusion of the liberalization variable reduced the probability of a sudden stop, this can perhaps be linked to the fact that the country is part of the Eastern Caribbean Currency Union, which to some extent restricts the country's direct exposure to international capital flows. However, for Barbados, the economy is still in the transition phase of liberalization and hence the result is indeterminate.

5(b) Matrix of Other Explanatory Variables

The matrix of other explanatory variables also revealed some interesting results. For example, an increase in the import reserve cover (IMPMONTH) generally decreased the probability of a sudden stop occurring in the next period. Moreover, an increase in the interest rate differential between the domestic interest rate and the world interest rate¹⁴ (RATE) reduced the probability of a sudden stop occurring a year later for several countries, but produced mixed results for others. In addition, perhaps reflecting the volatile nature of capital flows in the region, an increase in FDIGDP appeared to for the

¹⁴ In the case of the Caribbean this rate is proxied by the average between the US T-bill and 3-month CD Rate

most part to increase the probability of a sudden stop occurring in the next year¹⁵.

The other variables explanatory variables used in the analysis produced different results for the various countries indicating that country specific circumstances are perhaps as important as general internationally accepted assumptions in determining if a country experienced a sudden stop. For example, the DEFGDP variable increased the probability of a sudden stop occurring in the next period for two of the countries, but reduced it for one of the countries in the analysis. The OPEN variable also appears to exhibit different signs for the various countries; while the PEG variable produces generally mixed results for the relevant economies. With regards to the debt variables (FXDEBTGDP, FXDEBTRES and DLD1), the general results varied for each country. The FXDEBTGDP reduced the probability of a sudden stop happening in the following year for one country but increased the probability for two other countries. Similarly the FXDEBTRES increased the probability of a sudden stop occurring for one country but reduced it for another, while the results for DLD1 were also indeterminate.

5(c) Robustness Checks

In order to examine the robustness of the results, the models were re-estimated using two alternative definitions of sudden stops. The first alternative definition was outlined by Frankel and Cavallo (2004), who defined a sudden stop as a fall in the financial account in year t which is at least 2 standard deviations below the sample mean¹⁶; and is associated with a fall in both GDP and the current account balance in

¹⁵ This result was also found by Frankel and Cavallo (2004), although the authors provided no interpretation.

¹⁶ For the purpose of this study a fall in financial account flows, which was one standard deviation below the sample mean, was used.

either year t or $t+1$ of any magnitude. The second alternative definition of a sudden stop was provided by Levchenko and Mauro (2006), who noted that a sudden stop occurs when the financial account worsens by more than 5% of GDP compared to the previous year. Chart 3 shows the aggregate number of sudden stop periods identified from all three definitions of sudden stops (See Appendix). Note that all three definitions exhibit similar patterns, whereby the sudden stop episodes are concentrated in three distinct periods, namely 1981 – 1985, 1987 – 1992 and 1999 - 2002.

The results, which are available from the authors show that the sign of the liberalization variable for St. Lucia and Trinidad remained stable; however, the signs for Barbados and Guyana were reversed. This indicated that the results for Barbados and Guyana were sensitive to the definition of sudden stops used; however the impact of liberalization on the probability of a sudden stop occurring appeared to be stable, for the other countries used in the analysis. It is also important to note that under the two alternative definitions of sudden stops, there were no sudden stop periods identified for Jamaica.

5(d) Diagnostic Tests

The next series of tests checked for the normality of the various models in the analysis using the Jarque-Bera normality test. The results for the majority of the models showed that the null hypothesis of normality was rejected, as a result the maximum likelihood estimators were inconsistent, and hence the statistical inference of the individual coefficients was not conducted.

The next series of tests focused on the predictive ability of the models. The prediction statistics showed in Appendix Tables 9 to 14 revealed that in general the probit models were on par with predictions

produced by constant probability models. On average, the percentage gain from models with the liberalization variables was 0 with a maximum of 25%. Hence overall, the models appeared to be relatively weak in terms of their predictive ability. However, as Frankel and Cavallo (2004) note, crisis models usually have relatively low explanatory power and predictive ability.

Section 6: Conclusion

The results showed that with respect to the countries where the liberalization appeared to decrease the probability of a sudden stop, the results appeared to be insensitive to the definition used for a sudden stop. However, the results for the countries where increased liberalisation appeared to raise the probability of a sudden stop, there seemed to be a greater measure of sensitivity.

Moreover, the results for the other explanatory variables generally reflected the fact that country specific conditions were important in determining whether an increase/decrease in a variable raised/lowered the probability of a sudden stop occurring in the following year. The diagnostic and predictive tests showed that the residuals were in large part not normally distributed; while in line with a priori expectations, the models did not appear to outperform constant probability models in terms of their predictive ability.

With regards to the process of liberalization, in examining the country experiences and the model results, it appears that successful capital account liberalization depends on the speed and timing of implementation. For instance, rapid liberalization, combined with a banking crisis, lead to the failure of Chile's first attempt at opening up the capital account. However, from 1985 Chile followed a gradualist approach, which proved to be successful. Moreover, in order to

maximize the benefits and minimize the risks of capital account liberalization it is necessary for countries to adopt a coordinated and comprehensive approach to reforms. The sequencing of the reforms and the pacing of liberalization to macroeconomic and exchange rate policies are suggested core requirements.

Appendix
Tables & Charts

Table 1: Chile Sequencing of External and Domestic Financial Liberalization, 1985-1996*

	1 985	1 986	1 987	1 988	1 989	1 990	1 991	1 992	19 93	1 994	19 95	1 996
Monetary Controls and Financial System												
Capital Market Development	▲					▲	▲	▲	▲	▲	▲	▲
Money Market & Instruments	▲		▲				▲	▲	▲		▲	▲
Financial Supervisory & Regulatory Framework	▲	▲	▲		▲						▲	
Exchange System, Trade and Capital Flows												
Exchange Regime	▲	▲		▲	▲		▲	▲		▲		▲
Exchange Market Arrangement & System	▲	▲		▲		▲	▲	▲	▲	▲	▲	▲
Trade Reforms	▲		▲	▲		▲	▲	▲	▲			
Liberalization of Portfolio Investment												
Inflows	▲	▲	▲			▲	▲	▲	▲		▲	▲
Outflows						▲	▲	▲	▲	▲	▲	▲
Liberalization of Direct Investment												
Inflows	▲				▲				▲			
Outflows									▲			
Restrictions on Capital Flows												
Inflows						▲	▲	▲		▲	▲	▲
Outflows						▲			▲			

*A small ▲ represents minor measures, while the large ▲ represents major measures.
Source: International Monetary Fund Working Paper 97/157, November 1997

Table 2: Indonesia Sequencing of External and Domestic Financial Liberalization, 1985-1996*

	1 985	1 986	1 987	1 988	1 989	1 990	1 991	1 992	19 93	1 994	19 95	1 996
Monetary Controls and Financial System												
Capital Market Development	▲		▲				▲	▲			▲	▲
Money Market & Instruments			▲	▲	▲	▲						
Financial Supervisory & Regulatory Framework				▲	▲	▲	▲	▲		▲	▲	
Exchange System, Trade and Capital Flows												
Exchange Regime		▲	▲							▲	▲	▲
Exchange Market Arrangement & System	▲			▲	▲		▲					
Trade Reforms	▲	▲	▲	▲	▲	▲	▲		▲	▲	▲	▲
Liberalization of Portfolio Investment												
Inflows					▲			▲				▲
Outflows												
Liberalization of Direct Investment												
Inflows	▲	▲	▲	▲	▲		▲	▲	▲	▲		▲
Outflows							▲					
Restrictions on Capital Flows												
Inflows							▲					
Outflows												

*A small ▲ represents minor measures, while the large ▲ represents major measures.
Source: International Monetary Fund Working Paper 97/157, November 1997

Table 3: Thailand Sequencing of External and Domestic Financial Liberalization, 1985-1997*

	1 985	19 86	1 987	19 88	1 989	19 90	1 991	19 92	1 993	19 94	1 995	19 96	1 997
Monetary Controls and Financial System													
Capital Market Development		▲	▲	▲	▲	▲	▲	▲	▲		▲	▲	▲
Money Market & Instruments	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲		▲
Financial Supervisory & Regulatory Framework	▲			▲				▲	▲	▲	▲	▲	▲
Exchange System, Trade and Capital Flows													
Exchange Regime													▲
Exchange Market Arrangement & System	▲	▲		▲	▲	▲	▲	▲	▲	▲	▲		▲
Trade Reforms	▲		▲	▲	▲				▲			▲	
Liberalization of Portfolio Investment													
Inflows	▲	▲				▲		▲	▲				
Outflows	▲					▲	▲	▲					
Liberalization of Direct Investment													
Inflows	▲						▲	▲					▲
Outflows							▲			▲			
Restrictions on Capital Flows													
Inflows											▲	▲	
Outflows											▲		▲

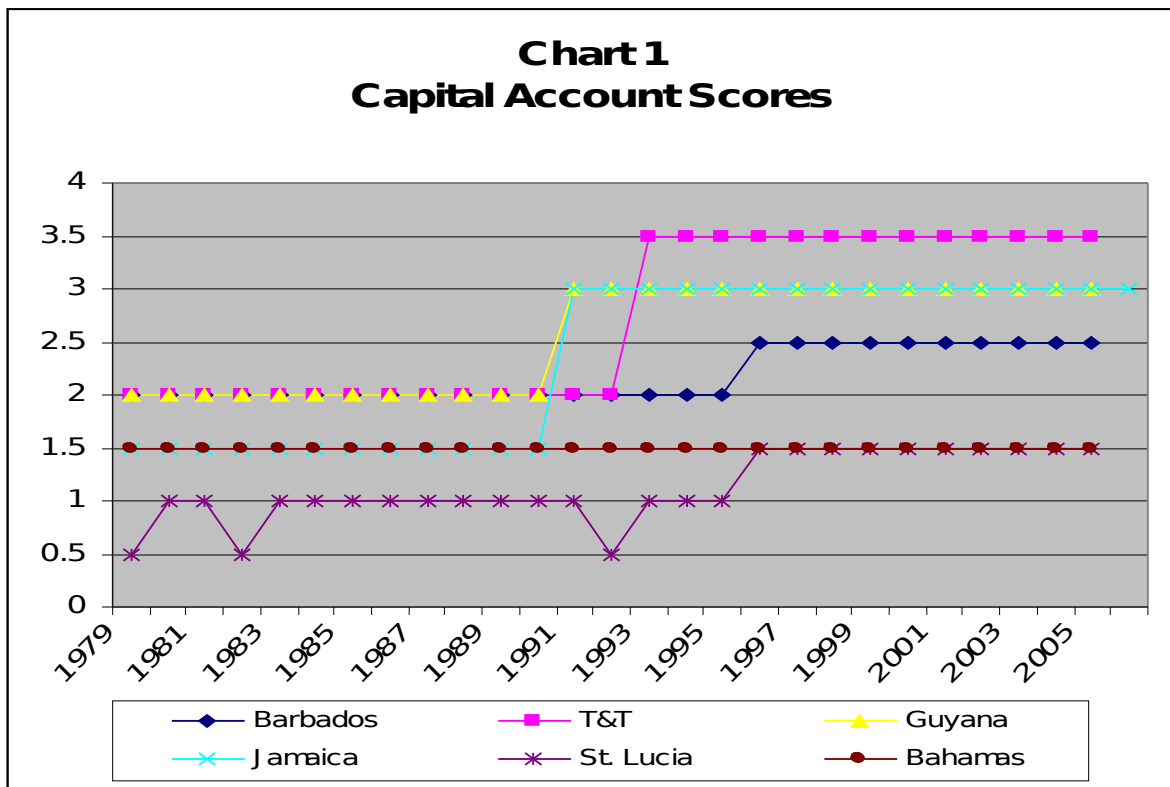
* A small ▲ represents minor measures, while the large ▲ represents major measures.
Source: International Monetary Fund Working Paper 97/157, November 1997

Table 4: Guyana's Liberalization Status (1979-2005)		
	Partial Liberalizati on	Full Liberalizatio n
Receipts (Inflows)		
Foreign investors with "approved status" from the Central Bank can invest in new projects that will benefit the BOP and economy	√	
Specified currencies obtained by residents via capital transactions turned over to an authorized dealer		√
Non-residents lend without Central Bank approval	√	
Public owned enterprises can borrow abroad to finance special projects and for capital injection	√	
Companies and subsidiaries owned by foreign entities borrowing	√	
Payments (Outflows)		
Investors allowed to remit the full value of their investment less all taxes owed	√	
Resident permitted to export capital		√
Guyanese who migrate allowed to transfer their capital assets		√
Emigrants to Guyana allowed to transfer capital assets		√
<i>Partial liberalization indicates that approval is required and is frequently granted.</i>		
<i>Full liberalization indicates that approval is not required and receipts are not taxed.</i>		
<i>Source: IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (1979 – 2006)</i>		

Table 5: Jamaica's Liberalization Status (1979-2006)		
	Partial Liberalization	Full Liberalization
Payments (Outflows)		
All residents require approval to invest abroad and approval only granted if they result in tangible benefits to the country	√	
All residents purchasing local assets from non-residents require approval and approval only given if they result in tangible benefits to the country	√	
Approval required for direct investments in Jamaica by non-residents, with written permission to repatriate original investment plus any capital gain – restriction: exception of certain types of investments in real estate	√	
Approval granted for repatriation of receipts for sale of land to residents of Jamaica (original amount of funds brought to Jamaica to facilitate the transaction and the balance to be paid in 10 equal installments not exceeding J\$10,000 in one year	√	
Required approval for domestic bank credit to be lent to non-residents and to non-resident controlled companies	√	
Based on humanitarian grounds, permission may be granted to remit capital or income to Jamaican nationals (up to J\$4,000)	√	
<p><i>Partial liberalization means that approval is required and is frequently granted.</i></p> <p><i>Full liberalization means that approval is not required and receipts are not taxed.</i></p>		
<p><i>Source: IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (1979 – 2006)</i></p>		

Table 6: Trinidad & Tobago's Liberalization Status (1979-2006)		
	Partial Liberalizat ion	Full Liberalizati on
Receipts (Inflows)		
Residents transferring securities to non-residents		√
Repatriation of proceeds from securities sold by residents in external market and purchase of same type of securities in an outside market		√
Restrictions pertaining to direct investment – foreigners are required to get a license under the Aliens (Landholding) Ordinance to be able to hold land and hold shares in local companies	√	
Payments (Outflows)		
Repayment of commercial credit freely permitted		√
Gifts to non-residents and emigration allowances		√
Transfers to other Caricom countries		√
Legacies transferred in full		√
Allowing international institutions to borrow in T&T		√
Securities denominated in other currencies besides T&T dollars permitted to be imported or exported		√
Sale of securities or investments by non-residents		√
Extending credit to non-residents, firms and non-residents controlled local companies		√
<i>Partial liberalization means that approval is required and is frequently granted.</i>		
<i>Full liberalization means that approval is not required and receipts are not taxed.</i>		
<i>Source: IMF's Annual Report on Exchange Arrangements and Exchange Restrictions</i>		

(1979 – 2006)



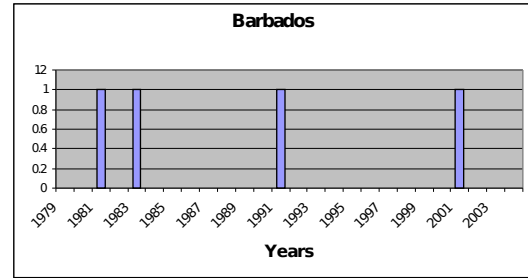
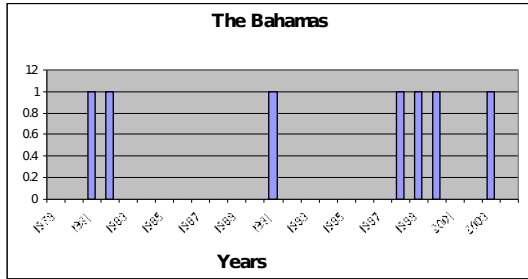
**Table 7:
Countries Surveyed and Sudden Stop Periods**

Countries	No. of Sudden Stop Periods	Years
The Bahamas	4	1982,1983,1992,1999,2000,2001,2004
Barbados	4	1982,1984,1992,2002
Guyana	2	1984,1996
Jamaica	4	1984,1985,1997,2001
St. Lucia	4	1982,1983,1994,1998
Trinidad and Tobago	4	1984,1990,1999,2003

Chart 2

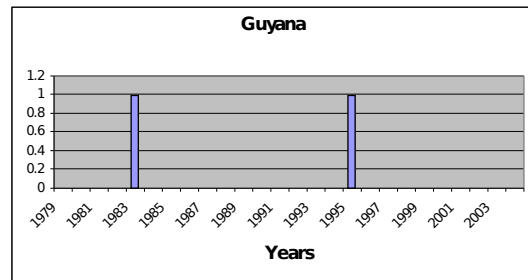
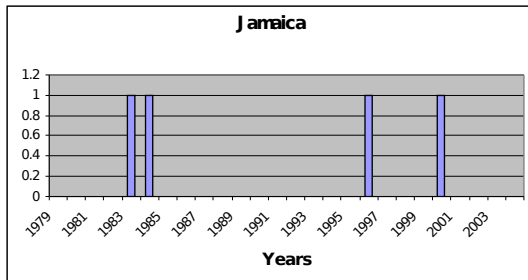
(a)

(b)



(c)

(d)



(e)

(f)

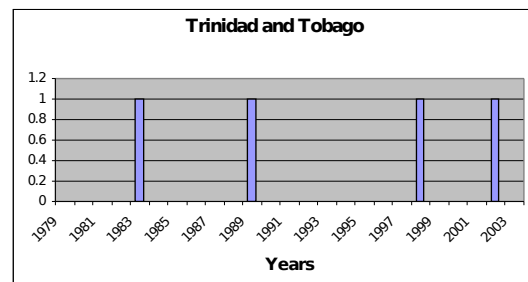
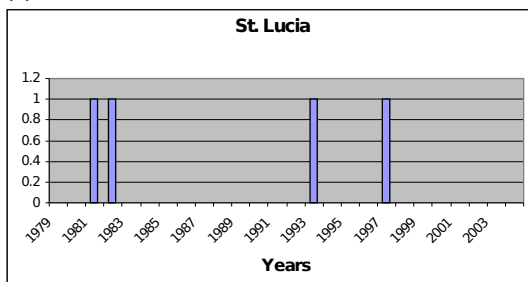


Table 8: Regression Independent Variables	
NAME	VARIABLES
FOREIGN ASSETS/CURRENT ACCOUNT DEFICIT	FXCAD
GROWTH IN CLAIMS ON PRIVATE SECTOR/GDP	CLAIMSGDP
FOREIGN DEBT/GDP	FXDEBTGDP
FOREIGN DEBT/RESERVES	FXDEBTRES
INWARD DIRECT INVESTMENT/GDP	FDIGDP
INWARD DIRECT INVESTMENT/RESERVES	FDIRES
DEFICIT (-) OR SURPLUS/GDP	DEFGDP
(GOODS EXPORTS F.O.B + GOODS IMPORTS F.O.B)/GDP	OPEN
PEG SPELL = NO. OF YEARS FROM T-2 TO T-6 IN WHICH COUNTRY HAS BEEN ON PEG	PEG
FOREIGN LIABILITIES/MONEY SUPPLY	DLD1
DOLLAR DEPOSITS/TOTAL DEPOSITS	DLD2
FOREIGN RESERVES IN MONTHS OF IMPORTS	IMPMONTH
WEIGHTED AVG. DEPOSIT RATE – World Interest Rate (Avg. between US T-bill and 3 months CD rate)	RATE
EXPENDITURE/REVENUE	PUBLIC
DEBT: FOREIGN/(GOODS EXPORTS: F.O.B. + SERVICES: CREDIT)	EXDEBTEXP
(DEBT: FOREIGN + DEBT: DOMESTIC)/GROSS DOMESTIC PRODUCT (GDP)	DEBTGDP
LIBERALIZATION VARIABLE	LIBX

Table 9

THE BAHAMAS

Dependent Variable: Sudden Stop = 1

VARIABLES	MODELS									
	1	2	3	4	5	6	7	8	9	10
CONSTANT	-0.396817 (0.3931)	-1.420919 (0.2939)	-0.094727 (0.9129)	-0.208881 (0.9543)	-3.100705** (0.0109)					
FXCAD	0.021113 (0.1238)									
CLAIMSGDP			-2.466269 (0.7591)							
FXDEBTGDP		-9.257221 (0.6380)								
FXDEBTRES			-2.950465** (0.0428)							
FDIGDP				19.87613 (0.1332)	28.16458** (0.0338)					
FDIRES DEFGDP			-43.07111** (0.0498)							
OPEN	0.095588 (0.6654)			0.091614 (0.4784)						
PEG										
DLD1										
DLD2	-14.22404 (0.5947)				84.176 (0.1435)					
IMPMONTH		0.546171 (0.2416)								
RATE		-0.272531* (0.0979)			-0.247502* (0.0640)					
PUBLIC				-0.934804 (0.7812)						
EXDEBTEXP DEBTGDP										
LIBBAH										
McFadden R- Squared	0.02194	0.08123	0.167858	0.092671	0.258895					
LR Statistic	0.664562	2.353606	5.084361	2.806959	7.501381					
Prediction Test: Total Gain ⁺	0.00	0.00	0.00	0.00	8.33					
Percent Gain ⁺⁺	0.00	0.00	0.00	0.00	28.57					
Jarque-Bera Normality Test	5.182312 (0.074933)	3.548910 (0.169576)	2.183267 (0.335668)	3.623356 (0.163380)	2.618894 (0.269969)					

* Significance at 10% level

** Significance at 5% level

*** Significance at 1% level

+Change in "% Correct" from default (constant probability) specification

++Percent of incorrect (default) prediction corrected by equation

Table 10

JAMAICA

Dependent Variable: Sudden Stop =1

VARIABLES	MODELS									
	1	2	3	4	5	6	7	8	9	10
CONSTANT	-1.110112 (0.6217)	-1.068302** (0.0361)	-0.678696 (0.4109)	-0.836015 (0.1007)	-1.848968* (0.0770)	-5.105512* (0.0782)	-2.067477* (0.0761)	-1.444161 (0.2540)	-1.051974 (0.2933)	-5.057327*** (0.0002)
FXCAD	-0.192421 (0.1988)			-0.132359 (0.1922)		-0.192577 (0.1902)			-0.124664 (0.1414)	
CLAIMSGDP										
FXDEBTGDP										
FXDEBTRES										
FDIGDP		-0.401741 (0.9839)		0.227663 (0.9894)	10.26989 (0.5422)		-3.046863 (0.8813)		-1.850372 (0.9190)	4.168675 (0.8210)
FDIRES			-0.902419 (0.3991)					-0.858202 (0.4219)		
DEFGDP										
OPEN	-1.337941 (0.7167)					-2.722230 (0.4643)				
PEG		0.073411 (0.7267)	-0.060592 (0.8352)		-0.252461 (0.1987)		0.181981 (0.3591)	0.048039 (0.8574)		
DLD1										0.037471 (0.8075)
DLD2	1.316643 (0.1542)				2.101226 (0.1216)	3.690909*** (0.0059)				2.650504** (0.0452)
IMPMONTH		-0.014611 (0.9491)		-0.175931 (0.4476)			-0.073275 (0.7393)		-0.202854 (0.3748)	
RATE			-0.007683 (0.8281)					-0.008352 (0.8102)		
PUBLIC										
EXDEBTEXP										
DEBTGDP										
LIBJ AM						1.636737** (0.0251)	0.464042 (0.3778)	0.027150 (0.5710)	0.152652 (0.7488)	1.191742** (0.0166)
McFadden R- Squared	0.152507	0.022533	0.02538	0.063563	0.107252	0.256679	0.022533	0.030868	0.06529	0.159409
LR Statistic	3.404678	0.50351	0.566595	1.419038	2.39439	5.730311	0.503051	0.689126	1.457585	3.558777
Prediction Test: Total Gain ⁺	-3.85	0.00	0.00	0.00	0.00	3.85	0.00	0.00	0.00	3.85
Percent Gain ⁺⁺	-25.00	0.00	0.00	0.00	0.00	25.00	0.00	0.00	0.00	25.00
Jarque-Bera	10.65997 (0.004844)	18.41727 (0.000100)	17.02230 (0.000201)	14.65137 (0.000658)	20.31416 (0.000039)	10.69544 (0.004759)	17.01486 (0.000202)	16.35042 (0.000282)	14.63449 (0.000664)	15.71388 (0.000387)

* Significance at 10% level

** Significance at 5% level

*** Significance at 1% level

+Change in '% Correct' from default (constant probability) specification

++Percent of incorrect (default) prediction corrected by equation

Table 11

ST. LUCIA

Dependent Variable: Sudden Stop = 1

VARIABLES	MODELS									
	1	2	3	4	5	6	7	8	9	10
CONSTANT	4.282420 (0.1991)	2.490460 (0.3490)	2.064596 (0.4516)	-3.122912*** (0.0026)	3.898729 (0.2500)	5.757761* (0.0907)	2.380151 (0.3672)	2.626785 (0.4780)	-2.932375* (0.0639)	3.898729 (0.2500)
FXCAD	5.599671* (0.0880)					5.558160* (0.0638)				
CLAIMSGDP										
FXDEBTGDP										
FXDEBTRES										
FDIGDP			4.382088 (0.6120)					5.035489 (0.5795)		
FDIRES				3.007567*** (0.0007)					2.896733*** (0.0008)	
DEX										
DEFGDP										
OPEN	-0.820130 (0.6400)		-1.599159 (0.5579)		-2.729468 (0.1563)	-1.897112 (0.3315)		-2.051883 (0.5292)		-4.967491* (0.0841)
PEG		-0.114601 (0.8598)			-0.696675 (0.2518)		-0.020529 (0.9773)			-0.665101 (0.2582)
DLD1	-8.270775 (0.2068)			-4.258230 (0.5637)		-7.380772 (0.2747)			-2.781311 (0.6686)	
DLD2										
IMPMONTH		-1.817906* (0.0244)	-1.370522 (0.1085)				-1.773481** (0.0215)	-1.352250 (0.1133)		
RATE		0.051533 (0.7343)		0.451684** (0.0148)	-0.248146 (0.1810)		0.043820 (0.7729)		0.455030** (0.0169)	-0.325021 (0.1238)
PUBLIC										
EXDEBTEXP										
DEBTGDP										
LIBLUCIA						-0.751446 (0.5225)	-0.347270 (0.7843)	-0.272533 (0.8399)	-0.297273 (0.8217)	-1.344475 (0.3356)
McFadden R- Squared	0.360445	0.295056	0.245839	0.423143	0.148484	0.368321	0.297294	0.247148	0.424515	0.181102
LR Statistic	8.046857	6.486371	5.488296	9.302168	3.264193	8.222683	6.535571	5.517536	9.332324	3.981264
Prediction Test: Total Gain ⁺	7.69	4.00	3.85	8.00	0.00	7.69	4.00	3.85	8.00	8.00
Percent Gain ⁺⁺	50.00	25.00	25.00	50.00	0.00	50.00	25.00	25.00	50.00	50.00
Jarque-Bera	24.38578 (0.000005)	9.355011 (0.009302)	13.04933 (0.001467)	51.08069 (0.000000)	11.22730 (0.003648)	24.01363 (0.000006)	10.87324 (0.004354)	13.49326 (0.001175)	53.32191 (0.000000)	18.52390 (0.000095)

* Significance at 10% level

** Significance at 5% level

*** Significance at 1% level

+Change in "% Correct" from default (constant probability) specification

++Percent of incorrect (default) prediction corrected by equation

Table 12

GUYANA

Dependent Variable: Sudden Stop = 1

VARIABLES	MODELS									
	1	2	3	4	5	6	7	8	9	10
CONSTANT	-1.432811*** (0.0013)	4.64178* (0.0714)	-1.135740 (0.2259)	0.780364 (0.2320)	7.041071** (0.0119)	-2.558864 (0.2398)	6.740348* (0.0950)	-1.778845 (0.4162)	-1.042572 (0.5736)	8.058378** (0.0246)
FXCAD										
CLAIMSGDP	4.80065 (0.2462)		4.614100 (0.2644)		10.72050* (0.0710)	5.622188 (0.2676)		5.537993 (0.2500)		9.818149* (0.0847)
FXDEBTGDP										
FXDEBTRES										
FDIGDP										
FDIRES										
DEFGDP	0.313792 (0.8445)			0.330465 (0.8330)		0.427642 (0.7351)			0.147975 (0.9124)	
OPEN		1.064140** (0.0447)			1.34695** (0.0487)		0.869821* (0.0585)			1.192634 (0.0355)
PEG										
DLD1		-10.31346 (0.4471)	-7.256769 (0.4999)	-8.053497 (0.3598)			-5.222610 (0.7360)	-8.706604 (0.3502)	-8.039049 (0.3632)	
DLD2										
IMPMONTH										
RATE	-0.051580 (0.1422)		-0.049541 (0.4663)	-0.040509 (0.3159)		-0.061175* (0.0582)		-0.072959 (0.1511)	-0.041976 (0.2519)	
PUBLIC		1.504370 (0.1964)			2.016226 (0.1143)		1.890693 (0.1612)			2.191454 (0.1034)
EXDEBTEXP										
DEBTGDP										
LIBGUY						0.382442 (0.6060)	0.567189 (0.3516)	0.298379 (0.6388)	0.090927 (0.8765)	0.383307 (0.4974)
McFadden R- Squared	0.035323	0.162301	0.041248	0.024727	0.212108	0.040464	0.170345	0.025042	0.025042	0.215159
LR Statistic	0.498122	2.288749	0.581674	0.348695	2.99111	0.57062	2.402182	0.353133	0.353133	3.034134
Prediction Test: Total Gain ⁺	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent Gain ⁺⁺	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jarque-Bera	105.1984 (0.000000)	79.74545 (0.000000)	103.1626 (0.000000)	108.4777 (0.000000)	67.48521 (0.000000)	103.2284 (0.000000)	77.41444 (0.000000)	101.6453 (0.000000)	108.2928 (0.000000)	65.26095 (0.000000)

* Significance at 10% level

** Significance at 5% level

*** Significance at 1% level

+Change in "% Correct" from default (constant probability) specification

++Percent of incorrect (default) prediction corrected by equation

Table 13

BARBADOS

Dependent Variable: Sudden Stop =1

VARIABLES	MODELS									
	1	2	3	4	5	6	7	8	9	10
CONSTANT	-2.315305 (0.4946)	0.747307 (0.6553)	-7.830503 (0.1431)	-5.566639 (0.1619)	-2.652891 (0.1576)	-2.313236 (0.5669)	-20.28321 (0.1118)	-33.08059 (0.1518)	-14.73218 (0.1202)	-4.906315 (0.3038)
FXCAD	-0.124061* (0.0773)					-0.124066* (0.0841)				
CLAIMSGDP		-7.581880 (0.5335)					-12.20280 (0.3329)			
FXDEBTGDP			20.13417 (0.1838)					24.21300 (0.1854)		
FXDEBTRES*				0.575189** (0.0348)					0.918518** (0.0244)	
FDIGDP		26.33822 (0.7181)					175.4618 (0.2398)			
FDIRES					6.933471 (0.1941)					8.42881* (0.0931)
DEFGDP					8.631365 (0.5214)					9.525126 (0.4523)
OPEN	2.599512 (0.4132)		4.853605 (0.2185)	0.303775 (0.8894)	2.163941 (0.4496)	2.599438 (0.4069)		-2.261173 (0.7277)	-1.363994 (0.5591)	2.475328 (0.4171)
PEG										
DLD1	(3.114078) (0.6085)									
DLD2										
IMPMONTH		-0.027572 (0.9497)	-0.200305 (0.4766)				-2.352258 (0.1072)	-3.691142 (0.1974)		
RATE			-0.132610 (0.5022)		0.018868 (0.9220)			0.056826 (0.8265)		0.020778 (0.9178)
PUBLIC										
EXDEBTEXP	0.498178 (0.8953)					0.498207 (0.8957)				
DEBTGDP		-3.271699 (0.4872)		-1.246548 (0.7532)			7.768194 (0.3778)		-5.172673 (0.3902)	
LIBBAR						-0.001457 (0.9995)	9.029855* (0.0990)	16.78600 (0.1946)	5.551079 (0.2222)	0.897677 (0.5989)
McFadden R- Squared	0.102387	0.095133	0.166667	0.191858	0.167454	0.102387	0.217356	0.371092	0.286109	0.18051
LR Statistic	2.285766	2.123828	-0.357072	4.283196	3.621515	2.285766	4.852423	8.025592	6.387326	3.903886
Prediction Test: Total Gain ⁺	0.00	0.00	0.00	3.85	4.17	0.00	0.00	8.33	7.69	4.17
Percent Gain ⁺⁺	0.00	0.00	0.00	25.00	25.00	0.00	0.00	50.00	50.00	25.00
Jarque-Bera	12.92768 (0.001559)	14.38445 (0.000752)	5.644416 (0.059474)	22.23931 (0.000015)	19.68298 (0.000053)	12.92868 (0.001558)	7.568157 (0.022730)	5.650121 (0.059305)	21.36983 (0.000023)	21.08488 (0.000026)

*Significance at 10% level

**Significance at 5% level

***Significance at 1% level

+Change in "% Correct" from default (constant probability) specification

++Percent of incorrect (default) prediction corrected by equation

Table 14

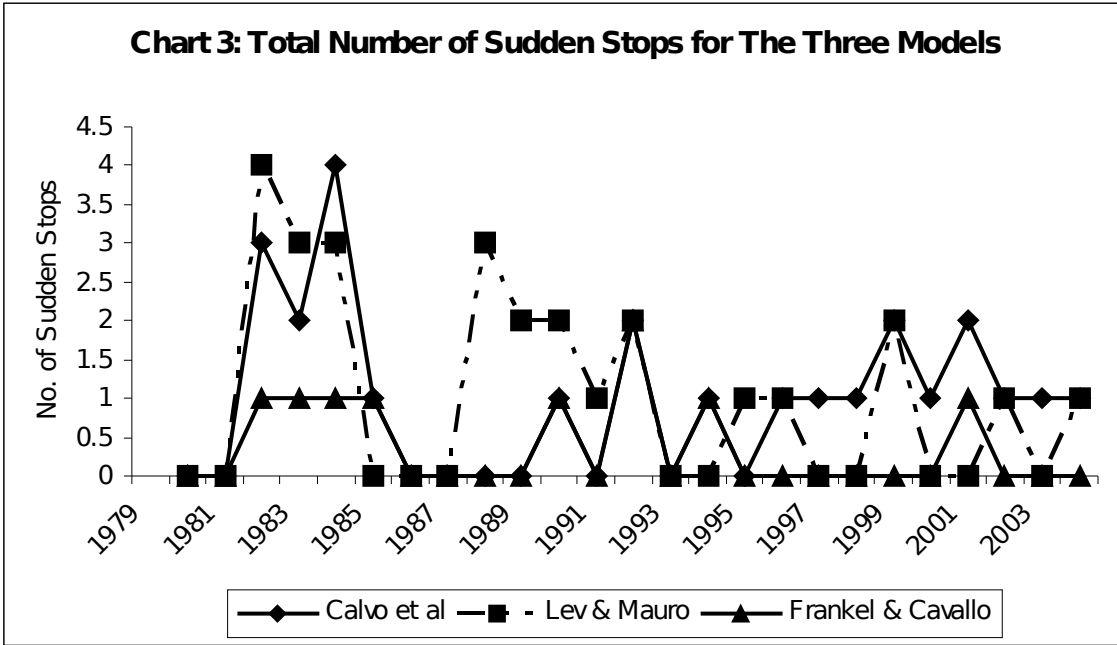
TRINIDAD & TOBAGO
Dependent Variable: Sudden Stop = 1

	MODELS									
VARIABLES	1	2	3	4	5	6	7	8	9	10
CONSTANT	-0.845443 (.2339)	-9.037887** (0.0371)	-1.854659 (0.1502)	-5.594598* (0.0873)	-1.620992 (0.4080)	-0.212384 (0.8614)	-4.952911 (0.2956)	-0.708678 (0.6806)	-8.451618** (0.0214)	-1.888866 (0.3148)
FXCAD	0.014167 (0.7476)					0.014676 (0.7415)				
CLAIMSGDP FXDEBTGDP		22.23644 (0.3610)					41.48558 (0.1870)			
FXDEBTRES FDIGDP			2.778494 (0.7264)					7.727878 (0.5017)		
FDIRES	-0.012501 (0.6544)			0.043790 (0.4783)		-0.014697 (0.6080)			0.074338 (0.2559)	
DEFGDP OPEN			1.079865 (0.5947)		0.039677 (0.9891)			3.227153 (0.1591)		2.276368 (0.3685)
PEG	-0.058504 (0.7575)				0.080351 (0.7093)	-0.108076 (0.5263)				0.169118 (0.5028)
DLD1				7.053041 (0.2669)					5.287183 (0.4450)	
DLD2 IMPMONTH		-0.569698 (0.5938)			0.192853 (0.4638)		-0.904900 (0.3648)			0.341770 (0.3406)
RATE			-0.051347 (0.5440)					0.045667 (0.6220)		
PUBLIC		6.614684* (0.0654)		3.754717 (0.1598)			5.318139 (0.1091)		5.191404* (0.0606)	
EXDEBTEXP DEBTGDP										
LIBTT					-0.28956 (0.6191)	-0.028956 (0.6191)	-1.179706 (0.2051)	-1.095148 (0.1797)	0.476599 (0.2630)	-0.692779 (0.2455)
McFadden R- Squared	0.024827	0.208244	0.024126	0.112531	0.034806	0.028956	0.234256	0.05872	0.136679	0.062041
LR Statistic	0.545779	4.577924	0.512773	2.473832	0.765166	0.636554	5.149759	1.248015	3.004678	1.363884
Prediction Test: Total Gain ⁺	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent Gain ⁺⁺	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jarque-Bera	15.82562 (0.000366)	10.00446 (0.006723)	11.00980 (0.004067)	12.18871 (0.002256)	15.18499 (0.000504)	15.42599 (0.000447)	9.098934 (0.010573)	9.244948 (0.009828)	11.14499 (0.003801)	13.77819 (0.001019)

* Significance at 10% level
** Significance at 5% level
*** Significance at 1% level

+Change in "% Correct" from default (constant probability) specification
++Percent of incorrect (default) prediction corrected by equation

Chart 3: Total Number of Sudden Stops for The Three Models



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