

**A New Measure of Capital Controls and Its Relation to
Currency Crises**

BY

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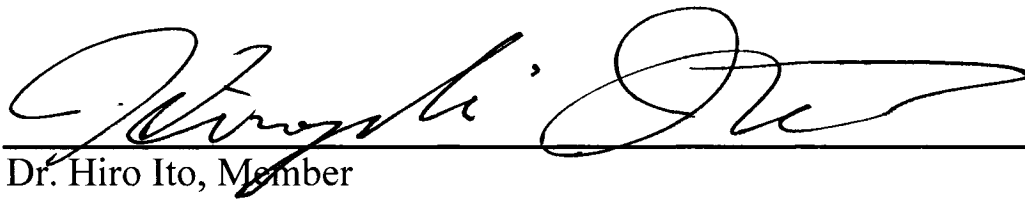
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Abstract of the Dissertation

A New Measure of Capital Controls and Its Relation to Currency Crises

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Since the 1990s, the IMF has been persuading emerging market countries to avoid restrictions on their capital accounts to improve economic efficiency. As a result, some countries that pursued liberalization have faced huge currency crises due to premature liberalization. Some economists expect that imposing capital restrictions could create bad economic fundamentals: i.e., misallocating financial resources, which would eventually lead an economy to crisis. Some recent empirical analyses, however, have found that capital controls are positively associated with currency crises. Some other studies find no significant relationship.

These mixed empirical results could be the result of applying blunt capital restriction measurements, especially ones that do not allow for different degrees of controls. These studies also do not distinguish between controls on inflows and outflows although many economists expect these to have different effects. This dissertation creates measures of capital controls by increasing the disaggregation and intensity of capital

control indices, and measuring separately the controls on capital inflows from capital restrictions on outflows. This makes use of the newly improved information about capital transactions from the IMF's AREAER started in 1996. The data of this study spans the period from 1995 to 2004, covering 26 emerging markets around the world.

The analyses of the association between currency crises and capital restrictions in this dissertation find that imposing controls on capital inflows (outflows) is more likely to reduce (increase) the vulnerability to currency crises, using Exchange Market Pressure Indices (EMPI) as proxies for currency crises. Due to a high correlation between the inflow and outflow capital control measures, the joint confidence ellipsoid (region) technique is used. This technique confirms that these capital controls have significantly different influences on currency crises. The analyses use various currency crises measures (dummy and continuous variables), various types of capital transactions restrictions, and compare these results against the capital control indices of well-known studies.

Dedication

I dedicate my works to my parents: Mana and Siriphen Potchamanawong who made all of this possible, for their endless encouragement and patience. And to my wife (Supangchit) and my daughter (Napasorn) who always motivate and encourage me to reach my dreams.

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Chapter One

Introduction

In the era of globalization, countries have been trying to move toward economic integration by liberalizing the trades and financial sectors, since it is believed that open economy could enhance the countries' welfares more than the closed economic system. Thus, a view of controlling or restricting seemed to be obsolete, and even some countries currently engaging in heavy restrictions are aiming for total liberalization. As part of this liberalizing trend, developed countries began to eliminate the control on capital during the 1970s and 1980s; this has had a peer-pressure effect on developing countries to follow in their path. In the 1990s, emerging economies – with the strong support of economic power countries and the IMF – began liberalizing their current and capital accounts, sometimes without using prudential processes. There is widespread agreement among economists that economic efficiency could decrease if capital flows are restricted within country because they prevent productive resources from being used where they are most needed. In addition, poorer countries are in need of capital from richer countries in order to build up their infrastructure, which help to create higher growth and higher living standard since their domestic capital isn't enough for such large projects.

Another benefit of allowing capital movement is that it allows intertemporal consumption among countries, if we assume that countries have differences in time preferences. Fundamentally, capital flows permit nations to trade consumption today for consumption in the future to engage in intertemporal trade (Eichengreen, et al. 1999).

This allocates the capital from high saving countries with older populations to younger countries which demand more present consumption. This permits countries in need of capital to acquire resources at lower interest rate than they might have to pay without access to external capital. Thus a nation could avoid large falls in consumption from economic downturn by selling assets to and/or borrowing from the rest of the world. More recently, economists have emphasized other benefits of capital flows such as the technology transfers that often accompany foreign investment or the greater competition in domestic markets that results from permitting foreign firms to invest locally (Eichengreen et al. 1999a).

However, the benefits of capital flows do not come without a price. Because capital flows can complicate economic policy or even be a source of instability themselves, when governments have used capital controls to limit their effects (Johnston and Tamirisa 1998). According to Stiglitz (2002), the relaxation of capital controls was at the center of the East Asian nations' currency crises and eventual collapses. He argues "The rapid movement of funds into and out of a country is clearly destabilizing, a point brought home forcefully by the East Asian crisis, where the capital outflows exceeded in some cases 10 percent of GDP." This clearly shows that capital market liberalization has not always led to faster growth in developing countries, but has sometimes led to greater risks. Stiglitz examines the cases of China and India, whose capital restrictions are stringent but have also enjoyed astoundingly strong economic growth as well. In addition, the liberalization of Russia led not to capital inflows, but to massive capital flights and a drop in GDP of more than 40 percent. He argues, "Growth is related to investment

expanding. Such investments cannot be based on speculative money that can come into and out of a country. On the contrary, the high volatility associated with such flows destabilizes the economy, and the higher economic volatility makes investment less attractive.” (p. 223.)

Edwards (2004) also agrees with the claim that high capital mobility, especially for fixed income securities, increases macroeconomic volatility and makes emerging countries vulnerable to the destabilizing effects of external shocks. Edwards posits that if capital flows suddenly decline, or worse yet reverse, after entering a country, the country would be left with a permanently smaller export market. Besides that, the capital inflows are likely to cause booms and bubbles in the real estate sector that would make the economy more vulnerable to financial distresses.

Supporters of capital controls claim that the restrictions could limit volatile short-term capital flows (avoiding balance of payments crises, exchange rate volatility, etc) and provide greater independence of interest rate policy (Saxena and Wong 1999). Financial markets are very liquid and react quickly to shocks, while the real economy is slow to react due to price and wage rigidities and investment irreversibility. The different speed of adjustment, with exogenous excess volatility in financial markets, would induce excess exchange rate volatility (over shooting, and bubbles) and cause negative impacts on real economic activities.

Therefore, in the world of fast-paced capital flows with the intention either of arbitrage or investment, developing countries are more vulnerable to the flows than they were before. This is due to insufficient development of regulations, human resources, moral hazard prevention, and technology for a country to be able to exploit and to manage the rapid flows efficiently and effectively. Thus, capital restrictions could be applied as the second best policy when the situations are a bit out of control or when temporary shocks occur. However, capital restrictions may not be sustainable for a long period of time since with the new changing conditions, private sectors would eventually evade the restricting policies, and the cost of monitoring the restrictions is not sufficiently small to be able to maintain the status quo effectively at all times. Enterprises could benefit from loop holes and eventually force the officials to abolish those restrictions.

A main purpose of this dissertation is to explore the disadvantages and advantages of the current measures of capital restrictions and combine the strengths of these indices to create relatively more effective capital control indicators. We expect to efficiently utilize the available information of capital transactions reported by the IMF to elaborate in more details how capital restrictions have been changing over the years and to be able to unveil the unexplored roles capital controls have on economic issues, especially crises, that may be missed by the conventional binary measures.

The rest of the dissertation is organized as follows. The next chapter will analyze in detail how capital restrictions have been conducted. It shows the sources of information utilized for measuring the capital controls, and analyzes what are the

advantages and limitations of these sources. Chapter three will introduce a new method of measuring capital control impositions since most of the capital control measurements created thus far do not distinguish between capital inflows and outflows (one exception is the measure created by Rossi (1999)). Measuring controls on capital inflows separately from capital outflows could enable us to reveal another aspect of the capital restrictions in which has not been studied much in detail, since imposing controls on one side may have a different impact, especially on currency crises, than controls on the other side. The samples of the study cover 1995 to 2004; because of limited information of changes in capital restrictions, the study could not go back prior than 1995. There are 26 country samples, included Argentina, Brazil, Chile, China, Colombia, Egypt, Hong Kong, Hungary, India, Indonesia, Jordan, Korea, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Singapore, South Africa, Sri Lanka, Thailand, Turkey, Uruguay, Venezuela, and Zimbabwe. These countries represent emerging economies which have been previously studied in Willett *et al* (2004).

Chapter four shows how economic factors have impacts on capital controls by conducting the OLS regression on 20 kinds of capital restrictions (using both newly created measures, and those already well-known to scholars). The results reveal that balance of payment factors, trade, and levels of country development have more impacts on capital controls than macro economic factors and financial depth. Lastly, chapter five analyzes the connections of capital restrictions and currency crises. This chapter proposes alternative ways of identifying currency crises, since the use of binary measures as dependent variables for currency crises might not be best suited for studies with small

sample sizes. Besides that, the combined use of binary measures of controls of capital restrictions and binary measures of currency crises do not allow for many variations of econometric analysis to detect the links between these two, as these types of measures do not fluctuate greatly. The results imply that there is a strong negative connection between the controls on capital inflows and currency crises, which suggests that imposing controls on capital inflows could reduce the probability of currency crises. On the other hand, the controls on capital outflows could trigger currency crises by signaling imprudent policies.

Chapter Two

Literature review of the measures of capital control

Many scholars have been searching for a way to measure controls on capital flows, and there is no perfect way to capture the real action by which capital flows being controlled by a country might be effective in overcoming economic and political pressures. How can capital restrictions be measured? There are two main categories of capital control measurement: de jure and de facto measurements. Firstly, measuring by rule-base or legal restrictions (de jure), is widely practiced by well-known authors such as Quinn, Johnston, and Miniane. Measures of this type are generally based on the Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER), which has been published by the International Monetary Fund (IMF) annually. Secondly, the de facto measurement method uses an instrumental variable or/and actual capital flows data to measure the degree of capital mobility; Feldstein and Horioka (1980), for example, use the correlation between investment and saving to measure the level of capital controls, arguing that a country with a high correlation between investment and savings is likely to have stringent capital restrictions, since savings should be used for the domestic investments. However, this method has been criticized as not truly capturing the degree of capital mobility since this data can be driven by other factors unrelated to the level of capital restriction.

Thus we turn our attention to rule-based types of capital control measurement since they provide more realistic information. Though sometimes officials may not be able to prudentially oversee all restricted capital transactions, such measures may provide

a useful overall picture of restriction policies that have been set by the officials. A convenient way to measure capital restrictions is to assign value of one if capital account transactions are restricted, otherwise zero. This has been done by many scholars such as Glick and Hutchison (2000a). Some argue, however, that this kind of measurement is too blunt, as it just captures whether there are controls or not; they do not consider how stringent the capital restrictions are. Some scholars therefore disaggregate capital control measures by including current account, dual exchange rate regimes, and other systems to capture better the characteristics of capital restrictions. However, the inclusion of factors outside the capital account itself is of questionable use for measuring capital restrictions. This issue will be analyzed in more detail in following sections.

It is widely accepted that Quinn's (1997) methodology provides one of the best capital restriction measurements due to the disaggregation of data and long range of covering periods. However, some information, such as exchange tax information, is stated unclearly and inconsistently by many countries, especially developing countries which often submit incomplete information to the IMF. It is a major drawback of this measurement since the exchange tax is one of the main criteria to determine degree of capital mobility. In addition, Quinn's measurement suits best with the former format of the AREAER, which has been changed to be more disaggregated report since 1996, which divides capital transaction restrictions into thirteen separated categories.¹ In each category there is information about capital restrictions on inflows and outflows. It describes whether residents and nonresidents have the ability to make transactions freely, whether it is required to acquire prior permission from the government, or whether it is

¹ The publish year of the AREAER (However, the data year is 1995)

totally forbidden to conduct this particular type of transaction. This availability of this additional information allows more detail to be included into the restrictions measurement. The pioneers who have exploited the usefulness of the new format are Johnston and Tamirisa (1998) and Miniane (2004). The formers take every item into account, while the latter only considers the twelve main categories and dual exchange rate arrangement to create capital control imposition measures.

The initial method of measuring capital restrictions is based on the information of line E.2, which is “Restrictions on payments for capital transactions”, from the International Monetary Fund’s Annual Report on Exchange Arrangements and Exchange Restrictions published between 1967 (which refers to conditions in 1966) and 1996 (which refers to conditions in 1995). It generally describes the existence of rules and restrictions of the overall capital payment transaction. Beginning in 1996, the set of capital transaction categories was expanded into 13 categories with a distinction between inward and outward capital flow restrictions. The new format of the AREAER provides insight into the intensity of capital transactions, creating wider coverage of information instead of the descriptive generic narrative descriptions of capital transaction restrictions in the prior 1996 issue of AREAR. This allows scholars conducting indices better reflect the level of restrictions. Unfortunately, this modification of the classification system also introduces a structural break in the measure since the two classification methodologies (one entry versus 13 entries) cannot easily be mapped onto each other (Edison and et al. 2004).

Quinn (1997)

Quinn is the first to apply the level of intensity to the capital restriction index. It is widely accepted that Quinn's (1997) methodology is one of the best capital restriction measurements due to the disaggregation of data and the long range of covering periods. But the study is concentrated in the OECD countries with information of selected year for the rest. The openness index is available annually from 1950–1997 for 21 OECD countries, and for the years 1958, 1973, 1982, and 1988 for 43 non-OECD countries.

Quinn's openness index is the combination of international agreement (0-2), current account transactions (0-8), and capital account transactions (0-4), the score ranges from 0 fully control to 14 fully liberalize.

Quinn applies a similar set of rules to determine the level of openness of current and capital accounts. The criteria are based on the government's approval and taxation on the transactions. It is obvious that Quinn just duplicates the coding rule from his current account measure² since there is tariff information when individuals export or import products. Quinn's method relies on tax information to distinguish between value of 1 (heavily taxed) and 1.5 (taxed). However, taxes on capital transactions normally are not reported by countries.³ Thus a coder has to use subjective judgment or find another source of information to replace the tax information when coding. The criteria, especially

² The decision rules for goods and invisibles payments and receipts are as follows. If all receipts or payments are necessarily surrendered or blocked, then $X = 0$. If transfers require approval (unless automatic), then $X \leq 1$. If transfers require approval (usually automatic) and are heavily taxed, then $X = 1$. If transfers are effected through the market mechanism and taxed, then $X \geq 1$. The degree of taxation determines Y , where $X = 1 + Y$. If transfer are free, then $X = 2$ (Quinn 1997, p. 544)

³ Only Brazil and Chile in this paper, report the rate of tax on the capital flows since they imposed on the capital inflows.

taxation, work well for the current account category but not very well on the capital account side due to the lack of information on the taxation on the capital transaction. Thus, Quinn's coding rule might not fit very well on the capital transactions side.

Quinn's Capital restriction measurement:

X = 0 if approval is required and rarely given and surrender of receipts is required.

X = 0.5 if approval is required and sometimes given

X = 1 if approval is required and frequently given; if approval isn't required and heavily taxed

X = 1.5 if approval isn't required and taxed

X = 2 if not restricted

The conducting of Quinn's capital restriction measurement is based on the earlier version of the AREAER, which consists of two main sections: Capital Receipts and Capital Payments. Quinn's coding rules are based on the overall (aggregated) information of the capital transactions (including both capital receipts and capital payments). This aggregation method is difficult to apply to the new disaggregated format, after 1996, since each subcategory of capital transaction does not have the same policy, i.e. a country might put more controls on money market transactions than portfolio investment transactions or on any other sections. As a result, it is difficult for an individual coder to decide what level of restrictions will be assigned; personal judgment is needed to decide in what degree of capital restriction of such country would fall into, which could in turn

lead to inconsistency in the data set. This could be solved by assigning two coders and cross check each other as Quinn did.

Quinn and Toyoda (2003) and Quinn (2003)

Capital and current account openness (referred to as “Capital” and “Current”, respectively) are the main components of a measure of overall openness (“Openness”) created from the text of an annual volume published by the IMF’s AREAER. The measure is available from 1950 to 1997 for 58 countries, and for a shorter period for 33 others. Capital is scored from 0 to 4, in increments of 0.5, where 4 indicates an economy fully open to inward and outward capital flows. The data is transformed into a 0 to 100 scale taking $100 * (\text{Capital}/4)$. This measure is an extension of the previously-discussed Quinn (1997) openness index with a larger coverage of country samples, but in this series only the capital transaction is used to generate the index.

Johnston and Tamirisa (1998)

This measure is the most disaggregated measure of capital controls since it combines all the classifications (included all the subcategories) of the IMF’s AREAER. It also distinguishes capital inflows from capital outflows and between the different types of transactions by assigning binary values to each subsection (i.e. purchases and sales locally by nonresidents, purchases and sales abroad by residents, to residents from nonresidents, and so on) of the main 13 capital transaction categories. The data is available only one year of 1996 with a sample of 45 developing and transition countries.

Johnston and Tamirisa assume the nonavailable data to correspond to unregulated transactions. However, according to the instruction of the AREAER, the omitted information implies the lack of information; not an unregulated transaction. Unfortunately, in some cases, the AREAER shows lack of consistency for its reports on the restrictions of capital transactions, i.e. Brazil. The omitted information is likely due to the liberalization of such transactions that makes the IMF decide not to state such transaction; and therefore the omissions are not due to the lack of information. The Johnston and Tamirisa's method seems to be a bold action to consider missing data as liberalized transaction, which is not always the case. It is required to look thoroughly on the historical context.

Rossi (1999)

This study focuses on 15 developing economies over the period 1990-97. Countries included in the sample are Argentina, Brazil, Chile, Colombia, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, Philippines, South Africa, Thailand, and Venezuela.

Rossi uses Johnston and Tamirisa's capital control measurement (1998) as a starting point for both inflow and outflow capital transactions. Two indices of capital controls (KINF and KOUT) are calculated. After being slightly modified to account for an alternative classification of some of the items in the capital account, the 1997 indices are then back casted to 1990 using an algorithm which mimics the main episodes in the

process of capital account liberalization with the information of the Annual Report on Exchange Arrangements and Exchange Restrictions.

The types of restriction policies are various: the liberalization can be extensive and abrupt ("big bang"), gradual over time, or temporarily or permanently reversed. In the first case, "big bang" liberalization, if the liberalization starts on or before the first year of the sample period with no reversal, the index does not vary over the remaining period; thus, the 1997 value can be used. In the second case of a gradual policy starting before or on the first year of the sample period, the value of the 1997 index can be back-casted to 1990 by calculating the number of years the gradual policy is implemented for, and, assuming an initial value for the index at the time the gradual policy is initiated, by increasing to the 1997 value proportionally. The third case of reversals is difficult to deal with and require calculating how much of the previous liberalization is reversed. One possibility is to assume that gradual reversals move at the same pace as gradual liberalization; in this case, the reversals can be taken care by inverting the path of the simulation. The same principle, however, does not apply to cases in which either there is a reversal after "big bang" liberalization, since it cannot be assumed that the new temporary controls (reversals) represent a total closure of the capital account, or that the reversal proceeds faster than the previous liberalization.

Glick and Hutchison (2000a; 2000b)

The study focuses on a panel data set of 69 developing countries over the 1975-1997 periods. The main source of the capital restriction information is the IMF's

AREAER; the authors assign a value of 1 if the country's capital transaction is liberalized, 0 otherwise, reversing the sign of the previous literatures' measures. However, the IMF 1996 adoption of the new AREAER format prompted the authors to adopt another method to deal with the new format by giving value of 0 if more than 5 of the 13 capital transactions are controlled, otherwise 1 (four or less capital transactions are controlled). The control index thus still takes a binary form, but the pre-1996 and post-1996 values have different meanings: the former index is based on the imposition of any capital controls while the latter is based on the number of types of capital transactions restricted. Counting how many capital transactions are restricted does not provide an accurate picture of capital controls since some countries might have the same number of restrictions but on different capital transactions. The control variables used in the regression analysis are export growth, the ratio of broad money to foreign reserves, credit growth, current account to GDP ratio, and dummy variables for banking crises and fixed exchange rate regimes.

Chinn and Ito (2002)

Chinn and Ito constructed an openness index using principal component analysis of four main categories, consisting of dual/multiple exchange rates, restrictions on the current account, the share of a five-year period of capital account restrictions, and the surrender of export proceeds; they proceed to generate their index by calculating the score of the first principal component which has the mean of zero. Higher values indicate more openness. An advantage of this index constructed by Chinn and Ito is that it is available for 105 countries for the period 1970-1997. This index covers a large number of

countries with a large sample time period. They include a current account factor as a determinant of capital liberalization, which had been done similarly in Quinn's openness index. As a result, the index is the extent of the actual control on capital account. By using binary value for index coding, however, the index could suffer from the lack of measurement of the intensity of the controls; that is, the index captures changes from having controls to no controls, but it can not detect the changes from a high degree of controls to a lesser degree and vice versa. For example, in the case of India, Miniane's and Chinn-Ito's indices, both binary coded control indices, could not determine the loosening control policies of India at all during 1995 to 2004. Figure 1 shows a flat line for both measures. Including export proceed surrender requirement could also introduce a bias into the index toward disproportionately measuring the current account, rather than being based on both accounts equally—since the surrender of export proceeds is already considered in the category of current account of receipts.

Brune et al (2001)

Brune et al.'s Capital Account Openness Index (CAOI) is created by calculating the sum of the following nine categories of current and capital restrictions: (1) payments from invisible transactions; (2) proceeds from invisible transactions; (3) inward controls on money market transactions; (4) outward controls on money market transactions; (5) inward controls on credit operations; (6) outward controls on credit operations; (7) inward controls on foreign direct investment and real estate; (8) outward controls on foreign direct investment and real estate; (9) and controls on provisions and operations of commercial and credit institutions. The first two categories are categorized in the

AREAER as current account transactions. Each category is scored either as a 1 (“open”), or a zero. The overall index has the range of possible scores from 0 (fully closed) to 9 (fully open) and is available for 173 countries over the period 1973-1999. Although the CAOI is the compositions of controls on capital inflows and outflows, they analyze the index as a whole entity without considering the different impacts between controls on inflows and outflows. The main drawback of simply summing the scores in each category is that the missing values are scored as zeroes, implying controls in these cases. This could cause the CAOI to be biased unless the authors are able to avoid using the missing values. Taking an average would be a better solution to this.

Van den Handel (2002)

Inspired by Quinn (1997), Van den Handel increases the ability of the restriction index to measure the intensity of controls. She separately scores inflow and outflow transactions, then combines them to form the capital control index. The data covers 48 countries from 1996 to 1999; the scale of capital control ranges from 0 (fully liberalized) to 4 (fully restricted). The rule of coding as follows:

- 0 No restrictions
- 0.5 Taxes
- 1.0 Approval
- 1.3 Approval and taxes
- 1.5 Repatriation required or quantitative restrictions on institutional investors or on foreign participation

- 1.7 Unspecified combination of restrictions, or a combination of approvals, quantitative restrictions, or blocked flows.
- 1.9 Repatriation and graduated surrender requirements
- 2.0 100% surrender required

Miniane (2004)

This capital restriction index is created by extending the 13 post-1996 disaggregated capital transaction categories reported in the AREAER back to 1983 from 2000, covering 34 developed and developing countries. Each category is coded as a one if at least one restriction exists for that item, zero otherwise. However, Miniane omitted the control on personal capital movement category because of a lack of consistent information in past editions of the AREAER. He then adds dual/multiple exchange market and takes average the 13 categories (12 capital transactions plus dual/multiple exchange market) to create the capital restriction index, which doesn't distinguish between inflow and outflow transactions.

However, there are some drawbacks of this method worth mentioning:

- The binary method can capture only extreme cases either control or fully liberalizing. It can not distinguish the intensity of control on each category. It can not capture the change of control from strong controls to weak controls, only the changes of having controls to having no controls. However, the disaggregation of capital account restriction could solve this problem.

- The details of regulation on capital market securities, money market instruments, collective investment securities, and derivatives and other instruments, are not stated for the previous format, forcing Miniane to use a backward-inductive method. He argues that after the “Big-Bang” (capital liberalization era), the capital controls have not fluctuated much. By using this method, however, the data might not reflect the actual movement of restrictions since they would vary according to the tightening and easing of controls over the sample period.

Mody-Murshid (2005)

The data cover 60 countries and period from 1979 to 1999. The measurement of financial openness consists of four proxies for government restrictions that impact capital mobility. These four measures, which are available in the IMF’s AREAER, comprise of: (1) the openness of the capital account, (2) the openness of the current account, (3) the stringency of requirements for the repatriation and/or surrender of export proceeds, and (4) the existence of multiple exchange rates for capital account transactions. For each of these four factors, a one indicates a relatively open regime and a zero otherwise. Then the value of the index is simply the sum of these four measures restrictions. As a result, the values of the index range between zero and four, where a zero indicates that a country has closed capital and current accounts, places restrictions on its export receipts, and operates a system of multiple exchange rates. The value of four indicates a completely open regime. However, a problem might arrive from simply summing four categories together

when there is a present of missing value since the missing value will be counted as zero as well.

Edwards (2005)

Creating a capital mobility index by combining information of Quinn (2003) and Mody and Murshid (2005), with the data coverage of 1970-2000, with 163 countries. The new index has a scale from 0 to 100, where higher numbers denote a higher degree of capital mobility; a score of 100 denotes absolutely free capital mobility. Stata's "impute" command⁴ is used to predict missing values of the new index based on following factors: the two original indices (Quinn; Mody and Murshid), their lagged values, openness as measured by import tariffs collections over imports, the extent of trade openness measured as imports plus exports over GDP, and GDP per capita. Finally, country-specific data is used to revise and to refine the control measure created by the impute procedure. This measure has the largest country sample coverage and longest range of year coverage.

LMF (2006)

Edwards (2006) utilizes the data on international assets positions from Lane and Milesi-Ferretti (2006). He computes the sum of total external assets plus total external liabilities as a proportion of GDP as a proxy for capital controls. The data covers from 1970 to 2004 for 147 countries. A high value denotes that the country is integrated to world financial markets (i.e., fewer controls on capital flows). This measure should

⁴Syntax: `impute depvar indepvars, generate(newvar1)`

The "impute" command fills in missing values for the dependent variable ("depvar"), based on a set of independent variables ("indepvars"), creating a new dependent variable ("newvar1").

perhaps be considered as a measure of capital mobility, rather than capital restrictions.

However, it is included in this study for sensitivity analysis purposes.⁵

⁵ Please see Table 2.1 for a summary of the sources, coverage, methods of construction, disadvantages and advantages of the various capital control indices mentioned above.

Chapter Three

New Capital Restriction Measurement

The previous chapter has highlighted the many studies that address the problem of how to measure the level of capital controls. However, those measures are often too blunt, treating the existence restrictions as a whole entity and completely failing to capture the complexity of capital controls. This of course could be due to the limitation of information available at the time. Since the recent improvement of the IMF's AREAER on describing more details of several important capital transactions, however, the time is ripe to once again address the issue of the measurement of capital control impositions to clarify the ambiguity of the role of such controls.

The empirical studies undertaken by the various authors discussed above failed to arrive at a unanimous conclusion on how imposing controls on capital movements would affect various issues, especially currency crisis, on which this paper is concentrated. One of the reasons that cause the diverse results is that capital controls could have both destructive and constructive effects, per se. This could depend on what sides of capital flows are being controlled as well as how long the flows have been detained from the market mechanism. Capital controls could destabilize economic fundamentals if they have been imposed for a long period of time, since the controls lead to the inefficient allocation of capital resources. On the other hand, the restrictions could prolong the opportunities of the government and the central bank to deal with unexpected crises. Curbing capital flows, especially outflows, allows investors to reexamine whether the

true causes of the capital outflows stem from the deterioration of fundamentals or simply from pure panic. As a result, imposing controls for a short period of time could prevent crises stemming from self-fulfilling speculation, herding behavior, and panic.

The use of precise benchmarks of capital controls could provide a better understanding of the presently-ambiguous roles of capital restrictions. The ambiguity of these effects could be caused by the nature of the restrictions themselves as mentioned above, but could also be an artifact of the ways by which these controls are measured. It has been argued in this study that the current capital control indices are measured too plainly, i.e. one if there is control otherwise zero, and high aggregate measuring of the capital control indices; this could be a cause of the inconsistent results for the roles of capital restrictions. Therefore, another method of making capital control index is needed with the hope of countering the weaknesses of the earlier capital restriction indices. It is high time to introduce new indices constructed with more disaggregation and a more effective approach to capturing controls' intensity, using information from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). Such an index could better clarify the role of capital control on various issues -- roles which the previous measurements of capital restriction could not identify distinctly.

There are some difficulties of creating a perfect capital control measurement such as limited sources of capital control restriction data. The most reliable and widely-used source is the IMF's AREAER which started in the 1970s; however, the information stated in the report does not always reflect the actual behavior of the government on controlling

the capital flows. Some countries state their controls intensively in their laws but only but only loosely enforce them in practice, for example; as Crotty and Epstein (1999) state “having [capital restrictions] on the books and strongly enforcing them may be two different things”. However, using de facto data to measure capital restrictions is no guarantee of capturing the true degree of capital mobility either, since there is quite a bit of noise in the data stream. Thus, the best shot of having capital control index is to rely on the rule-base data which are reported by countries every year and published by the IMF.

As a result, our construction of a new capital restriction measure is solely based on the information available on the IMF’s AREAER. The indices are “de jure” type of capital control; they capture only what countries announce in their law and regulation of capital flows. The indices are not capable of incorporating the actual practices of a country on the degree of control, when the actual behavior is different from the written rules and policies. How strictly the capital control regulations are enforced is another issue of control measurement, as it is difficult to know how effectively and efficiently the officials can supervise the capital mobility imposition on an ongoing basis. Further study is required to determine the actual control of capital flows in practice, and unfortunately there is not any suitable proxy for the task at this moment in time. The only step which can presently be taken is to improve what has currently been available, i.e., the IMF’s AREAER data.

The AREAER has been published since the 1950s. The traditional way of reporting had been based on general description of restrictions on receipts and payments of the current and capital accounts. They mainly describe overall circumstances of the restrictions and required procedures to operate on the capital transactions. However, in 1996,⁶ the IMF changed the format of the report, dividing capital transactions into 13 categories. This provides further details on how intense capital restrictions would be between each category, and differentiates the stringency between inflow and outflow transactions.

Capital transactions of the AREAER are divided into thirteen main categories with subcategories of restrictions on inflows and outflows, which are enforced on residents' and nonresidents' activities. However, the measurement of control also includes the existence of dual or multiple exchange rates, as follows:

1. Controls on *capital market securities*: shares or other securities of a participating nature, and bonds and other securities with an original maturity of more than one year.
2. Controls on *money market instruments*: securities with an original maturity of one year or less, such as certificates of deposit, Treasury bills, and so forth.
3. Controls on *collective investment securities*: share certificates or any evidence of investor interest in an institution for collective investment, such as mutual funds.

⁶ This is the publish year of the AREAER. However, the information stands for the previous year (1995).

4. Controls on *derivatives and other instruments*: refers to operations in other negotiable instruments and nonsecuritized claims not covered under the previous three items.
5. Controls on *commercial credits*: covers operations directly linked to international trade transactions.
6. Controls on *financial credits*: credits other than commercial credits.
7. Controls on *guarantees, sureties, and financial backup facilities*: securities pledged for payment of a contract, such as warrants, letters of credit, and so on.
8. Controls on *direct investments*: creation or extension of a wholly owned enterprise, subsidiary, or branch and the acquisition of full or partial ownership of a new or existing enterprise that results in effective influence over the operations of the enterprise.
9. Controls on *repatriation of profits or liquidation of direct investment*.
10. Controls on *real estate transactions*: the acquisition of real estate not associated with direct investment. The investments of a purely financial nature in real estate or the acquisition of real estate for personal use.
11. Controls on *personal capital movements*: not considered in this paper because of a lack of consistent information in past editions of the AREAER.
12. *Provisions specific to commercial banks and other credit institutions*: regulations that are specific to these institutions, such as monetary and prudential controls.
13. *Provisions specific to institutional investors*: one common example is a limit on the share of the institution's portfolio that may be held in foreign assets.
14. *Multiple exchange rate arrangements*

The new indices presented in this paper are based on the works of Quinn (1997), Johnston and Tamirisa (1998), and Miniane (2004), all of whom have been contributing tremendously in the capital restriction measurement context. Quinn (1997) conducted capital control measurement by assigning five scales to current and capital accounts with specific criteria focusing on tariff rate and surrender of exchanges. Johnston and Tamirisa (1998)⁷ has exploited the new format of the AREAER by assigning dummy values to every subcategory of the thirteen main categories to come up with the overall control indices: inflows, outflows and overall control indices. Miniane (2004) also utilizes the disaggregated report of the AREAER by allotting on-off values for the main categories (except personal capital movements) whether restrictions exist in the particular capital transaction or not; without, however, separating inflow from outflow transactions. Starting from these ideas, the new indices are constructed by combining their various strengths—which are disaggregation from Miniane and Johnston, and intensity from Quinn—to better identify the progress of capital restrictions within a country as they have changed over time.

With the availability of information the new indices can be constructed separately into controls on capital inflows and outflows. This could efficiently distinguish between the effects of restrictions since each type of controls by nature has a different effect on various issues as it is enforced. One might think that capital inflows are favored relatively to outflows since it brings in capital for developing a country's economy and can lead to higher living standards for its people. This only explains one side of the coin, however;

⁷ It has been mentioned in the previous chapter that due to inconsistency of available information on each subcategory, it would be difficult to compare the degree of control among countries.

we must also consider the instability of macro economic factors when a country experiences a rapid, overwhelming capital surge which vanishes just as rapidly later. This could wipe the accumulated wealth out within a short period of time when capital is taken out of the country in a panic, as the Asians and Latin Americans experienced during the crises. Without a proper measure of capital restrictions, we can not properly the relative costs and benefits of such flows.

The rules of coding of capital restrictions measurement as follows:

Value in each capital transaction (except dual/multiple exchange rate arrangement)

ranges from 0 to 1, with 0.25 intervals. (Higher value represents higher degree of capital control)

- 0 Capital transaction(s) is allowed freely (No Restriction); government may require report or notification after transactions take place
- 0.25 Prior approval is not required; but required supporting evidence or registration. Transactions are required to be made through authorized banks or exchange houses.
- 0.5 Prior approval is not required; but quantitative restrictions exist, i.e. limited ownership; limited amount of transferring per period of time.
- 0.75 Prior approval is required before engaging in any transaction and is approved on a case-by-case basis.
- 1.0 Not allowed or transaction is not permitted.

The existence of dual/multiple exchange rate arrangements is assigned a value of 0.75, otherwise 0.

The above rules are based on how much time an individual or firm has to spend dealing with red tape; in other words, how troublesome it is for individuals to deal with the government agencies in order to arrange capital transactions. These processes and requirements discourage and slow down the capital mobility, both for inflows and outflows. Nevertheless, the main purpose of these criteria is to reflect how much the governments create the cost of transferring capitals between countries by demanding paperworks, prior approvals before the transactions taking place, and/or quantitative restrictions of capital transaction to individuals and enterprises. In addition, this is how the IMF categorizes and reports each transaction by documenting the requirements of evidences, approvals, and permission of transactions. However, due to limited availability of disaggregated information on capital transactions of the AREAER, the indices could not be constructed prior to 1995. This limitation forces us to concentrate only on the current situation of imposition of controls on capital flows, not a historical study of capital mobility. Therefore, the measures cannot yet provide the advantage over the extensive historical coverage as they might otherwise be expected to.

To illustrate the measuring criteria in more detail, 0 and 1 are the opposite extreme which the value of zero indicates no restriction of any kind being enforced by the officials on that type of transaction. By contrast, a value of 1 indicates that the particular transaction type is not permitted by any means. For 0.25, investors have less ease in

completing capital transactions than the freely conducted transactions since they have to report to officials with prior evidence and/or are required to make transactions through specific channels for the purpose of the government's supervision. This could deter the investors to transfer capital unless they have a sufficiently compelling reason to do so. For 0.75, instead being shut off, investors are allowed to transfer capital, but only with prior approval from officials such as central bank and ministry of finance. However, officials have the right to allow and not allow particular transactions depending on the regulations applied at the moment. Besides that, longer processing time is required relative to other categories since the investors need to prepare documents and wait until they get approval. This often long and demanding process could reduce the demand for capital transfers internationally. The last category is the middle point of the coding scale, 0.5, which denotes that this category of transaction does not require a long process time, but the amount of capital to be transferred is restricted either quantitatively or in the form of capital reserve requirements. One could argue that quantitative restrictions could be divided into subcategories since \$10,000 and \$10 millions limit are not equal in stringency; however, one counterargument is that any threshold for subdivision would be arbitrary. For example, if a \$5 million threshold is set to separate between severe and loose control for coding purposes, a restriction on transfers greater than \$4 million would be categorized as "loose", while a similar restriction on transfers greater than \$5 million would be categorized as "severe"—though there may not be much real practical difference between the two restrictions. In any case, the rules of coding are intended to focus on how cumbersome are the official processes for investors to get through in order to make capital transfers. The coding rules also aim at simplicity, since the information

availability is not conformable enough to make complex rules of coding. After all, this capital control measurement is trying to capture what the IMF has been reporting in AREAER as follows:

“... controls on capital transactions include prohibitions; need for prior approval, authorization, and notification; dual and multiple exchange rates; discriminatory taxes; and reserve requirements or interest penalties imposed by the authorities that regulate the conclusion or execution of transactions or transfers, or the holding of assets at home by nonresidents and abroad by residents.” (IMF)

However, the problem of this method arises when the AREAER does not have clear information on particular transactions, i.e. when it states “Yes”, which doesn’t imply anything about the intensity level of the controls. It only implies that a control on the particular capital transaction exists. How much the restrictions are tightened or relaxed, there is not enough information. Thus, the author assigns a value of 0.5 whenever the IMF doesn’t have clear information. However, if the information is available in other period of time, the score will be given as same as the other period. Moreover, if the control on the inflow side is specified the level of control but the outflow side is unspecific i.e. “YES”, the same score is assigned to the outflow side as to the inflow side. This action is taken to prevent the bias of giving values toward to either more or loose control between inflow and outflow capital transactions.

Then the overall capital restriction indices (inflow and outflow) are calculated using as equally weighted average of the thirteen categories and the existence of dual/multiple exchange system. In the following section, other mathematical methods, i.e. principal component analysis, are implemented for calculating the overall indices for the purpose of sensitivity testing. For the same purpose, binary capital control indices are created similarly to the Miniane method: “one is given if there is any control otherwise zero”, however, the difference is the binary indices distinguish between inflows and outflows. Please check Appendix 3A for more details and examples of coding capital restrictions from the IMF’s AREAER. In addition, Appendix 3B documents the annual changes of selected countries’ capital controls policies during 1995 to 2004. Following that, policy changes are converted into capital restriction measures quantitatively by applied the coding rules above. This results the main capital restriction indices, in5 and out5, which represent controls on capital inflows and outflows, respectively.

Similarities and Differences between the new control measurement and the Quinn’s method

Quinn’s capital control coding rules (1997)

- X = 2 if not restricted
- X = 1.5 if approval isn’t required and taxed
- X = 1 if approval is required and frequently given; if approval isn’t required and heavily taxed
- X = 0.5 if approval is required and sometimes given
- X = 0 if approval is required and rarely given and surrender of receipts is required

From the rules above, Quinn's method exploits taxation as a main criterion to set the intensity of the capital restriction measurement. The major difference between the new measurement and Quinn's is that Quinn uses tax intensity to distinguish between the middle point category, value of 1, and the less fully liberalized category, 1.5. However, the new capital control measurement uses the existence of quantitative restrictions, evidence requirements, and/or making transaction through authorized exchange houses to separate the middle point (0.5) from less fully liberalize (0.25). This is due to lack of information on tax information reported in the AREAER of the capital account transactions.

Since Quinn's openness index is also comprised of current account restrictions, he uses the coding rules interchangeably between current account and capital account restrictions.

“The decision rules for goods and invisibles payments and receipts are as follows. If all receipts or payments are necessarily surrendered or blocked, then $X = 0$. If transfers require approval (unless automatic), then $X \leq 1$. If transfers require approval (usually automatic) and are heavily taxed, then $X = 1$. If transfers are effected through the market mechanism and taxed, then $X \geq 1$. The degree of taxation determines Y , where $X = 1 + Y$. If transfers are free, then $X = 2$ ” (Quinn 1997) page 544

From the statement above, it is apparent that the coding rules of current and capital account restrictions are similar to each other. Tariff rates, which are regularly reported in the AREAER, are considered as tax information on the current account restriction index. However, taxation information in capital account transaction is scarcely reported in the AREAER because taxations are not widely applied in capital account settings, except for a few countries such as Chile, which adopted Tobin's Tax or reserve requirement, to limit inflow and outflow of capitals. As a result, taxation might not be a good candidate to be applied to the capital restriction measurement coding due to inadequate information, especially in the capital account transaction.

Compositions of the new capital controls

According to Table 3.1, it shows how the control on capital inflows and outflows on particular capital transaction correlate among each other. The important evidence on this correlation table is that the high correlation between the measures of inflow and outflow capital controls, 0.86, suggests that they are normally imposed together. In addition, the correlations between capital control on inflow and outflow of capital market securities, money market instruments, and collective investment securities are 0.81, 0.86, and 0.70, respectively. This reaffirms that controls on capital inflows and outflows are imposed together with the same direction. However, correlations of control between capital inflow and outflow for guarantees, direct investments and real estate transactions are moderate, 0.42, 0.51, and 0.47, respectively. Additionally controls on money market instruments, collective investment securities, derivatives, and financial credits are the

major driving factors of overall controls on both capital inflows and capital outflows, as evidenced by the high correlation of capital restrictions on these types of capital transactions with the overall indices.

Table 3.2 shows data descriptions of controls on various capital transactions. It indicates that level of restrictions on capital outflows are relatively higher than on capital inflows throughout the types of capital transactions. It could be concluded that countries are generally more worried about capital outflows. They could have initial perception that capital outflows could do more damage to their economy than the inflows could since having outgoing capital reduces the liquidity of the financial system, creating upward pressure on the domestic interest rate, and eventually could lead to investment reduction in the country. Politicians may also worry the more about recent economic performance than the future economic situations; as a result, governments are likely to prefer incoming capital to outgoing capital. Moreover, the governments are generally more concerned with the mobility of capital related to speculation, such as capital market securities, money market instruments and collective investment securities, because of their fast-moving nature and destructive potential to their economy. By contrast, governments are less concerned about the transactions which are related to their trading businesses, such as commercial credits and guarantees, since these types of capital could improve the import and export performance of their country but are relatively less harmful to their financial system than the former capital transactions. This also reconfirms the above findings of those capital transactions which are the main factors influencing the overall capital restriction indices.

Comparisons of various capital control measures

The previous chapter is shown how scholars have conducted different styles of capital control measurement from the same source, the AREAER. This section shows how each capital control index is different and compatible with each other. The Tables 3.3 comparing selected capital restriction indices values. The following are the list of capital control measures included in the study:

1. In5 and Out5: the new capital control indices with 5 point scale
2. In-binary and Out-binary : measures capital controls by assigning dummy values on each capital transaction category (13 categories plus dual exchange rate arrangement) and take average. The method is similar to in5 and out5, the only difference is there are two values (0 and 1) for each category (therefore capturing intensity less effectively), instead of 5 possible values.
3. Chinn-Ito (2002): 1st standardized principal component of four different current and capital transactions.
4. N_ChinnIto : Normalized Chinn-Ito index into 0-1 scale with reversed sign to conform with other indices.
5. Miniane (2004): The average of dummy values on 12 capital transactions and dual exchange rate
6. IMF: the average of 13 capital transactions with the value of 1 for controls, otherwise 0.
This method is similar to the Miniane's method.
7. Quinn (1997): normalized and reversed value of the capital account restriction index.

8. Johnston (Johnston and Tamirisa 1998): value of 1 is given to each subcategory of capital transaction if there is any control, otherwise 0
9. Edwards (2005): combining data from Quinn (1997) and Mody and Murshid (2005)
10. GH: Glick-Hutchinson (2000a; 2000b) giving a value of 0 if more than 5 of the 13 capital transactions are controlled, otherwise 1

The values of the capital control indices, especially the new method (in5 and out5), indicate only the level of intensity of restriction for each country; they do not suggest the actual magnitude of capital restrictions. In other words, these values are ordinal numbers. The values indicate which country has relatively high level of capital restriction but do not indicate how much higher. However, there are more benefits of increasing intensity of the measures than the commonly-used dummy variable method. According to Eichengreen and Mussa (1999b), the problem with dummy variable measures is that they do not measure the “degree” of capital control. Secondly, it underestimates the true level of capital restrictions since when values are 0 or 1. They imply that capitals are either fully controlled or fully liberalized but could not detect partial controls. Fifteen countries out of twenty six country samples have adopted policy toward to higher level of restriction on capital outflows than on capital inflows as discussed in previous section. Sri Lanka, China, and Zimbabwe have quite high level of capital restriction on both inflows and out outflows, about 0.6 level of restriction. These countries have perception of high level of capital control. On the other hand, Hong Kong, Peru, and Uruguay have least some restriction on capital flows, the values are less than

0.1, which is also confirmed by other capital control indices. As a result, the new capital control indices reflect the actual circumstance quite well.

The capital restrictions during the period of 1995 to 2004 for both types of flows are decreasing overtime, except for a few countries such as Argentina and Zimbabwe. Other capital control indices such as Chinn-Ito and Miniane present the same pattern as well. Graphs of capital control indices from various sources during 1995 to 2004 are illustrated by country in Figure 3.1.

In general, the new capital control measures' performance is quite satisfying. They are able to capture small changes which the other measures are unable to reveal. However, the worst-performing measure is the LMF (Lane and Milesi-Ferretti 2006), which could not capture changes between years. All it could illustrate are the trends of capital restrictions over the study period. This shows the drawback of the de facto based measurement, which is drawn from the sum of total external assets plus total external liabilities as a proportion of GDP.

For instance, in the Malaysia case, the new index shows that the government had been trying to generally loosen the restrictions after the crisis hit the country, especially the control on capital inflows. It also indicates that Malaysia raised control on capital outflows in 1998, right after the crisis. Miniane's index does not reflect this situation; it shows a flat level of control during the crisis period. Chinn-Ito's control index had been increasing since 1996 and peak at 2000. As a result, the new measure of capital

restriction, reflect the actual situation quite well, in comparison to these measures. The new capital restriction indices show that Korea reduced its controls on capital flows significantly right after undergoing the crisis. Neither Miniane nor Chinn-Ito reveal significant reduction of capital control restrictions by Korea until 2001. Another example, the new control measures reveal a downward slope of capital restrictions during 1995 to 2004. This slope pattern is different from the other indices which are almost flat lines over time.

Another interesting issue for the new capital measures could reveal is the case of India. The new indicators (in5 and out5) illustrate that India has been gradually liberalizing its capital account since 1997. However, Edwards and Chinn-Ito show a sharp drop in 2000 and the restrictions went back to the initial level a couple of years later. Moreover, Miniane's measure could not capture the changes in the controls of India at all. The liberalizing trend illustrated by the new measures fit the agenda of the Reserve Bank of India of the intention of achieving full capital account convertibility, which shown in the report of the Committee on Capital Account Convertibility by the Reserve Bank of India (Tarapore Report) in 1997 (Kletzer 2004).

These examples show the prospects of the new method of capital controls measurement. However, there are some drawbacks of the rule-based capital restriction index, i.e. if there is temporary rise, within a year, in level of capital control, officials might not report the action to the IMF. As the AREAER does not include the policies into the context, this type of measure could not reflect the temporary policies those could influence a shock to other economic factors. Also, techniques other than equally weighted

averages, i.e. the 1st principal component, should be analyzed for sensitivity testing purposes, which will be elaborated on in the next section.

Principal Component Analysis

This section tries to find a better technique for dealing with dimensional reduction of capital transactions which compose the overall capital restriction indices. In other words, an equally weighted average might not be a good arithmetic method to condense the capital transaction categories into the capital control indices. As a result, Principal Component Analysis technique is introduced in this dissertation, for sensitivity testing, to summarize the new capital restriction measures, as pioneered by Chinn and Ito (2002) on their financial openness index.

“Principal component analysis is a multivariate technique for examining relationships among several quantitative variables. The analysis can be used to summarize data and detect linear relationships. Principal component analysis reduces the dimensionality of a set of data while trying to preserve the structure. Principal components are formed as follows: The first principal component is the linear combination of the Y variables that accounts for the greatest possible variance. Each subsequent principal component is the linear combination of the Y variables that has the greatest possible variance and is uncorrelated with the previously defined components. Principal components can be used to reduce the number of variables in statistical analyses.” (SAS 1990) p.657-658

Principal component analysis is similar to *factor analysis* in term of functionality (the purpose is to reduce the original variables into fewer composite variables), but is different in terms of underlying assumptions. An assumption of *factor analysis* is that “the variance of a single variable can be decomposed into common variance that is shared by other variables included in the model, and unique variance that is unique to a particular variable and includes the error component. Common factor analysis (CFA) analyzes only the *common* variance of the observed variables; principal component analysis considers the *total* variance and makes no distinction between common and unique variance.” (ACITS 1995)

“In common factor analysis, a small number of factors are extracted to account for the intercorrelations among the observed variables--to identify the latent dimensions that explain why the variables are correlated with each other. In principal component analysis, the objective is to account for the maximum portion of the variance present in the original set of variables with a minimum number of composite variables called principal components.” (ACITS 1995) “If the observed variables are measured relatively error free, (for example, age, years of education, or number of family members), or *if it is assumed that the error and specific variance represent a small portion of the total variance in the original set of the variables, then principal component analysis is appropriate*. But if the observed variables are only indicators of the latent constructs to be measured (such as test scores or responses to attitude scales), or if the error (unique) variance represents a significant portion of the total variance, then the appropriate technique to select is common factor analysis. Since these two methods (common factor and principal component analyses) often yield similar results.”

However, a major drawback of principal component analysis is that it can not deal with missing values very well. If there is a missing value in the observations of particular variable, the final score can not be computed, and then the variable is treated as missing value (see Table 3.4). There are missing values for the whole sample of some countries in the columns of 'in_sc1' and 'out_sc1'. As a result, principal component analysis with missing value technique is applied. A Stata command 'pcamv', written by Weesie (1999), is used to create capital control indices (inf1 and outf2, see Table 3.4). However, the values shown in Table 3.4 are the 1st principal component scores, which have been normalized into the range of zero and one in order to be comparable to the equally weighted average capital control measures. The results are close to the normal principal component scores but without missing data.

Although principal component analysis might not be a perfect candidate for summarizing various categories into one component, it is used for a purpose of sensitivity test for the capital control indices in order to explore other mathematical techniques that could bring up a better characteristic of capital restriction measures.

Capital control indices by types of capital transactions

The new capital control indices are comprised of thirteen capital transaction categories which are from different areas of capital transactions. It could be useful to study capital control on these transactions separately by grouping related transactions together as followings:

1. Capital Market (inCM, outCM)
 - Capital market securities
 - Money market instruments
 - Collective investment securities
 - Derivatives and other instruments
2. Credit Market (inCR, outCR)
 - Commercial credits
 - Financial credits
3. Foreign Direct Investment (inFDI, outFDI)
 - Direct investment
 - Real estate transactions
4. Financial Institutions (inFIN, outFIN)
 - Provisions specific to commercial banks and other credit institutions
 - Provisions specific to institutional investors

These types of grouping have been done in Johnston and Tamirisa (1998) as well in order to distinguish effects of capital control on each category of capital account. These capital restriction measures will be used in analysis of determinant of capital control and their connections with currency crisis in the following sections.

Thus far, there are about eight newly-developed types of capital restriction measures, which combined with four available well-known capital restriction measures will be tested empirically to determine how well these measures can reveal the true

characteristics of capital restrictions. The next section will start the exploration by studying which factors can put pressure on the officials to increase or relieve the restrictions of capital mobility. The purpose of the study is to compare the different sets of capital controls those could explain the reasons behind the changes of the restrictions which are impacted by different economic factors.

Chapter Four

A Simple Model of Capital Control Determination

In this section, study inspects mainly economic factors which could influence the government to maintain or liberalize the capital restrictions. The main objective is to compare the new capital control measures in the previous section with the well-known ones whether the more intensity and disaggregation of capital measures would uncover some hidden aspects of the capital controls per se. There might be some concerns about causality of dependent and independent variables, however, the study will focus only on what factors could influence the capital controls. It is a preliminary study of the new capital restriction measures after all. Economic factors, used in the study of capital control determination, are divided into four main groups: Balance of payment factors, macroeconomic factors, financial development, and other control variables.

1. Balance of payment factors

- BOP deficit / GDP
- Current account deficit / GDP
- Total reserves in months of imports

2. Macroeconomic factors

- Real interest rate (%)
- Government budget deficit / GDP
- Inflation

- Exchange rate regimes (drawing on Willett *et al.*, 2005) are coded as:

1. Hard Pegs
2. Adjustable Parities
3. Crawls
4. Tightly Managed Floats
5. Other Managed Floats
6. Independent Floats

- Real Effective Exchange Rate (REER)

3. Financial development factors

In general, financial systems in the emerging economies are dominated by the banking system, especially in Asian countries. Stock markets in the region tend to be new or are being developed as conduits for capital to productive projects. It is therefore necessary to consider all major developments in the banking systems. King and Levine (1993) have introduced financial development measurements by using level of credit or liability allocated in the market. For instance, using the ratio of liquid liabilities in the financial system to GDP is the traditional practice for measuring the size of financial intermediaries, based on the idea that the size of financial intermediaries is positively related to the provision of financial services (Chinn 2002). Greater financial depth means a larger provision of financial services. However, King and Levine argue that the size of the financial system as measured by financial depth is not necessarily closely related to such services as risk management and information processing. They addressed this issue by constructing a measure of the importance of specific financial institutions, which is

constructed as the ratio of money bank deposits relative to the sum of money bank deposits and central bank deposits. King and Levine argue that the larger this variable is, the larger will be the provision of such services as risk management and information processing. Finally, they argue that if the financial system is simply channeling credit on behalf of a government, it is unlikely to provide financial services in the same way as a more independent banking system, even in cases where the financial depth of an economy is larger and a majority of that liquidity passes through deposit money banks. Therefore, another variable of measuring financial development is constructed using the ratio of claims on the non-financial private sector relative to total domestic credit. They argue that the larger of this ratio is, the more likely the financial system is to provide certain services, for example, evaluation of managers, investment project selection, the provision of financial services and the pooling of risks. (U.N. 2005) The measures of banking development for the country samples are shown in Table 4.3. The financial depth measures used in this paper are as follows:

- Ratio of claims on non-financial private sector to total domestic credit
- Ratio of deposit money bank domestic assets to total money bank domestic assets and central bank domestic assets: Measures the degree to which the central bank versus commercial banks are allocating credit.
- Ratio of liquid liabilities of the financial system to GDP

4. Other factors

- GDP per capita
- Trade (% of GDP) (5 year average)

Please see Appendix 4A for the details on variable sources.

The general models are estimated by applying the TOBIT analysis since the dependent variables, capital control measures, are truncated, except for the case of Glick-Hutchinson, dummy capital control measure, is analyzed by probit analysis. All independent variables are one year lagged to avoid simultaneity problems. The data cover 26 emerging markets during 1995 to 2004. The simple model of capital control determinants is:

Capital Control Determinant Model

$$\begin{aligned}
 (\text{Capital Control})_i = & \alpha + \beta_1(\text{BOP})_{t-1} + \beta_2(\text{Macro})_{t-1} + \\
 & \beta_3(\text{Financial Development})_{t-1} + \beta_4(\text{Others})_{t-1} + \varepsilon
 \end{aligned}$$

Capital Control Determinant Empirical Results.

The empirical results of capital restriction determination are shown in Table 4.1. In general, macro economic factors, except for the interest rate and financial development factors, do not have much impact on determining capital controls. Interestingly, the results show a significant reverse relationship between trade and the country's development level with capital controls, but with a small impact. Balance of payment factors have also important roles on determining capital restrictions in which will be analyzed in more detail in the following section.

Balance of payment factors

The ratio of balance of payment deficits to GDP has significantly positive effect on controls on capital inflows. This implies that if a country is facing difficulties on the

BOP, it is more likely to ease the restrictions on capital inflows in order to attract capital inflows to relieve the shortage situations. The negative statistical significance of BOP/GDP appears on every capital inflows measure (equations 1, 3, 5, 7, 9, 11, and 15). It is about one to one relationship for the case of 'in5' (eq 1), as the coefficient is 1.076. On the other hand, the outcomes for controls on outflows are mixed and insignificant. However, the main capital control measure on outflows (eq 2) implies that if a country is facing BOP deficits, it is likely to strictly control the capital outflows to prevent the bleeding. It is significant at level of .796, which is very low. In the cases of controls on capital outflow of FDI and financial institutions, BOP deficit/GDP is negative and significant above the 94 and 99 percent levels of confidence, respectively. The coefficients are -1.36 and -1.582, respectively. The results are quite intuitive: easing controls on capital inflows when there is arising problem of deficits on BOP/GDP; in contrast, imposing controls on capital outflows to stop bleeding if deficits are present. Finally, the results of the well-known capital measures show mixed signals. Chinn-Ito, Miniane, and Glick-Hutchinson (eq 17, 18, 20) suggest lowering controls when the BOP deficits arise; the significance level is very low, about .80. The results for Edwards' measure (eq. 19) implies that controls should be imposed when there is a BOP deficit problem, with higher significance at level of .329. This shows that distinguishing inflows and outflows controls could provide better views on the economic mechanisms.

In this study, the new methods of measuring capital restriction outperform the whole entity capital control measures, since the separation of inflow and outflow controls

measures could effectively point out the hidden relationships of BOP/GDP and capital controls in which the well-known measures could not mark the differences.

Ratio of Current Account Deficit to GDP

The CA deficit/GDP has negative but insignificant impact on controls on inflows throughout the measures of capital inflows except for controls on capital market transactions (eq 7). This is a counter-intuitive result, suggesting that a country would raise controls on capital inflows if it is undergoing serious current account deficits. However, there might be reasons to explain why the regressions show such results. For instance, a country's deficit problem could be due to uncompetitive prices. The relative currency appreciation could be caused by too large capital inflows. In order to gain price competitiveness, officials would reduce the inflows, which could strengthen the exchange rate and cause the export prices to be higher than other trade rivals. Besides that, too much capital inflows could cause a domestic economic imbalance by raising the prices of domestic assets and eventually inflation rates. To cope with the inflation, interest rates would be pushed up. Therefore, the cost of capital would rise and lead to losing the competitive edge of the domestic companies and further affect the current account. However, the empirical results show statistical insignificance for this independent variable in its effect on the controls.

As Neely (1999), p. 5, argues,

“For countries with flexible exchange rates, the exchange rates appreciated, raising the relative prices of the domestic countries' goods. For countries with fixed-exchange rates, the increased

demand for domestic assets led the monetary authorities to buy foreign exchange (sell domestic currency), increasing the domestic money supply and ultimately the prices of domestic goods and assets. In either case, the prices of domestic goods and assets should rise relatively to the rest of the world—a real appreciation—making domestic exported goods less competitive on world markets and hurting exporting and import-competing industries”.

Similar reasoning could apply to the association of the controls on capital outflows and CA/GDP. That is, the government is seeking to weaken the domestic currency by encouraging capital outflows. The confidence level of CA/GDP of controls on outflows is relatively higher than the controls on capital inflows. The measures of overall capital controls suggest that capital controls should be eased if a country is undergoing current account deficit problems. However, only Edwards’ control measure (equation 19) shows a positive significance of CA/GDP on capital controls, at level of .05 with one-to-one effect.

Total reserves in months of imports

The total reserves in months of imports variable is negative and significant at the 99% level of confidence throughout all various capital control indices (equations 1 to 20). This suggests that high levels of foreign reserves could reduce the pressures for controls on both capital inflows and outflows. This could also imply that if the government is holding large amount of reserves, it does not need to intensively restrict capital mobility, since such reserves could prevent illiquidity and instability of the economy caused by unsteady capital mobility. Besides that, a high level of foreign reserves signals to

speculators that they need a relatively large amount of money to be able to destabilize the exchange rate regime of such countries. Williamson (1988) argues, “These stocks of foreign reserve permit the central bank to keep the exchange rate stable even though the balance of payments may be in surplus or deficit. More fundamentally, such stocks can enable the authorities to stabilize the domestic economy when it is buffeted by balance of payments shocks”. Thus, the above arguments imply that the higher amount of reserves, the lesser need of capital mobility restrictions, which conforms to the regression results.

Macroeconomic factors

Government Budget Deficit to GDP ratio

The sign of the coefficient is inconsistent among the capital control measures. In the case of our main capital controls measures (in5 and out5), the results indicate a negative association of Budget Deficit/GDP and capital controls but with low significance levels of .88 and .595 respectively. This indicates that budget deficit could be associated with capital controls. The results also apply to binary capital controls (eqs. 15 and 16) and other well-known measures, especially Chinn-Ito (eq 17) which shows a negative and statistically significant relationship at the 99 percent confidence level. This conforms to the results of Eichengreen et al (1996b), who use data for 20 countries over the period of 1962-92, and find that budget deficits are associated with an increase in capital controls. Moreover, Grilli and Milesi-Ferretti (1995), Bartolini and Drazen, ((1997a), (1997b)); and Alesina, Grilli, and Milesi-Ferretti (2003) find countries with a higher level of government expenditure, relatively closed to international trade, and with large current account deficits are more likely to restrict capital flows.

The reasoning behind this association is that unrestrained capital mobility could avert governments from pursuing bad policies. Garrett (1996) adds that increasingly free capital mobility leads a government to tighten its fiscal policy for fear of being punished by the international capital market. Fischer (1998) supports this view quite interestingly, saying that “International capital flows tend to be highly sensitive to macroeconomic policies ... market forces can exert a disciplining influence on macroeconomic policies. Normally, when the market’s judgment is right, this discipline is valuable, rewarding good policies and penalizing bad.”

Inflation

Inflation does not show appear to be a significant determinant of capital controls. The results of the direction of inflation toward capital controls are also inconsistent. The results conform to Rodrik’s (1998) results, who finds that capital inflows undermine central bank efforts to control inflation, and finds no evidence of greater capital account convertibility being associated with lower inflation. However, Grilli and Milesti-Ferretti (1995) find controls are associated with higher inflation and lower real interest rates. Their study ends in 1989, before the capital account liberalization wave of the 1990s began. Gruben and McLeod (2001) conduct another study, covering 112 countries from 1981 to 1996. They conclude that countries that opened their capital accounts experienced greater disinflation in the 1990s than those that did not. They argue that capital account liberalization reduces inflation by lowering the optimal rate of money growth. In contrast, McKinnon and Mathieson (1981) recommend “capital controls as

inflation reducing in financially repressed economies. Lowering the interest elasticity of demand for domestic currency by reducing currency substitution opportunities reduces the inflation rate necessary to generate a given amount of seigniorage revenue.”

Exchange rate regimes

The data of Exchange rate regime is from Willett *et al* (2005). They modify Bubula and Otker-Robe’s (2003) methodology and re-categorize exchange rate regimes into six categories which provide more precise view of exchange rate regimes. The higher value of the variable indicates higher flexibility of exchange rate regimes.

Exchange regimes positively affect controls on capital inflows at .052 level of significance for $\ln5$ (eq. 1) with a coefficient of .014. The positive effect also applies for the other measures of control on capital inflows but at varying significance levels. The results show that relative flexible exchange rate regimes tend to pressure the government to increase controls on capital inflows. This could be attributed to a government indirectly stabilizing the exchange rate through enforcement of controls on capital inflows, which could cause the local currency to appreciate more than the government would prefer. On the other hand, the relationship of exchange rate regimes and controls on capital outflows is insignificantly reverse. This implies relatively flexible regimes are associated with relatively slight restrictions on capital outflows. Moreover, the well-known measures, especially Glick-Hutchinson’s (eq. 20), show positively significant results at .2 for the exchange regimes with coefficient of .02. This could assure the positive association of the two factors.

Real Interest Rate

The results show that there is a reverse and significant connection between the real interest rate and capital controls, especially the case of in5 and out5 (eq. 1 and 2). The coefficients are -.003 and -.004, with significant level of .004 and 0, respectively. Besides that, the well-known measures also predict a similar interrelation, but at lower degree of significances. This indicates that when the real interest rate rises, it puts upward pressure on the domestic cost of capital; to reduce the pressure of capital scarcity, capital flows should be eased to allow the market mechanism to adjust.

REER

The effect of REER is positive but insignificant on capital controls. However, the binary control variable models (15 and 16) show positive and significant effects of REER at 90 percent level of confidence. The marginal effect is very small, 0.003. When the REER is higher, this implies that the domestic currency appreciates relative to those of the country's trading partners. It is more likely for government to impose capital controls, especially on the inflow side, to reduce the pressure for currency appreciation.

International dependency of economy increases the probability of the government to eliminate the capital restrictions

The regression analysis shows that an interdependent economy is more likely to loosen the restriction of capital mobility. The trade as percentage of GDP has a negative relationship with capital controls. The coefficients of trade/GDP are significant at least above at 95%, but the impact on capital controls is low due to the small value of the

trade/GDP coefficients. This implies that the more a country relies on trading for economic growth, the more open the capital account should be, since loosening controls on capital movement could ease the way for investor transfer payments. However, it has been argued among scholars that the relationship between current account openness and capital account restrictions is inconclusive, and some empirical studies of developed countries show that increased openness in the current account could diminish the need for controls on the capital account (Epstein and Schor 1992; Quinn and Inclan 1995; Alesina et al. 2003).

However, Leblang (1997) argues that the relationship between current account openness and capital account controls is mainly driven by political pressures. Haggard and Maxfield (1993) suggest that economic interdependence increases the presence of foreign preferences within the domestic economy, especially in Italy, Chile, and Korea. They argue that political pressures from local institutions and multinational firms could cause the government to consider removing capital restrictions. Besides that, Frieden (1991) points out that residents who hold either foreign assets or liquid assets would like the government to liberalize capital flows since they could invest in other assets in both domestic and foreign markets more efficiently. Grilli and Milesi-Ferretti (1995) add that monitoring capital flows is more difficult in a very open economy, which makes it infeasible to impose capital controls.

In contrast, increases in trade liberalization allow investors to find a way to arbitrage their investments to be relatively more effective. This could create unwanted

shocks to the economy. As a result, government has to be more intensive in capital controls to rule out these external shocks created by trade integration, to protect their balance of payments position from deteriorating. The government would prevent capital outflows if its trade account is in deficit.

The relationships between current and capital accounts are undetermined, as the above arguments show it could go either way. Leblang's (1997) empirical test yields an insignificant relationship between current account and capital account openness. Aizenman and Noy (2004) find that de facto financial openness depends positively on lagged trade openness, and GDP per capita. They have done an empirical test on the causality on trade openness and financial openness, showing a significant positive relationship. They use de facto financial openness (measured by the sum of gross private capital inflows and outflows as percent of GDP) and lagged trade openness (measured by four-period-moving-average of the sum of exports and imports (% of goods GDP)) and test the relationship by using a Granger causality test. By using the decomposition test developed in Geweke (1982) to determine relative magnitudes of causality between the two time series, they found that the causality from financial openness to trade openness has a magnitude of 53%, while the reverse causality has a magnitude of 34% for developing countries. But these causalities are insignificant in OECD country samples. Finally, Chinn and Ito (2005) support the view that the current account should be positively related to the capital account; they measure financial openness by integrating information of these two factors. They argue that a country with an open capital account may restrict capital flows either by limiting current account transactions or through other

means, i.e. multiple exchange rates and requirements to surrender export proceeds. On the other hand, a country might strengthen capital account restrictions by imposing other types of restrictions so that the private sector cannot circumvent the capital account restrictions.

Capital Control and GDP per capita

The last capital restriction determinant in this study is GDP per capita. The regressions show that it is negative and significant for each type of capital control index. This implies that developed countries normally have relatively fewer controls on capital mobility than do developing countries. This is confirmed by Aizenman and Noy (2004), who find that an increase in GDP per capita increases financial openness for OECD countries; however, their coefficient is insignificant. Besides that, Grilli and Milesi-Ferretti (1995) find that countries with low per capita GDP are more likely to impose capital controls. Their study covers 61 countries with three different measures of controls (restrictions on payments of capital transactions, multiple currency practices, and restrictions on payments for current transactions).

Financial Development factors

The indicators of financial development are not statistically associated with capital controls, and the direction of the relationships is mixed. However, if we focus on the main measures i.e. in5, out5, inbinary, outbinary, Chinn-Ito, Edwards, Miniane, and Glick-Hutchinson (eq 1,2, and 15 to 20), the results show a negative connection between financial development and capital controls with varying degrees of significance. This

indicates that the higher the financial market is developed, the lesser is the need for imposing capital flows, due to high efficiency of the financial market mechanism. This shows similar results to Chinn and Ito (2005), who conducted a study over the 1970-2000 period covering 108 countries; they find that there is no evidence that financial development leads to liberalizing capital mobility, but rather that it is the other way around.

From this study, there is important evidence showing that the ratio of liquid liabilities of the financial system to GDP might not be a good measurement candidate for financial development. This indicator is positive and significant for each measure of capital controls, except for the measure of financial institution restrictions. However, in the context of financial development, the result does not support the explanation that the more mature is a country's financial development, the less the restriction of capital inflows. King and Levine (1993) do not have confidence that this ratio could measure financial depth effectively. Therefore, the interpretation should be in the area of the liquidity issue. The positive sign and significance of the coefficient could be interpreted that if a country has high liquidity ($M2/GDP$) this might indicate excess liquidity, which may fuel speculative attacks on the currency and lead to a currency crisis. As a result, restrictions on capital inflows and outflows could be raised to prevent destructive speculation on its currency.

In sum, capital controls are associated more with balance of payments factors than macro economic factors; the level of foreign reserves in months of imports in particular is a significant determinant of the degree of capital restrictions. However, the case of China

serves as a counter-example, as China has a high level of reserves and also maintains a high level of capital restrictions. In fact, financial development may not lead to the liberalization of capital flows; rather, it may be the other way around, as Chinn and Ito (2005) suggest from their empirical results, which are matched by this study's results. In addition, this study shows strong links between trade and the level of country development with lower restrictions of capital flows. This shows that the more an economy is integrated into the world, the less it needs to restrict capital mobility, since there is self-correction in the market mechanism. The integrated markets will be balanced and checked by investors whether the officials announce sound economic policies or not. Therefore, capital restrictions should be lifted to avoid sending bad signals to the market, which could increase the probability of speculative attacks.

In the next chapter, the roles of capital restrictions toward currency crises will be analyzed. The study is based on the OLS and TOBIT models, analyzing different measures of both capital controls and currency crises, as has been done in this section, in order to compare the performances of the various of capital control measures. We hope to clearly distinguish between the roles of controls on capital inflows and outflows on currency crises. There has been a long-standing argument over whether capital controls can relieve crises or could do more harm to countries, but there has not been a suitable measure to take on such tasks, since the capital control measures lack the capacity to incorporate intensity, disaggregation and separation of inflows from outflows, due to the limited information on capital restrictions in the past.

Chapter Five

Capital Controls and Currency Crises

Since Thailand had been pressured by peer competitive nations and encouraged by prominent developed countries and the International Monetary Fund (IMF), its financial policies started leaning towards liberalization. This is due to the natural characteristic of capital controls of having a capability toward distortion and the destabilization of economic fundamentals, such as through the misallocation of capital resources. The issue has been argued to be one of the original sins leading to the Asian Crisis. Unavoidably, scholars have been researching intensely the relationships of capital mobility impositions and currency crises. Still, they could not state conclusively that restricting capital flows has something do to with currency crises. Published empirical studies show inconclusive connections of controls on capital flows toward currency crises. One might think that liberalizing capital markets is a good step for a country to on the way to economic prosperity. But with different pre-assumptions of emerging markets or immature financial markets, capital restrictions could be a welcome policy for coping with emergency situations when the market needs a short-term solution.

As a result, many policy makers have been discussing reintroducing capital flow restrictions on their capital account policy to prevent or at least to reduce the severity of crises that might happen in the future. However there are several arguments over whether capital restrictions per se could prevent such currency crisis; after all, the imposition of controls on capital flows is a double-edged sword. On one side, capital controls could

reduce the incentive for speculative inflows and protect the capital market against irrational (panic) outflows. On the other side, the controls could publicly signal defective policy (macroeconomic mismanagement), causing mistrust by investors and influencing them to start pulling their financial resources out of the country. The influence of capital restrictions could be different depending on the type of capital flow restrictions imposed. Thus, it would be helpful for analyzing restrictions on capital inflows and outflows as separate entities, unlike some previous studies which treat the capital restriction as a whole entity, failing to distinguish between the potentially different effects of these types of capital controls. By doing so we could clarify the actual links between types of capital restrictions and currency crises. The new measure of capital controls from the previous chapter will be put to work on the task.

Recently, scholars have been debating over which policies could prevent a currency crisis. Firstly, the view of exchange rate regimes has been long discussed as to whether a particular type of regime is relatively more prone to crises. Many authors agree that the emerging economies should follow a “two-corners” approach to exchange rate policy: they should either adopt a freely floating regime, or a hard-fixed exchange rate system (Edwards 2001). Angkinand, Chiu and Willett (2006) find strong evidence for the unstable middle hypothesis, which suggests that the adjustable peg regime is the most crisis prone. They do not, however, find evidence that it is necessary to adopt either a fixed or free floating exchange rate regimes in order to substantially reduce the risks. Adopting a fixed or free floating exchange rate regime does not always shield a country from having currency crises.

Secondly, a number of analysts have argued that the imposition of capital controls – particularly controls on capital inflows – can provide an effective way of reducing the probability of a currency crisis. The main purpose of this paper is to investigate whether capital restrictions could reduce the risk of currency crises. Besides that, this study will also cover whether both types of capital flows should be restricted, or whether only one type of capital flow restriction is sufficient to reduce the risk of currency crises. But first, let's discuss why one might think that imposing controls on capital flows should be related with lower currency crisis exposures.

It has been argued that controlling capital inflows could prevent a currency crisis, especially currency mismatch, due to a lower incentive for hot money to flow into the country. These types of capital flows cause inflation in asset prices and creates pressure toward exchange rate appreciation which could lead to crisis if the inflows could not be limited. In other words, restricting capital inflows could prevent speculative capital flows which cause economic distortion and could destabilize a country's economic fundamentals. Imposing this type of control, in short run, could defer hot money flows from damaging country's economic conditions since the control increases the opportunity cost of those funds in order for the inflows to be profitable. Nevertheless, in the long run, restricting capital inflows could increase the domestic cost of capital if the local demand for capitals is in surplus. This would inflate the cost of capital which lowers competitiveness of the domestic enterprises in term of high financial cost.

In conclusion, temporarily enforcing capital inflow restriction policies could reduce hot money inflows, which creates economic imbalances due to its speculative nature. As a result, short-term restrictions could reduce the country's tendency toward currency attacks. As suggested by Krugman (1999), limiting capital flows could be useful for countries which are unsuitable for either currency unions or freely-floating exchange rate regimes. Similarly, Stiglitz (1999) and others (e.g. Ito and Portes, (1998); and Eichengreen, (1999)) argue that developing countries should manage and limit capital flows. Despite the benefits of such policies, enforcing them over for a long period of time could reverse the advantages of capital controls since the cost of capital for domestic enterprises will be eventually raised. Even though this does not lead to currency crisis directly, it could lead to an increase in interest rates and indirectly lead to instability of the exchange rate regime.

The effect of impositions on capital outflows on crisis can be both positive and negative as well as the controls on capital inflows. Restricting capital outflows creates an investment irreversibility condition, in which investors are less willing to invest in the country since they do not want to take the unnecessary risk of being unable to repatriate their capital (Dooley and Isard 1980). Moreover, imposing capital outflow restrictions could send a signal of inconsistent and poorly-designed government policies to investors, which would imply to those investors that the economic fundamentals of the country are in bad shape. Glick and Hutchinson (2000b) support the view that the imposition of capital controls may signal poorly designed future policy, leading to a loss of confidence, currency flight, and an exchange rate regime collapse. This leads to the gradual stoppage of capital inflows and increasing effort toward evading regulation governing the movement of

capital out of the country. As a result, the country could face an illiquidity problem as incoming capital flows decrease; at that point, it is just a matter of time before investors can find a way to dodge the restricted capital mobility regulations, which may be the last straw for a crisis to occur.

By contrast, however, having temporary restrictions on capital outflows could buy the government more time to deal with the outflows caused by panic and irrational movements. Besides that, it allows investors to look back and analyze rationally what the actual causes are of the sudden capital outflows. It is argued that controls on capital outflows could prevent the self-fulfilling crises in which endogenous policy ends up justifying investor pessimism, or "herding" behavior crises. In fact, this argument is not always justified. For instance, some believe Malaysia's capital outflow restriction policy was a successful policy to deal with the crisis. However, some have doubts that the improvement of Malaysia's situation is due to the capital restriction alone. It could be argued that the Malaysian economy's improvement is also due to the reduction of foreign interest rates, i.e. the Federal Bank decided to decrease interest rates in October 1998, which partly aided Asia's recovery. As a result, this helped relieve the liquidity problem since capital started flowing into the country again due to the increase in the difference between domestic and foreign interest rates. This was evidenced by loosening of Malaysia's restrictions on capital outflows in February 1999 (Abdelal and Alfaro 2003). Moreover, some scholars such as Paul Krugman (1998) believe that countries like China and India were not harmed from the Asian crisis due to the presence of capital controls, and suggests that emerging countries facing a major crisis could benefit from the temporary imposition (or tightening) of controls on outflows. However, Nitithanprapas,

Rongala, and Willett (2004) find that the crisis insulation can be explained by their underlying fundamentals and reserve levels.

Edwards summarizes the roles of capital controls quite interestingly: “Supporters of capital controls have argued that restricting capital mobility has two important potential benefits: (a) It reduces a country’s vulnerability to external shocks and financial crises; and (b) it allows countries that have suffered a currency crisis to lower interest rates, implement pro-growth policies, and emerge out of the crisis sooner than what they would have done it otherwise. According to this view, controlling capital outflows would give crises countries additional time to restructure their financial sector in an orderly fashion” (Edwards 2005, p. 1).

Nonetheless, the longer the capital controls are in place, the less effective they could be since investors would eventually break the system one way or another, through means such as trading misinvoicing. Imposing capital flows requires prudence of authorities in supervising the capital movements. This creates both monetary and labor constraints on the operations, as the officials have to constantly plug the leaking holes. It might be effective to impose capital outflows for breath-catching purposes, but continued imposition of the capital controls could distort the country’s financial system and eventually lead to a crisis.

Early empirical tests have provided supporting evidence that increasing level of capital imposition is likely to intensify the probability of currency crisis, but some are not

statistically significant. Eichengreen, Rose and Wyplosz (1996a) have found evidence for contagious currency crises using a panel of quarterly data for 20 industrial countries during the period of 1959-1993. Their results suggest that restricting capital flows increases the vulnerability to currency crises, but it is statistically insignificant. They measure currency crises using a weighted average of changes in the exchange rate, changes in international reserves which can be paid out in response to speculative pressure, and changes in the interest differential since interest rates can be raised to fend off an attack. Then they apply a threshold of 1.5 times the standard deviation plus the mean to define events of crises, assigning a value of one if the EMP exceeds the threshold, and a zero otherwise. Other robustness tests for measuring currency crises, i.e. varying numbers of multiplying standard deviation plus sample mean for the threshold, and using actual crisis events as a proxy of currency crisis measuring have been done as well, but there are no significant changes in the results. Independent variables included in the study are the growth of domestic credit, inflation rates, output growth, unemployment rates, government budget surpluses or deficits as a percentage of GDP, current account surpluses or deficits as a percentage of GDP, and political control variables.

Caramazza, Ricci, and Salgado (2000) study capital controls in the context of currency crisis contagion. They could not find a relationship between capital controls and currency crisis. Their study focused on 61 industrial and emerging market countries during 1990 to 1998, considering four major crises: the ERM Crisis, Mexican Peso Crisis, the Asian Crisis, and the Russian Crisis. They define currency crises by calculating an index assigned a value of one if the changes in exchange rate and monthly reserve losses

exceed the mean plus 1.645 times the pooled standard deviation with a 6 month exclusion window, zero otherwise. Their measure of capital controls is based on the existence of any restriction on payments of capital transactions, provided by the IMF's AREAER. A dummy variable is used to identify whether a country has capital restriction or not by assigning value of one if any such restrictions exist, otherwise zero. They add that one should be careful interpreting the relationship of capital controls and currency crises since the measurement of capital controls is not effective and accurate enough to find the true identity. Besides that, they combine capital controls and fixed exchange rate regime together to test for currency crises; they could not find any evidence for this relationship. However, they suggest that "the real sources of fragility lie in external weaknesses, domestic imbalances, reserve inadequacy, and the sensitivity to trade and financial contagion".

Glick and Hutchison (2000a; 2000b) state that chance of currency crisis occurrence is connected with higher levels of capital control imposition. In other words, capital controls are not an effective mean to prevent currency crisis, and in fact the restrictions could increase the probability of currency crises. They conclude that the results support the signaling hypothesis that the capital controls lead to a fall in confidence and currency flight. However, the "hot money" hypothesis that capital controls are an effective means to prevent currency crises is not supported by the empirical evidence. Moreover, a liberal system of exchange controls and less restriction on international payments are associated with lower probability of an exchange rate crisis. The study uses a panel data set of 69 developing economies over the 1975-1997 period. They define currency crises similarly to Eichengreen et al, using exchange market pressure but omitting the change in

interest rate. They use individual precision-weighting method to calculate EMP, in other words, the weight of each component depends on the variance of changes of each component other the sample for each country. They use the capital restriction information from the IMF's AREAER, assigning a 1 if the country's capital transaction is liberalized, 0 otherwise. This reverses the sign of the previous literature's definition of capital restriction measurement. However, in 1996, the IMF adopted a new format of the AREAER, which categorized capital transaction into thirteen categories. The authors adopted another method to deal with the new format by giving value of 0 if more than 5 of the 13 capital transactions are controlled, otherwise 1 (four or less capital transactions are controlled). However, the drawback of counting how many capital transactions are restricted is that it does not provide an accurate picture of capital control, since some countries might have the same number of restrictions but on different types of capital transactions. The control variables used in the regression analysis are export growth, the ratio of broad money to foreign reserves, credit growth, the current account to GDP ratio, a dummy for banking crises, and a dummy for fixed exchange rate regimes.

Rossi (1999) conducts a study of the relationship between capital controls and banking and currency crises. The results show that imposing controls on capital inflows helps prevent currency crises. In contrast, controls on capital outflows are more likely to increase the chances of currency crises, but are statistically insignificant. Rossi utilizes more complex and continuous capital control measures, rather than 0 and 1 values of capital restriction, unlike the earlier empirical literature. His data covers 15 developing economies from 1990 to 1997. Following the capital control index developed in Johnston

and Tamirisa (1998), where higher value indicates greater restriction, he separately considers controls on capital inflows and outflows, and then back-casts the indices from their 1997 initial values to 1990. Rossi uses the currency crises dates from Caramazza, Ricci, and Salgado (2000).

Leblang (2001) concludes that the existence of capital restrictions implies a higher probability of speculative attacks.⁸ The reason is that capital controls are viewed as a negative signal undermining market confidence, which eventually leads to a currency attack. Leblang defines a speculative attack (currency crisis) by using the EMP index introduced by Eichengreen, Rose and Wyplosz (1996a), but without the interest rate factor since he would like to separately analyze the effects of interest rate policy as a defense mechanism against speculative attacks. The study covers 90 emerging market countries in the period of 1985 to 1998. The capital control variable is lagged by one year and coded one if there is capital account imposition from the IMF's AREAER, otherwise zero. Leblang (2001) finds that countries which impose restrictions on capital mobility are 12 percent more likely to defend the exchange rate peg than countries that don't. Besides that, capital controls increase the probability of a successful defense by 0.4 percent. As a result, capital controls are found to make currency crises more likely, but they do have some effectiveness in helping country's defend their currencies during speculative attacks.

⁸ It can be interpreted the finding that capital controls could cause more currency crises is consistent within the context of this paper.

Rongala (2003) finds mixed results regarding the link between controls and currency crises, though most of the results of his analysis suggest a positive correlation between these two factors. This implies that the existence of controls could cause instability of the currency system, but fall short of pinpointing exactly whether imposing capitals could definitely lead a country to a currency crisis. When the effect of controls on capital inflows and outflows are individually analyzed with currency crises, mixed results also are found. Rongala's results using the capital restriction measures of Rossi (1999) are the opposite of Rossi's original results. However, another controls measure, which distinguish controls on inflow from outflow, from Van den Handel (2002) shows relatively similar results to Rossi's (1999). Rongala runs a cross-section analysis on 26 emerging countries in 1996. He includes various measures of capital controls, i.e. Quinn, Rossi, Johnston and Tamirisa, to find the link of controls and currency crises. Other control variables are lending booms, the short-term debt to reserves ratio, and exchange rate regimes as defined by Nitithanprapas (2002) and Nitithanprapas, Rongala and Willett (2004). He also finds that floating and crawling exchange rate regimes respectively have positive and negative relationships with currency crises but they are not statistically significant throughout the regression analysis.

Edwards (2005) has found no systematic evidence suggesting that countries with higher capital mobility tend to have a higher incidence of crises, or tend to face a higher probability of having a crisis, than do countries with lower mobility. His results do suggest, however, that once a crisis occurs, countries with higher capital mobility may

face a higher cost, in terms of a growth decline⁹. The study covers the period of 1970-2000, and 163 countries. The new capital account openness index is constructed by combining data from Quinn (1997) and Mody and Murshid (2005) with country-specific information. The study concentrates on two external crisis phenomena: (1) “sudden stop”, in which the country in question must have received an inflow of capital (relative to GDP) larger than its region’s third quartile during the two years prior to the “sudden stop” and net capital inflows must have declined by at least 5% of GDP in one year; and (2) “current account reversal”, which is defined as a reduction in the current account deficit of at least 4% of GDP in one year. He applies non-parametric tests, frequency tables, and regression analysis to analyze the incidence and main characteristics of both sudden stops and current account reversals in countries with different degrees of capital controls. The main independent variables include current-account deficit as a percentage of GDP, sudden stops, sudden stops in the region, the ratio of reserves to GDP, domestic credit growth, banking crises, the external debt to GDP ratio, short-term debt, debt services, and initial GDP per capita.

Edwards (2006) has used the same capital restriction measure but expanded the year coverage to 2004. By implementing random-effect probit analysis he found that imposing capital controls could reduce probability of a sudden stop with 95% statistical significance, but found that the marginal effect of capital restrictions on the probability of a sudden stop is very small, about 0.1%. This means that increasing capital restrictions by one percent could increase the probability of having a crisis by 0.1 percent. Another

⁹ Edwards’ results also indicate that a country’s degree of trade openness is an important determinant of the growth costs of current account reversals. Countries that are more open to international trade tend to suffer smaller declines in GDP growth than countries that are less open to international trade.

interesting result from the study is that contagion plays an important role in crisis occurrences. He found a positive effect of contagion toward sudden stop with a large marginal effect and high significance level. He defines crisis by using a dummy value which is assigned a value of one if a country experiences a decline in net capital flows in a year larger than 3 percent. Independent variables included in the study are current account deficits as a percentage of GDP, contagion,¹⁰ terms of trade changes, an advanced country dummy variable, the world interest rate, dummy variables for fixed and flexible exchange rate regimes, and the ratio of fiscal deficits to GDP.

From the previous empirical studies reported above, the relationship of capital controls and currency crises is generally positive. Some studies have found the relationship to be statistically insignificant, except for Edwards (2006), who finds that capital restrictions reduce the probability of currency crises, but the marginal effect is very small. The results vary depending on how the currency crises and capital restrictions are defined. However, many of these studies use blunt binary capital control measurements, except for Rossi and Edwards. This could cause inconclusive outcomes since the blunt measure can not capture the changes of capital restrictions precisely. Rossi, separately analyzing restrictions on capital inflows and outflows, concludes that controlling capital inflows could reduce the chance of currency crises, but finds no significant evidence on the capital outflows side. Although Edwards (2005) claims to have better measurement of capital restrictions, he does not find a significant relationship between these two variables. From the above empirical studies, only Caramazza, Ricci, and Salgado (2000), who use a dummy variable for defining capital controls, can not find

¹⁰ Proportion of countries, in the relevant group, that experienced a sudden stop, for each year.

a significant relationship between capital control impositions and currency crises. As a result, various methods of defining currency episodes need to be analyzed thoroughly with the new measures of capital controls which are introduced in the previous section. Various measures of currency crises will also be included in the statistical models for sensitivity testing.

Identifying Currency Crises

Conventional methods of identifying currency crisis could be done through Exchange Market Pressure (EMP), and event-based methods. These two methods have different characteristics. The latter is based on the reports of currency crisis events from secondary sources, i.e. newspaper and academic articles. The primary disadvantage of the event-based identification method is the incomplete capture of small and insignificant currency crises. The recognition of currency crisis episodes was pioneered by Eichengreen, Rose, and Wyplosz (1995, 1996). They combined three economic factors those could create pressure toward currency crisis in a country. The three factors are changes in exchange rates, international reserves, and interest rates. It is expected to capture both successful as well as unsuccessful speculative attacks. This combination of three variables is known as Exchange Market Pressure Index (EMPI). The reason for not solely using exchange rate data to determine crisis episodes is that the central bank can defend the currency by raising interest rates or spending foreign reserves to intervene in the foreign exchange market.

Kaminsky, Lizondo and Reinhart (1997) adopt the method of Eichengreen et al., but exclude interest rates in their index due to the lack of data for market-determined interest rates for developing countries in their sample. As a result, Kaminsky et al. currency crisis index can not capture unsuccessful currency attacks when the government defends its currency by raising interest rate. This is the reason why Eichengreen et al. includes domestic interest rate in the exchange market pressure since officials could exploit interest rate policy to defend the currency.

Frankel and Rose (1996) identify currency crises by using only substantial increases in nominal exchange rate depreciation and focus only on successful attacks, since unsuccessful ones are hard to detect. They argue that increasing interest rates and depleting foreign reserves on the defenses against speculative attacks might be relatively ineffective when compared to a sudden tightening of reserve requirements or the imposition of controls on capital outflows. However, such policy actions are difficult to be measured.

In the context of this paper, it is appropriate to follow the method of Eichengreen et al., including all factors in order to capture all potential episodes of currency crisis including the defense mechanism of authorities on coping with a crisis.

Another important issue of using EMPI focuses on the number of weighting schemes combining with different sets of thresholds. Dummy variables of currency crisis occurrences are constructed using thresholds of 2 or 3 standard deviations plus the mean

of the EMPI. However, researchers should be concerned with devising an appropriate weighting scheme for these three variables. From previous studies, there are three common methods are applied on weighting the EMPI: equal weighting, individual precision-weighting and pooled precision-weighting systems. Each of these methods has different strengths and weaknesses.

The precision-weighting systems use the inverse standard deviation as a weight for EMPI. These methods (individual and pooled precision weighting) would underestimate the EMPI if authorities use certain tools to defend the currency. The standard deviation will be large when government exercises monetary policies (increasing interest rate and/or spending reserves). As a result, the inverse of the standard deviation will be small, which decreases the weight of particular variables for calculating EMPI. Moreover, if the speculative attack is successful, the EMPI will be overestimated. Since many developing countries have employed fixed or pegged exchange regimes, the standard deviation of their exchange rate is small. This leads to a large inverse standard deviation and would underestimate the EMPI.

In contrast, applying an equal-weighting system to the EMPI does not face the above problems since it treats all three factors equally. Nitithanprapas and Willett (2000) argue that the equal-weighting method is superior to the precision-weighting method since “the idea is to capture the degree of volatility in a particular time in relation to its normal volatility... one variable is normally much more volatile than another, then an unweighted average would be excessively driven by the behavior of the more volatile

series.” In addition, if one variable is subject to intervention by officials, any crisis index constructed by the precision-weighting method will be mainly driven by the policy changes on this variable. However, further study is needed on this issue to determine which method should be universally applying for indicating currency crises. It will be left to future literatures to find a better solution.¹¹ However, all weighting schemes are conducted in this paper for sensitivity analysis. Please see appendix 5A for definitions and more details on currency crisis indices. In addition, different sets of crisis windows (12 and 24 month) are tested in the model. Some would argue that the consecutive crises (on/off trigger) could be the same crisis due to the spill-over effect that is picked up in the different period. In order to separate the spill-overs from real crises, a time gap should be analyzed. However, it is still unclear what optimal time gap should be applied. This paper includes only 12 and 24 month crisis windows in the sensitivity tests. The lists of currency crisis dates found in the currency crises indicators are listed in Appendix 5C.

Nevertheless, the main focus crisis variable is the actual EMPI, since it does not rely on the arbitrage threshold sets and the crisis window. Moreover, the conventional crisis is on/off index, which could not describe the changes of the factors toward the currency crisis unless the crisis is significant. By using the actual EMPI, one could show the movements or the effects by interacting with control variables, especially controls on capital flows. As previously mentioned, the lack of evidence on the association between currency crises and capital restrictions are due to blunt measures. This approach could break the barrier of over-simplified measures and shed some light on the relationships

¹¹ Pontines V, Siregar R. (2004). Exchange Market Pressure and Extreme Value Theory: Incidence of Currency Crisis in East Asia and Latin America. In, edited by: Mimeo, School of Economics, University of Adelaide., propose to apply extreme value theory for calculating EMPI

between the two factors. The index is constructed in six different schemes by combining three weighting systems and including or excluding interest rate factors. The six major Exchange Market Pressure indices are:

<i>EMP1:</i>	Individual precision weighting with interest rate
<i>EMP2:</i>	Individual precision weighting <i>without</i> interest rate
<i>EMP3:</i>	Pooled precision weighting with interest rate
<i>EMP4:</i>	Pooled precision weighting <i>without</i> interest rate
<i>EMP5:</i>	Equal weighting with interest rate
<i>EMP6:</i>	Equal weighting <i>without</i> interest rate

Please see Appendix 5A for more details.

Variables and data set

The study of the relationship of currency crises and capital controls focuses on twenty six emerging market economies, located in Asia, Latin America, Middle East, and Europe for the 1995-2004 periods. However, most of the country samples are concentrated in Asia and Latin America, including two high income countries, Singapore and Hong Kong. The motivation for selecting these countries is based on the samples of Willett et al (2004). and the dissertation of Rongala (2003) who has conducted the analysis of various control measures and their relationship to currency crises. Thus, in order to compare the relationships of these variables, this dissertation maintains the same country samples.

Control variables included in the study are controls on capital inflows and outflows, the growth of private credit to GDP ratio, the short-term debt to reserves ratio, the ratio of the current account to GDP, the ratio of government budget to GDP, the GDP deflator, and the real effective exchange rate (REER). All the independent variables are analyzed with one-period lags to avoid the simultaneity problem. See Appendix 4A for more details on the explanatory variables. This leads to estimation of the following model:

Currency Crises Model

$$\text{Currency Crises}_t = (\text{Inflow Capital Control})_{t-1} + (\text{Outflow Capital Control})_{t-1} + (\text{Growth of private credit/GDP})_{t-1} + (\text{Short-term Debt/Reserves})_{t-1} + (\text{Current Account/GDP})_{t-1} + (\text{Government Budget/GDP})_{t-1} + (\text{GDP Deflator})_{t-1} + (\text{REER})_{t-1}$$

The expected sign of the explanatory variables of the currency crises model:

<i>Variables</i> _(t-1)	<i>Expected Sign</i>
Control on capital inflows	-
Control on capital outflows	+
Growth of private credit/GDP	+
Short-term Debt/Reserves Ratio	+
Current Account Deficit/GDP ¹²	-
Government Budget Deficit/GDP	-

¹² We hypothesize that the greater are the deficits of government budgets or the current account (negative sign), the more likely it is that a country will face a currency crisis. Therefore, the sign is expected to be negative.

GDP Deflator	+
REER ¹³	+

In the previous section, the roles of capital controls are expected to have an ambiguous effect on currency crises when studied as a whole entity. Unless restrictions on different types of capital flows are analyzed separately, the actual influence of capital controls on currency crises can not be determined. It is expected that controls on capital inflows would reduce opportunity of crises, while controls on capital outflows are expected to be make a country relatively more crisis-prone. As suggested by the first-generation crisis model, expansionary monetary policy, as measured by the growth in private credit per GDP (so-called lending booms) and the short-term debt to reserves ratio, are correlated significantly with speculative attacks. However, the private credit to GDP ratio could be used to measure financial development since it shows the level of distributed credit in the domestic economy. Sachs et al. (1996), p.190, suggest “with regard to lending booms, it is extremely important to distinguish levels from rates of increase. All Asian countries except the Philippines show very high ratios of private sector credit to output. This indicates nothing but financial deepening, and in and of itself is no cause for concern. What is worrisome are sharp increases in lending to the private sector within a short period of time. Such jumps are likely to lower average loan quality.” Therefore the technique of deviation from trend (or relative ratio) is suitable for getting a correct meaning from the variable. The relative ratio is the ratio of actual data that deviates from the trend at specific periods. The trend of the growth of private credit per GDP is created by using the HP-filter technique. It is not a big task to interpret the

¹³ J.P. Morgan defines the increase of REER as currency appreciation.

variable: if ratio is larger than one, it means that the growth of private credit per GDP is above the trend line, which is a sign of booming in credit lending relative to the succeeding periods. On the other hand, the actual data falling below trend line is indicated by a value of less than one. This shows the contraction of the growth of private credits at that time. Willett et al. (2004) and Moreno (2005) agree on the association of the growth of private credit to GDP and speculative pressure on currency crisis. Moreno's analysis of the crises in the Pacific economies from 1980 through 1994 also finds that large budget deficits could be associated with currency crises. Higher budget deficits either lead to a higher current account deficit or undermines investor's confidence in the country's price stability, thus raising the probability of crisis.

Edwards (2005) indicates that a higher current account balance should reduce the probability of a crisis, while a higher current account deficit subjects a country to a greater risk of a sudden stop of foreign financing, raising the probability of a crisis. A higher level of current account deficit or budget deficit may also increase the severity of a crisis because it signals that the crisis country has poorer fiscal discipline, thereby discouraging the speedy return of capital needed to revive economic growth. Accordingly, Current Account/GDP and Government Budget/GDP should negatively relate to currency crises. However, Calvo (2003) adds "careless fiscal policy can result in unsustainable levels of public debt, especially when excessive borrowing from international capital markets is channeled into unproductive government expenditure. This view certainly applies to the Latin American debt crisis in the 1980's but cannot explain the Asian

meltdown in which stricken countries had low debt to GDP ratios. Nevertheless, lack of fiscal discipline has played a role in crises in the past”.

A sustained increase in the inflation rate (in this paper inflation is substituted by a growth of the GDP deflator) can raise the probability of a crisis for many reasons: (1) it results in the overvaluation of currencies under a pegged exchange rate system; (2) it indicates macroeconomic mismanagement, thereby hurting investors’ confidence and economic growth; (3) it undermines the credibility and effectiveness of monetary authorities, and (4) it places a constraint on using monetary policies to counter the contractionary effect of a crisis.

Kaminsky et al. (1997) suggest REER to be one important indicator for currency crises. REER could be viewed as the loss of international price competitiveness and exchange rate misalignment. In addition, Kumar et al (1998) point out that REER can act as a channel for the contagion effect via a competitiveness effect: when one currency is devalued, the trading partners' positions deteriorate relative to that country. A higher value of the REER implies the appreciating of domestic real exchange rate relative to trading partners. It is expected that the coefficient on the REER will be positive with respect to currency crises. However, the ratio of deviations of REER from its historical trend is used in the model (the same method as relative ratio of growth in private credit per GDP). One of the reasons for this application is that, as Tudela (2001) points out, “Trend measures of the REER (based on the Hodrick Prescott filter) can provide an approximate measure of significant disequilibrium in the real exchange rate”. Besides

that, exchange rate is a component of the currency crises index. To avoid causality effect on the model, the relative ratio has been chosen for the task. This is a minor problem for dummy currency crisis indices, but it could be a major issue when actual EMP is the proxy for the crisis index.

Other measures of capital restrictions constructed by various authors are also included in the study in order to compare the effects of restrictions those have been constructed differently in terms of degree of intensity and disaggregation. In addition to the new capital control indices, the other capital control indices are: Chinn-Ito (2002), Miniane (2004), Quinn (1997), (Johnston and Tamirisa 1998), Edwards (2005), Land and Milesi Ferreti (2006), and Glick-Hutchinson (2000a; 2000b). See the descriptions of capital control variables used in the models from Appendix 5B.

Empirical Results

The empirical results are conducted in two parts, first using binary indices, then the actual EMP measure to proxy for currency crises as the dependent variable.

Dummy dependent variable

Many sets of constraint variables have been regressed with the dummy currency crisis indicators. There is no one set that has yet shown a significant relationship between capital restrictions and currency crises. This might be due to many reasons, such as small country samples, years of coverage, and could also be due to the characteristics of the dummy dependent variables per se. The variation of dependent variable is small, as they are simple on/off indicators. It does not provide the progression of crisis pressures over time. It is also due to the low variation on capital control measures as well, since the government is trying to maintain the status quo. Therefore, it could not indicate the actual relationship between the two factors much in such small sets of samples. However, the probit regression is applied on these dependent variables in order to compare with another method (EMP) which will be explained in the subsection. The results are reported in Tables 5.1 to 5.16. Marginal effect coefficients are reported for the probit analysis results.

In general, the probit regressions show statistically insignificant effects of capital controls on currency crises. However, the sign of the capital controls on inflows and outflows, which are negative and positive respectively, are quite consistent throughout the combinations of various currency crisis indexes and capital control measures,

especially in the regressions which include both inflow and outflow controls in the model. However, one important issue needs to be pointed out in that it is not expected to find significant positive signs for the deviation ratio of growth on private credit per GDP, especially for the crises index using a 2 standard deviation threshold. This might be showing a problem of applying dummy currency crisis indices, since it is an ongoing discussion regarding what schemes should be used to identify currency crisis episodes. Thus it could be one of the reasons to further analyze the actual EMP as the dependent variable for currency crisis model.

The crises index using a 3 standard deviation threshold, especially cci312 and cci324, give promising results. These indexes even show a significant relationship of controls toward currency crises. In Table 5.1, the main capital control index, the probit regression of cci312, indicates that controls on capital inflows have a negative impact on currency crises at higher than 90 percent level of confidence. At about an 88 percent level of confidence, controls on capital outflows has positive effect on currency crises. The sign of the other control variables are as expected. The marginal effect is reported as the coefficient in the regressions. To interpret the result for cci312: when controls on capital outflows increase by 1 percent, this would lead to an increase of 0.32 percent in the probability that currency crisis would occur. Likewise, if controls on capital inflows increases by 1 percent, there is 0.4 percent decrease in the probability of currency crisis. The ccp324 and ccp312 (pooled weighting) measures show similar results on the capital controls effects but the signs of Growth Private Credit per GDP and Government Budget/GDP are wrong – though thankfully they are statistically insignificant. The

cce324 and cce312 (equal weighting) measures suffer from reporting the wrong sign of Government Budget/GDP.

Let us take a look at the performance of the controls by types of capital transaction (i.e. capital market, credit operation, and financial institution); Tables 5.4 to 5.7. The effect of controls on capital markets on cci324 and cci312 is significant at about 70 percent level of confidence; the controls on inflows negatively affect currency crises, but it is the opposite case for controls on outflows. The controls on credit operations and FDI (tables 5.5 and 5.6 respectively) show similar results but at lower significant levels. However, the results for controls on financial institution transactions (Table 5.7) are quite strong, since the significance level is higher than 90 percent for both controls on capital inflows and outflows. Besides that, the marginal effects (coefficients) are at the same level of the main capital control measurements (in5 and out5). If we look at the ccp312 and ccp324 (pooled) variables, the significance level of capital controls variables is not as high as the individual precision-weighted currency crisis index. However, the signs of the other explanatory variables are inconsistent with theoretical assumptions. In addition the cce324 (equally weighted) is significantly affected by the both types of capital controls on financial institution transactions, at 90 percent level of confidence; and the signs of other independent variables are as expected. These results are promising in addressing the relationships between capital controls and currency crises, suggesting that controls on outflows (inflows) could increase (reduce) the chance of currency crises. However, further investigation needs to be done.

The study also includes the well-known capital control indices such as Miniane, Edwards, Chinn-Ito, and so on (Tables 5.9 to 5.13), to compare the results with the newly constructed control measures. The probit regressions using a currency crisis index which applies the threshold of two times standard deviation plus mean (cci212, ccp212, cce212) suffer from the wrong sign of the deviation ratio of growth on private credit per GDP, though this is found to be statistically significant. The results of these capital control measures on the 3 standard deviation of currency crisis index are likewise statistically insignificant. Besides that, the sign of the coefficient of capital controls is mixed and the effects of the control are inconclusive. In the case of Edwards, capital control measure (Table 5.11), is positively significant only for the currency crisis measures those omit interest rate factor (i.e. cci324noi, and cpp324noi), which is an important factor in identifying currency crises as mentioned earlier. Nevertheless, Edwards' capital control provides consistent results suggesting a positive relationship between capital control and currency crises throughout the 3-standard-deviation currency crisis indices. The result also applies to Glick-Hutchinson's measure (Table 5.13), that shows the positive relationship as well.

There is not enough evidence to conclude what the relationship is between capital restrictions and currency crises when running regressions on controls on capital inflows (Table 5.14) separately from controls on capital outflows (Table 5.15). The signs of the coefficients are mixed and inconsistent. The statistical significances of these capital control variables are quite low. We do not have a strong case for the impacts of capital controls on currency crises when they are separately analyzed. Lastly, this leads to

combine both capital control measures together to find the overall characteristics of capital restriction, which include controls on capital outflows and inflows. When combining these two capital control indices together ('inout' (equally weighted of in5 and out5); table 5.16), the coefficients of capital control variable are insignificant. The majority of signs for capital controls are positive; however, these results are inconclusive. It can be seen that utilizing dummy currency crisis indices does not provide satisfying results. There is no clear evidence of the relationship of the restrictions and currency crises using binary crisis indices. One could conclude that having restrictions on capital flow could not directly and significantly lead a country toward or away from crises. However, capital controls could be one of the minor factors starting fundamental imbalances, due to capital misallocation or to temporarily helping to adjust the imbalances to avoid crises. Thus, more variation or intensity of the dependent variable is required to study the changes of the crisis factors closely. Another method of currency crises identification (EMPI) might be better suited for dealing with this circumstance.

EMP currency crisis

The EMP consists of changes in real exchange rate, foreign reserves, and interest rate. The higher the value EMP is, the higher probability that a country will face a currency crisis. The actual EMP provides more variation than the dummy currency crisis, which only indicates whether a crisis occurs in a particular year or not. Besides that, the construction scheme is not finalized for optimal application. Analyzing the EMP as a proxy for currency crises could shed some light on particular independent variables which have an impact on currency crises but are not considered to be the main factors

which drive the economy to the brink. As a result, it is expected to find some correlations between capital controls and currency crises in the level of leading factors rather than the major impact.

There are six types of EMP analyzed and shown at the bottom of each table (5.1 to 5.16). See Appendix 5D for the list of EMP data. The differences between these crisis indicators are the weighting scheme (individual, pool, and equal) and the inclusion or exclusion of the interest rate. However, the focus is on the currency crisis index that combines all three factors (EMP1 (individual weighted) , EMP3 (pool weighted), EMP5(equally weighted)) since the disadvantage of excluding interest rate from the crisis indicator is that it could not detect the government's defending policies as mentioned above. OLS regression is utilized for the EMP models.

First, let's take a look at the main capital control indices (in5 and out5; Table 5.1). The signs of in5 and out5 are consistent with the results from the binary currency crisis models. However, the EMP which does not include interest rate (EMP2, 4, and 6) shows the opposite sign for the capital controls. This shows that these indicators might not be good candidates for indicating currency crises, for the reasons explained above. Only EMP5 shows a quite strong significant effect of controls on capital inflows (higher than 95% of confidence level). Even though the significance of controls on capital outflows does not pass the default confidence level, it is very close, significant at an 89% level of confidence. These support the theory that imposing capital inflows could reduce speculative capital inflows that can trigger currency crises; restricting capital outflows

could send a bad signal to investors and cause sudden stops and eventually currency crises. The other independent variables such as growth on private credit per GDP, GDP deflator (inflation), and REER are positively significant at greater than the 99 percent level of confidence for all models. This also confirms with the theory. However, one problem arises with the sign of short-term debt to reserves, which is expected to be positive; the results show insignificant negative coefficients. Therefore, these models are not statistically sound enough to confirm the relationships of the capital flow impositions and currency crises. Further analysis is required in the following section after reporting other capital control measures.

Capital controls by capital transaction (Tables 5.4 to 5.7) show mixed outcomes of the controls on inflows and outflows but the majority is not statistically significant. For instance, in the case of credit operations, the results show a negative relationship between controls on outflows and crises, and positive effects of controls on inflows on crises for EMP1 and EMP3. However, for EMP5, the coefficient of capital controls on inflows is negative and significant, but positive and insignificant for controls on outflows. These models suffer similar errors to those in the main control indices model, namely, the incorrect sign of short-term debt to reserves ratio. The rest of the capital controls measures (Tables 5.8 to 5.16) also find the improper relationship of the same independent variable. However, the Edwards measure, the control of capital inflows measure (in5), and the combined outflow and inflow controls measure (inout), reported in Tables 5.11, 5.14, and 5.16 respectively, all show weakly negative and significant effects of capital controls toward currency crises. Even though the results lead to the conclusion that

controls on capital inflows (outflows) could create negative (positive) impacts on currency crises, the relationship between capital restrictions and currency crises can not be confirmed with confidence.

Due to the incorrect sign of independent variable when the whole range of EMP is regressed as the proxy of currency crises, a truncated dependent variable is introduced to the model. The reason of using a censored EMP is to focus only on situations of vulnerability to currency crises. This could indicate a hidden relationship of the capital impositions and crises. Therefore, if the data of EMP is negative, it is converted to zero. Tobit analysis will be used to analyze the censored dependent variable since the OLS analysis on the uncensored sample will provide biased estimates of β . The results of the Tobit models are shown in Tables 5.17 to 5.22. Similarly, a truncated EMP with the combination of three factors will be emphasized (EMP1p (individual weighted), EMP3p (pool weighted), EMP5p (equally weighted)).

The results for EMP1p (individual weighted), shown in Table 5.17, indicate weak explanatory power of capital controls for each measure. The signs of the coefficients of controls on capital inflows (negative) and outflows (positive) are consistent throughout other measures (eqs. 4 to 8) that analyze both controls together, but they are statistically insignificant. Nevertheless, the coefficients of in5 and out5 are significant at the .25 and .34 level, respectively. Moreover, Miniane (eq. 9), Chin-Ito (eq. 10), and Glick-Hutchinson (eq. 13) indicate that capital controls seem to increase the probability of currency crises, at the significance level of .65, .53, and .54 respectively. In contrast,

Edwards, in5, out5 and inout (eqs. 11, 14, and 16) imply that capital controls tend to reduce currency crises, at the significance level of .60, .51, .92, and .71, respectively.

Table 5.19, the EMP3p (pool weighted) models are showing strong explanatory power of capital controls for the models that include both types of controls. The coefficients of the main capital control variables are significant at above the 95 percent confidence level. The signs of each control are consistent with the early results (dummy and uncensored EMP), which are not statistically significant. Even though, the significances of the coefficients of other measures are not as high as the main one (they are significant at 0.2 level), they are showing consistent signs of coefficients. Among these set of models, the binary capital controls index (eq. 8) exhibits the most significance of its coefficients, .009 and .011 for controls on inflows and outflows, respectively. The well-known capital control indices do not perform very well in this model. They are significant at about 10 percent confidence level, though the sign of each measure is not changed. However, checking equation 14, the significance level for in5 improves from 10 percent confidence level to 70 percent confidence level compared with the previous model (EMP1p). The inout measure(eq. 16) does not improve much. The out5 measure (eq. 15) has the opposite sign, implying that imposition of controls on capital outflows could lead to currency crises, but the significance level of confidence, 17 percent, is still very small.

Table 5.21, the EMP5p (equally weighted) models indicate even higher explanatory power than EMP3p. The coefficients of the main measures of controls on

inflows and outflows are negatively significant at 0.002 level, and positively significant at 0.012 level, respectively¹⁴. However, the interesting issue of the EMP5p model is that the signs of all prominent authors' capital controls measures are negative, indicating reverse effects on currency crises. The coefficients' signs of the Miniane, Chinn-Ito, and Glick-Hutchinson measures (equation 9, 10, and 13, respectively) used to be positive in the former models, EMP1p and EMP3p. However, there is no sign of improved significance levels, which are .93, .57, and .81, respectively. Only Edwards' capital controls measure (eq. 11) shows consistency of the reversed relationship on currency crises throughout all three models. In addition, the coefficient of in5 (eq. 14) is negative and significant at .07. This strongly supports the view of less currency crisis-proneness when controls on capital inflows are imposed. This view also supports Edwards' (2006) recent empirical results, which imply that capital restrictions could reduce the probability of sudden stops which causes currency crises, but only with a small marginal effect. The inconsistency of the sign of controls on capital outflows, out5 (eq. 15) throughout the three models, implies an unclear effect of controls on capital outflows regarding whether they is helpful or harmful to the probability of currency crises. Finally, there is a substantial improvement of the significance level of inout (eq. 16), 0.29. This could confirm the findings of the well-known capital control indices about the reverse relationship toward currency crises. In other words, capital controls could be helpful to cope with currency crises.

Nevertheless, one important issue which can not be ignored is the collinearity between the two control variables (in5 and out5) since the correlation of controls on

¹⁴ The significant level is the p-value, which is reported in parenthesis of regression table.

capital inflows and outflows is quite high, 0.87. Even though, collinearity does not bias the coefficient estimations, it could cause the reversed sign of independent variables those are highly correlated. However, one could argue that both sides of capital flows are normally imposed together especially in the country samples. Separately analyzing controls on inflows from outflows might not capture the whole mechanism of capital controls. Therefore, it is strongly encouraged to include both capital controls in the same model. Since there is no statistical resolution for the collinearity problem, it is important at least to be able to distinguish the effect of each variable from each other. As a result, a technique called Joint Confidence Ellipsoid (Joint Confidence Region) is suggested for the task of detecting collinearity of the index of capital controls on inflows and outflows of the EMP3p and EMP5p models (Tables 5.19 and 5.21; equation 1). The Joint Confidence Region is not a cure for collinearity, but it is a statistical technique for distinguishing the separate coefficient effects.

“A Joint Confidence region for the k regression coefficients obtained when a single dependent variable is regressed upon k independent variables X_1, X_2, \dots, X_k is given by the ellipsoid

$$F_{\alpha}(k, n-k-1) = \frac{(n-k-1) \sum_{i=1}^k \sum_{j=1}^k a_{ij} (\hat{b}_i - b_i)(\hat{b}_j - b_j)}{kn\hat{\sigma}^2}$$

Where $F_{\alpha}(k, n-k-1)$ is the upper α point of the F-distribution for k and $n-k-1$ degrees of freedom, n is the number of observations,

$a_{ij} = \sum_{t=1}^n (X_{it} - \bar{X})(X_{jt} - \bar{X})$, \hat{b}_i is the maximum likelihood estimate of

the true regression coefficient b_i , and $\hat{\sigma}^2$ is the maximum likelihood estimate of the variance. Given a value of α is .05, the single statement is made with probability $1-\alpha = .95$ that the parameter point b_1, b_2, \dots, b_k lies within the ellipsoid.” (Durand 1954, p. 136)

When two independent variables are very strongly positively correlated, the regression cannot precisely infer their point estimates. Generally, the explanatory variables are correlated to some extent, making the estimators of their slope coefficients dependent. This will tend to impart a “slant” to the confidence region. In this case controls of capital inflows and outflows are strongly positively correlated; the estimators will be negatively correlated. This sets the joint confidence region to be a downward slope, as outcomes in which one parameter is overestimated and the other underestimated are much more likely than both estimators being off in the same direction.

In Figure 5.1 illustrates 90% (inner) and 95% (outer) confidence ellipses for the Tobit regression coefficients of controls on capital inflows and outflows (in5 and out5) of EMP3p. It shows a cigar shaped, downward-sloped ellipsoid, which confirms a very strong positive correlation between coefficients of controls on capital inflows and outflows. The ellipsoid clearly shows the range of ‘lagged In5’ coefficient is in the negative side. The range of ‘lagged Out5’ coefficient is overlapping on both sides on the 95% confidence ellipse; but clearly on positive range on the 90% confidence ellipse. This implies that at 90% confidence level, it can separate the effect of these control indices from each other. This could be interpreted as suggesting that controls on capital inflows

have a significantly negative effect on currency crises at a 95% level of confidence, the effect ranges from -0.02 to -3.15. Besides that, controls on capital outflows have a significant positive effect on currency crises at the 90% level of confidence, with the effect ranging from 0.1 to 2.4. However, point estimates could not be derived from the ellipse region.

Figure 5.2 illustrates the 95% confidence ellipsoid for the Tobit regression coefficients of controls on capital inflows and outflows (in5 and out5) of EMP5p. The figure clearly shows no overlapping on the sign of each coefficient. The coefficient of control on capital inflows is constrained to a negative effect on currency crises. By contrast, the coefficient of control on capital outflows is limited to positive effects on currency crises at a 95% level of confidence.

Figures 5.3 and 5.4 display the joint confidence ellipsoid of the same set of independent variables, except that they omit the REER variable for sensitivity test. The results show similar relationship between controls on capital inflows, and outflows with currency crises, however, with less significant level. The coefficients of EMP3, figure 5.3, could not pass the joint hypothesis test. That means the effect of control on capital inflows and outflows could not be determined whether they are negatively or positively related to the currency crises (EMP3) since the origin is within the ellipsoid.

By applying the joint confidence ellipsoid technique, we can distinguish between the separate effects for these two variables, such that controls on capital inflows are

found to be reducing the probability of currency crises, and the opposite effect is found for controls on capital outflows. However, the point estimates of the impact of these two could not be specified. This confirms with the theories mentioned earlier that imposing capital inflows could reduce the chance of currency crises due to its ability of dissuading speculative flows. On the other hand, restricting capital outflows could trigger currency crises by sending a bad signal to investors about policy mismanagement, and by pushing away future investments, leading to sudden stops.

It can be noticed that the pseudo R-squared, reported in the Tobit analyses are quite low, however, one should be aware that Tobit regression chooses parameters to maximize the relevant likelihood function, whereas OLS by definition maximizes R-squared. As the result, judging this type of regression (maximum likelihood regression) by comparing R-squared value could be misleading.¹⁵

The coefficients shown in the Tables 5.23 and 5.24 represent Tobit analysis marginal effects of EMP3 and EMP5, respectively, as computed from the mean of the observations. The result from table 5.23 suggests that a 1 percent tightening of capital inflows would reduce the probability of currency crises by 0.53 percent. In addition, a 1 percent tightening of capital outflows would increase currency crises probability by 0.43 percent. The results can be interpreted the similar way for EMP5, table 5.24 that a 1 percent increase in stringency of capital inflows would reduce the probability of currency crises by 5.56 percent. If the restriction of capital outflows is increased by 1 percent, the probability of currency crises would increase by 4 percent. The differences of marginal

¹⁵ <http://www.rasmusen.org/x/2005/10/17/r2-and-pseudo-r2/>

effect values between EMP3 and EMP5 are significant. This is due to the methods of weighting scheme is applied differently: EMP3 is weighted by pooled precision; EMP5 is equally weighted.

Concluding remarks

The analysis starts by regressing various types of capital control measures against different determinations of currency crises (i.e. mean plus two- or three-standard-deviation thresholds) and weighting schemes (i.e. individual precision, pooled precision, and equal weighting systems). The general conclusion that can be extracted from the results is that imposing controls on capital inflows is more likely to help a country to avoid currency crisis, since this policy could dissuade speculative inflows that could destabilize economic fundamentals by putting pressure on interest rates¹⁶ and exchange rates. It needs to be emphasized that having capital inflow restrictions does not prevent a country from crises, but rather that the imposition of capital inflows is one of the factors those could reduce the probability of currency crisis. In other words, capital restrictions per se could not effectively make a country to be less prone to crises, but the impact of controls toward currency crises is too small¹⁷. Edwards (2006) draws similar conclusions, finding that even though capital controls can lower the chances of a sudden stop (dummy variable of 3 percent decline in capital inflow for a year) with statistical significance, but also finding that the marginal effect of controlling capital flows is very small, about 0.1

¹⁶ In the case of central banks decide to sterilize the capital inflows by absorbing incoming capitals and lead to the interest hike. The rising interest rate attracts another wave of capital inflows, which causes too much currency appreciation and eventually leads to a crisis.

¹⁷ Capital controls variables are insignificant when binary currency crisis is used for dependent variable. However, the controls are significant with the EMP case.

percent. Unfortunately, Edwards' capital controls measure does not distinguish between controls on inflows and outflows.

The evidences imply the reason why imposing capital controls does not help countries to avoid currency crisis perpetually is from the probit regression of dummy currency crises, which shows insignificant effects of capital restrictions on currency crises. It turns out that capital controls help confine devastating factors which are the initial causes of currency crisis. This is confirmed by the above empirical tests that capital restriction on both inflow and outflow are insignificant with the binary currency crisis indices. However, when the capital controls are tested with Exchange Market Pressure (EMP) specifically for a positive effect on currency crisis (positive sign of EMP), restricting capital inflows (outflows) significantly reduces (increases) the pressure that could cause the crisis. In other words, imposing capital controls could indirectly shield a country from exposure currency crisis. This could be a reason why many researchers could not find links between capital restrictions and currency crises.

Chapter 6

Conclusion

The new measures of capital controls have shown their potential for reflecting the actual changes of capital restrictions quite well. They are successfully put to the task of finding the links between capital controls and various economic factors. Besides that, the new method of measuring capital controls has improved the understanding and the aspects of the roles of capital controls on currency crises. Many have been turning away from restricting capital flows because controls were thought to do more harm than good to the economies; this study suggests that governments might need to reconsider capital controls as one of the adjustment factors when the economy undergoes some turbulence. However, policy makers should not impose capital flows for too long since it causes the misallocation of resources. This leads to the rise of financial costs, followed by macroeconomic imbalances, and eventually crises, which might have been avoided, had capital flows been restricted in the first place.

The empirical results suggest that capital controls do not have huge impact on currency crises, as there are few cases that show statistical significance when a dummy variable measure is used in the crisis model (in other words, it is not an effective policy to prevent crises at all times). However, controls could relieve the situation and buy some more time for policy makers to fix the real sources of the crises. Restricting capital flows is just a temporary remedy, after all.

Dooley (1995) raises an interesting argument that “controls have influenced yield differentials across countries, but there is no evidence that controls have helped governments achieve policy objectives, such as avoiding real appreciation, or that controls have enhanced welfare as the theory suggests.” The recent policies of the Thai Central Bank (2007) instituting a 30 percent deposit requirement for investing in the country except for investments in the capital market, were issued to cope with the appreciating Thai Baht. The policies temporarily held or even reversed the capitals from flowing in. After a few months since the required deposit policy was introduced, the Baht had reached a new nine-year high. This is a good example of a case when capital controls were effective in only short-run; after the market undergoes the adjusting mechanism, capital controls would need to be reconsidered to cope with the initial objectives as it was set to.

Edwards (1999) adds that even in well-behaved countries, Chile-style controls on inflows are likely to be useful as a short-run tool, by helping the implementation of an adequate sequencing of reform. Forbes (2005) also argues that capital controls (both on inflows and outflows) can be difficult and costly to enforce, even in countries with sound institutions and low levels of corruption. There are, however, some costs and dangers associated to this policy. First, the controls increase the cost of financing, especially for small and midsize firms (Valdes-Prieto and Soto 1996). Second, in the presence of capital controls there is a danger that policy makers will become overconfident, neglecting other key aspects of macroeconomic policy. This was the case of Korea in the late 1997 crisis.

It was believed that, due to the existence of restrictions on capital mobility, Korea was largely immune to a currency crisis. But Korea's fate ended up to be the similar to Thailand's. It should be noticed that capital restrictions cannot prevent an economy from financial crises.

Nevertheless, capital controls could be a useful time-extending tool for the officials facing currency crises, particularly those of the 2nd-generation crisis model type. The main feature of this model is: the real cause of currency crises is not so much what you are actually doing, as what the financial markets suspect you might want to do (Krugman 1996). Models of self-fulfilling attacks imply that "good" fundamentals may not suffice to avert currency crises. This type of crisis is also driven by herding behavior, and the machinations of large agents. Therefore, to prevent unjustified crises, imposing capital controls could provide time to for the officials to react against the speculative attacks.

Another conclusion which can be drawn from the study is that controlling capital inflows could be more effective than controlling capital outflows because there is less incentive to evade controls on inflows (Reinhart and Smith 1998); (Eichengreen et al. 1999b) . Obstfeld (1998) and Eichengreen (1999) have found the idea of preventing destabilizing outflows by limiting inflows to be more promising than directly trying to stop outflows. Besides that, the empirical results show that controls on capital inflows have relatively stronger impact on currency crises than controls on capital outflows have.

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Table 2.1 Summary of Capital Restriction Indices

Name	Source(s)	Description	Range	Data Coverage	Advantages	Disadvantages
Rule-based Measures						
IMF	IMF <i>AREAER</i> , line E.2, various issues	Constructed as an on/off indicator of the existence of rules/restrictions that inhibit cross-border flows.	0 (always restricted) or 1 (never restricted)	117 countries for years 1976–85 to 137 countries for years 1986–95; 1966–95, after which format changes	Extensive coverage.	-Accounts only for controls on outflows. -Single dummy is too limited.
Share	AREAER, line E.2, various issues	Uses IMF measure to create proportion of years that capital account is judged free of restrictions. Can be constructed for any range, 1966–95.	0 (always restricted) to 1 (never restricted)	117 (1976–95) to 137 (1986–95); 1966–95, after which format change		Can't determine when a country liberalizes the capital market e.g. a country having controls every other year for ten years will have the same value as having capital openness say five consecutive year out of ten, which 0.5.
Quinn (1997)	AREAER	Constructed from narrative descriptions in <i>AREAER</i> regarding capital account restrictions.	Larger numbers mean less restricted, more open, or meet agreements. Values in 0.5 point increments, 0–4 (only capital account)	1950–1997 for 21 OECD countries, and for the years 1958, 1973, 1982, and 1988 for 43 non-OECD countries.	-Takes into account the severity of restrictions. -Discriminates between inflows and outflows but applied as a whole entity.	-Limited disaggregation. -Lack taxation information on the capital transactions.
ΔQuinn	AREAER	Change in Quinn indicators.	Actual ranges for capital account 1988–82; –1 to 2 1988–73; –2 to 2			
OECD—Share	Code of Liberalization of Capital Movements	Proportion of the 11 categories free of restrictions, averaged over the relevant period.	0 (always restricted) to 1 (never restricted) with 1/11 incremental.	21 OECD countries; 1986, 1988, 1990, 1993, 1995	Rather disaggregated data	Limited only member countries and data available only every other year.

Name	Source(s)	Description	Range	Data Coverage	Advantages	Disadvantages
Montiel and Reinhart (1999)		Measures the intensity of capital account restrictions.	0 (unrestricted) 1 (mild restrictions) 2 (severe restrictions)	15 emerging markets; 1990-96		-sources of data are not publicly available
Quinn and Toyoda (2003) and Quinn (2003)	AREAER	Same rule of coding as in Quinn (1997). But change scale to 0-100; consider only capital transaction.	100 indicates an economy fully open to inward and outward capital flows	1950 to 1997 for 58 countries, and for a shorter period for 33	- long period coverage	
Levine and Zervos (1998); Henry (2000a and b)		Dates of stock market liberalizations in emerging markets.	Constructed as 0/1 dummies for event studies or share of years open for cross section.	11 emerging markets 95 countries. 43 had some experience with financial liberalization (25 emerging market, 18 OECD); Earliest: May 86 Latest: Dec. 91		-Consider only one dimension type of capital control
Bekaert, Harvey, and Lundblad, (2001)		Dates of stock market liberalizations in emerging markets and industrial economies.	Constructed as 0/1 dummies for event studies or as share of years open for cross section.	29 emerging markets; Earliest: 1980; Latest: 1997		-Consider only one dimension type of capital control
Johnston and Tamirisa (1998)	AREAER	Average of all possible 0/1 dummies in each subcategory of 13 capital transaction in the new <i>AREAER format</i> .	Higher values indicate stronger capital account restrictions.	45 countries for the year 1996.	- Discriminates between controls on inflows and outflows. - Most disaggregated among <i>AREAER</i> indices.	-Coverage is restricted to 1996. -Consider nonavailable data as unregulated transaction. -incomplete information on all subsections.
Rossi (1999)	AREAER, others non-specified.	Back casting from Johnston and Tamirisa's control on inflow and outflow from 1997, restrictions. by applying Bing Bang theory.	Higher number represents stronger capital account restrictions.	15 developing countries, 1990-1997.	Discriminates between controls on inflows and outflows.	-Back casting does not reflect the true situation of capital control. It could create biased data since it is assumed the data gradually or suddenly changed.

Name	Source(s)	Description	Range	Data Coverage	Advantages	Disadvantages
Glick and Hutchison (2000)	AREAER	Prior to 1995, value of 1 is given if the country's capital transaction is liberalized, 0 otherwise Since 1996, giving value of 0 if more than 5 of the 13 capital transactions are controlled, otherwise 1	Lesser values indicate stronger capital account restrictions.	data set of 69 developing countries over the 1975-1997 periods.	-Extensive coverage.	might not provide an accurate picture of capital control since some countries might have the same number of restricted but in different capital transaction
Brune ,et al (2001)	AREAER	Sum of all 0/1 dummies over nine disaggregated categories, which separates controls on inflows and outflows.	Higher number represents stronger capital account restrictions.	173 countries, 1973--1999.	-Extensive coverage. -Discriminates between controls on inflows and outflows but applies as a whole entity.	--include a transaction of current account (invisible), which is arguably not capital transaction. -simply sum of the dummy could bias the index due to the problem of missing value.
Mody-Murshid (2005)	AREAER	Sum of these four measures of government restrictions (1) the openness of the capital account, (2) the openness of the current account, (3) the stringency of requirements for the repatriation and/or surrender of export proceeds, and (4) the existence of multiple exchange rates for capital account transactions.	For each variable, a one indicates a relatively open regime and a zero otherwise. (0 control - 4 open)	60 countries and time period from 1979-- 1999		-simply sum of the dummy could bias the index due to the problem of missing value. Include current account and dual exchange market, not reflect the actual restrictions on capital transactions
Edwards (2005)	Mody-Murshid (2005) and Quinn (2003)	Combining information from two indices; using impute procedure to predict the missing value from the two original indices with various control variables.	100 indicates an economy fully open to inward and outward capital flows	data coverage of 1970-2000, with 163 countries	Large samples and long period covered	

Name	Source(s)	Description	Range	Data Coverage	Advantages	Disadvantages
Mimiane (2004)	AREAER	Average of all possible 0/1 dummies over 12 categories of capital account transactions, plus dual/multiple Exchange rate arrangement.	Higher number represents stronger capital account restrictions.	34 countries, 1983–2000.	-Substantial disaggregation. -Indicates systematically when coding is done by induction rather than through explicit information.	-No distinction between controls on inflows and outflows. -on/off indicator on each transaction can not reflect the change of regulations -recently, many countries abolish dual/multiple exchange rate. -backward induction doesn't reflect the true movement of capital restrictions -low disaggregated data
Chinn and Ito (2002)	AREAER	The first standardized principal component of exist of dual/multiple exchange rates, requirement of the surrender of export proceeds, Current account, and Capital Account (These variables are binary (unity when there's no restrictions) but the latter are calculated by taking five-year average(Capital account). Called Pseudo-Quinn	Low value means restricted capital mobility. High value means liberalized. (with mean of zero)	105 countries, 1970-1997		
Cheryl Van Den Handel	Adapted Quinn	Continuous measure from 0 to 4 instead of 0.5 incremental.	High number indicates less capital control	48 countries; 1996-1999	-Reflect minor change of policies -High intensity of index	

Table 3.1 Correlations of capital control by types of capital transactions

Type of Capital Control	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Inflow-Control	1													
Outflow-Control	0.86	1												
in-Capital market Securities	0.62	0.64	1											
out-Capital market Securities	0.66	0.78	0.81	1										
in-Money market instruments	0.87	0.82	0.72	0.68	1									
out-Money market instruments	0.75	0.91	0.65	0.73	0.86	1								
in-Collective investment securities	0.89	0.81	0.69	0.61	0.94	0.81	1							
out-Collective investment securities	0.67	0.84	0.75	0.92	0.73	0.83	0.70	1						
in-Derivatives	0.81	0.90	0.64	0.71	0.78	0.82	0.72	0.72	1					
out-Derivatives	0.81	0.91	0.72	0.78	0.82	0.88	0.78	0.77	0.90	1				
in-Commercial Credits	0.62	0.45	0.32	0.27	0.44	0.27	0.54	0.23	0.38	0.52	1.00			
out-Commercial Credits	0.51	0.66	0.24	0.38	0.44	0.59	0.56	0.48	0.47	0.59	0.62	1		
in-Financial Credits	0.91	0.69	0.35	0.44	0.68	0.56	0.76	0.47	0.59	0.59	0.63	0.53	1	
out-Financial Credits	0.59	0.86	0.46	0.60	0.59	0.78	0.59	0.65	0.77	0.80	0.33	0.69	0.44	1
in-Guarantees	0.65	0.47	0.30	0.31	0.35	0.32	0.40	0.21	0.52	0.56	0.56	0.32	0.67	0.37
out-Guarantees	0.67	0.64	0.37	0.40	0.61	0.64	0.65	0.47	0.62	0.59	0.61	0.65	0.66	0.43
in-Direct investment	0.63	0.50	0.12	0.30	0.43	0.39	0.54	0.40	0.35	0.38	0.55	0.63	0.75	0.35
out-Direct investment	0.78	0.93	0.48	0.64	0.76	0.82	0.77	0.73	0.85	0.85	0.46	0.65	0.63	0.85
out-Liquidation of DI	0.56	0.47	0.26	0.24	0.46	0.38	0.54	0.35	0.36	0.37	0.44	0.28	0.57	0.26
in-Real Estate	0.58	0.41	0.17	0.28	0.56	0.41	0.47	0.24	0.47	0.36	0.09	0.09	0.50	0.25
out-Real Estate	0.65	0.81	0.54	0.60	0.67	0.76	0.64	0.63	0.79	0.69	0.10	0.31	0.44	0.70
in-Personal capital movements	0.85	0.70	0.29	0.40	0.66	0.58	0.76	0.52	0.53	0.52	0.52	0.55	0.94	0.44
out-Personal capital movements	0.81	0.88	0.46	0.55	0.77	0.78	0.77	0.69	0.76	0.70	0.33	0.54	0.73	0.72
in-Commercial banks	0.53	0.43	0.44	0.45	0.39	0.26	0.40	0.40	0.43	0.37	0.24	-0.07	0.42	-0.19
out-Commercial banks	0.53	0.63	0.29	0.43	0.38	0.43	0.33	0.47	0.59	0.42	0.18	0.23	0.45	0.48
in-Institutional investors	0.41	0.21	-0.02	0.07	0.21	0.10	0.15	-0.01	0.16	0.16	0.16	-0.08	0.47	0.00
out-Institutional investors	0.47	0.43	0.04	0.18	0.28	0.24	0.19	0.11	0.36	0.34	0.21	0.09	0.48	0.32
dual exchange arrangement	0.09	0.10	0.06	0.10	-0.07	-0.04	-0.05	0.08	0.03	0.00	0.09	0.05	0.05	0.08

Table 3.1 (continue)

Type of Capital Control	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
in-Guarantees	1													
out-Guarantees	0.42	1												
in-Direct investment	0.39	0.62	1											
out-Direct investment	0.44	0.57	0.51	1										
out-Liquidation of DI	0.13	0.44	0.52	0.43	1									
in-Real Estate	0.24	0.30	0.48	0.38	0.27	1								
out-Real Estate	0.30	0.36	0.13	0.76	0.28	0.47	1							
in-Personal capital movements	0.53	0.60	0.75	0.65	0.57	0.44	0.48	1						
out-Personal capital movements	0.43	0.53	0.54	0.85	0.44	0.45	0.73	0.82	1					
in-Commercial banks	0.22	0.17	0.10	0.38	0.45	0.13	0.41	0.37	0.31	1				
out-Commercial banks	0.21	0.31	0.27	0.59	0.40	0.19	0.56	0.46	0.59	0.72	1			
in-Institutional investors	0.50	0.03	0.01	0.13	0.07	0.28	0.28	0.43	0.30	0.30	0.25	1		
out-Institutional investors	0.55	0.08	0.12	0.38	0.14	0.30	0.41	0.43	0.49	0.30	0.41	0.82	1	
dual exchange arrangement	0.04	-0.04	0.09	0.03	0.10	-0.07	-0.01	0.06	0.06	0.16	0.21	-0.05	0.01	1

Table 3.2: Capital control by type of capital transactions descriptive statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
In-Control	260	0.304	0.184	0	0.625
Out-Control	260	0.352	0.204	0.018	0.679
in-Capital market Securities	260	0.383	0.282	0	0.75
out-Capital market Securities	260	0.471	0.315	0	1
in-Money market instruments	260	0.391	0.349	0	1
out-Money market instruments	260	0.463	0.383	0	1
in-Collective investment securities	260	0.391	0.340	0	1
out-Collective investment securities	260	0.468	0.359	0	1
in-Derivatives	240	0.470	0.370	0	1
out-Derivatives	240	0.497	0.349	0	1
in-Commercial Credits	250	0.181	0.232	0	0.75
out-Commercial Credits	260	0.238	0.256	0	1
in-Financial Credits	260	0.228	0.265	0	0.75
out-Financial Credits	260	0.336	0.307	0	1
in-Guarantees	240	0.174	0.209	0	0.75
out-Guarantees	260	0.250	0.266	0	0.75
in-Direct investment	240	0.267	0.249	0	0.75
out-Direct investment	250	0.347	0.316	0	0.75
in-Liquidation of DI	0	-	-	-	-
out-Liquidation of DI	260	0.084	0.172	0	0.75
in-Real Estate	250	0.322	0.281	0	1
out-Real Estate	240	0.431	0.324	0	1
in-Personal capital movements	254	0.232	0.298	0	1
out-Personal capital movements	260	0.307	0.300	0	1
in-Commercial banks	260	0.482	0.225	0	0.75
out-Commercial banks	260	0.563	0.204	0.25	1
in-Institutional investors	223	0.336	0.273	0	0.75
out-Institutional investors	260	0.447	0.293	0	1
dual exchange arrangement	260	0.058	0.200	0	0.75

Table 3.3: Overall Capital Restriction during 1995 - 2004

country	in5	out5	in-binary	out-binary	Chinn-Ito	N Chinn-Ito	Miniane	IMF	Edwards	GH 95-97	Quinn (1997)	Johnston (1996)
Argentina	0.17	0.26	0.31	0.51	0.61	0.47	0.66	0.66	0.175	0.4	0.00	0.19
Brazil	0.28	0.32	0.65	0.73	-1.22	0.88	0.75	0.81	0.525	0.7	0.50	0.60
Chile	0.37	0.34	0.75	0.78	-0.67	0.76	0.75	0.77	0.4625	0.9	0.50	0.89
China	0.54	0.65	0.77	0.82	-1.21	0.88	0.83	0.90	0.6125	1	0.63	0.73
Colombia	0.38	0.31	0.91	0.89	-1.21	0.88	0.89	0.97	0.325	1	0.13	.
Egypt	0.15	0.17	0.37	0.33	0.59	0.47	0.50	0.47	0.2875	0.1	0.13	0.30
Hong Kong	0.05	0.04	0.11	0.10	2.66	0.00	0.11	0.11	0	0	0.00	.
Hungary	0.28	0.24	0.52	0.49	0.85	0.41	0.51	0.55	0.2875	0.6	0.25	0.57
India	0.55	0.56	0.92	0.93	-1.01	0.84	0.92	1.00	0.5375	1	0.50	0.87
Indonesia	0.48	0.48	0.84	0.78	1.96	0.16	0.85	0.85	0.4	0.9	0.25	0.50
Jordan	0.08	0.12	0.14	0.21	0.90	0.40	0.32	0.33	0.3125	0.2	0.25	.
Korea	0.16	0.41	0.51	0.83	-0.39	0.70	0.81	0.89	0.3625	1	0.38	0.70
Malaysia	0.43	0.45	0.89	0.86	0.96	0.39	0.85	0.92	0.3875	0.9	0.38	.
Mexico	0.44	0.37	0.78	0.58	0.82	0.42	0.79	0.79	0.375	1	0.38	0.36
Morocco	0.42	0.61	0.71	0.84	-0.88	0.81	0.82	0.90	0.5	1	0.50	0.72
Pakistan	0.30	0.56	0.55	0.76	-1.13	0.86	0.83	0.90	0.6375	1	0.63	0.66
Peru	0.08	0.07	0.17	0.14	1.77	0.20	0.17	0.17	0.1625	0	0.00	.
Philippines	0.33	0.40	0.92	0.86	0.12	0.58	0.85	0.92	0.325	1	0.25	0.47
Singapore	0.11	0.12	0.25	0.31	2.52	0.03	0.36	0.36	0.0875	0	0.00	.
South Africa	0.47	0.52	0.78	0.86	-1.05	0.85	0.85	0.92	0.5	1	0.50	0.56
Sri Lanka	0.62	0.65	0.85	0.93	0.33	0.53	0.92	1.00	0.475	1	0.50	.
Thailand	0.29	0.49	0.54	0.75	-0.04	0.62	0.73	0.81	0.5625	1	0.63	0.63
Turkey	0.22	0.19	0.58	0.54	-0.67	0.76	0.68	0.76	0.4375	0.9	0.38	0.36
Uruguay	0.04	0.03	0.14	0.13	1.85	0.18	0.16	0.16	0.15	0	0.00	0.13
Venezuela	0.13	0.17	0.32	0.29	0.57	0.48	0.37	0.40	0.3375	0.2	0.50	.
Zimbabwe	0.56	0.61	0.94	0.94	-1.34	0.91	0.94	1.00	0.525	1	.	.
Total	0.30	0.35	0.58	0.62	0.18	0.57	0.66	0.70	0.375	0.68	0.33	0.54

Correlation¹⁸

(obs=227)	in5	out5	in-binary	out-binary	Chinn-Ito	N Chinn-Ito	Miniane	IMF
in5	1							
out5	0.88	1						
in-binary	0.91	0.79	1					
out-binary	0.84	0.90	0.91	1				
Chinn-Ito	-0.63	-.73	-0.70	-0.81	1			
N_ChinnIto	0.63	0.73	0.70	0.81	-1.00	1		
Miniane	0.84	0.88	0.91	0.97	-0.80	0.80	1	
IMF	0.83	0.88	0.90	0.98	-0.82	0.82	0.99	1

Note: Higher values indicate higher level of capital restrictions

In5 = the new capital control on inflow with 5 point scale

In-binary = Inflow capital control; by assigning dummy values on each capital transaction and take average.

Chinn-Ito = 1st standardized principal component

N_ChinnIto = Normalize into 0-1 scale with reversed sign.

Miniane = The average of dummy values on 12 capital transaction and dual exchange rate

IMF = the average of 13 capital transactions with the value of 1 for control, otherwise 0.

GH = Glick-Hutchinson giving value of 0 if more than 5 of the 13 capital transactions are controlled, otherwise 1

Edwards = combining data from Quinn (1997) and Mody and Murshid (2005)

¹⁸ The correlation of Quinn is not included due to one year sample of the index (26 samples). However, the correlation between Quinn and In5 and Out5 are 0.64 and 0.77, respectively.

Table 3.4: Comparing Equally Weighted, Principal Component Score, and Principal Component Score with missing value of the new capital restriction indices

country	In5	Out5	in_sc1	out_sc1	infl	outfl
Argentina	0.17	0.26	0.22	0.34	0.18	0.32
Brazil	0.28	0.32	.	0.41	0.37	0.34
Chile	0.37	0.34	.	0.43	0.49	0.37
China	0.54	0.65	0.89	0.95	0.94	0.93
Colombia	0.38	0.31	0.63	0.42	0.61	0.45
Egypt	0.15	0.17	.	.	0.10	0.12
Hong Kong	0.05	0.04	0.06	0.04	0.04	0.02
Hungary	0.28	0.24	0.45	0.32	0.45	0.34
India	0.55	0.56	.	0.79	0.87	0.78
Indonesia	0.48	0.48	.	.	0.68	0.64
Jordan	0.08	0.12	0.12	0.15	0.10	0.16
Korea	0.16	0.41	0.26	0.58	0.30	0.58
Malaysia	0.43	0.45	0.71	0.62	0.63	0.62
Mexico	0.44	0.37	0.71	.	0.75	0.56
Morocco	0.42	0.61	.	0.88	0.69	0.89
Pakistan	0.30	0.56	0.46	0.82	0.54	0.84
Peru	0.08	0.07	0.09	0.06	0.06	0.04
Philippines	0.33	0.40	0.54	0.55	0.48	0.56
Singapore	0.11	0.12	0.14	0.14	0.11	0.13
South Africa	0.47	0.52	.	0.73	0.66	0.76
Sri Lanka	0.62	0.65	1.00	0.92	1.00	0.92
Thailand	0.29	0.49	0.42	0.68	0.50	0.70
Turkey	0.22	0.19	0.32	.	0.29	0.25
Uruguay	0.04	0.03	.	.	0.03	0.01
Venezuela	0.13	0.17	0.18	0.21	0.15	0.22
Zimbabwe	0.56	0.61	0.91	0.85	0.79	0.76
Total	0.30	0.35	0.45	0.52	0.45	0.47

Correlation

	In5	Out5	in_sc1	out_sc1	infl	outfl
In5	1					
Out5	0.86	1				
in_sc1	1.00	0.85	1			
out_sc1	0.85	1.00	0.84	1		
infl	0.99	0.89	0.99	0.88	1	
outfl	0.83	0.99	0.83	1.00	0.88	1

in_sc1 = 1st factor score of principal component for inflow capital control

out_sc1 = 1st factor score of principal component for outflow capital control

infl = 1st factor score of principal component with missing value for inflow capital control

outfl = 1st factor score of principal component with missing value for outflow capital control

Table 4.1 Capital Control Determinants (Tobit Analysis)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	in5	out5	in_sc1	out_sc1	infl	outfl	inCM	outCM
L.BOP Deficit /GDP	1.076** (.037)	-0.131 (.796)	65.016* (.073)	-7.235 (.418)	.499*** (.001)	0.173 (.135)	1.979* (.070)	0.617 (.562)
L.Current Acct Deficit /GDP	-0.006 (.222)	0.004 (.443)	-0.407 (.124)	0.028 (.678)	-.004*** (.004)	0 (.856)	-.020* (.065)	-0.001 (.944)
L.Total reserves in months of imports	-.029*** (.000)	-.038*** (.000)	-.974** (.029)	-.306*** (.001)	-.007*** (.000)	-.010*** (.000)	-.068*** (.000)	-.076*** (.000)
L. Government Budget Deficit/GDP	-0.001 (.880)	0.003 (.595)	-0.21 (.459)	0.083 (.251)	-0.001 (.308)	0.001 (.533)	-0.009 (.384)	-0.005 (.618)
L.Inflation	0 (.852)	-0.002 (.106)	.105* (.086)	-.058** (.040)	0 (.610)	-.001*** (.010)	0.002 (.288)	0.001 (.640)
L.ER_Regimes	.014* (.052)	-0.006 (.398)	0.424 (.275)	-0.078 (.445)	.003* (.089)	-.003* (.066)	0.02 (.189)	-0.007 (.644)
L.Real interest rate	-.003*** (.004)	-.004*** (.000)	0.07 (.401)	-.091** (.015)	-.001** (.034)	-.001*** (.001)	-.008*** (.000)	-.010*** (.000)
L.REER	0.001 (.605)	0 (.925)	-0.009 (.873)	-0.023 (.234)	0 (.495)	-.001*** (.009)	0.001 (.728)	0.001 (.793)
L. Ratio of claims on non-financial private sector to total domestic credit	-0.086 (.164)	-0.008 (.898)	-5.926 (.143)	3.303*** (.004)	-0.016 (.315)	.031** (.022)	-.317** (.017)	-.235* (.078)
L. Ratio of deposit money bank domestic assets to total money bank domestic assets and central bank domestic assets	-0.08 (.460)	-0.044 (.680)	2.518 (.669)	-4.714** (.011)	-0.01 (.712)	-0.026 (.263)	.425* (.065)	.389* (.086)
L.Ratio of liquid liabilities of the financial system to GDP	.176*** (.000)	.194*** (.000)	6.749** (.027)	3.351*** (.001)	.069*** (.000)	.056*** (.000)	.503*** (.000)	.457*** (.000)
L.trade_GDP5yr	-.001*** (.001)	-.002*** (.000)	-.032* (.080)	-.020*** (.001)	-.000*** (.000)	-.000*** (.000)	-.004*** (.000)	-.004*** (.000)
L.logGDP per capita	-.079*** (.000)	-.094*** (.000)	-2.024** (.037)	-1.209*** (.000)	-.019*** (.000)	-.025*** (.000)	-.091*** (.006)	-.085*** (.010)
Constant	1.134*** (.000)	1.427*** (.000)	19.145 (.102)	16.735*** (.000)	.226*** (.000)	.346*** (.000)	1.227*** (.007)	1.507*** (.001)
Sigma Constant	.120*** (.000)	.119*** (.000)	3.128*** (.004)	.963*** (.000)	.029*** (.000)	.022*** (.000)	.250*** (.000)	.246*** (.000)
NumberObs.	165	165	101	128	165	165	165	165
Pseudo R2	-1.12	-1.89	0.29	0.49	-0.42	-0.86	0.62	0.65
ll	113.64	117.54	-65.97	-67.9	203.25	207.29	-34.34	-34.18
aic	-197.28	-205.07	161.95	165.8	-376.51	-384.59	98.69	98.36
bic	-150.69	-158.48	201.18	208.58	-329.92	-338	145.27	144.95
p	0	0	0	0	0	0	0	0

* p<0.1, ** p<0.05, *** p<0.01; P-value in parentheses

Table 4.1 Capital Control Determinants (continue)

	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	inCR	outCR	inFDI	outFDI	inFIN	outFIN	inbinary	outbinary
L.BOP Deficit /GDP	1.922** (.042)	0.977 (.285)	2.089** (.012)	-1.361* (.090)	-0.917 (.119)	-1.582** (.025)	1.566* (.088)	-0.027 (.977)
L.Current Acct Deficit /GDP	-0.004 (.655)	0.006 (.497)	-0.004 (.576)	.025*** (.003)	-0.004 (.506)	0.004 (.542)	-0.002 (.788)	0.007 (.456)
L.Total reserves in months of imports	-.038*** (.000)	-.065*** (.000)	-.031*** (.000)	-.055*** (.000)	0.005 (.337)	-.014** (.039)	-.038*** (.000)	-.043*** (.000)
L. Government Budget Deficit/GDP	-0.005 (.556)	0.002 (.804)	0.006 (.451)	0 (.993)	.010* (.080)	.030*** (.000)	0.002 (.864)	-0.004 (.638)
L.Inflation	-0.002 (.232)	-0.004 (.113)	.003** (.047)	-.008*** (.000)	-.003*** (.006)	-.004*** (.009)	-0.001 (.623)	-.004** (.048)
L.ER_Regimes	.038*** (.005)	0.013 (.327)	.027** (.016)	-.035*** (.002)	0.004 (.600)	0.003 (.749)	.031** (.016)	0.01 (.447)
L.Real interest rate	-0.001 (.603)	-0.002 (.220)	-.005*** (.001)	-.006*** (.000)	0 (.898)	-0.002 (.183)	-.004** (.032)	-.005*** (.003)
L.REER	0.001 (.741)	0 (.874)	.005*** (.002)	.003** (.040)	0 (.757)	0.002 (.137)	0.003 (.100)	.003* (.073)
L. Ratio of claims on non-financial private sector to total domestic credit	-0.055 (.627)	0.145 (.209)	-0.121 (.206)	0.138 (.175)	-0.105 (.138)	-0.073 (.384)	-.217** (.049)	-0.123 (.270)
L. Ratio of deposit money bank domestic assets to total money bank domestic assets and central bank domestic assets	-.368* (.059)	-.419** (.034)	-.479*** (.003)	-.611*** (.001)	-0.097 (.432)	-0.142 (.337)	-0.145 (.452)	-0.16 (.414)
L.Ratio of liquid liabilities of the financial system to GDP	0.071 (.437)	.233** (.011)	.251*** (.001)	.195** (.013)	-.098* (.086)	-0.096 (.154)	0.051 (.562)	0.09 (.313)
L.trade_GDP5yr	-0.001 (.422)	-.001** (.025)	-.002*** (.007)	-.002*** (.004)	0.001 (.204)	0.001 (.207)	0 (.722)	-.001* (.059)
L.logGDP per capita	-.092*** (.002)	-.161*** (.000)	-.110*** (.000)	-.222*** (.000)	-.098*** (.000)	-.100*** (.000)	-.133*** (.000)	-.105*** (.000)
Constant	1.277*** (.001)	2.121*** (.000)	1.168*** (.000)	2.742*** (.000)	1.350*** (.000)	1.443*** (.000)	1.784*** (.000)	1.670*** (.000)
Sigma Constant	.207*** (.000)	.208*** (.000)	.171*** (.000)	.179*** (.000)	.137*** (.000)	.163*** (.000)	.214*** (.000)	.217*** (.000)
NumberObs.	165	165	155	165	165	165	165	165
Pseudo R2	0.64	0.76	1.3	1.07	-0.81	-6.41	1.28	1.31
ll	-19.21	-17.76	14.48	6.87	82.9	47.71	11.33	11.19
aic	68.43	65.51	1.03	16.26	-135.79	-65.42	7.34	7.62
bic	115.01	112.1	46.69	62.85	-89.2	-18.83	53.93	54.21
p	0	0	0	0	0	0	0	0

* p<0.1, ** p<0.05, *** p<0.01; P-value in parentheses

Table 4.1 Capital Control Determinants (conclude)

	(17) n_chinnito	(18) Miniane	(19) Edwards	(20) [Probit] GH
L.BOP Deficit /GDP	0.856 (.515)	0.195 (.820)	-0.77 (.329)	6.324 (.288)
L.Current Acct Deficit /GDP	-0.005 (.692)	0.006 (.491)	0.007 (.337)	0.029 (.686)
L.Total reserves in months of imports	-.042*** (.001)	-.044*** (.000)	-.012* (.089)	-.336*** (.000)
L. Government Budget Deficit/GDP	-.035*** (.009)	0.006 (.531)	-0.003 (.720)	-0.051 (.512)
L.Inflation	-0.001 (.622)	-0.003 (.145)	-0.002 (.114)	-0.006 (.614)
L.ER_Regimes	-0.009 (.624)	0.01 (.413)	0.012 (.266)	.239** (.021)
L.Real interest rate	-.005* (.051)	-.005*** (.002)	-.004*** (.003)	-.018* (.092)
L.REER	-0.002 (.384)	.003* (.074)	0 (.931)	-0.001 (.968)
L. Ratio of claims on non-financial private sector to total domestic credit	-0.151 (.335)	-.297*** (.006)	-0.072 (.444)	-1.222 (.121)
L. Ratio of deposit money bank domestic assets to total money bank domestic assets and central bank domestic assets	-0.13 (.643)	-0.026 (.893)	0.019 (.901)	0.004 (.998)
L.Ratio of liquid liabilities of the financial system to GDP	.374*** (.006)	0.134 (.115)	0.09 (.224)	1.021* (.090)
L.trade_GDP5yr	-.002*** (.009)	-.002*** (.001)	-0.001 (.147)	-0.007 (.108)
L.logGDP per capita	-0.018 (.664)	-.069** (.011)	-.077*** (.001)	-.610*** (.003)
Constant	1.292** (.017)	1.511*** (.000)	1.098*** (.001)	7.840*** (.003)
Sigma Constant	.308*** (.000)	.196*** (.000)	.187*** (.000)	
NumberObs.	174	147	181	165
Pseudo R2	0.26	2.06	2.02	0.41
ll	-64.82	24.23	17.09	-58.2
aic	159.65	-18.46	-4.18	144.4
bic	207.03	26.4	43.8	187.89
p	0	0	0	0

* p<0.1, ** p<0.05, *** p<0.01; P-value in parentheses

Table 4.2 Correlation of capital controls determinants

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
BOP Deficit /GDP	1												
Current Acct Deficit /GDP	0.17	1											
Total reserves in months of imports	0.11	0.18	1										
Government Budget Deficit /GDP	0.02	-0.01	0.00	1									
Inflation	0.07	0.14	0.01	0.10	1								
Exchange rate regimes	-0.13	0.10	-0.31	0.00	0.02	1							
Real interest rate	-0.16	-0.29	0.09	-0.24	-0.23	-0.09	1						
REER	0.20	-0.15	0.05	0.02	-0.08	-0.12	0.11	1					
Ratio of claims on non-financial private sector to total domestic credit	0.21	-0.14	0.13	0.25	-0.08	0.03	0.14	-0.08	1				
Ratio of deposit money bank domestic assets to total money bank domestic assets and central bank domestic assets	0.11	-0.04	-0.10	0.03	-0.31	0.27	-0.03	-0.03	0.56	1			
Ratio of liquid liabilities of the financial system to GDP	0.15	0.34	0.22	0.04	-0.37	-0.28	-0.17	-0.04	0.09	0.04	1		
Trade_GDP5yr	0.17	0.19	-0.35	0.12	-0.05	0.03	-0.31	-0.10	-0.03	-0.01	0.34	1	
Log GDP per capita	-0.07	-0.21	-0.25	0.21	0.18	0.01	0.19	0.03	0.10	-0.05	-0.46	0.05	1

Table 4.3 Financial Development indicator of 26 countries during 1995 – 2004

Country	Ratio of claims on non-financial private sector to total domestic credit	Ratio of deposit money bank domestic assets to total money bank domestic assets and central bank domestic assets	Ratio of liquid liabilities of the financial system to GDP
Argentina	0.59	0.74	0.21
Brazil	0.57	0.74	0.23
Chile	0.89	0.75	0.38
China	0.94	0.83	1.15
Colombia	0.75	0.92	0.21
Egypt	0.47	0.69	0.79
Hong Kong	1.07	1.00	1.98
Hungary	0.48	0.60	0.44
India	0.53	0.81	0.47
Indonesia	0.73	0.81	0.43
Jordan	0.80	0.81	1.11
Korea	0.99	0.91	0.49
Malaysia	0.94	0.94	0.82
Mexico	0.67	0.95	0.26
Morocco	0.60	0.89	0.68
Pakistan	0.54	0.70	0.41
Peru	1.14	0.98	0.23
Philippines	0.66	0.84	0.48
Singapore	1.37	0.99	0.97
South Africa	0.96	0.96	0.51
Sri Lanka	0.72	0.82	0.33
Thailand	0.89	0.92	0.83
Turkey	0.51	0.80	0.00
Uruguay	0.81	0.67	0.44
Venezuela	0.79	0.82	0.20
Zimbabwe	0.62	0.62	0.22
Total	0.77	0.83	0.54

Table: 5.1
Probit Analysis : Capital Control with Crisis Index 2 std

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cci224noi	cce212noi
L.in5	-0.11 (.732)	-0.165 (.624)	-0.47 (.138)	-0.379 (.242)	-0.114 (.646)	-0.203 (.432)	-0.157 (.526)	-0.001 (.995)	-0.157 (.645)	-0.069 (.847)	-0.228 (.328)	-0.182 (.465)
L.out5	0.196 (.470)	0.18 (.530)	0.433 (.117)	0.352 (.216)	0.245 (.282)	0.346 (.138)	0.169 (.464)	0.09 (.694)	0.225 (.427)	0.13 (.662)	0.218 (.316)	0.206 (.366)
L.relativeGPrivate_GDP	-0.015 (.843)	-0.021 (.861)	-0.291* (.073)	-0.358** (.032)	-0.343*** (.001)	-0.359*** (.002)	-0.353*** (.000)	-0.362*** (.000)	-0.009 (.869)	-0.018 (.806)	-0.338*** (.000)	-0.344*** (.001)
L.S-TDebt/Reserves	0.011 (.598)	0.012 (.557)	-0.028 (.377)	0.008 (.869)	0.026 (.124)	0.027 (.153)	-0.016 (.534)	0.005 (.742)	-0.001 (.961)	0.016 (.453)	-0.01 (.647)	0.008 (.603)
L.CurrentAcct/GDP	-0.003 (.605)	-0.001 (.889)	-0.002 (.669)	0.001 (.888)	-0.007 (.142)	-0.011* (.058)	-0.009* (.065)	-0.010** (.049)	0 (.988)	0.003 (.525)	-0.008* (.070)	-0.009* (.062)
L.Govt Budget/GDP	0.003 (.696)	-0.005 (.604)	0.012 (.161)	0.01 (.227)	0.004 (.609)	0.003 (.737)	0.012 (.140)	0.012 (.133)	0.008 (.346)	0.007 (.397)	0.011 (.108)	0.009 (.268)
L.Inflation, GDP deflator	0.002 (.301)	0.001 (.597)	0.003* (.072)	0.003 (.110)	0.001 (.497)	0.001 (.563)	0.002 (.034)	0.002 (.102)	0.002 (.188)	0.002 (.344)	0.002 (.127)	0.001 (.382)
L.REERrelativeratio	.012*** (.002)	.018*** (.000)	.012*** (.001)	.018*** (.000)	.015*** (.000)	.016*** (.000)	.013*** (.000)	.012*** (.000)	.011** (.012)	.014*** (.001)	.014*** (.000)	.014*** (.000)
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.07	0.13	0.11	0.17	0.23	0.23	0.23	0.21	0.05	0.08	0.28	0.23
ll	-75.71	-79.35	-67.82	-70.72	-56.47	-62.84	-48.56	-53.06	-77.24	-82.42	-43.73	-53.58
aic	167.43	174.7	151.65	157.45	128.94	141.68	113.12	122.13	170.49	180.84	103.46	123.16
bic	193.1	200.37	177.32	183.12	154.62	167.36	138.8	147.8	196.16	206.51	129.14	148.84
chi2	10.83	19.72	15.08	22.07	31.48	34	24.19	25.65	7.74	11.55	27.78	30.26
p	0.21	0.01	0.06	0	0	0	0	0	0.46	0.17	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Capital Control with Crisis Index 3 std

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cci324noi	cce312noi
L.in5	-0.29 (.188)	-0.401* (.091)	-0.247 (.300)	-0.248 (.324)	-0.052 (.819)	-0.05 (.831)	-0.019 (.918)	-0.019 (.918)	-0.246 (.365)	-0.251 (.387)	0.054 (.801)	0.053 (.810)
L.out5	0.26 (.189)	0.329 (.121)	0.244 (.255)	0.239 (.289)	0.195 (.343)	0.138 (.520)	0.089 (.620)	0.089 (.620)	0.337 (.157)	0.279 (.273)	0.015 (.941)	-0.029 (.891)
L.relativeGPrivate_GDP	0.022 (.196)	0.021 (.294)	-0.004 (.797)	-0.004 (.789)	-0.09 (.299)	-0.079 (.361)	-0.005 (.833)	-0.005 (.833)	0.035 (.164)	0.033 (.226)	-0.003 (.810)	-0.003 (.818)
L.S-TDebt/Reserves	0.016 (.251)	0.017 (.244)	0.013 (.359)	0.015 (.304)	0.024* (.087)	0.023 (.117)	0.004 (.777)	0.004 (.777)	0.018 (.257)	0.018 (.275)	0.012 (.365)	0.01 (.499)
L.CurrentAcct/GDP	-0.008 (.104)	-0.005 (.256)	-0.003 (.447)	-0.001 (.717)	-0.004 (.415)	-0.004 (.381)	-0.011** (.033)	-0.011** (.033)	-0.003 (.501)	-0.001 (.805)	-0.004 (.388)	-0.004 (.373)
L.Govt Budget/GDP	0.007 (.365)	0 (.955)	0.006 (.414)	0.01 (.139)	0.005 (.446)	0.004 (.587)	0.003 (.641)	0.003 (.641)	0.004 (.619)	0.008 (.285)	0.006 (.335)	0.005 (.428)
L.Inflation, GDP deflator	0.002 (.177)	0.001 (.646)	0.001 (.369)	0.001 (.367)	0.001 (.357)	0.001 (.702)	0.001 (.491)	0.001 (.491)	0.002 (.109)	0.002 (.259)	0.001 (.684)	0 (.945)
L.REERrelativeratio	.013*** (.000)	.017*** (.000)	.012*** (.001)	.012*** (.001)	.013*** (.000)	.012*** (.000)	.007** (.013)	.007** (.013)	.015*** (.000)	.014*** (.000)	.012*** (.000)	.011*** (.000)
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.22	0.26	0.16	0.15	0.23	0.19	0.18	0.18	0.17	0.13	0.19	0.17
ll	-47.39	-51.16	-53.18	-55.39	-45.41	-49.13	-38.34	-38.34	-57.72	-63.2	-45.83	-48.97
aic	110.78	118.31	122.35	126.78	106.83	114.27	92.68	92.68	131.44	142.41	107.66	113.93
bic	136.46	143.99	148.03	152.46	132.51	139.94	118.35	118.35	157.12	168.09	133.34	139.61
chi2	18.54	29.5	21.56	20.93	27.93	23.47	12.28	12.28	20.92	17.39	24.9	24.51
p	0.02	0	0.01	0.01	0	0	0.14	0.14	0.01	0.03	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Capital Control with actual EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.in5	-0.652 (.460)	0.071 (.917)	-0.442 (.389)	0.296 (.437)	-5.995** (.048)	1.508 (.409)
L.out5	0.039 (.962)	-0.598 (.344)	0.116 (.800)	-0.47 (.178)	4.293 (.105)	-1.955 (.240)
L.relativeGPrivate_GDP	.074*** (.000)	.039* (.096)	.037*** (.000)	.026*** (.000)	.244*** (.000)	.206*** (.000)
L.S-TDebt/Reserves	-0.024 (.723)	-0.015 (.801)	-0.107* (.062)	-0.106** (.019)	-0.185 (.440)	-0.376* (.081)
L.CurrentAcct/GDP	-0.015 (.173)	-0.018* (.067)	-0.001 (.755)	-0.002 (.540)	0.005 (.857)	-0.006 (.765)
L.Govt Budget/GDP	0.023 (.198)	0.014 (.363)	0.005 (.629)	0.009 (.115)	-0.019 (.807)	0.031 (.344)
L.Inflation, GDP deflator	.014*** (.001)	.010*** (.001)	.004* (.093)	0.002 (.176)	.040** (.025)	.025*** (.004)
L.REERrelativeratio	.045*** (.000)	.033*** (.000)	.022*** (.000)	.012*** (.000)	.157*** (.000)	.093*** (.000)
Constant	-4.381*** (.000)	-3.205*** (.000)	-2.114*** (.000)	-1.168*** (.001)	-15.284*** (.000)	-9.117*** (.000)
Adj.R-Square	0.18	0.19	0.15	0.21	0.12	0.23
NumberObs.	183	183	183	183	183	183
Pseudo R2						
ll	-215.67	-179.04	-109.58	-32.38	-460.55	-330.26
aic	449.34	376.08	237.15	82.76	939.1	678.52
bic	478.23	404.97	266.04	111.64	967.98	707.4
chi2						
p	0	0	0	0	0	0

- EMP1: 1. individual std-wieghted w/ int rate
- EMP2: 1. individual std-wieghted w/o int rate
- EMP3: 1. pooled std-wieghted w/ int rate
- EMP4: 1. pooled std-wieghted w/o int rate
- EMP5: 1. equally wieghted average w/ int rate
- EMP6: 1. equally wieghted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01
P value in parenthesis
Marginal effect coefficients are reported for Probit Analysis

Table: 5.2
Probit Analysis : 1st Principal Component Capital Control Indices with Crisis Index 2 stdiviation

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
Lincontrol principal	-0.027 {.349}	-0.021 {.475}	-0.048 {.103}	-0.037 {.224}	0.019 {.443}	0.016 {.499}	-0.009 {.686}	-0.009 {.686}	-0.031 {.293}	-0.026 {.395}	-0.004 {.869}	-0.011 {.633}
L.outcontrol principal	0.025 {.284}	0.023 {.319}	.044* {.062}	0.033 {.166}	-0.004 {.855}	0.006 {.766}	0.013 {.502}	0.013 {.502}	0.032 {.156}	0.025 {.275}	0.01 {.595}	0.019 {.322}
L.relativeGPrivate_GDP	1.000** {.022}	1.059*** {.012}	0.612 {.189}	0.612 {.067}	0.176 {.434}	0.088 {.697}	0.071 {.683}	0.071 {.683}	1.630*** {.000}	1.879*** {.000}	0.307 {.248}	0.259 {.327}
L.S-TDebt/Reserves	-0.024 {.662}	-0.001 {.986}	-0.027 {.576}	0.023 {.599}	.065* {.066}	.082** {.030}	0.003 {.948}	0.003 {.948}	0.01 {.826}	0.039 {.398}	0.014 {.706}	0.02 {.581}
L.CurrentAcct/GDP	-0.002 {.846}	0.004 {.742}	-0.006 {.600}	0.006 {.623}	-0.003 {.776}	-0.007 {.461}	-0.011 {.301}	-0.011 {.301}	0.003 {.765}	0.013 {.229}	-0.004 {.647}	-0.004 {.660}
L.Govt Budget/GDP	0.015 {.322}	0.002 {.881}	0.025 {.117}	.027* {.075}	0.004 {.737}	-0.006 {.583}	0.018 {.120}	0.018 {.120}	.034** {.041}	.037** {.026}	0.017 {.147}	0.009 {.431}
L.Inflation, GDP deflator	0.001 {.495}	0.002 {.443}	0.001 {.532}	0.001 {.607}	-0.001 {.787}	0.001 {.791}	0 {.843}	0 {.843}	0.001 {.436}	0.001 {.535}	0 {.971}	0 {.888}
L.REERrelativeratio	.015*** {.005}	.023*** {.000}	.015*** {.004}	.021*** {.000}	.016*** {.000}	.020*** {.000}	.013*** {.004}	.013*** {.004}	.012*** {.024}	.016*** {.003}	.016*** {.000}	.017*** {.000}
Adj. R-Square												
NumberObs.	107	107	107	107	107	107	107	107	107	107	107	107
Pseudo R2	0.15	0.22	0.16	0.22	0.25	0.32	0.22	0.22	0.21	0.25	0.27	0.26
ll	-38.36	-39.26	-37.92	-37.63	-30.99	-31.77	-29.27	-29.27	-35.85	-36.23	-27.24	-29.39
aic	92.71	94.53	91.85	91.25	77.99	79.55	74.54	74.54	87.7	88.45	70.47	74.78
bic	114.1	115.91	113.23	112.63	99.37	100.93	95.92	95.92	109.08	109.84	91.85	96.16
chi2	9.56	14.87	15.44	25.89	17.25	17.06	13.95	13.95	18.1	20.26	16.47	15.91
p	0.3	0.06	0.05	0	0.03	0.03	0.08	0.08	0.02	0.01	0.04	0.04

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : 1st Principal Component Capital Control Indices with Crisis Index 3 stdiviation

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
Lincontrol principal	-0.015 {.471}	-0.024 {.270}	-0.018 {.432}	-0.013 {.587}	-0.016 {.418}	-0.016 {.418}	-0.015 {.414}	-0.015 {.414}	-0.019 {.430}	-0.014 {.567}	0.003 {.901}	0.003 {.901}
L.outcontrol principal	0.014 {.440}	0.023 {.189}	0.019 {.271}	0.013 {.456}	0.019 {.260}	0.019 {.260}	0.014 {.339}	0.014 {.339}	0.027 {.177}	0.02 {.323}	0.001 {.973}	0.001 {.973}
L.relativeGPrivate_GDP	.874*** {.000}	1.045*** {.000}	0.448 {.152}	.608* {.083}	.337* {.063}	.337* {.063}	.453* {.081}	.453* {.081}	1.075*** {.001}	1.238*** {.000}	.685** {.025}	.685** {.025}
L.S-TDebt/Reserves	0.021 {.544}	0.028 {.372}	0.015 {.674}	0.032 {.393}	0.029 {.305}	0.029 {.305}	-0.065 {.108}	-0.065 {.108}	-0.065 {.585}	-0.065 {.295}	-0.001 {.982}	-0.001 {.982}
L.CurrentAcct/GDP	-0.012 {.139}	-0.005 {.553}	0.004 {.682}	0.008 {.463}	-0.006 {.368}	-0.006 {.368}	-0.007 {.308}	-0.007 {.308}	0.001 {.895}	0.005 {.565}	0.001 {.891}	0.001 {.891}
L.Govt Budget/GDP	0.011 {.309}	0.003 {.784}	0.019 {.176}	0.023 {.123}	0.017 {.103}	0.017 {.103}	.039*** {.006}	.039*** {.006}	0.009 {.398}	0.013 {.268}	.042*** {.003}	.042*** {.003}
L.Inflation, GDP deflator	0.001 {.207}	0 {.899}	-0.001 {.667}	-0.001 {.409}	-0.001 {.438}	-0.001 {.438}	-0.001 {.329}	-0.001 {.329}	0.001 {.399}	0 {.947}	-0.002 {.273}	-0.002 {.273}
L.REERrelativeratio	.014*** {.003}	.023*** {.000}	.012*** {.012}	.011*** {.022}	.011*** {.000}	.011*** {.000}	.008*** {.002}	.008*** {.002}	.014*** {.008}	.013*** {.014}	.011*** {.000}	.011*** {.000}
Adj. R-Square												
NumberObs.	107	107	107	107	107	107	107	107	107	107	107	107
Pseudo R2	0.36	0.47	0.19	0.18	0.36	0.36	0.33	0.33	0.31	0.27	0.34	0.34
ll	-22.72	-20.99	-28.71	-30.83	-18.06	-18.06	-17.41	-17.41	-24.41	-27.58	-20.52	-20.52
aic	61.45	57.98	73.42	77.65	52.13	52.13	50.82	50.82	64.82	71.16	57.05	57.05
bic	82.83	79.36	94.8	99.03	73.51	73.51	72.21	72.21	86.2	92.54	78.43	78.43
chi2	20.32	23.08	10.41	11.74	26.36	26.36	20.14	20.14	17.48	21.12	24.7	24.7
p	0.01	0	0.24	0.16	0	0	0.01	0.01	0.03	0.01	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: 1st Principal Component Capital Control indices with actual EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
Lincontrol principal	-0.085 {.246}	0.003 {.964}	-0.06 {.126}	0.023 {.416}	-.696*** {.004}	0.127 {.340}
L.outcontrol principal	0.03 {.623}	-0.036 {.460}	0.037 {.285}	-0.033 {.235}	.573*** {.006}	-0.138 {.281}
L.relativeGPrivate_GDP	0.357 {.509}	-0.081 {.924}	0.018 {.948}	0.019 {.928}	-0.073 {.961}	-0.202 {.860}
L.S-TDebt/Reserves	0.03 {.869}	0.072 {.595}	-0.119 {.176}	-0.091 {.118}	-0.448 {.409}	-0.286 {.326}
L.CurrentAcct/GDP	-0.055 {.135}	-0.049 {.129}	-0.013 {.363}	-0.008 {.495}	-0.049 {.531}	-0.02 {.763}
L.Govt Budget/GDP	0.007 {.864}	-0.005 {.893}	0.011 {.548}	0.02 {.208}	-0.027 {.801}	0.079 {.316}
L.Inflation, GDP deflator	.010* {.055}	.008** {.037}	-0.001 {.804}	-0.001 {.758}	0.004 {.766}	0.008 {.253}
L.REERrelativeratio	.050*** {.000}	.042*** {.000}	.026*** {.003}	.017*** {.000}	.167** {.015}	.115*** {.000}
Constant	-5.365*** {.000}	-4.502*** {.000}	-2.562*** {.003}	-1.703*** {.000}	-16.045*** {.018}	-11.455*** {.000}
Adj. R-Square	0.16	0.18	0.12	0.19	0.12	0.23
NumberObs.	107	107	107	107	107	107
Pseudo R2						
ll	-134.43	-112.93	-59.55	-12.24	-265.43	-184.99
aic	286.87	243.86	137.1	42.48	548.86	387.97
bic	310.92	267.91	161.15	66.53	572.91	412.03
chi2						
p	0	0	0.06	0	0.11	0

EMP1: individual std-wieghted w/ int rate
 EMP2: individual std-wieghted w/o int rate
 EMP3: pooled std-wieghted w/ int rate
 EMP4: pooled std-wieghted w/o int rate
 EMP5: equally wieghted average w/ int rate
 EMP6: equally wieghted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01
 P value in parenthesis
 Marginal effect coefficients are reported for Probit Analysis

Table 5.3

Probit Analysis : 1st Principal Component Capital Control indices w/missing value with Crisis Index 2 stdiviation

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.factor 1 of pca[2]	-0.263 {.795}	-0.346 {.749}	-1.038 {.295}	-0.787 {.443}	-0.15 {.847}	-0.453 {.576}	0.122 {.875}	0.394 {.615}	-0.195 {.858}	-0.031 {.978}	-0.023 {.975}	-0.181 {.819}
L.factor 1 of pca[2]	0.593 {.545}	0.5 {.632}	1.088 {.278}	0.693 {.502}	0.606 {.452}	0.98 {.228}	-0.067 {.936}	-0.208 {.802}	0.426 {.679}	0.049 {.964}	0.075 {.926}	0.281 {.727}
L.relativeGPrivate_GDP	-0.012 {.866}	-0.011 {.904}	-0.273* {.091}	-0.337** {.042}	-0.293*** {.008}	-0.303** {.014}	-0.291*** {.004}	-0.304*** {.004}	-0.013 {.823}	-0.021 {.782}	-0.278*** {.004}	-0.290** {.011}
L.S-TDebt/Reserves	0.011 {.587}	0.011 {.610}	-0.017 {.492}	0.012 {.514}	0.025 {.151}	0.024 {.192}	-0.006 {.792}	0.009 {.551}	0.002 {.908}	0.019 {.390}	-0.001 {.951}	0.009 {.554}
L.CurrentAcct/GDP	0.001 {.960}	0.005 {.668}	-0.003 {.790}	0.005 {.687}	-0.012 {.189}	-0.019** {.042}	-0.013 {.135}	-0.014 {.103}	-0.001 {.964}	0.008 {.507}	-0.013* {.096}	-0.014 {.115}
L.Govt Budget/GDP	-0.001 {.916}	-0.014 {.209}	0.013 {.314}	0.006 {.613}	-0.009 {.330}	-0.012 {.170}	0.001 {.880}	0.003 {.783}	0.013 {.312}	0.007 {.561}	0.001 {.888}	-0.002 {.798}
L.Inflation, GDP deflator	0.001 {.398}	0 {.848}	0.002 {.134}	0.002 {.331}	0 {.996}	0 {.871}	0.001 {.206}	0.001 {.293}	0.002 {.209}	0.001 {.559}	0.001 {.503}	0 {.815}
L.REERrelativeratio	.013*** {.001}	.019*** {.000}	.012*** {.002}	.017*** {.000}	.016*** {.000}	.017*** {.000}	.013*** {.000}	.013*** {.000}	.010** {.010}	.013*** {.002}	.014*** {.000}	.015*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.07	0.13	0.1	0.15	0.23	0.24	0.21	0.19	0.05	0.07	0.27	0.22
ll	-75.79	-78.73	-68.78	-72.19	-56.29	-62.29	-49.93	-54.52	-77.21	-83.07	-44.69	-54.21
aic	167.59	173.46	153.55	160.37	128.59	140.57	115.86	125.04	170.42	182.14	105.38	124.42
bic	193.26	199.14	179.23	186.05	154.26	166.25	141.53	150.71	196.09	207.82	131.05	150.09
chi2	10.61	20.64	13.56	22.1	26.8	28.76	22.44	23.77	8	11.02	26.65	28.41
p	0.23	0.01	0.09	0	0	0	0	0	0.43	0.2	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : 1st Principal Component Capital Control indices w/missing value with Crisis Index 3 stdiviation

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.factor 1 of pca[2]	-0.893 {.179}	-1.17 {.109}	-0.336 {.660}	-0.3 {.707}	-0.234 {.724}	-0.345 {.620}	0.299 {.593}	0.299 {.593}	-0.502 {.561}	-0.579 {.528}	0.487 {.456}	0.394 {.563}
L.factor 1 of pca[2]	0.967 {.171}	1.139 {.127}	0.397 {.617}	0.21 {.800}	0.654 {.354}	0.586 {.413}	-0.102 {.864}	-0.102 {.864}	0.936 {.283}	0.662 {.470}	-0.369 {.600}	-0.416 {.561}
L.relativeGPrivate_GDP	0.023 {.142}	0.024 {.150}	-0.001 {.950}	-0.001 {.932}	-0.077 {.307}	-0.065 {.408}	-0.007 {.687}	-0.007 {.687}	0.037 {.155}	0.034 {.220}	-0.001 {.965}	0 {.992}
L.S-TDebt/Reserves	0.013 {.379}	0.012 {.435}	0.015 {.301}	0.019 {.227}	0.023 {.116}	0.021 {.147}	0.008 {.473}	0.008 {.473}	0.017 {.306}	0.019 {.285}	0.015 {.273}	0.012 {.396}
L.CurrentAcct/GDP	-0.016** {.035}	-0.011 {.163}	-0.001 {.934}	0.001 {.891}	-0.01 {.340}	-0.008 {.036}	-0.014** {.036}	-0.014** {.036}	-0.003 {.880}	0.001 {.880}	-0.008 {.311}	-0.006 {.464}
L.Govt Budget/GDP	-0.003 {.668}	-0.013* {.085}	0 {.993}	0.002 {.872}	-0.001 {.922}	-0.002 {.833}	0.003 {.652}	0.003 {.652}	-0.004 {.705}	-0.003 {.796}	0.003 {.761}	0.002 {.829}
L.Inflation, GDP deflator	0.001 {.418}	0 {.790}	0.001 {.674}	0 {.988}	0.001 {.631}	0.001 {.908}	0.001 {.470}	0.001 {.470}	0.001 {.282}	0 {.791}	0 {.925}	0 {.880}
L.REERrelativeratio	.013*** {.000}	.017*** {.000}	.013*** {.001}	.012*** {.001}	.013*** {.000}	.013*** {.000}	.008*** {.007}	.008*** {.007}	.015*** {.000}	.014*** {.001}	.012*** {.000}	.012*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.24	0.29	0.15	0.13	0.23	0.19	0.17	0.17	0.16	0.12	0.19	0.17
ll	-46.31	-49.3	-53.81	-56.95	-45.32	-49.14	-38.81	-38.81	-57.79	-63.96	-45.87	-49.08
aic	108.62	114.6	123.62	129.9	106.65	114.29	93.62	93.62	131.59	143.92	107.74	114.16
bic	134.3	140.28	149.3	155.57	132.32	139.96	119.3	119.3	157.26	169.6	133.42	139.84
chi2	20.66	31.4	17.95	16.62	25.58	22.95	14.19	14.19	18.51	15.04	24.85	24.58
p	0.01	0	0.02	0.03	0	0	0.08	0.08	0.02	0.06	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: 1st Principal Component Capital Control indices w/missing value with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.factor 1 of pca[2]	-4.006* {.074}	-1.312 {.472}	-2.267 {.119}	0.326 {.750}	-23.245** {.012}	2.057 {.671}
L.factor 1 of pca[2]	2.194 {.355}	-0.263 {.888}	1.29 {.393}	-1.073 {.348}	19.512** {.030}	-4.495 {.404}
L.relativeGPrivate_GDP	0.082*** {.001}	.047* {.070}	.040*** {.000}	.027*** {.000}	.271*** {.000}	.214*** {.000}
L.S-TDebt/Reserves	-0.036 {.591}	-0.02 {.714}	-.108*** {.038}	-.105** {.021}	-0.272 {.230}	-.371* {.084}
L.CurrentAcct/GDP	-.058* {.054}	-.055** {.041}	-0.017 {.234}	-0.011 {.344}	-0.079 {.329}	-0.037 {.533}
L.Govt Budget/GDP	0.004 {.859}	-0.002 {.925}	-0.006 {.736}	0.009 {.296}	-0.119 {.351}	0.023 {.630}
L.Inflation, GDP deflator	0.013*** {.001}	0.010*** {.002}	0.004 {.117}	0.002 {.154}	0.033** {.033}	0.025*** {.003}
L.REERrelativeratio	.042*** {.000}	.033*** {.000}	.021*** {.000}	.012*** {.001}	.146*** {.000}	.091*** {.000}
Constant	-4.487*** {.000}	-3.476*** {.000}	-2.092*** {.000}	-1.207*** {.001}	-14.717*** {.000}	-9.168*** {.000}
Adj.R-Square	0.19	0.2	0.16	0.2	0.14	0.23
NumberObs.	183	183	183	183	183	183
Pseudo R2						
ll	-213.77	-177.82	-108.3	-33.07	-458.6	-330.88
aic	445.55	373.64	234.6	84.13	935.2	679.76
bic	474.43	402.52	263.48	113.02	964.08	708.65
chi2						
p	0	0	0	0	0	0

- EMP1: 1. individual std-weighted w/ int rate
- EMP2: 1. individual std-weighted w/o int rate
- EMP3: 1. pooled std-weighted w/ int rate
- EMP4: 1. pooled std-weighted w/o int rate
- EMP5: 1. equally weighted average w/ int rate
- EMP6: 1. equally weighted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01
P value in parenthesis
Marginal effect coefficients are reported for Probit Analysis

Table 5.4

Probit Analysis : Capital Control on Capital Market with Crisis Index 2 stdivision

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
LinCM	-0.073	-0.028	0.017	0.079	0.029	-0.009	0.159	0.083	0.068	0.035	0.135	0.014
	{.802}	{.929}	{.948}	{.774}	{.896}	{.972}	{.445}	{.698}	{.823}	{.914}	{.478}	{.948}
L.outCM	0.115	0.046	-0.018	-0.107	0.046	0.094	-0.166	-0.075	-0.049	-0.06	-0.137	-0.019
	{.678}	{.876}	{.944}	{.689}	{.842}	{.701}	{.429}	{.728}	{.861}	{.841}	{.478}	{.928}
L.relativeGPrivate_GDP	-0.012	-0.012	-0.258	-3.22**	-2.97***	-3.04**	-2.91***	-3.10***	-0.015	-0.021	-2.77***	-2.88**
	{.872}	{.901}	{.102}	{.046}	{.008}	{.014}	{.005}	{.005}	{.805}	{.778}	{.004}	{.013}
L.S-TDebt/Reserves	0.011	0.012	-0.009	0.017	0.026	0.027	-0.003	0.009	0.005	0.02	0.002	0.011
	{.570}	{.558}	{.675}	{.367}	{.129}	{.160}	{.873}	{.582}	{.820}	{.366}	{.909}	{.464}
L.CurrentAcct/GDP	0.001	0.006	-0.001	0.006	-0.011	-0.18*	-0.012	-0.14*	0.001	0.008	-0.013	-0.013
	{.941}	{.633}	{.948}	{.594}	{.209}	{.053}	{.156}	{.098}	{.931}	{.472}	{.117}	{.125}
L.Govt Budget/GDP	-0.002	-0.015	0.012	0.006	-0.009	-0.014	0.002	0.003	0.013	0.007	0.002	-0.003
	{.843}	{.191}	{.352}	{.639}	{.306}	{.141}	{.815}	{.759}	{.324}	{.573}	{.829}	{.755}
L.Inflation, GDP deflator	0.001	0	0.002	0.001	0	-0.001	0.001	0.001	0.002	0.001	0.001	0
	{.502}	{.944}	{.198}	{.410}	{.853}	{.659}	{.174}	{.270}	{.252}	{.600}	{.477}	{.923}
L.REERrelative ratio	.012***	.019***	.011***	.017***	.015***	.017***	.013***	.012***	.010**	.013***	.014***	.014***
	{.002}	{.000}	{.002}	{.000}	{.000}	{.000}	{.000}	{.000}	{.013}	{.002}	{.000}	{.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.07	0.13	0.09	0.15	0.22	0.23	0.21	0.19	0.05	0.07	0.27	0.22
ll	-75.94	-78.84	-69.39	-72.33	-56.56	-62.77	-49.65	-54.63	-77.33	-83.02	-44.47	-54.27
aic	167.88	173.67	154.77	160.67	129.11	141.54	115.29	125.26	170.66	182.03	104.95	124.55
bic	193.56	199.35	180.45	186.35	154.79	167.22	140.97	150.94	196.34	207.71	130.62	150.22
chi2	10.42	21.01	13.05	22.84	26.7	28.34	24.94	23.87	7.52	11.2	28.35	29.28
p	0.24	0.01	0.11	0	0	0	0	0	0.48	0.19	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Capital Control on Capital Market with Crisis Index 3 stdivision

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
LinCM	-0.175	-0.208	0.177	0.167	-0.076	-0.13	0.185	0.185	0.046	-0.009	0.179	0.129
	{.323}	{.288}	{.410}	{.452}	{.654}	{.479}	{.259}	{.259}	{.836}	{.969}	{.309}	{.490}
L.outCM	0.174	0.189	-0.174	-0.194	0.113	0.13	-0.17	-0.17	0.031	0.016	-0.187	-0.168
	{.340}	{.333}	{.418}	{.378}	{.539}	{.489}	{.305}	{.305}	{.888}	{.945}	{.301}	{.367}
L.relativeGPrivate_GDP	0.024	0.024	-0.002	-0.003	-0.081	-0.066	-0.01	-0.01	0.035	0.033	-0.001	0
	{.140}	{.144}	{.868}	{.854}	{.283}	{.413}	{.649}	{.649}	{.163}	{.229}	{.943}	{.998}
L.S-TDebt/Reserves	0.015	0.014	0.02	0.023	0.023	0.022	0.012	0.012	0.02	0.022	0.016	0.013
	{.292}	{.318}	{.177}	{.145}	{.106}	{.139}	{.315}	{.315}	{.227}	{.230}	{.242}	{.387}
L.CurrentAcct/GDP	-0.016**	-0.011	0.001	0.003	-0.01	-0.008	-0.014**	-0.014**	-0.002	0.003	-0.008	-0.006
	{.035}	{.163}	{.895}	{.744}	{.194}	{.319}	{.047}	{.047}	{.861}	{.789}	{.342}	{.487}
L.Govt Budget/GDP	-0.005	-0.016**	0	0.002	-0.002	-0.004	0.005	0.005	-0.004	-0.003	0.004	0.002
	{.519}	{.049}	{.976}	{.855}	{.788}	{.684}	{.515}	{.515}	{.650}	{.738}	{.684}	{.778}
L.Inflation, GDP deflator	0.001	-0.001	0	0	0	0	0.001	0.001	0.001	0	0	0
	{.692}	{.503}	{.785}	{.911}	{.866}	{.869}	{.459}	{.459}	{.460}	{.960}	{.902}	{.890}
L.REERrelative ratio	.012***	.017***	.013***	.012***	.012***	.012***	.008***	.008***	.015***	.013***	.012***	.011***
	{.000}	{.000}	{.000}	{.001}	{.000}	{.000}	{.006}	{.006}	{.000}	{.001}	{.000}	{.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.23	0.28	0.15	0.13	0.22	0.19	0.18	0.18	0.16	0.12	0.19	0.17
ll	-46.69	-49.89	-53.62	-56.59	-45.89	-49.36	-38.61	-38.61	-58.25	-64.21	-45.66	-48.73
aic	109.38	115.77	123.24	129.19	107.79	114.72	93.22	93.22	132.51	144.42	107.33	113.46
bic	135.06	141.45	148.91	154.86	133.46	140.4	118.9	118.9	158.19	170.09	133	139.14
chi2	18.74	29.03	17.99	17.31	24.86	24.33	14.82	14.82	17.88	14.72	24.71	25.09
p	0.02	0	0.02	0.03	0	0	0.06	0.06	0.02	0.06	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Capital Control on Capital Market with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
LinCM	-1.145*	-0.627	-0.645	-0.167	-5.08	-0.762
	{.050}	{.181}	{.117}	{.400}	{.108}	{.461}
L.outCM	0.77	0.311	0.439	0.012	4.24	0.202
	{.178}	{.492}	{.266}	{.957}	{.146}	{.855}
L.relativeGPrivate_GDP	.088***	.051**	.044***	.028***	.299***	.222***
	{.001}	{.043}	{.000}	{.000}	{.001}	{.000}
L.S-TDebt/Reserves	-0.036	-0.025	-.108**	-.110**	-0.24	-.396*
	{.609}	{.646}	{.041}	{.011}	{.334}	{.052}
L.CurrentAcct/GDP	-.059**	-.059**	-0.018	-0.014	-0.068	-0.05
	{.044}	{.026}	{.200}	{.190}	{.408}	{.358}
L.Govt Budget/GDP	-0.002	-0.004	-0.009	0.008	-0.15	0.021
	{.939}	{.829}	{.604}	{.319}	{.259}	{.666}
L.Inflation, GDP deflator	.013***	.010***	0.003	0.002	.026*	.026***
	{.001}	{.001}	{.165}	{.112}	{.075}	{.002}
L.REERrelative ratio	.042***	.032***	.020***	.012***	.142***	.090***
	{.000}	{.000}	{.000}	{.001}	{.000}	{.000}
Constant	-4.299***	-3.326***	-1.986***	-1.131***	-14.237***	-8.859***
	{.000}	{.000}	{.000}	{.001}	{.000}	{.000}
Adj.R-Square	0.2	0.2	0.16	0.2	0.13	0.23
NumberObs.	183	183	183	183	183	183
Pseudo R2						
ll	-213.53	-177.37	-108.03	-33.03	-459.89	-330.8
aic	445.06	372.73	234.06	84.06	937.77	679.59
bic	473.95	401.62	262.95	112.94	966.66	708.48
chi2						
p	0	0	0	0	0.01	0

- EMP1: 1. individual std-wighted w/ int rate
- EMP2: 1. individual std-wighted w/o int rate
- EMP3: 1. pooled std-wighted w/ int rate
- EMP4: 1. pooled std-wighted w/o int rate
- EMP5: 1. equally wighted average w/ int rate
- EMP6: 1. equally wighted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01
P value in parenthesis
Marginal effect coefficients are reported for Probit Analysis

Table: 5.5

Probit Analysis : Capital Control on Credit Operation with Crisis Index 2 stdiviation

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.inCR	0.025	0.057	-0.321*	-0.226	0.011	0.014	-0.084	0.058	-0.105	0.018	-0.147	-0.018
	{.889}	{.768}	{.059}	{.199}	{.941}	{.931}	{.553}	{.697}	{.552}	{.922}	{.273}	{.906}
L.outCR	0.096	0.04	-.238*	0.16	0.123	0.142	0.115	0.061	0.166	0.039	0.139	0.073
	{.529}	{.812}	{.090}	{.280}	{.356}	{.321}	{.383}	{.658}	{.243}	{.812}	{.275}	{.605}
L.relativeGPrivate_GDP	-0.01	-0.009	-.283*	-.343**	-.273**	-.276**	-.293**	-.291**	-0.013	-0.019	-.288**	-.280**
	{.869}	{.909}	{.082}	{.038}	{.015}	{.027}	{.004}	{.006}	{.813}	{.776}	{.003}	{.013}
L.S-TDebt/Reserves	0.013	0.012	-0.016	0.017	0.026	0.027	-0.01	0.007	0.004	0.019	-0.007	0.01
	{.521}	{.545}	{.565}	{.371}	{.121}	{.143}	{.678}	{.651}	{.841}	{.379}	{.774}	{.509}
L.CurrentAcct/GDP	0.001	0.006	-0.005	0.003	-0.011	-0.018*	-0.014	-0.014	-0.001	0.008	-0.015*	-0.014
	{.911}	{.620}	{.633}	{.755}	{.215}	{.060}	{.112}	{.108}	{.894}	{.511}	{.070}	{.122}
L.Govt Budget/GDP	-0.002	-0.014	0.014	0.007	-0.009	-0.014	0.002	0.003	0.013	0.008	0.002	-0.002
	{.885}	{.204}	{.278}	{.567}	{.290}	{.136}	{.843}	{.788}	{.297}	{.543}	{.806}	{.802}
L.Inflation, GDP deflator	0.001	0	0.002	0.002	0	0	0.002	0.002	0.002	0.001	0.001	0
	{.372}	{.837}	{.103}	{.277}	{.993}	{.801}	{.114}	{.182}	{.159}	{.492}	{.351}	{.749}
L.REERrelativeratio	.013***	.019***	.012***	.016***	.015***	.017***	.013***	.013***	.010***	.013***	.015***	.015***
	{.001}	{.000}	{.001}	{.000}	{.000}	{.000}	{.000}	{.000}	{.009}	{.001}	{.000}	{.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.07	0.13	0.12	0.15	0.23	0.23	0.21	0.19	0.06	0.07	0.28	0.22
ll	-75.71	-78.66	-67.73	-71.7	-56.28	-62.47	-49.59	-54.16	-76.86	-82.99	-44.1	-54.09
aic	167.43	173.32	151.46	159.39	128.57	140.95	115.19	124.32	169.73	181.99	104.2	124.17
bic	193.1	198.99	177.14	185.07	154.24	166.62	140.86	150	195.4	207.66	129.88	149.85
chi2	11.19	21.13	16.97	24.85	26.55	28.07	20.3	21.87	9	10.94	24.85	27.71
p	0.19	0.01	0.03	0	0	0	0.01	0.01	0.34	0.21	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Capital Control on Credit Operation with Crisis Index 3 stdiviation

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.inCR	-0.135	-0.123	-0.186	-0.186	0.058	0.088	-0.015	-0.015	-0.137	-0.113	-0.015	0.013
	{.357}	{.430}	{.193}	{.210}	{.664}	{.546}	{.892}	{.892}	{.365}	{.485}	{.902}	{.922}
L.outCR	0.129	0.094	0.182	0.137	0.107	0.044	0.13	0.13	.211*	0.104	0.096	0.041
	{.300}	{.503}	{.124}	{.273}	{.376}	{.750}	{.222}	{.222}	{.092}	{.472}	{.421}	{.762}
L.relativeGPrivate_GDP	0.023	0.023	-0.001	-0.002	-0.046	-0.039	-0.003	-0.003	0.036	0.033	0.001	0
	{.155}	{.165}	{.929}	{.870}	{.505}	{.581}	{.836}	{.836}	{.165}	{.236}	{.962}	{.988}
L.S-TDebt/Reserves	0.018	0.018	0.017	0.021	.024*	0.022	0.006	0.006	0.021	0.023	0.012	0.01
	{.205}	{.217}	{.238}	{.171}	{.093}	{.129}	{.666}	{.666}	{.194}	{.197}	{.372}	{.500}
L.CurrentAcct/GDP	-0.016**	-0.011	-0.002	0	-0.01	-0.007	-0.015**	-0.015**	-0.003	0.001	-0.009	-0.007
	{.038}	{.183}	{.799}	{.975}	{.240}	{.414}	{.029}	{.029}	{.710}	{.878}	{.270}	{.438}
L.Govt Budget/GDP	-0.004	-0.014*	0.001	0.003	-0.002	-0.003	0.003	0.003	-0.004	-0.003	0.003	0.003
	{.626}	{.071}	{.927}	{.788}	{.832}	{.750}	{.653}	{.653}	{.672}	{.780}	{.706}	{.778}
L.Inflation, GDP deflator	0.001	-0.001	0.001	0	0.001	0	0.001	0.001	0.001	0	0.001	0
	{.491}	{.638}	{.476}	{.842}	{.621}	{.942}	{.245}	{.245}	{.275}	{.829}	{.664}	{.929}
L.REERrelativeratio	.014***	.018***	.013***	.012***	.013***	.012***	.008***	.008***	.015***	.014***	.012***	.012***
	{.000}	{.000}	{.000}	{.001}	{.000}	{.000}	{.006}	{.006}	{.000}	{.000}	{.000}	{.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.24	0.28	0.16	0.14	0.24	0.2	0.19	0.19	0.17	0.12	0.19	0.17
ll	-46.46	-49.92	-52.87	-56.27	-44.87	-48.8	-37.98	-37.98	-57.59	-63.93	-45.59	-49.05
aic	108.91	115.84	121.74	128.54	105.75	113.6	91.97	91.97	131.18	143.86	107.18	114.11
bic	134.59	141.52	147.42	154.22	131.42	139.27	117.64	117.64	156.85	169.53	132.86	139.78
chi2	22.77	32.17	22.18	20.04	26.75	25.16	14.33	14.33	22.33	16.07	22.31	22.74
p	0	0	0	0.01	0	0	0.07	0.07	0	0.04	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Capital Control on Credit Operation with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.inCR	0.229	0.536	-0.176	0.214	-3.081**	0.906
	{.695}	{.224}	{.519}	{.328}	{.037}	{.401}
L.outCR	-0.799	-.860**	-0.196	-.337*	0.452	-1.309
	{.168}	{.047}	{.409}	{.071}	{.737}	{.169}
L.relativeGPrivate_GDP	.079***	.049*	.036***	.028***	.226***	.222***
	{.001}	{.052}	{.000}	{.000}	{.001}	{.000}
L.S-TDebt/Reserves	-0.019	-0.019	-.097*	-.109**	-0.14	-.390*
	{.796}	{.752}	{.071}	{.015}	{.565}	{.064}
L.CurrentAcct/GDP	-0.044	-.046*	-0.013	-0.009	-0.051	-0.032
	{.141}	{.087}	{.358}	{.398}	{.534}	{.585}
L.Govt Budget/GDP	0.004	-0.002	-0.005	0.009	-0.114	0.023
	{.872}	{.908}	{.778}	{.276}	{.365}	{.622}
L.Inflation, GDP deflator	.011***	.009***	0.003	0.002	.026*	.025***
	{.003}	{.003}	{.198}	{.173}	{.076}	{.004}
L.REERrelativeratio	.042***	.033***	.021***	.012***	.144***	.091***
	{.000}	{.000}	{.000}	{.001}	{.000}	{.000}
Constant	-4.228***	-3.297***	-1.992***	-1.163***	-14.034***	-8.963***
	{.000}	{.000}	{.000}	{.001}	{.000}	{.000}
Adj.R-Square	0.2	0.22	0.16	0.21	0.13	0.23
NumberObs.	183	183	183	183	183	183
Pseudo R2						
ll	-213.04	-175.2	-108.48	-32.12	-459.48	-330.12
aic	444.08	368.39	234.96	82.24	936.97	678.25
bic	472.96	397.28	263.84	111.12	965.85	707.13
chi2						
p	0	0	0	0	0	0

- EMP1: 1. individual std-weighted w/ int rate
- EMP2: 1. individual std-weighted w/o int rate
- EMP3: 1. pooled std-weighted w/ int rate
- EMP4: 1. pooled std-weighted w/o int rate
- EMP5: 1. equally weighted average w/ int rate
- EMP6: 1. equally weighted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01
P value in parenthesis
Marginal effect coefficients are reported for Probit Analysis

Table: 5.6
Probit Analysis : Capital Control on FDI with Crisis Index 2 stdiviation

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.inFDI	0.01 {.950}	-0.073 {.673}	-0.051 {.759}	-0.047 {.790}	0.027 {.827}	-0.049 {.709}	0.085 {.518}	0.134 {.335}	0.055 {.752}	0.065 {.724}	0.043 {.729}	0.013 {.920}
L.outFDI	0.064 {.598}	0.063 {.612}	0.18 {.149}	0.128 {.314}	0.07 {.452}	0.154 {.093}	0.018 {.853}	-0.001 {.991}	0.082 {.508}	0.027 {.832}	0.038 {.691}	0.074 {.449}
L.relativeGPrivate_GDP	-0.009 {.886}	-0.007 {.940}	-0.264 {.103}	-0.325** {.046}	-0.270** {.011}	-0.285** {.016}	-0.286*** {.006}	-0.285*** {.008}	-0.015 {.766}	-0.021 {.738}	-0.274*** {.005}	-0.278*** {.005}
L.S-TDebt/Reserves	-0.005 {.893}	-0.004 {.924}	0.006 {.869}	0.033 {.384}	0.028 {.353}	0.029 {.367}	0.003 {.920}	0.002 {.950}	0.02 {.606}	0.038 {.351}	0.006 {.845}	0.003 {.924}
L.CurrentAcct/GDP	-0.003 {.822}	0.002 {.844}	-0.001 {.933}	0.007 {.576}	-0.013 {.132}	-0.020** {.032}	-0.013 {.158}	-0.015* {.095}	-0.001 {.942}	0.008 {.517}	-0.013 {.123}	-0.014 {.116}
L.Govt Budget/GDP	0.001 {.953}	-0.012 {.272}	0.018 {.201}	0.011 {.440}	-0.008 {.319}	-0.01 {.249}	0.001 {.901}	0.003 {.797}	0.015 {.243}	0.01 {.467}	0.001 {.899}	-0.001 {.951}
L.Inflation, GDP deflator	0.001 {.441}	0.001 {.731}	.003* {.084}	0.002 {.239}	-0.001 {.736}	0 {.838}	0.001 {.319}	0.001 {.522}	0.002 {.278}	0.001 {.653}	0.001 {.582}	0 {.783}
L.REERrelative ratio	.013*** {.002}	.020*** {.000}	.013*** {.001}	.018*** {.000}	.015*** {.000}	.017*** {.000}	.014*** {.000}	.013*** {.000}	.010** {.018}	.013*** {.004}	.015*** {.000}	.016*** {.000}
Adj. R-Square												
NumberObs.	173	173	173	173	173	173	173	173	173	173	173	173
Pseudo R2	0.08	0.14	0.11	0.16	0.26	0.27	0.22	0.21	0.06	0.07	0.28	0.23
ll	-69.28	-72.26	-66.46	-68.05	-48.68	-54.54	-48.43	-50.6	-73.46	-78.11	-43.17	-50.44
aic	154.57	160.52	148.92	152.09	113.36	125.07	112.85	117.2	162.92	172.22	102.35	116.88
bic	179.8	185.74	174.14	177.32	138.59	150.3	138.08	142.43	188.15	197.45	127.57	142.11
chi2	9.67	19.89	15.03	24.32	26.15	28.89	20.49	21.74	7.96	10.59	24.47	25.58
p	0.29	0.01	0.06	0	0	0	0.01	0.01	0.44	0.23	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Capital Control on FDI with Crisis Index 3 stdiviation

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.inFDI	-0.043 {.704}	-0.102 {.391}	0.005 {.971}	0.04 {.765}	0.111 {.352}	0.091 {.453}	-0.09 {.283}	0.09 {.283}	0.013 {.931}	0.025 {.867}	0.155 {.175}	0.137 {.240}
L.outFDI	0.088 {.374}	0.114 {.241}	0.067 {.482}	0.033 {.743}	0.048 {.603}	0.043 {.625}	0.008 {.903}	0.008 {.903}	0.009 {.418}	0.055 {.648}	-0.023 {.769}	-0.025 {.741}
L.relativeGPrivate_GDP	0.023 {.166}	0.025 {.143}	-0.002 {.899}	-0.003 {.811}	-0.051 {.450}	-0.038 {.593}	-0.003 {.817}	-0.003 {.817}	0.033 {.210}	0.03 {.290}	0 {.975}	0 {.992}
L.S-TDebt/Reserves	-0.002 {.952}	-0.001 {.982}	0.027 {.359}	0.042 {.179}	0.023 {.439}	0.019 {.530}	-0.012 {.610}	-0.012 {.610}	0.021 {.542}	0.032 {.368}	0.014 {.639}	0.009 {.785}
L.CurrentAcct/GDP	-0.018** {.033}	-0.013 {.142}	0 {.998}	0.003 {.764}	-0.012 {.104}	-0.01 {.204}	-0.016** {.023}	-0.016** {.023}	-0.004 {.685}	0.002 {.869}	-0.009 {.288}	-0.007 {.434}
L.Govt Budget/GDP	-0.001 {.865}	-0.011 {.209}	0.002 {.853}	0.002 {.803}	-0.003 {.719}	-0.003 {.712}	0.004 {.654}	0.004 {.654}	-0.001 {.886}	-0.001 {.931}	0.002 {.838}	0.002 {.854}
L.Inflation, GDP deflator	0.001 {.371}	0 {.980}	0.001 {.667}	0 {.898}	0 {.842}	-0.001 {.725}	0.001 {.625}	0.001 {.625}	0.001 {.439}	0.001 {.924}	-0.001 {.745}	-0.001 {.669}
L.REERrelative ratio	.013*** {.000}	.018*** {.000}	.013*** {.001}	.012*** {.002}	.013*** {.000}	.013*** {.000}	.008*** {.005}	.008*** {.005}	.014*** {.000}	.013*** {.001}	.012*** {.000}	.012*** {.000}
Adj. R-Square												
NumberObs.	173	173	173	173	173	173	173	173	173	173	173	173
Pseudo R2	0.25	0.3	0.16	0.14	0.3	0.24	0.21	0.21	0.16	0.12	0.22	0.19
ll	-41.54	-44.92	-50.14	-53.15	-35.86	-40.3	-34.65	-34.65	-53.43	-59.33	-41.64	-45.12
aic	99.08	105.85	116.28	122.29	87.72	96.6	85.31	85.31	122.86	134.67	99.27	106.25
bic	124.3	131.07	141.5	147.52	112.94	121.83	110.54	110.54	148.09	159.9	124.5	131.47
chi2	18.6	28.53	17.49	16.11	36.11	25.64	16.81	16.81	16.36	14.22	24.8	24.24
p	0.02	0	0.03	0.04	0	0	0.03	0.03	0.04	0.08	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Capital Control on FDI with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.inFDI	-0.464 {.138}	-0.223 {.384}	-0.085 {.728}	0.153 {.306}	-1.513 {.370}	1.089 {.131}
L.outFDI	0.092 {.686}	-0.141 {.452}	0.052 {.760}	-0.187 {.149}	1.751* {.079}	-0.777 {.185}
L.relativeGPrivate_GDP	.088*** {.001}	.058* {.051}	.039*** {.001}	.029*** {.001}	.235*** {.007}	.209*** {.000}
L.S-TDebt/Reserves	0.035 {.796}	0.023 {.817}	-0.034 {.668}	-0.071 {.147}	0.267 {.590}	-0.154 {.544}
L.CurrentAcct/GDP	-0.053* {.087}	-0.052* {.060}	-0.012 {.355}	-0.009 {.398}	-0.045 {.567}	-0.027 {.627}
L.Govt Budget/GDP	0.008 {.730}	-0.004 {.854}	-0.004 {.832}	0.006 {.429}	-0.084 {.512}	0.013 {.786}
L.Inflation, GDP deflator	.015*** {.001}	.011*** {.002}	.004* {.072}	0.002 {.222}	.038*** {.010}	.023*** {.006}
L.REERrelative ratio	.045*** {.000}	.035*** {.000}	.023*** {.000}	.014*** {.000}	.160*** {.000}	.097*** {.000}
Constant	-4.708*** {.000}	-3.664*** {.000}	-2.421*** {.000}	-1.378*** {.000}	-16.722*** {.000}	-9.922*** {.000}
Adj. R-Square	0.19	0.2	0.12	0.16	0.13	0.23
NumberObs.	173	173	173	173	173	173
Pseudo R2						
ll	-200.58	-166.79	-97.26	-12.66	-435.58	-297.43
aic	419.15	351.58	212.53	43.32	889.17	612.86
bic	447.53	379.96	240.91	71.7	917.55	641.24
chi2						
p	0	0	0	0	0	0

* p<0.1, ** p<0.05, *** p<0.01

P value in parenthesis

Marginal effect coefficients are reported for Probit Analysis

- EMP1: 1. individual std-wieghted w/ int rate
- EMP2: 1. individual std-wieghted w/o int rate
- EMP3: 1. pooled std-wieghted w/ int rate
- EMP4: 1. pooled std-wieghted w/o int rate
- EMP5: 1. equally wieghted average w/ int rate
- EMP6: 1. equally wieghted average w/o int rate

Table 5.7
Probit Analysis : Capital Control on Financial Institutions with Crisis Index 2 stdivision

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
LinFIN	-0.216 {.398}	-0.212 {.406}	-0.27 {.236}	-0.186 {.429}	-0.159 {.426}	-0.077 {.716}	0.02 {.923}	0.064 {.759}	-0.142 {.606}	-0.016 {.956}	0.002 {.992}	0.047 {.816}
L.outFIN	0.177 {.378}	0.153 {.458}	0.255 {.207}	0.201 {.342}	0.167 {.350}	0.092 {.621}	0.018 {.913}	-0.016 {.926}	0.2 {.357}	0.145 {.525}	0.014 {.927}	-0.003 {.987}
L.relativeGPrivate_GDP	-0.026 {.805}	-0.027 {.859}	-.295* {.068}	-.350** {.032}	-.319*** {.009}	-.315** {.019}	-.289*** {.006}	-.300*** {.008}	-0.023 {.712}	-0.027 {.686}	-.277*** {.006}	-.280** {.018}
L.S-TDebt/Reserves	0.009 {.637}	0.009 {.654}	-0.016 {.527}	0.013 {.499}	0.025 {.139}	0.028 {.142}	-0.007 {.767}	0.009 {.604}	0.001 {.978}	0.019 {.398}	-0.001 {.961}	0.012 {.445}
L.CurrentAcct/GDP	0.002 {.831}	0.006 {.569}	-0.001 {.932}	0.006 {.590}	-0.011 {.211}	-0.017* {.059}	-0.013 {.108}	-0.015* {.076}	0.001 {.937}	0.008 {.491}	-0.013* {.080}	-0.013 {.107}
L.Govt Budget/GDP	-0.002 {.820}	-0.015 {.180}	0.011 {.354}	0.005 {.654}	-0.011 {.211}	-0.015 {.100}	0.001 {.906}	0.002 {.812}	0.011 {.359}	0.006 {.608}	0.001 {.922}	-0.003 {.735}
L.Inflation, GDP deflator	0.001 {.544}	0 {.967}	0.002 {.186}	0.002 {.336}	-0.001 {.718}	-0.001 {.494}	0.001 {.177}	0.001 {.282}	0.002 {.213}	0.001 {.458}	0.001 {.500}	0 {.876}
L.REERrelativeratio	.012*** {.001}	.019*** {.000}	.012*** {.001}	.017*** {.000}	.015*** {.000}	.016*** {.000}	.013*** {.000}	.012*** {.000}	.010*** {.008}	.013*** {.001}	.014*** {.000}	.014*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.07	0.13	0.1	0.15	0.22	0.22	0.21	0.19	0.06	0.07	0.27	0.22
ll	-75.72	-78.51	-68.62	-72.03	-56.66	-63.28	-49.9	-54.62	-76.94	-82.68	-44.69	-54.23
aic	167.45	173.02	153.23	160.06	129.31	142.56	115.8	125.25	169.87	181.36	105.38	124.45
bic	193.12	198.7	178.91	185.74	154.99	168.24	141.48	150.92	195.55	207.03	131.06	150.13
chi2	10.66	20.56	15.11	24.93	27.6	28.77	21.35	22.43	9.04	12.6	25.94	28.2
p	0.22	0.01	0.06	0	0	0	0.01	0	0.34	0.13	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Capital Control on Financial Institutions with Crisis Index 3 stdivision

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
LinFIN	-.293* {.078}	-.302* {.089}	-0.217 {.217}	-0.165 {.372}	-0.131 {.536}	-0.098 {.644}	-0.125 {.405}	-0.125 {.405}	-.401* {.078}	-0.326 {.163}	0.106 {.620}	0.131 {.543}
L.outFIN	0.189 {.159}	.246* {.086}	0.183 {.223}	0.142 {.364}	0.227 {.153}	0.207 {.195}	0.134 {.271}	0.134 {.271}	.318* {.070}	0.258 {.158}	0.01 {.946}	-0.003 {.984}
L.relativeGPrivate_GDP	0.02 {.201}	0.016 {.381}	-0.008 {.634}	-0.007 {.658}	-0.099 {.232}	-0.079 {.360}	-0.02 {.658}	-0.02 {.658}	-0.031 {.231}	-0.028 {.310}	-0.002 {.861}	-0.002 {.856}
L.S-TDebt/Reserves	0.014 {.294}	0.013 {.354}	0.013 {.353}	0.017 {.259}	.023* {.097}	0.022 {.129}	0.005 {.745}	0.005 {.745}	0.015 {.340}	0.017 {.314}	0.014 {.301}	0.012 {.401}
L.CurrentAcct/GDP	-0.014* {.069}	-0.009 {.261}	0 {.962}	0.002 {.816}	-0.009 {.226}	-0.007 {.382}	-0.014** {.032}	-0.014** {.032}	0 {.992}	0.004 {.671}	-0.009 {.242}	-0.007 {.379}
L.Govt Budget/GDP	-0.004 {.614}	-0.015** {.047}	-0.001 {.918}	0.001 {.898}	-0.004 {.658}	-0.004 {.609}	0.003 {.724}	0.003 {.724}	-0.005 {.553}	-0.004 {.702}	0.002 {.823}	0.002 {.850}
L.Inflation, GDP deflator	0.001 {.650}	-0.001 {.576}	0 {.767}	0 {.1000}	0 {.808}	0 {.990}	0.001 {.465}	0.001 {.465}	0.001 {.512}	0.001 {.910}	0 {.767}	0 {.910}
L.REERrelativeratio	.013*** {.000}	.018*** {.000}	.013*** {.000}	.012*** {.001}	.012*** {.000}	.012*** {.000}	.007*** {.006}	.007*** {.006}	.015*** {.000}	.014*** {.000}	.011*** {.000}	.011*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.25	0.29	0.16	0.13	0.23	0.2	0.18	0.18	0.18	0.14	0.19	0.17
ll	-45.91	-49.06	-53.33	-56.68	-45.09	-48.61	-38.68	-38.68	-56.74	-63.04	-45.62	-48.68
aic	107.82	114.12	122.65	129.37	106.19	113.22	93.37	93.37	129.49	142.08	107.23	113.35
bic	133.5	139.8	148.33	155.04	131.86	138.89	119.04	119.04	155.16	167.76	132.91	139.03
chi2	24.21	30.32	19.39	17.16	27.15	25.57	12.42	12.42	19.17	17.07	26.31	25.54
p	0	0	0.01	0.03	0	0	0.13	0.13	0.01	0.03	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Capital Control on Financial Institutions with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6	
LinFIN	0.048 {.952}	0.425 {.480}	0.07 {.867}	0.303 {.305}	-1.091 {.665}	1.53 {.305}	
L.outFIN	0.566 {.291}	0.045 {.915}	0.16 {.601}	-0.152 {.474}	2.78 {.142}	-0.304 {.776}	EMP1: 1. individual std-weighted w/ int rate
L.relativeGPrivate_GDP	0.036 {.186}	0.026 {.247}	0.023 {.105}	.026*** {.007}	0.094 {.321}	.185*** {.000}	EMP2: 1. individual std-weighted w/ int rate
L.S-TDebt/Reserves	-0.02 {.779}	-0.011 {.857}	-.097* {.085}	-.103** {.026}	-0.185 {.480}	-0.364* {.093}	EMP3: 1. pooled std-weighted w/ int rate
L.CurrentAcct/GDP	-0.054** {.044}	-.057** {.018}	-0.014 {.260}	-0.014 {.151}	-0.033 {.660}	-0.051 {.315}	EMP4: 1. pooled std-weighted w/ int rate
L.Govt Budget/GDP	0.005 {.808}	0.001 {.951}	-0.004 {.790}	0.011 {.191}	-0.127 {.318}	0.028 {.541}	EMP5: 1. equally weighted average w/ int rate
L.Inflation, GDP deflator	.015*** {.000}	.012*** {.000}	.004* {.055}	.003** {.036}	.032** {.026}	.029*** {.000}	EMP6: 1. equally weighted average w/ int rate
L.REERrelativeratio	.047*** {.000}	.036*** {.000}	.023*** {.000}	.013*** {.000}	.158*** {.000}	.097*** {.000}	
Constant	-5.284*** {.000}	-4.046*** {.000}	-2.425*** {.000}	-1.398*** {.000}	-16.903*** {.000}	-10.330*** {.000}	
Adj.R-Square	0.19	0.19	0.14	0.19	0.12	0.23	
NumberObs.	183	183	183	183	183	183	
Pseudo R2							
ll	-214.49	-178.37	-110	-34.18	-460.65	-330.25	
aic	446.98	374.74	238	86.36	939.29	678.49	
bic	475.86	403.62	266.89	115.24	968.18	707.38	
chi2							
p	0	0	0	0	0	0	

* p<0.1, ** p<0.05, *** p<0.01
P value in parenthesis
Marginal effect coefficients are reported for Probit Analysis

Table 5.8
Probit Analysis : Average Capital Control Binary indices with Crisis Index 2 stdiviation

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.In-Binary	-0.046 {.843}	-0.126 {.611}	-0.304 {.149}	-0.305 {.165}	-0.047 {.792}	-0.085 {.651}	-0.018 {.919}	0.024 {.889}	-0.265 {.265}	-0.289 {.247}	0.013 {.940}	0.026 {.882}
L.Out-Binary	0.08 {.741}	0.143 {.575}	0.304 {.165}	0.284 {.212}	0.137 {.498}	0.209 {.328}	0.046 {.817}	0.05 {.799}	0.296 {.216}	0.302 {.232}	-0.01 {.957}	0.002 {.990}
L.relativeGPrivate_GDP	-0.011 {.870}	-0.009 {.921}	-0.257 {.115}	-0.323* {.052}	-0.285** {.013}	-0.286** {.026}	-0.291*** {.004}	-0.305*** {.004}	-0.008 {.893}	-0.014 {.846}	-0.279*** {.003}	-0.286** {.012}
L.S-TDebt/Reserves	0.012 {.540}	0.011 {.600}	-0.018 {.489}	0.011 {.550}	0.026 {.136}	0.027 {.166}	-0.007 {.758}	0.008 {.614}	-0.001 {.961}	0.015 {.485}	0 {.988}	0.011 {.456}
L.CurrentAcct/GDP	0.002 {.880}	0.006 {.612}	-0.002 {.864}	0.005 {.632}	-0.01 {.238}	-0.017* {.064}	-0.013 {.120}	-0.014* {.099}	-0.001 {.951}	0.007 {.557}	-0.013* {.079}	-0.013 {.113}
L.Govt Budget/GDP	-0.001 {.897}	-0.014 {.221}	0.014 {.299}	0.008 {.556}	-0.009 {.323}	-0.012 {.169}	0.002 {.856}	0.003 {.760}	0.014 {.284}	0.009 {.486}	0.001 {.911}	-0.003 {.759}
L.Inflation, GDP deflator	0.001 {.488}	0 {.805}	0.003* {.073}	0.002 {.167}	0 {.906}	0 {.789}	0.002 {.163}	0.001 {.244}	0.002 {.121}	0.002 {.296}	0.001 {.540}	0 {.912}
L.REERrelativeratio	.012*** {.002}	.019*** {.000}	.012*** {.002}	.017*** {.000}	.015*** {.000}	.017*** {.000}	.013*** {.000}	.013*** {.000}	.010*** {.008}	.014*** {.001}	.014*** {.000}	.015*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.07	0.13	0.1	0.15	0.23	0.24	0.21	0.19	0.06	0.08	0.27	0.22
ll	-76.05	-78.73	-68.58	-71.74	-56.34	-62.17	-49.86	-54.22	-76.71	-82.45	-44.7	-54.2
aic	168.09	173.46	153.16	159.49	128.68	140.34	115.72	124.45	169.43	180.9	105.4	124.41
bic	193.77	199.14	178.84	185.16	154.35	166.01	141.4	150.12	195.1	206.58	131.07	150.08
chi2	10.18	20.25	14.2	21.92	26.39	27.61	21.79	22.18	9.79	12.8	27.93	29.36
p	0.25	0.01	0.08	0.01	0	0	0.01	0	0.28	0.12	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Average Capital Control Binary indices with Crisis Index 3 stdiviation

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.In-Binary	-0.134 {.400}	-0.224 {.201}	-0.106 {.540}	-0.105 {.549}	-0.054 {.741}	-0.019 {.909}	0.014 {.915}	0.014 {.915}	-0.114 {.591}	-0.083 {.702}	0.071 {.640}	0.1 {.528}
L.Out-Binary	0.149 {.402}	0.23 {.236}	0.099 {.598}	0.077 {.682}	0.148 {.423}	0.089 {.643}	0.028 {.850}	0.028 {.850}	0.176 {.433}	0.095 {.677}	-0.043 {.800}	-0.093 {.604}
L.relativeGPrivate_GDP	0.024 {.135}	0.026 {.112}	0.001 {.937}	0 {.979}	-0.064 {.365}	-0.053 {.474}	-0.006 {.717}	-0.006 {.717}	0.037 {.149}	0.035 {.216}	-0.001 {.928}	-0.002 {.892}
L.S-TDebt/Reserves	0.016 {.267}	0.014 {.333}	0.015 {.294}	0.018 {.230}	0.024 {.100}	0.023 {.123}	0.007 {.557}	0.007 {.557}	0.019 {.254}	0.021 {.246}	0.014 {.316}	0.012 {.411}
L.CurrentAcct/GDP	-0.015* {.052}	-0.01 {.228}	0 {.974}	0.001 {.886}	-0.009 {.267}	-0.007 {.409}	-0.014** {.031}	-0.014** {.031}	-0.001 {.895}	0.003 {.786}	-0.008 {.281}	-0.007 {.411}
L.Govt Budget/GDP	-0.003 {.673}	-0.013 {.106}	0 {.976}	0.002 {.841}	-0.001 {.907}	-0.002 {.809}	0.003 {.664}	0.003 {.664}	-0.004 {.698}	-0.003 {.788}	0.002 {.801}	0.001 {.879}
L.Inflation, GDP deflator	0.001 {.409}	0 {.923}	0.001 {.609}	0 {.892}	0.001 {.662}	0.001 {.977}	0.001 {.449}	0.001 {.449}	0.001 {.338}	0 {.811}	0 {.977}	0 {.810}
L.REERrelativeratio	.013*** {.000}	.017*** {.000}	.012*** {.001}	.012*** {.001}	.013*** {.000}	.013*** {.000}	.007*** {.006}	.007*** {.006}	.014*** {.000}	.014*** {.001}	.012*** {.000}	.012*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.23	0.28	0.15	0.13	0.23	0.2	0.17	0.17	0.16	0.12	0.19	0.17
ll	-46.77	-49.71	-53.8	-56.86	-45.21	-49.07	-38.81	-38.81	-58.26	-64.13	-45.94	-49.08
aic	109.55	115.41	123.59	129.71	106.41	114.14	93.63	93.63	132.52	144.26	107.88	114.16
bic	135.22	141.09	149.27	155.39	132.09	139.81	119.3	119.3	158.2	169.94	133.56	139.83
chi2	19.35	29.64	17.88	16.97	26.17	23.68	14.22	14.22	16.55	14.59	24.1	24.66
p	0.01	0	0.02	0.03	0	0	0.08	0.08	0.04	0.07	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Average Capital Control Binary indices with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.In-Binary	-0.268 {.623}	0.226 {.588}	-0.431 {.285}	0.147 {.520}	-4.952* {.087}	0.786 {.486}
L.Out-Binary	0.204 {.736}	-0.285 {.535}	0.3 {.457}	-0.222 {.367}	4.373 {.120}	-0.905 {.459}
L.relativeGPrivate_GDP	0.077*** {.001}	.038* {.097}	.042*** {.000}	.024*** {.002}	.310*** {.000}	.199*** {.000}
L.S-TDebt/Reserves	-0.023 {.755}	-0.012 {.838}	-.106** {.045}	-.105** {.021}	-0.245 {.288}	-.372* {.087}
L.CurrentAcct/GDP	-.054* {.059}	-.055** {.032}	-0.016 {.243}	-0.012 {.226}	-0.055 {.486}	-0.044 {.416}
L.Govt Budget/GDP	0.008 {.710}	0.001 {.967}	-0.004 {.823}	0.009 {.284}	-0.105 {.420}	0.026 {.594}
L.Inflation, GDP deflator	.014*** {.000}	.011*** {.001}	.004* {.069}	0.002 {.130}	.039** {.017}	.026*** {.003}
L.REERrelativeratio	.045*** {.000}	.035*** {.000}	.022*** {.000}	.012*** {.000}	.151*** {.000}	.093*** {.000}
Constant	-4.704*** {.000}	-3.625*** {.000}	-2.120*** {.000}	-1.219*** {.001}	-14.994*** {.000}	-9.337*** {.000}
Adj.R-Square	0.17	0.18	0.15	0.19	0.13	0.22
NumberObs.	183	183	183	183	183	183
Pseudo R2						
ll	-216.07	-179.35	-109.22	-34.51	-459.18	-331.6
aic	450.15	376.69	236.44	87.02	936.36	681.2
bic	479.03	405.58	265.32	115.9	965.25	710.08
chi2						
p	0	0	0	0	0.01	0

- EMP1: 1. individual std-wieghted w/ int rate
- EMP2: 1. individual std-wieghted w/o int rate
- EMP3: 1. pooled std-wieghted w/ int rate
- EMP4: 1. pooled std-wieghted w/o int rate
- EMP5: 1. equally wieghted average w/ int rate
- EMP6: 1. equally wieghted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01
P value in parenthesis
Marginal effect coefficients are reported for Probit Analysis

Table: 5.9
Probit Analysis : Miniane's Capital Control with Crisis Index 2 stdlvidation

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.Miniane	-0.005 {.965}	-0.002 {.984}	-0.004 {.968}	-0.044 {.657}	0.079 {.420}	0.13 {.206}	-0.019 {.813}	0.012 {.883}	0.024 {.828}	0.009 {.935}	-0.019 {.810}	0.008 {.924}
L.relativeGPrivate_GDP	-0.022 {.805}	-0.023 {.848}	-0.284* {.077}	-0.347** {.035}	-0.309*** {.009}	-0.308** {.015}	-0.306*** {.002}	-0.312*** {.002}	-0.023 {.741}	-0.031 {.726}	-0.303*** {.002}	-0.301*** {.008}
L.S-TDebt/Reserves	0.005 {.820}	0.005 {.799}	-0.012 {.647}	0.004 {.841}	0.023 {.183}	0.022 {.233}	-0.011 {.715}	-0.015 {.634}	0.009 {.682}	0.014 {.540}	-0.008 {.790}	-0.008 {.765}
L.CurrentAcct/GDP	-0.004 {.748}	0 {.974}	-0.001 {.927}	0.005 {.678}	-0.017* {.095}	-0.022** {.031}	-0.014 {.123}	-0.018* {.052}	-0.006 {.655}	0.001 {.932}	-0.015* {.090}	-0.017* {.076}
L.Govt Budget/GDP	0.003 {.777}	-0.009 {.437}	0.021 {.152}	0.015 {.282}	-0.005 {.655}	-0.005 {.635}	0.005 {.602}	0.008 {.451}	0.019 {.177}	0.015 {.282}	0.009 {.361}	0.006 {.573}
L.Inflation, GDP deflator	0.002 {.196}	0.002 {.376}	0.003* {.065}	0.003* {.068}	0.001 {.068}	0.001 {.674}	0.002** {.752}	0.002** {.022}	0.003 {.037}	0.003 {.103}	0.002* {.179}	0.002 {.056}
L.REERrelativeratio	0.012*** {.002}	0.020*** {.000}	0.012*** {.001}	0.018*** {.000}	0.015*** {.000}	0.016*** {.000}	0.013*** {.000}	0.013*** {.000}	0.010*** {.012}	0.014*** {.002}	0.015*** {.000}	0.015*** {.000}
Adj.R-Square												
NumberObs.	162	162	162	162	162	162	162	162	162	162	162	162
Pseudo R2	0.07	0.13	0.12	0.17	0.23	0.24	0.24	0.23	0.06	0.08	0.29	0.24
ll	-70.72	-73.49	-63.03	-64.57	-52.5	-56.98	-42.79	-45.18	-72.61	-76.96	-39.91	-47.6
aic	155.44	160.99	140.06	143.14	119	127.95	99.59	104.36	159.22	167.92	93.82	109.19
bic	177.05	182.66	161.68	164.76	140.62	149.56	121.2	125.98	180.84	189.53	115.44	130.81
chi2	10.32	20.48	14.81	23.47	27.28	28.63	23.46	22.94	9.27	11.32	28.83	29.42
p	0.17	0	0.04	0	0	0	0	0	0.23	0.13	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Miniane's Capital Control with Crisis Index 3 stdlvidation

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.Miniane	-0.021 {.776}	0.001 {.994}	-0.05 {.546}	-0.071 {.395}	0.08 {.344}	0.066 {.431}	0.006 {.937}	0.006 {.937}	0.038 {.680}	-0.005 {.962}	-0.003 {.974}	-0.015 {.854}
L.relativeGPrivate_GDP	0.02 {.219}	0.02 {.258}	-0.004 {.794}	-0.004 {.780}	-0.084 {.257}	-0.071 {.360}	-0.017 {.673}	-0.017 {.673}	0.033 {.214}	0.031 {.284}	-0.005 {.762}	-0.004 {.780}
L.S-TDebt/Reserves	0.011 {.466}	0.011 {.481}	0.009 {.537}	0.013 {.373}	0.021 {.133}	0.019 {.186}	-0.017 {.479}	-0.017 {.479}	0.015 {.375}	0.016 {.358}	0.001 {.959}	-0.004 {.864}
L.CurrentAcct/GDP	-0.021** {.018}	-0.015* {.099}	-0.004 {.674}	-0.002 {.803}	-0.014 {.120}	-0.012 {.215}	-0.021*** {.005}	-0.021*** {.005}	-0.006 {.579}	-0.002 {.874}	-0.013 {.127}	-0.011 {.211}
L.Govt Budget/GDP	0 {.973}	-0.012 {.207}	0.003 {.729}	0.006 {.607}	0.003 {.757}	0.002 {.811}	0.008 {.373}	0.008 {.373}	0 {.995}	0.002 {.873}	0.008 {.432}	0.007 {.468}
L.Inflation, GDP deflator	0.002 {.210}	0 {.980}	0.001 {.278}	0.001 {.490}	0.001 {.380}	0.001 {.548}	0.001 {.161}	0.001 {.161}	0.002 {.147}	0.001 {.376}	0.001 {.378}	0.001 {.499}
L.REERrelativeratio	0.013*** {.000}	0.017*** {.000}	0.013*** {.000}	0.012*** {.001}	0.012*** {.000}	0.012*** {.000}	0.008*** {.006}	0.008*** {.006}	0.015*** {.000}	0.014*** {.000}	0.012*** {.000}	0.012*** {.000}
Adj.R-Square												
NumberObs.	162	162	162	162	162	162	162	162	162	162	162	162
Pseudo R2	0.25	0.28	0.15	0.13	0.23	0.2	0.22	0.22	0.16	0.12	0.21	0.18
ll	-42.4	-46.38	-49.56	-52.52	-41.75	-45.32	-33.53	-33.53	-54.33	-59.89	-41.5	-44.62
aic	98.79	106.77	113.12	119.04	97.51	104.65	81.06	81.06	122.65	133.77	96.99	103.23
bic	120.41	128.38	134.73	140.65	119.12	126.26	102.68	102.68	144.27	155.39	118.6	124.85
chi2	19.2	29.24	17.77	16.95	26.55	23.49	16.44	16.44	15.47	13.77	22.52	23.41
p	0.01	0	0.01	0.02	0	0	0.02	0.02	0.03	0.06	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Miniane's Capital Control with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.Miniane	0.069 {.788}	0.028 {.891}	-0.123 {.246}	-0.115 {.164}	-0.152 {.821}	-0.165 {.710}
L.relativeGPrivate_GDP	0.065*** {.002}	0.035 {.131}	0.036*** {.000}	0.027*** {.001}	0.228*** {.001}	0.214*** {.000}
L.S-TDebt/Reserves	-0.052 {.422}	-0.039 {.443}	-0.129*** {.001}	-0.138*** {.000}	-0.244 {.304}	-0.502*** {.001}
L.CurrentAcct/GDP	-0.061* {.058}	-0.069** {.014}	-0.014 {.298}	-0.015 {.127}	-0.029 {.744}	-0.063 {.270}
L.Govt Budget/GDP	0.027 {.274}	0.022 {.295}	0.005 {.758}	0.018** {.046}	-0.077 {.563}	0.066 {.204}
L.Inflation, GDP deflator	0.018*** {.001}	0.014*** {.002}	0.007** {.022}	0.004** {.030}	0.045** {.018}	0.034*** {.005}
L.REERrelativeratio	0.049*** {.000}	0.037*** {.000}	0.025*** {.000}	0.014*** {.000}	0.171*** {.000}	0.102*** {.000}
Constant	-5.143*** {.000}	-3.919*** {.000}	-2.427*** {.000}	-1.367*** {.000}	-17.091*** {.000}	-10.139*** {.000}
Adj.R-Square	0.21	0.21	0.21	0.33	0.13	0.29
NumberObs.	162	162	162	162	162	162
Pseudo R2						
ll	-190.32	-157.46	-93.32	-13.71	-414.29	-287.04
aic	396.64	330.93	202.64	43.41	844.58	590.08
bic	421.34	355.63	227.34	68.11	869.28	614.78
chi2						
p	0	0	0	0	0	0

- EMP1: 1. individual std-wighted w/ int rate
- EMP2: 1. individual std-wighted w/ int rate
- EMP3: 1. pooled std-wighted w/ int rate
- EMP4: 1. pooled std-wighted w/ int rate
- EMP5: 1. equally wighted average w/ int rate
- EMP6: 1. equally wighted average w/ int rate

* p<0.1, ** p<0.05, *** p<0.01

P value in parenthesis

Marginal effect coefficients are reported for Probit Analysis

Table: 5.10
Probit Analysis : Chinn-Ito's Capital Control with Crisis Index 2 std

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.N_Chinnito	0.022 {.808}	0.025 {.783}	0.023 {.777}	0.018 {.832}	.141* {.074}	.181** {.032}	0.022 {.762}	0.055 {.470}	0.054 {.547}	0.049 {.603}	0.047 {.517}	0.057 {.480}
L.relativeGPrivate_GDP	-0.029 {.782}	-0.037 {.816}	-0.244 {.168}	-0.309* {.069}	-0.365** {.011}	-0.368** {.017}	-0.287** {.019}	-0.298** {.018}	-0.026 {.725}	-0.037 {.701}	-0.350*** {.008}	-0.357** {.011}
L.S-TDebt/Reserves	0.016 {.427}	0.013 {.509}	0.019 {.320}	0.031 {.129}	0.024 {.158}	0.025 {.185}	0.017 {.279}	0.023 {.177}	0.023 {.292}	0.033 {.183}	0.018 {.244}	0.023 {.176}
L.CurrentAcct/GDP	0 {.983}	0.004 {.757}	-0.002 {.820}	0.003 {.779}	-0.012 {.183}	-0.018** {.048}	-0.013 {.129}	-0.015* {.093}	0 {.978}	0.006 {.601}	-0.012 {.150}	-0.013 {.160}
L.Govt Budget/GDP	0 {.983}	-0.01 {.359}	0.013 {.337}	0.007 {.587}	-0.009 {.254}	-0.011 {.164}	-0.004 {.724}	-0.001 {.927}	0.014 {.279}	0.01 {.446}	-0.004 {.643}	-0.006 {.508}
L.Inflation, GDP deflator	.003** {.038}	.003* {.078}	0.001 {.259}	0.001 {.400}	0 {.302}	0 {.184}	0 {.666}	0 {.568}	0.002 {.148}	0.002 {.285}	0 {.740}	0 {.515}
L.REERrelativeratio	.013*** {.001}	.019*** {.000}	.012*** {.001}	.018*** {.000}	.014*** {.000}	.016*** {.000}	.011*** {.003}	.011*** {.004}	.009** {.021}	.012*** {.003}	.011*** {.001}	.012*** {.001}
Adj.R-Square												
NumberObs.	199	199	199	199	199	199	199	199	199	199	199	199
Pseudo R2	0.09	0.13	0.11	0.16	0.18	0.2	0.14	0.14	0.06	0.07	0.16	0.15
ll	-90.04	-92.7	-82.6	-84.24	-70.5	-75.03	-66.58	-69.88	-93.89	-98.78	-65.14	-72.1
aic	194.09	199.4	179.2	182.48	155.01	164.07	147.16	153.76	201.79	211.56	144.28	158.2
bic	217.14	222.45	202.25	205.53	178.06	187.12	170.21	176.81	224.84	234.62	167.33	181.26
chi2	13.9	23.91	14.07	24.5	20.61	21.36	16.05	17.13	7.84	10.26	18.74	19.72
p	0.05	0	0.05	0	0	0	0.02	0.02	0.35	0.17	0.01	0.01

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Chinn-Ito's Capital Control with Crisis Index 3 std

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.N_Chinnito	-0.005 {.939}	0.008 {.903}	-0.02 {.766}	-0.031 {.651}	.120* {.063}	0.086 {.222}	0.027 {.635}	0.027 {.635}	0.009 {.894}	-0.033 {.665}	0.062 {.353}	0.032 {.650}
L.relativeGPrivate_GDP	0.024 {.106}	.026* {.099}	-0.002 {.905}	-0.003 {.841}	-0.123 {.299}	-0.117 {.329}	0.003 {.800}	0.003 {.800}	0.037 {.163}	0.032 {.252}	-0.059 {.593}	-0.049 {.647}
L.S-TDebt/Reserves	.019* {.097}	0.019 {.128}	.023* {.097}	.026* {.084}	0.024 {.121}	0.023 {.146}	0.012 {.227}	0.012 {.227}	.026* {.098}	0.027 {.107}	0.014 {.302}	0.013 {.385}
L.CurrentAcct/GDP	-.015** {.029}	-0.011 {.126}	-0.002 {.771}	-0.001 {.826}	-0.008 {.305}	-0.006 {.469}	-0.015** {.015}	-0.015** {.015}	-0.003 {.015}	0 {.980}	-0.006 {.474}	-0.004 {.643}
L.Govt Budget/GDP	-0.006 {.472}	-0.014* {.073}	0.002 {.824}	0.004 {.703}	-0.005 {.555}	-0.006 {.454}	0.003 {.697}	0.003 {.697}	-0.001 {.886}	-0.001 {.918}	0 {.993}	-0.001 {.889}
L.Inflation, GDP deflator	0 {.409}	-0.001 {.425}	0 {.413}	0 {.843}	0 {.428}	0 {.390}	0 {.413}	0 {.413}	0 {.172}	0 {.801}	0 {.627}	0 {.582}
L.REERrelativeratio	.013*** {.000}	.017*** {.000}	.012*** {.000}	.012*** {.001}	.011*** {.001}	.011*** {.001}	.007*** {.006}	.007*** {.006}	.014*** {.000}	.013*** {.000}	.010*** {.004}	.010*** {.003}
Adj.R-Square												
NumberObs.	199	199	199	199	199	199	199	199	199	199	199	199
Pseudo R2	0.25	0.29	0.16	0.14	0.15	0.13	0.19	0.19	0.16	0.13	0.11	0.09
ll	-48.81	-52.14	-59.99	-62.81	-60.4	-63.86	-40.8	-40.8	-64.99	-70.16	-59.86	-62.75
aic	111.61	118.28	133.99	139.62	134.81	141.71	95.6	95.6	143.98	154.33	133.71	139.5
bic	134.66	141.33	157.04	162.68	157.86	164.77	118.65	118.65	167.03	177.38	156.77	162.55
chi2	24.97	30.55	22.96	19.81	17.89	15.16	20.75	20.75	22.48	18.8	10.65	10.34
p	0	0	0	0.01	0.01	0.03	0	0	0	0.01	0.15	0.17

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Chinn-Ito's Capital Control with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.N_Chinnito	-0.196 {.369}	-0.119 {.523}	-0.153 {.108}	-0.117 {.114}	-0.567 {.323}	-0.383 {.344}
L.relativeGPrivate_GDP	.068*** {.008}	.044* {.079}	.027*** {.010}	.019** {.032}	.203*** {.005}	.187*** {.001}
L.S-TDebt/Reserves	-0.014 {.838}	-0.026 {.600}	-.117*** {.005}	-.127*** {.000}	-0.196 {.355}	-.446*** {.007}
L.CurrentAcct/GDP	-.049* {.070}	-.054** {.025}	-0.009 {.491}	-0.007 {.485}	-0.035 {.664}	-0.029 {.565}
L.Govt Budget/GDP	-0.036 {.138}	-.034* {.094}	-0.022 {.239}	-0.004 {.626}	-.02 {.154}	-0.058 {.256}
L.Inflation, GDP deflator	0 {.817}	0 {.854}	-0.000*** {.001}	-0.000*** {.018}	-0.001** {.011}	0 {.465}
L.REERrelativeratio	.035*** {.000}	.028*** {.000}	.018*** {.000}	.010*** {.002}	.122*** {.000}	.070*** {.001}
Constant	-3.611*** {.000}	-2.945*** {.000}	-1.743*** {.000}	-.991*** {.004}	-11.816*** {.000}	-6.753*** {.002}
Adj.R-Square	0.13	0.14	0.16	0.22	0.1	0.17
NumberObs.	199	199	199	199	199	199
Pseudo R2						
ll	-238.81	-202.91	-116.63	-40.56	-497.44	-365.41
aic	493.63	421.81	249.27	97.11	1010.88	746.82
bic	519.97	448.16	275.62	123.46	1037.23	773.17
chi2						
p	0	0	0	0	0	0

- EMP1: 1. individual std-wieghted w/ int rate
- EMP2: 1. individual std-wieghted w/ int rate
- EMP3: 1. pooled std-wieghted w/ int rate
- EMP4: 1. pooled std-wieghted w/o int rate
- EMP5: 1. equally wieghted average w/ int rate
- EMP6: 1. equally wieghted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01
P value in parenthesis
Marginal effect coefficients are reported for Probit Analysis

Table: 5.11
Probit Analysis : Edwards' Capital Control with Crisis Index 2 std

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.Edwards	0.196 {.127}	0.171 {.185}	0.148 {.235}	0.089 {.475}	.268** {.019}	.371*** {.002}	0.118 {.267}	0.18 {.105}	0.179 {.175}	0.173 {.197}	0.126 {.243}	.218* {.058}
L.relativeGPrivate_GDP	-0.02 {.821}	-0.028 {.836}	-0.229 {.168}	-0.301* {.065}	-0.344** {.023}	-0.346** {.039}	-0.272** {.020}	-0.276** {.019}	-0.021 {.750}	-0.033 {.716}	-0.338** {.011}	-0.339** {.018}
L.S-TDebt/Reserves	0.02 {.307}	0.018 {.378}	0.022 {.235}	0.033 {.104}	0.027 {.118}	0.028 {.130}	0.019 {.212}	0.025 {.133}	0.026 {.221}	0.036 {.145}	0.02 {.186}	0.026 {.132}
L.CurrentAcct/GDP	0.002 {.865}	0.006 {.582}	-0.001 {.958}	0.005 {.645}	-0.009 {.269}	-0.015* {.089}	-0.011 {.184}	-0.013 {.137}	0.001 {.908}	0.008 {.498}	-0.011 {.205}	-0.011 {.221}
L.Govt Budget/GDP	0.004 {.716}	-0.007 {.507}	0.015 {.220}	0.009 {.459}	-0.01 {.196}	-0.012 {.121}	-0.002 {.869}	0 {.967}	0.016 {.182}	0.012 {.309}	-0.003 {.724}	-0.004 {.668}
L.Inflation, GDP deflator	.003** {.020}	.003** {.049}	0.002 {.183}	0.001 {.331}	0 {.313}	0 {.193}	0 {.609}	0 {.520}	.002* {.099}	.002 {.205}	0 {.726}	0 {.467}
L.REERrelativeratio	.014*** {.000}	.020*** {.000}	.013*** {.000}	.018*** {.000}	.015*** {.000}	.017*** {.000}	.012*** {.002}	.012*** {.002}	.010*** {.009}	.013*** {.002}	.012*** {.001}	.013*** {.000}
Adj.R-Square												
NumberObs.	205	205	205	205	205	205	205	205	205	205	205	205
Pseudo R2	0.1	0.14	0.12	0.16	0.19	0.22	0.14	0.15	0.07	0.08	0.16	0.16
ll	-90.05	-93.28	-82.67	-84.79	-70.45	-74.19	-66.85	-69.68	-94.17	-99.23	-65.46	-71.44
aic	194.1	200.55	179.34	183.59	154.9	162.38	147.7	153.36	202.35	212.45	144.93	156.88
bic	217.36	223.81	202.6	206.85	178.16	185.64	170.96	176.62	225.61	235.72	168.19	180.14
chi2	16.59	24.78	15.81	25.34	24.6	27.26	17.27	19.53	10.68	12.66	21.06	23.3
p	0.02	0	0.03	0	0	0	0.02	0.01	0.15	0.08	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Edwards' Capital Control with Crisis Index 3 std

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.Edwards	0.022 {.798}	0.059 {.520}	0.083 {.404}	0.052 {.607}	.167* {.095}	.186* {.069}	.150* {.082}	.150* {.082}	0.084 {.395}	0.067 {.519}	0.135 {.172}	0.153 {.130}
L.relativeGPrivate_GDP	.025* {.098}	.027* {.088}	0.001 {.931}	-0.001 {.960}	-0.117 {.328}	-0.107 {.380}	0.009 {.408}	0.009 {.408}	0.038 {.140}	0.035 {.208}	-0.057 {.597}	-0.046 {.672}
L.S-TDebt/Reserves	.020* {.078}	.020* {.099}	.024* {.079}	.027* {.072}	.025* {.095}	0.024 {.114}	0.013 {.162}	0.013 {.162}	.027* {.081}	.028* {.091}	0.016 {.233}	0.015 {.287}
L.CurrentAcct/GDP	-0.14*** {.044}	-0.01 {.182}	-0.001 {.867}	0 {.976}	-0.006 {.435}	-0.004 {.596}	-0.014** {.018}	-0.014** {.018}	-0.002 {.793}	0.001 {.885}	-0.004 {.565}	-0.003 {.734}
L.Govt Budget/GDP	-0.004 {.583}	-0.012* {.099}	0.005 {.589}	0.007 {.475}	-0.006 {.411}	-0.006 {.438}	0.004 {.610}	0.004 {.610}	0 {.978}	0.002 {.821}	0 {.995}	0 {.978}
L.Inflation, GDP deflator	0 {.433}	-0.001 {.463}	0 {.228}	0 {.815}	0 {.472}	0 {.389}	0 {.275}	0 {.275}	0 {.114}	0 {.574}	0 {.626}	0 {.530}
L.REERrelativeratio	.013*** {.000}	.017*** {.000}	.013*** {.000}	.012*** {.000}	.011*** {.001}	.012*** {.001}	.009*** {.002}	.009*** {.002}	.015*** {.000}	.014*** {.000}	.010*** {.003}	.010*** {.003}
Adj.R-Square												
NumberObs.	205	205	205	205	205	205	205	205	205	205	205	205
Pseudo R2	0.25	0.29	0.16	0.15	0.15	0.14	0.22	0.22	0.16	0.14	0.11	0.11
ll	-49.46	-52.72	-60.1	-63.21	-61.26	-63.75	-39.71	-39.71	-65.25	-70.67	-59.96	-62.37
aic	112.93	119.45	134.2	140.41	136.52	141.49	93.43	93.43	144.49	155.34	133.91	138.73
bic	136.19	142.71	157.47	163.67	159.78	164.75	116.69	116.69	167.75	178.6	157.17	161.99
chi2	23.85	30.55	23.8	19.36	16.96	16.85	22.85	22.85	24.51	19.63	12.49	12.5
p	0	0	0	0.01	0.02	0.02	0	0	0	0.01	0.09	0.09

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Edwards' Capital Control with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.Edwards	-0.453 {.110}	-.618*** {.008}	-.284* {.065}	-.310*** {.003}	-.697 {.514}	-1.394*** {.007}
L.relativeGPrivate_GDP	.067*** {.009}	0.033 {.198}	.026*** {.007}	.016* {.052}	.209*** {.003}	.166*** {.003}
L.S-TDebt/Reserves	-0.016 {.809}	-0.034 {.447}	-.116*** {.005}	-.129*** {.000}	-0.179 {.410}	-.456*** {.004}
L.CurrentAcct/GDP	-.049* {.055}	-.049** {.029}	-0.004 {.764}	-0.003 {.800}	-0.015 {.833}	-0.012 {.813}
L.Govt Budget/GDP	-.035* {.097}	-.037** {.038}	-0.017 {.333}	-0.002 {.785}	-0.173 {.195}	-0.055 {.233}
L.Inflation, GDP deflator	0 {.928}	0 {.621}	-0.000*** {.000}	-0.000** {.021}	-0.001** {.010}	0 {.585}
L.REERrelativeratio	.034*** {.000}	.026*** {.000}	.018*** {.000}	.010*** {.002}	.122*** {.000}	.065*** {.001}
Constant	-3.440*** {.000}	-2.521*** {.000}	-1.663*** {.000}	-.845*** {.005}	-11.861*** {.000}	-5.939*** {.002}
Adj.R-Square	0.14	0.17	0.15	0.23	0.09	0.19
NumberObs.	205	205	205	205	205	205
Pseudo R2						
ll	-244.84	-204.49	-118.48	-39	-510.5	-372.77
aic	505.69	424.97	252.97	94.01	1037	761.55
bic	532.27	451.56	279.55	120.59	1063.59	788.13
chi2						
p	0	0	0	0	0	0

- EMP1: 1. individual std-weighted w/ int rate
- EMP2: 1. individual std-weighted w/o int rate
- EMP3: 1. pooled std-weighted w/ int rate
- EMP4: 1. pooled std-weighted w/o int rate
- EMP5: 1. equally weighted average w/ int rate
- EMP6: 1. equally weighted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01
P value in parenthesis
Marginal effect coefficients are reported for Probit Analysis

Table: 5.12
Probit Analysis : LMF Capital Control with Crisis Index 2 std

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.LMF	.385*	.416**	0.076	0.054	0.464	0.551	0.429	0.479	0.178	0.121	0.42	0.508
	{.069}	{.047}	{.675}	{.765}	{.146}	{.141}	{.189}	{.165}	{.365}	{.528}	{.180}	{.142}
L.relativeGPrivate_GDP	-0.036	-0.051	-0.253	-0.317*	-0.460**	-0.480**	-0.339***	-0.358***	-0.032	-0.045	-0.435**	-0.453**
	{.773}	{.808}	{.146}	{.059}	{.016}	{.022}	{.002}	{.001}	{.695}	{.695}	{.011}	{.011}
L.S-TDebt/Reserves	0.018	0.016	0.02	0.032	0.026	0.027	0.018	0.023	0.024	0.034	0.019	0.024
	{.359}	{.419}	{.280}	{.112}	{.135}	{.150}	{.235}	{.154}	{.259}	{.160}	{.205}	{.150}
L.CurrentAcct/GDP	0.005	0.01	0	0.005	-0.006	-0.011	-0.008	-0.009	0.004	0.01	-0.007	-0.007
	{.626}	{.376}	{.983}	{.610}	{.475}	{.206}	{.336}	{.266}	{.737}	{.408}	{.367}	{.408}
L.Govt Budget/GDP	0.003	-0.007	0.013	0.008	-0.01	-0.013*	0	0.002	0.014	0.01	-0.001	-0.003
	{.773}	{.504}	{.290}	{.529}	{.189}	{.100}	{1.000}	{.872}	{.241}	{.409}	{.865}	{.736}
L.Inflation, GDP deflator	.003*	0.002	0.001	0.001	0	0	0	0	0.002	0.002	0	0
	{.066}	{.125}	{.297}	{.426}	{.363}	{.252}	{.586}	{.532}	{.197}	{.328}	{.727}	{.495}
L.REERrelativeratio	.012***	.019***	.012***	.018***	.013***	.014***	.010***	.010***	.009**	.012***	.011***	.012***
	{.001}	{.000}	{.001}	{.000}	{.000}	{.000}	{.002}	{.003}	{.024}	{.004}	{.001}	{.001}
Adj.R-Square												
NumberObs.	205	205	205	205	205	205	205	205	205	205	205	205
Pseudo R2	0.1	0.14	0.11	0.16	0.18	0.19	0.15	0.15	0.06	0.07	0.17	0.16
ll	-90.06	-92.8	-83.32	-85.01	-71.8	-77.43	-66	-69.39	-94.72	-99.84	-64.74	-71.59
aic	194.12	199.61	180.64	184.02	157.6	168.86	145.99	152.79	203.44	213.67	143.48	157.17
bic	217.38	222.87	203.9	207.28	180.86	192.12	169.26	176.05	226.7	236.93	166.74	180.43
chi2	18.35	29.92	14.98	25.99	22.69	23.64	18.93	20.07	8.82	11.16	21.48	23
p	0.01	0	0.04	0	0	0	0.01	0.01	0.27	0.13	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : LMF Capital Control with Crisis Index 3 std

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.LMF	0.028	0.1	0.118	0.001	0.16	0.191	0.33	0.33	0.165	0.047	0.168	0.197
	{.812}	{.499}	{.305}	{.996}	{.362}	{.301}	{.377}	{.377}	{.253}	{.749}	{.330}	{.278}
L.relativeGPrivate_GDP	0.024	0.025	-0.005	-0.002	-0.15	-0.144	0	0	0.034	0.033	-0.084	-0.076
	{.117}	{.132}	{.740}	{.888}	{.223}	{.255}	{.985}	{.985}	{.184}	{.238}	{.446}	{.501}
L.S-TDebt/Reserves	.020*	0.019	.023*	.026*	.025*	0.024	0.012	0.012	.026*	.027*	0.015	0.014
	{.081}	{.105}	{.089}	{.077}	{.097}	{.121}	{.205}	{.205}	{.090}	{.097}	{.260}	{.327}
L.CurrentAcct/GDP	-.013*	-0.009	0	0	-0.005	-0.003	-0.013**	-0.013**	-0.001	0.002	-0.003	-0.001
	{.051}	{.227}	{.992}	{.985}	{.542}	{.746}	{.033}	{.033}	{.951}	{.840}	{.717}	{.919}
L.Govt Budget/GDP	-0.004	-0.013*	0.005	0.006	-0.007	-0.007	0.004	0.004	0	0.002	0	0
	{.571}	{.086}	{.614}	{.537}	{.341}	{.370}	{.628}	{.628}	{.972}	{.880}	{.980}	{.987}
L.Inflation, GDP deflator	0	-0.001	0	0	0	0	0	0	0	0	0	0
	{.527}	{.391}	{.671}	{.861}	{.546}	{.450}	{.524}	{.524}	{.308}	{.826}	{.683}	{.578}
L.REERrelativeratio	.012***	.017***	.012***	.012***	.010***	.010***	.007***	.007***	.014***	.013***	.009***	.009***
	{.000}	{.000}	{.000}	{.001}	{.002}	{.001}	{.005}	{.005}	{.000}	{.000}	{.004}	{.003}
Adj.R-Square												
NumberObs.	205	205	205	205	205	205	205	205	205	205	205	205
Pseudo R2	0.25	0.29	0.16	0.14	0.14	0.12	0.2	0.2	0.16	0.13	0.11	0.1
ll	-49.48	-52.77	-60.22	-63.34	-62.23	-64.84	-40.87	-40.87	-65.19	-70.81	-60.45	-62.93
aic	112.96	119.54	134.45	140.68	138.46	143.68	95.75	95.75	144.37	155.62	134.9	139.86
bic	136.22	142.8	157.71	163.94	161.72	166.94	119.01	119.01	167.63	178.89	158.16	163.12
chi2	22.94	31	22.66	19.23	16.41	16.17	17.86	17.86	23.45	18.07	12.83	12.96
p	0	0	0	0.01	0.02	0.02	0.01	0.01	0	0.01	0.08	0.07

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: LMF Capital Control with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.LMF	0.098	-0.081	-0.125	-0.133	-0.029	-0.204
	{.800}	{.734}	{.349}	{.107}	{.976}	{.620}
L.relativeGPrivate_GDP	.077***	.049**	.034***	.025***	.225***	.202***
	{.002}	{.046}	{.001}	{.002}	{.002}	{.000}
L.S-TDebt/Reserves	-0.01	-0.026	-.112***	-.125***	-0.17	-.438***
	{.887}	{.601}	{.009}	{.000}	{.447}	{.009}
L.CurrentAcct/GDP	-.050*	-.054**	-0.007	-0.006	-0.02	-0.023
	{.054}	{.022}	{.590}	{.554}	{.795}	{.661}
L.Govt Budget/GDP	-0.028	-.030*	-0.014	0	-0.164	-0.039
	{.180}	{.083}	{.410}	{.965}	{.224}	{.393}
L.Inflation, GDP deflator	0	0	-.000***	-.000***	-.001***	0
	{.709}	{.939}	{.000}	{.007}	{.008}	{.385}
L.REERrelativeratio	.036***	.028***	.019***	.011***	.125***	.072***
	{.000}	{.000}	{.000}	{.001}	{.000}	{.001}
Constant	-3.890***	-2.946***	-1.780***	-.976***	-12.395***	-6.877***
	{.000}	{.000}	{.000}	{.005}	{.000}	{.001}
Adj.R-Square	0.13	0.14	0.14	0.2	0.09	0.16
NumberObs.	205	205	205	205	205	205
Pseudo R2						
ll	-246.14	-208.08	-120.09	-43.13	-510.74	-376.3
aic	508.28	432.15	256.19	102.27	1037.47	768.59
bic	534.86	458.73	282.77	128.85	1064.06	795.18
chi2						
p	0	0	0	0	0	0

- EMP1: 1. individual std-wieghted w/ int rate
- EMP2: 1. individual std-wieghted w/o int rate
- EMP3: 1. pooled std-wieghted w/ int rate
- EMP4: 1. pooled std-wieghted w/o int rate
- EMP5: 1. equally wieghted average w/ int rate
- EMP6: 1. equally wieghted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01
P value in parenthesis
Marginal effect coefficients are reported for Probit Analysis

Table: 5.13

Probit Analysis : Glick-Hutchinson Capital Control with Crisis Index 2 std

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.Glick-Hutchinson	0.018 {.758}	0.016 {.787}	0.005 {.928}	0.003 {.958}	0.067 {.135}	0.079 {.107}	0.011 {.809}	0.03 {.503}	0.029 {.616}	0.019 {.760}	0.023 {.565}	0.03 {.515}
L.relativeGPrivate_GDP	-0.014 {.852}	-0.013 {.893}	-0.258 {.100}	-0.325** {.041}	-0.294*** {.009}	-0.299** {.017}	-0.293*** {.004}	-0.311*** {.004}	-0.014 {.810}	-0.021 {.775}	-0.279*** {.003}	-0.288** {.010}
L.S-TDebt/Reserves	0.013 {.511}	0.013 {.527}	-0.009 {.668}	0.016 {.389}	0.026 {.121}	0.028 {.142}	-0.007 {.761}	0.007 {.657}	0.004 {.851}	0.019 {.374}	-0.001 {.974}	0.011 {.487}
L.CurrentAcct/GDP	0.002 {.882}	0.006 {.611}	-0.001 {.939}	0.006 {.607}	-0.011 {.211}	-0.017* {.052}	-0.013 {.111}	-0.015* {.080}	0 {.977}	0.008 {.505}	-0.013* {.085}	-0.013 {.113}
L.Govt Budget/GDP	-0.002 {.893}	-0.014 {.216}	0.012 {.343}	0.006 {.625}	-0.008 {.378}	-0.012 {.196}	0.002 {.856}	0.004 {.722}	0.013 {.314}	0.008 {.539}	0.002 {.831}	-0.002 {.842}
L.Inflation, GDP deflator	0.001 {.567}	0 {.970}	0.002 {.198}	0.001 {.371}	-0.001 {.624}	-0.001 {.420}	0.001 {.184}	0.001 {.304}	0.002 {.255}	0.001 {.544}	0.001 {.540}	0 {.942}
L.REERrelativeratio	.012*** {.002}	.019*** {.000}	.011*** {.002}	.017*** {.000}	.015*** {.000}	.017*** {.000}	.013*** {.000}	.012*** {.000}	.010*** {.009}	.013*** {.001}	.014*** {.000}	.015*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.07	0.13	0.09	0.15	0.23	0.24	0.21	0.19	0.05	0.07	0.27	0.22
ll	-76.09	-78.83	-69.38	-72.46	-56.01	-62.11	-49.92	-54.48	-77.25	-83.02	-44.54	-54.07
aic	166.17	171.66	152.77	158.92	126.02	138.21	113.83	122.95	168.49	180.05	103.08	122.13
bic	188.64	194.13	175.24	181.39	148.48	160.68	136.3	145.42	190.96	202.51	125.54	144.6
chi2	10.14	20.7	12.81	22	25.86	27.04	21.91	21.76	7.83	10.95	25.63	27.53
p	0.18	0	0.08	0	0	0	0	0	0.35	0.14	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Glick-Hutchinson Capital Control with Crisis Index 3 std

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.Glick-Hutchinson	0.007 {.875}	0.014 {.765}	0.013 {.768}	-0.004 {.930}	.066* {.070}	0.048 {.238}	0.041 {.235}	0.041 {.235}	0.041 {.373}	0.002 {.963}	0.033 {.397}	0.016 {.703}
L.relativeGPrivate_GDP	0.022 {.174}	0.023 {.171}	-0.002 {.905}	-0.002 {.904}	-0.073 {.289}	-0.06 {.413}	-0.007 {.654}	-0.007 {.654}	0.034 {.184}	0.033 {.235}	-0.001 {.931}	-0.001 {.963}
L.S-TDebt/Reserves	0.018 {.191}	0.017 {.217}	0.017 {.249}	0.02 {.199}	.024* {.088}	0.023 {.115}	0.006 {.609}	0.006 {.609}	0.02 {.215}	0.022 {.217}	0.012 {.363}	0.01 {.497}
L.CurrentAcct/GDP	-0.015* {.051}	-0.01 {.203}	0 {.987}	0.002 {.857}	-0.009 {.227}	-0.007 {.380}	-0.015** {.025}	-0.015** {.025}	-0.002 {.864}	0.003 {.779}	-0.008 {.204}	-0.006 {.419}
L.Govt Budget/GDP	-0.005 {.581}	-0.015* {.071}	0 {.992}	0.001 {.882}	0 {.968}	-0.002 {.864}	0.004 {.564}	0.004 {.564}	-0.004 {.690}	-0.003 {.742}	0.004 {.672}	0.003 {.764}
L.Inflation, GDP deflator	0 {.708}	-0.001 {.491}	0 {.794}	0 {.981}	0 {.958}	0 {.811}	0.001 {.541}	0.001 {.541}	0.001 {.643}	0 {.974}	0 {.929}	0 {.944}
L.REERrelativeratio	.013*** {.000}	.017*** {.000}	.012*** {.000}	.012*** {.001}	.013*** {.000}	.013*** {.000}	.007*** {.006}	.007*** {.006}	.014*** {.000}	.013*** {.001}	.012*** {.000}	.012*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.23	0.27	0.15	0.13	0.24	0.2	0.18	0.18	0.16	0.12	0.19	0.16
ll	-47.03	-50.24	-53.88	-57.01	-44.81	-48.9	-38.38	-38.38	-58.37	-64.21	-45.73	-49.13
aic	108.05	114.48	121.76	128.02	103.62	111.81	90.76	90.76	130.73	142.43	105.47	112.25
bic	130.52	136.95	144.22	150.48	126.09	134.27	113.23	113.23	153.2	164.89	127.94	134.72
chi2	18.74	29.55	17.1	16.42	26.51	23.21	13.71	13.71	15.77	14.65	22.81	23.3
p	0.01	0	0.02	0.02	0	0	0.06	0.06	0.03	0.04	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Glick-Hutchinson's Capital Control with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.Glick-Hutchinson	0.005 {.972}	0.019 {.872}	-0.068 {.333}	-0.045 {.327}	-0.179 {.712}	0.031 {.903}
L.relativeGPrivate_GDP	.072*** {.001}	.040* {.069}	.037*** {.000}	.027*** {.000}	.238*** {.001}	.208*** {.000}
L.S-TDebt/Reserves	-0.018 {.813}	-0.016 {.791}	-.098* {.076}	-.108** {.015}	-.159 {.545}	-.384* {.068}
L.CurrentAcct/GDP	-.053* {.057}	-.057** {.022}	-0.013 {.324}	-0.013 {.193}	-0.029 {.710}	-0.049 {.341}
L.Govt Budget/GDP	0.009 {.702}	0.003 {.857}	-0.006 {.723}	0.009 {.288}	-0.121 {.340}	0.032 {.504}
L.Inflation, GDP deflator	.014*** {.000}	.011*** {.000}	.004* {.088}	.003* {.054}	.029** {.046}	.028*** {.001}
L.REERrelativeratio	.045*** {.000}	.035*** {.000}	.021*** {.000}	.012*** {.001}	.149*** {.000}	.095*** {.000}
Constant	-4.764*** {.000}	-3.754*** {.000}	-2.111*** {.000}	-1.243*** {.001}	-14.876*** {.000}	-9.621*** {.000}
Adj.R-Square	0.18	0.19	0.14	0.19	0.11	0.22
NumberObs.	183	183	183	183	183	183
Pseudo R2						
ll	-216.23	-179.54	-110.26	-34.89	-462.13	-331.96
aic	448.46	375.08	236.52	85.78	940.26	679.93
bic	474.13	400.75	262.19	111.45	965.93	705.6
chi2						
p	0	0	0	0	0	0

- EMP1: 1. individual std-weighted w/ int rate
- EMP2: 1. individual std-weighted w/o int rate
- EMP3: 1. pooled std-weighted w/ int rate
- EMP4: 1. pooled std-weighted w/o int rate
- EMP5: 1. equally weighted average w/ int rate
- EMP6: 1. equally weighted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01

P value in parenthesis

Marginal effect coefficients are reported for Probit Analysis

Table: 5.14
Probit Analysis : Control on Capital Inflows with Crisis Index 2 std

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.in5	0.084 {.608}	0.016 {.925}	-0.047 {.738}	-0.078 {.599}	0.146 {.276}	0.174 {.225}	0.039 {.751}	0.116 {.379}	0.043 {.797}	0.001 {.997}	0.01 {.934}	0.046 {.722}
L.relativeGPrivate_GDP	-0.012 {.854}	-0.012 {.897}	-0.262 {.102}	-0.330** {.045}	-2.81** {.011}	-2.85** {.021}	-2.90*** {.004}	-3.01*** {.004}	-0.014 {.815}	-0.021 {.781}	-2.78*** {.004}	-2.84** {.012}
L.S-TDebt/Reserves	0.014 {.497}	0.013 {.525}	-0.011 {.633}	0.015 {.410}	0.027 {.410}	0.029 {.137}	-0.006 {.783}	0.008 {.595}	0.004 {.839}	0.019 {.375}	-0.001 {.977}	0.011 {.464}
L.CurrentAcct/GDP	0.002 {.882}	0.006 {.604}	-0.001 {.918}	0.005 {.626}	-0.011 {.208}	-0.017* {.055}	-0.013 {.115}	-0.015* {.088}	0.001 {.961}	0.008 {.494}	-0.013* {.085}	-0.013 {.115}
L.Govt Budget/GDP	-0.002 {.870}	-0.014 {.191}	0.012 {.357}	0.005 {.661}	-0.01 {.271}	-0.014 {.123}	0.001 {.880}	0.003 {.784}	0.012 {.331}	0.007 {.563}	0.001 {.900}	-0.003 {.763}
L.Inflation, GDP deflator	0.001 {.510}	0 {.969}	0.002 {.219}	0.001 {.423}	0 {.769}	-0.001 {.566}	0.001 {.171}	0.001 {.230}	0.002 {.253}	0.001 {.557}	0.001 {.500}	0 {.873}
L.REERrelativeratio	0.12*** {.001}	0.19*** {.000}	0.11*** {.002}	0.17*** {.000}	0.15*** {.000}	0.17*** {.000}	0.13*** {.000}	0.13*** {.000}	0.10** {.012}	0.13*** {.002}	0.14*** {.000}	0.17*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.07	0.13	0.09	0.15	0.23	0.23	0.21	0.19	0.05	0.07	0.27	0.22
ll	-75.99	-78.86	-69.34	-72.33	-56.44	-62.61	-49.9	-54.28	-77.33	-83.07	-44.7	-54.21
aic	165.98	171.73	152.68	158.67	126.88	139.23	113.79	122.57	168.67	180.14	103.39	122.42
bic	188.45	194.19	175.15	181.14	149.34	161.7	136.26	145.03	191.13	202.61	125.86	144.89
chi2	10.45	20.74	13.02	21.99	26.68	27.81	21.3	21.56	7.59	11.02	26.4	27.69
p	0.16	0	0.07	0	0	0	0	0	0.37	0.14	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Control on Capital Inflows with Crisis Index 3 std

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.in5	0 {.997}	-0.041 {.727}	-0.005 {.965}	-0.047 {.712}	0.144 {.225}	0.098 {.423}	0.08 {.486}	0.08 {.486}	0.086 {.516}	-0.005 {.973}	0.074 {.553}	0.034 {.789}
L.relativeGPrivate_GDP	0.022 {.170}	0.023 {.163}	-0.001 {.952}	-0.001 {.941}	-0.063 {.380}	-0.054 {.467}	-0.006 {.691}	-0.006 {.691}	0.035 {.181}	0.033 {.233}	-0.001 {.962}	0 {.979}
L.S-TDebt/Reserves	0.018 {.186}	0.018 {.205}	0.017 {.247}	0.02 {.201}	0.025* {.083}	0.024 {.109}	0.008 {.537}	0.008 {.537}	0.021 {.207}	0.022 {.217}	0.013 {.335}	0.01 {.482}
L.CurrentAcct/GDP	-0.015* {.051}	-0.01 {.212}	0 {.987}	0.001 {.862}	-0.01 {.214}	-0.007 {.370}	-0.015** {.029}	-0.015** {.029}	-0.001 {.881}	0.003 {.777}	-0.008 {.274}	-0.007 {.419}
L.Govt Budget/GDP	-0.005 {.565}	-0.015* {.062}	0 {.958}	0.001 {.890}	-0.002 {.796}	-0.003 {.746}	0.003 {.670}	0.003 {.670}	-0.005 {.597}	-0.003 {.727}	0.003 {.746}	0.002 {.798}
L.Inflation, GDP deflator	0 {.702}	-0.001 {.500}	0 {.803}	0 {.938}	0 {.844}	0 {.932}	0.001 {.427}	0.001 {.427}	0.001 {.570}	0.001 {.978}	0 {.827}	0 {.985}
L.REERrelativeratio	0.13*** {.000}	0.17*** {.000}	0.12*** {.000}	0.12*** {.001}	0.13*** {.000}	0.13*** {.000}	0.07*** {.006}	0.07*** {.006}	0.14*** {.000}	0.13*** {.000}	0.12*** {.000}	0.12*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.23	0.27	0.15	0.13	0.23	0.19	0.17	0.17	0.15	0.12	0.19	0.16
ll	-47.04	-50.23	-53.92	-56.95	-45.43	-49.21	-38.75	-38.75	-58.54	-64.21	-45.86	-49.16
aic	108.08	114.47	121.84	127.9	104.87	112.43	91.5	91.5	131.08	142.43	105.72	112.31
bic	130.54	136.93	144.31	150.36	127.33	134.89	113.97	113.97	153.54	164.89	128.19	134.78
chi2	18.82	30.36	17.29	16.56	26.5	23.51	13.27	13.27	16.23	14.64	22.43	22.54
p	0.01	0	0.02	0.02	0	0	0.07	0.07	0.02	0.04	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Control on Capital Inflows with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.in5	-0.566 {.129}	-0.406 {.189}	-0.343** {.050}	-0.169 {.163}	-1.914* {.096}	-0.447 {.474}
L.relativeGPrivate_GDP	0.079*** {.001}	0.046* {.071}	0.039*** {.000}	0.027*** {.000}	0.256*** {.000}	0.215*** {.000}
L.S-TDebt/Reserves	-0.022 {.753}	-0.019 {.734}	-0.100* {.060}	-0.109** {.013}	-0.173 {.487}	-0.388* {.062}
L.CurrentAcct/GDP	-0.052* {.065}	-0.056** {.027}	-0.014 {.309}	-0.013 {.178}	-0.029 {.717}	-0.048 {.357}
L.Govt Budget/GDP	0.005 {.799}	0.001 {.978}	-0.005 {.760}	0.01 {.228}	-0.124 {.333}	0.028 {.544}
L.Inflation, GDP deflator	0.013*** {.000}	0.011*** {.000}	0.003 {.115}	0.003* {.064}	0.027* {.063}	0.028*** {.001}
L.REERrelativeratio	0.043*** {.000}	0.034*** {.000}	0.021*** {.000}	0.012*** {.001}	0.144*** {.000}	0.093*** {.000}
Constant	-4.359*** {.000}	-3.436*** {.000}	-1.997*** {.000}	-1.208*** {.001}	-13.865*** {.000}	-9.250*** {.000}
Adj.R-Square	0.19	0.19	0.15	0.2	0.12	0.22
NumberObs.	183	183	183	183	183	183
Pseudo R2						
ll	-214.94	-178.57	-109.18	-34.48	-461.19	-331.75
aic	445.88	373.14	234.36	84.96	938.38	679.49
bic	471.56	398.81	260.04	110.64	964.06	705.17
chi2						
p	0	0	0	0	0	0

EMP1: 1. individual std-wieghted w/ int rate
 EMP2: 1. individual std-wieghted w/o int rate
 EMP3: 1. pooled std-wieghted w/ int rate
 EMP4: 1. pooled std-wieghted w/o int rate
 EMP5: 1. equally wieghted average w/ int rate
 EMP6: 1. equally wieghted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01
 P value in parenthesis
 Marginal effect coefficients are reported for Probit Analysis

Table: 5.15

Probit Analysis : Control on Capital Outflows with Crisis Index 2 std

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.out5	0.104 {.472}	0.049 {.735}	0.053 {.701}	0 {.999}	0.16 {.216}	0.207 {.134}	0.052 {.670}	0.1 {.424}	0.083 {.563}	0.018 {.907}	0.037 {.753}	0.069 {.585}
L.relativeGPrivate_GDP	-0.012 {.861}	-0.012 {.899}	-0.256* {.097}	-0.325** {.041}	-0.287*** {.009}	-0.290*** {.017}	-0.291*** {.003}	-0.307*** {.003}	-0.013 {.819}	-0.021 {.780}	-0.277*** {.003}	-0.285** {.010}
L.S-TDebt/Reserves	0.013 {.520}	0.013 {.533}	-0.009 {.675}	0.016 {.391}	0.026 {.128}	0.027 {.154}	-0.007 {.754}	0.007 {.684}	0.004 {.848}	0.019 {.375}	-0.001 {.375}	0.01 {.960}
L.CurrentAcct/GDP	0.001 {.924}	0.006 {.627}	-0.001 {.937}	0.006 {.611}	-0.011 {.190}	-0.018** {.047}	-0.013 {.114}	-0.015* {.081}	0 {.991}	0.008 {.501}	-0.013* {.086}	-0.013 {.114}
L.Govt Budget/GDP	-0.001 {.899}	-0.014 {.203}	0.013 {.327}	0.006 {.628}	-0.009 {.321}	-0.013 {.159}	0.002 {.866}	0.003 {.758}	0.013 {.317}	0.008 {.556}	0.001 {.879}	-0.002 {.804}
L.Inflation, GDP deflator	0.001 {.421}	0 {.896}	0.002 {.168}	0.001 {.382}	0 {.992}	0 {.853}	0 {.158}	0 {.192}	0.002 {.192}	0.002 {.544}	0.001 {.456}	0 {.775}
L.REERrelativeratio	.012*** {.001}	.019*** {.000}	.012*** {.001}	.017*** {.000}	.015*** {.000}	.017*** {.000}	.013*** {.000}	.013*** {.000}	.010*** {.010}	.013*** {.002}	.014*** {.000}	.015*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.07	0.13	0.09	0.15	0.23	0.24	0.21	0.19	0.05	0.07	0.27	0.22
ll	-75.86	-78.81	-69.31	-72.46	-56.16	-62.07	-49.84	-54.33	-77.2	-83.06	-44.64	-54.1
aic	165.73	171.62	152.62	158.93	126.32	138.13	113.68	122.66	168.41	180.13	103.28	122.21
bic	188.19	194.09	175.09	181.39	148.78	160.6	136.14	145.12	190.88	202.6	125.74	144.67
chi2	10.55	20.7	12.82	22.02	26.54	27.82	21.35	21.53	7.81	10.88	26.2	27.71
p	0.16	0	0.08	0	0	0	0	0	0.35	0.14	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Control on Capital Outflows with Crisis Index 3 std

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.out5	0.053 {.638}	0.033 {.777}	0.041 {.732}	-0.006 {.958}	0.157 {.180}	0.105 {.368}	0.081 {.471}	0.081 {.471}	0.144 {.252}	0.041 {.757}	0.06 {.614}	0.019 {.875}
L.relativeGPrivate_GDP	0.022 {.171}	0.023 {.168}	-0.001 {.918}	-0.002 {.896}	-0.068 {.365}	-0.057 {.460}	-0.006 {.711}	-0.006 {.711}	-0.006 {.175}	0.035 {.240}	0.033 {.985}	0 {.995}
L.S-TDebt/Reserves	0.017 {.211}	0.017 {.224}	0.017 {.253}	0.02 {.200}	.024* {.093}	0.023 {.119}	0.006 {.628}	0.006 {.628}	0.02 {.227}	0.022 {.222}	0.012 {.374}	0.01 {.500}
L.CurrentAcct/GDP	-0.015** {.048}	-0.011 {.202}	0 {.975}	0.002 {.856}	-0.01 {.201}	-0.008 {.359}	-0.015** {.027}	-0.015** {.027}	-0.002 {.806}	0.002 {.798}	-0.009 {.417}	-0.007 {.417}
L.Govt Budget/GDP	-0.005 {.574}	-0.015* {.065}	0 {.997}	0.002 {.872}	-0.001 {.891}	-0.002 {.804}	0.003 {.653}	0.003 {.653}	-0.004 {.653}	-0.003 {.753}	0.003 {.731}	0.002 {.798}
L.Inflation, GDP deflator	0.001 {.616}	-0.001 {.575}	0 {.696}	0 {.969}	0.001 {.622}	0 {.928}	0.001 {.359}	0.001 {.359}	0.001 {.359}	0.001 {.373}	0 {.901}	0 {.775}
L.REERrelativeratio	.013*** {.000}	.017*** {.000}	.013*** {.000}	.012*** {.001}	.013*** {.000}	.013*** {.000}	.008*** {.007}	.008*** {.007}	.015*** {.000}	.014*** {.000}	.012*** {.000}	.012*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.23	0.27	0.15	0.13	0.23	0.2	0.18	0.18	0.16	0.12	0.19	0.16
ll	-46.92	-50.24	-53.86	-57.01	-45.14	-49.09	-38.69	-38.69	-58.06	-64.16	-45.91	-49.18
aic	107.85	114.49	121.71	128.02	104.28	112.17	91.39	91.39	130.12	142.33	105.81	112.37
bic	130.31	136.96	144.18	150.49	126.74	134.64	113.86	113.86	152.58	164.79	128.28	134.83
chi2	19.1	29.84	17.24	16.08	25.82	23.06	13.71	13.71	17.95	14.7	22.66	23.05
p	0.01	0	0.02	0.02	0	0	0.06	0.06	0.01	0.04	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Control on Capital Outflows with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6	
L.out5	-0.423 {.237}	-0.449 {.124}	-0.232 {.149}	-0.247** {.043}	-0.38 {.700}	-0.826 {.177}	
L.relativeGPrivate_GDP	.076*** {.001}	.045* {.072}	.037*** {.000}	.027*** {.000}	.234*** {.000}	.217*** {.000}	EMP1: 1. individual std-wieghted w/ int rate
L.S-TDebt/Reserves	-0.017 {.811}	-0.016 {.786}	-0.097* {.075}	-0.107** {.014}	-0.158 {.549}	-0.384* {.062}	EMP2: 1. individual std-wieghted w/o int rate
L.CurrentAcct/GDP	-0.049* {.085}	-0.052** {.040}	-0.012 {.373}	-0.011 {.269}	-0.028 {.718}	-0.041 {.446}	EMP3: 1. pooled std-wieghted w/ int rate
L.Govt Budget/GDP	0.005 {.811}	-0.001 {.966}	-0.005 {.762}	0.009 {.271}	-0.117 {.271}	0.024 {.360}	EMP4: 1. pooled std-wieghted w/o int rate
L.Inflation, GDP deflator	.013*** {.001}	.010*** {.001}	0.003 {.134}	0.002 {.130}	.028** {.045}	.026*** {.002}	EMP5: 1. equally wieghted average w/ int rate
L.REERrelativeratio	.043*** {.000}	.033*** {.000}	.021*** {.000}	.012*** {.001}	.149*** {.000}	.091*** {.000}	EMP6: 1. equally wieghted average w/o int rate
Constant	-4.394*** {.000}	-3.336*** {.000}	-2.038*** {.000}	-1.115*** {.001}	-14.879*** {.000}	-8.856*** {.000}	
Adj.R-Square	0.19	0.2	0.15	0.21	0.11	0.23	
NumberObs.	183	183	183	183	183	183	
Pseudo R2							
ll	-215.33	-178.04	-109.82	-33.09	-462.14	-331.01	
aic	446.67	372.09	235.65	82.18	940.28	678.01	
bic	472.34	397.76	261.33	107.86	965.96	703.69	
chi2							
p	0	0	0	0	0	0	

* p<0.1, ** p<0.05, *** p<0.01
P value in parenthesis
Marginal effect coefficients are reported for Probit Analysis

Table: 5.16
Probit Analysis : Overall Control with Crisis Index 2 std

	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
L.inout	0.227 {.373}	0.082 {.754}	-0.008 {.973}	-0.09 {.708}	0.268 {.225}	0.313 {.190}	0.095 {.657}	0.212 {.340}	0.147 {.572}	0.021 {.940}	0.058 {.781}	0.107 {.634}
L.relativeGPrivate_GDP	-0.01 {.869}	-0.011 {.901}	-0.259 {.100}	-0.330** {.044}	-0.275** {.011}	-0.278** {.021}	-0.287*** {.004}	-0.296*** {.003}	-0.012 {.820}	-0.021 {.778}	-0.274*** {.004}	-0.280** {.012}
L.S-TDebt/Reserves	0.013 {.501}	0.013 {.525}	-0.01 {.661}	0.016 {.397}	0.027 {.121}	0.028 {.141}	-0.006 {.779}	0.008 {.625}	0.004 {.826}	0.019 {.374}	0 {.986}	0.011 {.475}
L.CurrentAcct/GDP	0.001 {.934}	0.006 {.625}	-0.001 {.937}	0.006 {.608}	-0.012 {.182}	-0.018** {.048}	-0.013 {.114}	-0.015* {.079}	0 {.998}	0.008 {.498}	-0.013* {.086}	-0.014 {.114}
L.Govt Budget/GDP	-0.001 {.906}	-0.014 {.200}	0.012 {.348}	0.006 {.656}	-0.009 {.299}	-0.014 {.141}	0.002 {.873}	0.003 {.769}	0.013 {.315}	0.007 {.557}	0.001 {.888}	-0.003 {.784}
L.Inflation, GDP deflator	0.001 {.390}	0 {.905}	0.002 {.210}	0.001 {.442}	0 {.954}	-0.001 {.761}	0.002 {.153}	0.002 {.174}	0.002 {.210}	0.001 {.550}	0.001 {.459}	0 {.800}
L.REERrelativeratio	.013*** {.001}	.019*** {.000}	.011*** {.002}	.017*** {.000}	.015*** {.000}	.017*** {.000}	.013*** {.000}	.013*** {.000}	.010** {.010}	.013*** {.002}	.014*** {.000}	.015*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.07	0.13	0.09	0.15	0.23	0.24	0.21	0.19	0.05	0.07	0.27	0.22
ll	-75.73	-78.82	-69.39	-72.4	-56.27	-62.44	-49.84	-54.18	-77.21	-83.07	-44.65	-54.15
aic	165.46	171.64	152.78	158.8	126.54	138.89	113.67	122.37	168.41	180.14	103.31	122.3
bic	187.93	194.1	175.24	181.26	149.01	161.35	136.14	144.83	190.88	202.6	125.77	144.76
chi2	10.86	20.75	12.87	22.06	26.57	27.77	20.97	21.39	7.71	10.92	25.57	27.17
p	0.14	0	0.08	0	0	0	0	0	0.36	0.14	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

Probit Analysis : Overall Control with Crisis Index 3 std

	cci324	cci312	ccp324	ccp312	cci324noi	cci312noi	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
L.inout	0.038 {.845}	-0.064 {.751}	0.051 {.802}	-0.037 {.864}	0.268 {.187}	0.174 {.408}	0.186 {.354}	0.186 {.354}	0.199 {.337}	0.017 {.940}	0.167 {.444}	0.088 {.695}
L.relativeGPrivate_GDP	0.022 {.170}	0.023 {.165}	-0.001 {.933}	-0.002 {.906}	-0.056 {.465}	-0.051 {.515}	-0.004 {.767}	-0.004 {.767}	0.035 {.177}	0.033 {.236}	0 {1.000}	0 {.988}
L.S-TDebt/Reserves	0.018 {.191}	0.018 {.200}	0.017 {.247}	0.02 {.199}	.025* {.084}	0.023 {.112}	0.007 {.565}	0.007 {.565}	0.02 {.213}	0.022 {.217}	0.013 {.339}	0.01 {.484}
L.CurrentAcct/GDP	-0.015* {.051}	-0.01 {.220}	0 {.975}	0.002 {.851}	-0.01 {.182}	-0.008 {.347}	-0.015** {.025}	-0.015** {.025}	-0.002 {.822}	0.003 {.783}	-0.009 {.250}	-0.007 {.408}
L.Govt Budget/GDP	-0.005 {.566}	-0.015* {.060}	0 {.980}	0.001 {.882}	-0.002 {.853}	-0.002 {.781}	0.003 {.653}	0.003 {.653}	-0.005 {.629}	-0.003 {.733}	0.003 {.707}	0.003 {.776}
L.Inflation, GDP deflator	0.001 {.677}	-0.001 {.486}	0 {.734}	0.001 {.944}	0.001 {.671}	0 {.963}	0.001 {.319}	0.001 {.319}	0.001 {.448}	0.001 {.959}	0.001 {.703}	0 {.950}
L.REERrelativeratio	.013*** {.000}	.017*** {.000}	.012*** {.000}	.012*** {.001}	.013*** {.000}	.013*** {.000}	.008*** {.007}	.008*** {.007}	.015*** {.000}	.013*** {.000}	.012*** {.000}	.012*** {.000}
Adj.R-Square												
NumberObs.	183	183	183	183	183	183	183	183	183	183	183	183
Pseudo R2	0.23	0.27	0.15	0.13	0.23	0.19	0.18	0.18	0.16	0.12	0.19	0.17
ll	-47.02	-50.24	-53.89	-57	-45.22	-49.15	-38.48	-38.48	-58.34	-64.21	-45.67	-49.09
aic	108.04	114.48	121.78	128	104.44	112.3	90.97	90.97	130.68	142.42	105.33	112.18
bic	130.51	136.95	144.25	150.46	126.91	134.77	113.43	113.43	153.14	164.89	127.8	134.65
chi2	18.86	30.37	17.16	16.21	25.7	23.03	13.32	13.32	16.89	14.63	21.93	22.06
p	0.01	0	0.02	0.02	0	0	0.06	0.06	0.02	0.04	0	0

* p<0.1, ** p<0.05, *** p<0.01 Please see Appendix 5A for the definition of currency crises indices.

OLS: Overall Control with EMP

	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
L.inout	-1.376** {.020}	-1.129** {.024}	-.605** {.021}	-.410** {.022}	-2.804 {.108}	-1.45 {.115}
L.relativeGPrivate_GDP	.079*** {.001}	0.047 {.107}	.038*** {.000}	.027*** {.001}	.244*** {.000}	.217*** {.000}
L.S-TDebt/Reserves	-0.021 {.759}	-0.019 {.731}	-.099* {.063}	-.109** {.012}	-0.165 {.513}	-.388* {.058}
L.CurrentAcct/GDP	-.047* {.092}	-.052** {.038}	-0.012 {.379}	-0.012 {.227}	-0.02 {.798}	-.043 {.414}
L.Govt Budget/GDP	0.003 {.884}	-0.002 {.927}	-0.006 {.737}	0.009 {.254}	-0.125 {.332}	0.025 {.591}
L.Inflation, GDP deflator	.012*** {.001}	.010*** {.001}	0.003 {.166}	0.002 {.113}	.025* {.077}	.026*** {.002}
L.REERrelativeratio	.042*** {.000}	.032*** {.000}	.021*** {.000}	.012*** {.001}	.144*** {.000}	.091*** {.000}
Constant	-4.207*** {.000}	-3.270*** {.000}	-1.996*** {.000}	-1.164*** {.001}	-14.087*** {.000}	-8.985*** {.000}
Adj.R-Square	0.2	0.21	0.16	0.21	0.12	0.23
NumberObs.	183	183	183	183	183	183
Pseudo R2						
ll	-213.18	-176.48	-108.82	-33.37	-461.34	-331.03
aic	442.35	368.97	233.64	82.74	938.68	678.05
bic	468.03	394.64	259.32	108.41	964.35	703.73
chi2						
p	0	0	0	0	0	0

- EMP1: 1. individual std-weighted w/ int rate
- EMP2: 1. individual std-weighted w/o int rate
- EMP3: 1. pooled std-weighted w/ int rate
- EMP4: 1. pooled std-weighted w/o int rate
- EMP5: 1. equally weighted average w/ int rate
- EMP6: 1. equally weighted average w/o int rate

* p<0.1, ** p<0.05, *** p<0.01
P value in parenthesis
Marginal effect coefficients are reported for Probit Analysis

Table 5.17 Tobit Analysis of EMP1p (individual weighted)

	EMP1p (1)	EMP1p (2)	EMP1p (3)	EMP1p (4)	EMP1p (5)	EMP1p (6)	EMP1p (7)	EMP1p (8)	EMP1p (9)	EMP1p (10)	EMP1p (11)	EMP1p (12)	EMP1p (13)	EMP1p (14)	EMP1p (15)	EMP1p (16)
lagrelativeGPrivate_GDP	0.124 {.275}	0.906 {.506}	0.124 {.274}	0.128 {.262}	0.118 {.303}	0.125 {.269}	0.104 {.372}	0.122 {.285}	0.105 {.358}	0.132 {.261}	0.119 {.304}	0.121 {.297}	0.114 {.319}	0.122 {.286}	0.118 {.302}	0.12 {.295}
lagSTD_Reserves	0.043 {.509}	0.091 {.548}	0.031 {.635}	0.04 {.533}	0.054 {.400}	0.058 {.578}	0.04 {.534}	0.045 {.487}	0.027 {.698}	0.038 {.510}	0.038 {.508}	0.04 {.489}	0.053 {.400}	0.051 {.424}	0.053 {.402}	0.053 {.407}
lagCA_GDP	-0.04 {.174}	-0.045 {.242}	-0.044 {.143}	-0.042 {.160}	-0.037 {.210}	-0.045 {.135}	-0.035 {.228}	-0.038 {.193}	-0.044 {.193}	-0.03 {.297}	-0.029 {.293}	-0.028 {.325}	-0.037 {.208}	-0.036 {.208}	-0.036 {.223}	-0.036 {.226}
lagBudget_GDP	0.001 {.958}	0.031 {.488}	0.001 {.976}	-0.005 {.838}	0.001 {.985}	0.007 {.801}	-0.001 {.975}	0.005 {.863}	0.026 {.355}	-0.037 {.163}	-0.043* {.077}	-0.039 {.112}	0.004 {.872}	-0.001 {.971}	0 {.995}	-0.001 {.983}
lagInflation_GDP_deflator	.013*** {.006}	.005 {.503}	.013*** {.005}	.011** {.012}	.012*** {.011}	.014*** {.004}	.012*** {.005}	.013*** {.004}	.016*** {.002}	-0.001 {.408}	0 {.450}	0 {.431}	.012*** {.005}	.011*** {.009}	.012*** {.009}	.012*** {.010}
lagreerelativatio	.059*** {.000}	.072*** {.000}	.059*** {.000}	.058*** {.000}	.059*** {.000}	.065*** {.000}	.061*** {.000}	.061*** {.000}	.063*** {.000}	.055*** {.000}	.053*** {.000}	.054*** {.000}	.061*** {.000}	.059*** {.000}	.060*** {.000}	.059*** {.000}
lagin5	-0.957 {.248}															
lagout5	0.704 {.339}															
lagin 1st principal		-0.05 {.579}														
lagout 1st principal		0.065 {.367}														
lagin princ w/ missing value			-3.948 {.141}													
lagout princ w/ missing value			3.442 {.188}													
laginCM				-0.803 {.286}												
lagoutCM				0.64 {.371}												
laginCR					-0.211 {.660}											
lagoutCR					0.05 {.909}											
laginFDI						-0.229 {.581}										
lagoutFDI						0.299 {.319}										
laginFIN							-0.68 {.299}									
lagoutFIN							0.574 {.313}									
laginbinary								-0.437 {.496}								
lagoutbinary								0.557 {.400}								
lagminiane									0.121 {.656}							
lagn_chinnito										0.138 {.530}						
lagEdwards											-0.167 {.603}					
lagLMF												0.145 {.756}				
lagGH													0.092 {.539}			
lagin5a														-0.273 {.511}		
lagout5a															-0.035 {.924}	
laginout																-0.076 {.709}
Constant	-6.253*** {.000}	-7.517*** {.000}	-6.231*** {.000}	-6.106*** {.000}	-6.281*** {.000}	-6.966*** {.000}	-6.407*** {.000}	-6.512*** {.000}	-6.650*** {.000}	-5.923*** {.000}	-5.540*** {.000}	-5.799*** {.000}	-6.493*** {.000}	-6.141*** {.000}	-6.310*** {.000}	-6.219*** {.000}
sigma																
Constant	.797*** {.000}	.868*** {.000}	.794*** {.000}	.798*** {.000}	.801*** {.000}	.785*** {.000}	.797*** {.000}	.798*** {.000}	.801*** {.000}	.824*** {.000}	.819*** {.000}	.818*** {.000}	.800*** {.000}	.802*** {.000}	.802*** {.000}	.802*** {.000}
NumberObs.	183	107	183	183	183	173	183	183	162	199	205	205	183	183	183	183
Pseudo R2	0.12	0.13	0.12	0.12	0.12	0.14	0.12	0.12	0.13	0.1	0.1	0.1	0.12	0.12	0.12	0.12
ll	-161.83	-93.06	-161.41	-161.86	-162.38	-150.18	-161.91	-162.11	-144.27	-179.35	-184.12	-184.21	-162.32	-162.29	-162.5	-162.43
aic	343.66	206.12	342.83	343.71	344.76	320.36	343.81	344.22	306.54	376.69	386.24	386.41	342.63	342.58	343	342.87
bic	375.76	232.85	374.92	375.81	376.85	351.9	375.91	376.32	334.33	406.33	416.14	416.32	371.52	371.46	371.89	371.75
chi2	44.83	27.18	45.66	44.78	43.73	48.31	44.68	44.27	42.81	40.05	40.26	40.08	43.86	43.91	43.49	43.62
p	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* p<0.1, ** p<0.05, *** p<0.01
 . *p-value in parenthesis*

Table 5.18 Tobit Analysis of EMP2p (individual weighted; exclude interest rate)

	EMP2p (1)	EMP2p (2)	EMP2p (3)	EMP2p (4)	EMP2p (5)	EMP2p (6)	EMP2p (7)	EMP2p (8)	EMP2p (9)	EMP2p (10)	EMP2p (11)	EMP2p (12)	EMP2p (13)	EMP2p (14)	EMP2p (15)	EMP2p (16)
lagrelativeGPrivate_GDP	0.085 {.381}	-0.232 {.833}	0.086 {.373}	0.092 {.343}	0.085 {.377}	0.09 {.348}	0.076 {.443}	0.082 {.399}	0.068 {.475}	0.097 {.320}	0.079 {.416}	0.081 {.404}	0.079 {.415}	0.084 {.383}	0.084 {.385}	0.084 {.384}
lagSTD_Reserves	-0.002 {.973}	0.041 {.757}	-0.009 {.883}	-0.01 {.869}	0 {.994}	-0.04 {.665}	0.002 {.980}	0.002 {.973}	-0.028 {.662}	-0.025 {.631}	-0.03 {.573}	-0.027 {.614}	0 {.999}	0 {.995}	0 {.997}	0 {.998}
lagCA_GDP	-0.053** {.038}	-0.060* {.071}	-0.056** {.031}	-0.057** {.027}	-0.050** {.048}	-0.062** {.018}	-0.053** {.036}	-0.053** {.035}	-0.070** {.012}	-0.046* {.056}	-0.044* {.059}	-0.039* {.093}	-0.054** {.032}	-0.052** {.038}	-0.052** {.038}	-0.052** {.038}
lagBudget_GDP	-0.02 {.393}	-0.014 {.732}	-0.02 {.392}	-0.024 {.304}	-0.02 {.375}	-0.016 {.510}	-0.02 {.373}	-0.016 {.481}	0.009 {.716}	-0.047** {.035}	-0.056*** {.007}	-0.047** {.024}	-0.047** {.547}	-0.02 {.384}	-0.02 {.390}	-0.02 {.387}
lagInflation_GDP_deflator	.011*** {.006}	0.008 {.220}	.011*** {.005}	.010*** {.008}	.011*** {.008}	.012*** {.004}	.011*** {.004}	.011*** {.004}	.013*** {.002}	0 {.397}	0 {.461}	0 {.411}	0 {.003}	.011*** {.005}	.011*** {.006}	.011*** {.006}
lagreerelativeratio	.053*** {.000}	.063*** {.000}	.053*** {.000}	.051*** {.000}	.053*** {.000}	.057*** {.000}	.053*** {.000}	.054*** {.000}	.054*** {.000}	.049*** {.000}	.045*** {.000}	.046*** {.000}	.054*** {.000}	.053*** {.000}	.053*** {.000}	.053*** {.000}
lagin5	-0.138 {.848}															
lagout5	0.12 {.853}															
lagin 1st principal		0.043 {.578}														
lagout 1st principal		-0.005 {.943}														
lagin princ w/ missing value			-1.409 {.545}													
lagout princ w/ missing value			1.298 {.572}													
laginCM				-0.598 {.359}												
lagoutCM				0.496 {.425}												
laginCR					0.25 {.549}											
lagoutCR					-0.154 {.686}											
laginFDI						-0.103 {.773}										
lagoutFDI						0.174 {.507}										
laginFIN							0.091 {.871}									
lagoutFIN							0.09 {.856}									
laginbinary								0.038 {.946}								
lagoutbinary								0.171 {.767}								
lagminiane									0.259 {.267}							
lagn_chinnito										0.165 {.374}						
lagEdwards											-0.27 {.317}					
lagLMF												0.577 {.217}				
lagGH													0.138 {.299}			
lagin5a														-0.022 {.950}		
lagout5a															0.012 {.970}	
laginout																-0.002 {.992}
Constant	-5.681*** {.000}	-6.740*** {.000}	-5.650*** {.000}	-5.532*** {.000}	-5.656*** {.000}	-6.090*** {.000}	-5.792*** {.000}	-5.927*** {.000}	-5.842*** {.000}	-5.271*** {.000}	-4.732*** {.000}	-5.423*** {.000}	-5.887*** {.000}	-5.659*** {.000}	-5.686*** {.000}	-5.673*** {.000}
sigma	.686*** {.000}	.748*** {.000}	.685*** {.000}	.685*** {.000}	.686*** {.000}	.674*** {.000}	.686*** {.000}	.684*** {.000}	.674*** {.000}	.689*** {.000}	.688*** {.000}	.688*** {.000}	.682*** {.000}	.686*** {.000}	.686*** {.000}	.686*** {.000}
NumberObs.	183	107	183	183	183	173	183	183	162	199	205	205	183	183	183	183
Pseudo R2	0.15	0.15	0.15	0.15	0.15	0.16	0.15	0.15	0.16	0.13	0.13	0.13	0.15	0.15	0.15	0.15
ll	-144.73	-84.63	-144.56	-144.3	-144.57	-134.74	-144.63	-144.27	-127.69	-158.13	-163.39	-163.07	-144.21	-144.75	-144.75	-144.75
aic	309.46	189.25	309.13	308.59	309.14	289.47	309.26	308.53	273.38	334.26	344.78	344.14	306.41	307.5	307.5	307.5
bic	341.56	215.98	341.22	340.69	341.23	321.01	341.35	340.63	301.17	363.9	374.69	374.04	335.3	336.38	336.38	336.38
chi2	50.97	30.81	51.3	51.84	51.29	52.65	51.17	51.9	50.32	47.73	48.17	48.82	52.02	50.94	50.93	50.93
p	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* p<0.1, ** p<0.05, *** p<0.01
 . "p-value in parenthesis"

Table 5.19 Tobit Analysis of EMP3p (pool weighted)

	EMP3p (1)	EMP3p (2)	EMP3p (3)	EMP3p (4)	EMP3p (5)	EMP3p (6)	EMP3p (7)	EMP3p (8)	EMP3p (9)	EMP3p (10)	EMP3p (11)	EMP3p (12)	EMP3p (13)	EMP3p (14)	EMP3p (15)	EMP3p (16)
lagrelativeGPrivate_GDP	0.106 {.199}	0.098 {.912}	0.107 {.191}	0.116 {.162}	0.095 {.254}	0.098 {.243}	0.056 {.503}	0.114 {.167}	0.084 {.303}	0.096 {.252}	0.093 {.265}	0.093 {.263}	0.094 {.265}	0.101 {.230}	0.094 {.263}	0.097 {.250}
lagSTD_Reserves	0.037 {.442}	-0.033 {.757}	0.02 {.682}	0.027 {.585}	0.054 {.266}	0.06 {.465}	0.036 {.456}	0.027 {.576}	0.027 {.598}	0.005 {.919}	0.007 {.882}	0.007 {.877}	0.05 {.298}	0.049 {.309}	0.05 {.301}	0.051 {.296}
lagCA_GDP	-0.015 {.529}	-0.019 {.491}	-0.019 {.403}	-0.02 {.400}	-0.01 {.661}	-0.017 {.496}	-0.008 {.739}	-0.011 {.633}	-0.006 {.822}	-0.006 {.782}	-0.004 {.865}	-0.003 {.874}	-0.008 {.749}	-0.007 {.752}	-0.008 {.742}	-0.007 {.764}
lagBudget_GDP	-0.006 {.761}	0.032 {.323}	-0.008 {.704}	-0.02 {.329}	-0.009 {.665}	0.003 {.895}	-0.012 {.563}	-0.004 {.841}	0.01 {.648}	-0.03 {.121}	-0.029 {.101}	-0.029 {.110}	-0.008 {.688}	-0.011 {.595}	-0.009 {.666}	-0.01 {.621}
lagInflation_GDP_deflator	.007** {.036}	0.003 {.590}	.007** {.042}	0.005 {.163}	0.005 {.151}	.009** {.024}	.007** {.060}	.009** {.016}	.009** {.012}	0 {.478}	0 {.485}	0 {.483}	0.006 {.109}	0.005 {.146}	0.006 {.111}	0.005 {.140}
lagreerelativeratio	.037*** {.000}	.040*** {.000}	.036*** {.000}	.035*** {.000}	.036*** {.000}	.041*** {.000}	.038*** {.000}	.038*** {.000}	.039*** {.000}	.033*** {.000}	.033*** {.000}	.033*** {.000}	.037*** {.000}	.035*** {.000}	.037*** {.000}	.036*** {.000}
lagin5	-1.558** {.014}															
lagout5	1.257** {.025}															
lagin 1st principal		-186*** {.006}														
lagout 1st principal		.160*** {.002}														
lagin princ w/ missing value			-6.254*** {.003}													
lagout princ w/ missing value			5.628*** {.005}													
laginCM				-1.484** {.010}												
lagoutCM				1.312** {.017}												
laginCR					-0.484 {.185}											
lagoutCR					0.138 {.674}											
laginFDI						-0.379 {.238}										
lagoutFDI						487** {.040}										
laginFIN							-0.759 {.127}									
lagoutFIN							1.002** {.021}									
laginbinary								-1.272*** {.009}								
lagoutbinary								1.282** {.011}								
lagminiane									0.02 {.923}							
lagn_chinnito										0.02 {.903}						
lagEdwards											-0.021 {.932}					
lagLMF												0.016 {.963}				
lagGH													0.024 {.835}			
lagin5a														-0.338 {.295}		
lagout5a															0.064 {.823}	
laginout																-0.061 {.697}
Constant	-4.103*** {.000}	-4.266*** {.000}	-4.027*** {.000}	-3.896*** {.000}	-3.967*** {.000}	-4.645*** {.000}	-4.412*** {.000}	-4.263*** {.000}	-4.251*** {.000}	-3.707*** {.000}	-3.613*** {.000}	-3.645*** {.000}	-4.121*** {.000}	-3.854*** {.000}	-4.134*** {.000}	-3.987*** {.000}
sigma Constant	.573*** {.000}	.561*** {.000}	.568*** {.000}	.574*** {.000}	.582*** {.000}	.580*** {.000}	.577*** {.000}	.573*** {.000}	.573*** {.000}	.588*** {.000}	.584*** {.000}	.584*** {.000}	.589*** {.000}	.587*** {.000}	.589*** {.000}	.589*** {.000}
NumberObs.	183	107	183	183	183	173	183	183	162	199	205	205	183	183	183	183
Pseudo R2	0.13	0.17	0.14	0.13	0.11	0.14	0.12	0.13	0.12	0.09	0.09	0.09	0.1	0.11	0.1	0.11
ll	-117.12	-63.21	-115.52	-116.83	-119.16	-109.76	-117.48	-116.66	-105.25	-130.08	-133.51	-133.51	-120.2	-119.67	-120.2	-120.15
aic	254.24	146.42	251.05	253.65	258.31	239.51	254.96	253.31	228.5	278.17	285.01	285.02	258.4	257.34	258.4	258.29
bic	286.34	173.14	283.14	285.75	290.41	271.05	287.05	285.41	256.29	307.81	314.92	314.92	287.29	286.23	287.28	287.18
chi2	34.25	26.41	37.45	34.85	30.19	34.74	33.54	35.19	29.08	26.44	25.84	25.84	28.09	29.16	28.1	28.2
p	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* p<0.1, ** p<0.05, *** p<0.01
 . p-value in parenthesis*

Table 5.20 Tobit Analysis of EMP4p (pool weighted; exclude interest rate)

	EMP4p (1)	EMP4p (2)	EMP4p (3)	EMP4p (4)	EMP4p (5)	EMP4p (6)	EMP4p (7)	EMP4p (8)	EMP4p (9)	EMP4p (10)	EMP4p (11)	EMP4p (12)	EMP4p (13)	EMP4p (14)	EMP4p (15)	EMP4p (16)
lagrelativeGPrivate_GDP	0.064 {.186}	-0.244 {.625}	0.066 {.175}	0.072 {.137}	0.065 {.184}	0.067 {.147}	0.055 {.271}	0.064 {.189}	0.048 {.227}	0.067 {.185}	0.06 {.229}	0.061 {.226}	0.062 {.201}	0.064 {.191}	0.064 {.192}	0.064 {.192}
lagSTD_Reserves	0.016 {.607}	-0.002 {.970}	0.01 {.757}	0.007 {.826}	0.017 {.573}	-0.042 {.418}	0.015 {.616}	0.015 {.728}	-0.011 {.785}	-0.008 {.759}	-0.009 {.782}	-0.008 {.568}	0.017 {.558}	0.017 {.572}	0.017 {.563}	0.017 {.563}
lagCA_GDP	-0.02 {.134}	-0.022 {.150}	-0.023* {.097}	-0.025* {.067}	-0.018 {.194}	-0.027** {.042}	-0.02 {.144}	-0.02 {.145}	-0.02 {.100}	-0.013 {.317}	-0.012 {.364}	-0.01 {.455}	-0.019 {.147}	-0.019 {.153}	-0.02 {.145}	-0.019 {.150}
lagBudget_GDP	-0.008 {.498}	0.001 {.964}	-0.008 {.492}	-0.013 {.296}	-0.009 {.467}	-0.005 {.672}	-0.01 {.429}	-0.007 {.587}	0.009 {.422}	-0.023* {.063}	-0.025** {.026}	-0.022* {.053}	-0.007 {.592}	-0.009 {.481}	-0.009 {.493}	-0.009 {.487}
laginflation_GDP_deflator	.004* {.074}	0.005 {.132}	.004* {.063}	0.003 {.111}	0.004 {.105}	.005** {.033}	.004* {.073}	.004* {.057}	.005*** {.004}	0 {.516}	0 {.552}	0 {.522}	0 {.075}	.004* {.087}	.004* {.081}	.004* {.084}
lagreerelativeratio	.025*** {.000}	.027*** {.000}	.024*** {.000}	.024*** {.000}	.024*** {.000}	.027*** {.000}	.025*** {.000}	.025*** {.000}	.024*** {.000}	.023*** {.000}	.022*** {.000}	.022*** {.000}	.025*** {.000}	.025*** {.000}	.025*** {.000}	.025*** {.000}
lagin5	-0.135 {.735}															
lagout5	0.169 {.639}															
lagin 1st principal		0.003 {.932}														
lagout 1st principal		0.016 {.594}														
lagin princ w/ missing value			-1.34 {.298}													
lagout princ w/ missing value			1.379 {.278}													
laginCM				-0.647* {.065}												
lagoutCM				0.611* {.067}												
laginCR					0.178 {.454}											
lagoutCR					-0.096 {.660}											
laginFDI						-0.098 {.604}										
lagoutFDI						0.135 {.336}										
laginFIN							-0.078 {.805}									
lagoutFIN							0.189 {.488}									
laginbinary								-0.099 {.751}								
lagoutbinary								0.213 {.509}								
lagminiane									0.069 {.512}							
lag_n_chinnito										0.058 {.573}						
lagEdwards											-0.087 {.569}					
lagLMF												0.244 {.378}				
lagGH													0.052 {.459}			
lagin5a														0.027 {.890}		
lagout5a															0.063 {.726}	
laginout																0.025 {.797}
Constant	-2.847*** {.000}	-2.945*** {.000}	-2.790*** {.000}	-2.731*** {.000}	-2.806*** {.000}	-3.038*** {.000}	-2.894*** {.000}	-2.942*** {.000}	-2.643*** {.000}	-2.663*** {.000}	-2.452*** {.000}	-2.724*** {.000}	-2.886*** {.000}	-2.821*** {.000}	-2.856*** {.000}	-2.842*** {.000}
sigma																
Constant	.335*** {.000}	.309*** {.000}	.333*** {.000}	.331*** {.000}	.338*** {.000}	.311*** {.000}	.335*** {.000}	.335*** {.000}	.272*** {.000}	.347*** {.000}	.348*** {.000}	.347*** {.000}	.335*** {.000}	.337*** {.000}	.336*** {.000}	.336*** {.000}
NumberObs.	183	107	183	183	183	173	183	183	162	199	205	205	183	183	183	183
Pseudo R2	0.2	0.24	0.2	0.21	0.2	0.24	0.2	0.2	0.29	0.17	0.16	0.16	0.2	0.19	0.2	0.2
ll	-71.48	-38.3	-71	-69.83	-71.31	-61.44	-71.26	-71.03	-51.39	-79.71	-82.89	-82.63	-71.32	-71.59	-71.54	-71.56
aic	162.96	96.59	162	159.66	162.61	142.87	162.52	162.06	120.78	177.42	183.79	183.26	160.64	161.17	161.07	161.13
bic	195.05	123.32	194.09	191.75	194.71	174.4	194.62	194.15	148.56	207.06	213.69	213.16	189.53	190.06	189.96	190.01
chi2	34.89	24.24	35.85	38.2	35.24	39.84	35.33	35.79	42.5	31.65	30.61	31.14	35.21	34.68	34.78	34.72
p	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* p<0.1, ** p<0.05, *** p<0.01
 . *p-value in parenthesis*

Table 5.21 Tobit Analysis of EMP5p (equally weighted)

	EMP5p (1)	EMP5p (2)	EMP5p (3)	EMP5p (4)	EMP5p (5)	EMP5p (6)	EMP5p (7)	EMP5p (8)	EMP5p (9)	EMP5p (10)	EMP5p (11)	EMP5p (12)	EMP5p (13)	EMP5p (14)	EMP5p (15)	EMP5p (16)
lagrelativeGPrivate_GDP	0.821 {.182}	3.436 {.566}	0.82 {.179}	0.874 {.161}	0.719 {.246}	0.769 {.227}	0.416 {.511}	0.896 {.145}	0.656 {.308}	0.638 {.293}	0.638 {.290}	0.662 {.272}	0.711 {.263}	0.779 {.218}	0.711 {.263}	0.74 {.244}
lagSTD_Reserves	0.256 {.473}	-0.016 {.983}	0.123 {.734}	0.189 {.599}	0.404 {.255}	0.794 {.187}	0.265 {.460}	0.164 {.647}	0.249 {.527}	0.22 {.481}	0.24 {.436}	0.25 {.414}	0.363 {.311}	0.347 {.336}	0.366 {.308}	0.364 {.312}
lagCA_GDP	-0.02 {.905}	0.039 {.836}	-0.056 {.741}	-0.054 {.755}	-0.009 {.957}	-0.008 {.963}	-0.041 {.812}	-0.005 {.978}	-0.02 {.919}	-0.024 {.876}	-0.045 {.764}	-0.039 {.799}	-0.039 {.823}	-0.038 {.825}	-0.042 {.812}	-0.045 {.796}
lagBudget_GDP	-0.083 {.559}	0.112 {.599}	-0.101 {.475}	-0.182 {.214}	-0.093 {.517}	-0.024 {.877}	-0.105 {.462}	-0.068 {.637}	0.013 {.936}	-0.243* {.072}	-0.211* {.092}	-0.203 {.109}	-0.095 {.528}	-0.106 {.466}	-0.091 {.536}	-0.1 {.494}
lagInflation_GDP_deflator	.064*** {.009}	0.03 {.334}	.060** {.013}	.044* {.065}	.045* {.065}	.076*** {.004}	.060** {.011}	.076*** {.002}	.083*** {.003}	-0.002 {.498}	-0.002 {.506}	-0.002 {.494}	.053** {.027}	.048** {.046}	.052** {.037}	.049** {.047}
lagreerelativeratio	.259*** {.000}	.253*** {.001}	.251*** {.000}	.242*** {.000}	.249*** {.000}	.283*** {.000}	.271*** {.000}	.270*** {.000}	.278*** {.000}	.211*** {.000}	.210*** {.000}	.216*** {.000}	.258*** {.000}	.245*** {.000}	.257*** {.000}	.250*** {.000}
lagin5	-14.270*** {.002}															
lagout5	10.256*** {.012}															
lagin 1st principal		-1.418*** {.002}														
lagout 1st principal		1.101*** {.001}														
lagin princ w/ missing value			-53.312*** {.001}													
lagout princ w/ missing value			44.309*** {.002}													
laginCM				-11.643*** {.006}												
lagoutCM				9.820** {.014}												
laginCR					-5.469** {.043}											
lagoutCR					0.56 {.818}											
laginFDI						-4.129* {.084}										
lagoutFDI						3.478** {.045}										
laginFIN							-5.369 {.139}									
lagoutFIN							7.176** {.023}									
laginbinary								-11.545*** {.001}								
lagoutbinary								10.709*** {.003}								
lagminiane									-0.132 {.933}							
lagn_chinnito										-0.643 {.577}						
lagEdwards											-0.9 {.594}					
lagLMF												-0.347 {.884}				
lagGH													-0.207 {.807}			
lagin5a														-4.312* {.070}		
lagout5a															-0.678 {.746}	
laginout																-1.23 {.289}
Constant	-27.726*** {.000}	-26.302*** {.000}	-27.644*** {.000}	-26.720*** {.000}	-26.466*** {.000}	-31.485*** {.000}	-30.876*** {.000}	-29.394*** {.000}	-30.051*** {.000}	-22.740*** {.000}	-22.559*** {.000}	-23.133*** {.000}	-28.180*** {.000}	-25.683*** {.000}	-27.974*** {.000}	-26.694*** {.000}
sigma Constant	4.301*** {.000}	4.039*** {.000}	4.264*** {.000}	4.352*** {.000}	4.348*** {.000}	4.417*** {.000}	4.362*** {.000}	4.288*** {.000}	4.522*** {.000}	4.278*** {.000}	4.256*** {.000}	4.257*** {.000}	4.464*** {.000}	4.429*** {.000}	4.466*** {.000}	4.459*** {.000}
NumberObs.	183	107	183	183	183	173	183	183	162	199	205	205	183	183	183	183
Pseudo R2	0.06	0.07	0.06	0.06	0.05	0.06	0.05	0.06	0.05	0.04	0.03	0.03	0.04	0.05	0.04	0.04
ll	-293.59	-167.94	-292.05	-294.34	-295.31	-278.59	-295.82	-292.93	-271.17	-329.13	-336.44	-336.57	-298.44	-296.8	-298.42	-297.9
aic	607.19	355.88	604.09	608.67	610.62	577.18	611.63	605.85	560.34	676.26	690.88	691.15	614.88	611.59	614.84	613.8
bic	639.28	382.61	636.19	640.77	642.71	608.71	643.73	637.95	588.13	705.9	720.79	721.05	643.77	640.48	643.72	642.69
chi2	36.39	25.7	39.49	34.91	32.96	34.4	31.94	37.73	27.77	24.29	23.9	23.64	26.7	29.99	26.74	27.78
p	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* p<0.1, ** p<0.05, *** p<0.01
 . "p-value in parenthesis"

Table 5.22 Tobit Analysis of EMP6p (equally weighted; exclude interest rate)

	EMP6p (1)	EMP6p (2)	EMP6p (3)	EMP6p (4)	EMP6p (5)	EMP6p (6)	EMP6p (7)	EMP6p (8)	EMP6p (9)	EMP6p (10)	EMP6p (11)	EMP6p (12)	EMP6p (13)	EMP6p (14)	EMP6p (15)	EMP6p (16)
lagrelativeGPrivate_GDP	.452* {.079}	-0.277 {.918}	.459* {.074}	.489* {.057}	.449* {.081}	.440* {.073}	0.352 {.175}	.447* {.081}	0.391 {.102}	.477* {.074}	0.434 {.105}	0.427 {.109}	.426* {.094}	.446* {.084}	.445* {.083}	.444* {.084}
lagSTD_Reserves	0.1 {.510}	-0.018 {.959}	0.074 {.632}	0.067 {.659}	0.108 {.471}	-0.007 {.979}	0.09 {.556}	0.105 {.490}	-0.006 {.970}	-0.017 {.907}	-0.024 {.875}	-0.016 {.916}	0.109 {.460}	0.114 {.448}	0.109 {.470}	0.112 {.456}
lagCA_GDP	-0.03 {.678}	-0.036 {.656}	-0.039 {.586}	-0.05 {.487}	-0.018 {.803}	-0.055 {.431}	-0.024 {.734}	-0.024 {.731}	-0.047 {.524}	-0.001 {.989}	0.009 {.893}	0.03 {.663}	-0.025 {.719}	-0.02 {.778}	-0.025 {.729}	-0.022 {.756}
lagBudget_GDP	-0.049 {.426}	-0.031 {.744}	-0.049 {.427}	-0.069 {.265}	-0.052 {.397}	-0.036 {.555}	-0.061 {.313}	-0.036 {.560}	0.025 {.688}	-0.144** {.021}	-0.166*** {.004}	-0.139** {.018}	-0.029 {.642}	-0.051 {.404}	-0.049 {.422}	-0.05 {.414}
lagInflation_GDP_deflator	0.040*** {.000}	.027* {.088}	0.040*** {.000}	.037*** {.000}	.039*** {.000}	.040*** {.000}	.040*** {.000}	.042*** {.000}	.045*** {.000}	-0.001 {.452}	-0.001 {.524}	-0.001 {.461}	.039*** {.000}	.038*** {.000}	.039*** {.000}	.039*** {.000}
lagreelativatio	.165*** {.000}	.183*** {.000}	.164*** {.000}	.159*** {.000}	.164*** {.000}	.175*** {.000}	.165*** {.000}	.168*** {.000}	.165*** {.000}	.145*** {.000}	.136*** {.000}	.138*** {.000}	.168*** {.000}	.163*** {.000}	.165*** {.000}	.165*** {.000}
lagin5	-0.906 {.647}															
lagout5	1.322 {.458}															
lagin 1st principal		-0.001 {.996}														
lagout 1st principal		0.1 {.508}														
lagin princ w/ missing value			-6.372 {.323}													
lagout princ w/ missing value			7.612 {.230}													
laginCM				-2.899 {.100}												
lagoutCM				2.885* {.087}												
laginCR					0.496 {.664}											
lagoutCR					0.052 {.961}											
laginFDI						0.137 {.885}										
lagoutFDI						0.676 {.342}										
laginFIN							-0.992 {.521}									
lagoutFIN							2.063 {.121}									
laginbinary								-0.483 {.754}								
lagoutbinary								1.427 {.371}								
lagminiane									0.964 {.125}							
lag_n_chinnito										0.514 {.329}						
lagEdwards											-0.522 {.502}					
lagLMF												2.43 {.109}				
lagGH													0.589 {.103}			
lagin5a														0.36 {.721}		
lagout5a															0.621 {.495}	
laginout																0.271 {.584}
Constant	-18.249*** {.000}	-19.532*** {.000}	-17.941*** {.000}	-17.639*** {.000}	-18.018*** {.000}	-19.285*** {.000}	-18.670*** {.000}	-18.968*** {.000}	-18.386*** {.000}	-15.994*** {.000}	-14.645*** {.000}	-17.118*** {.000}	-18.682*** {.000}	-17.990*** {.000}	-18.286*** {.000}	-18.170*** {.000}
sigma	1.776*** {.000}	1.690*** {.000}	1.771*** {.000}	1.768*** {.000}	1.784*** {.000}	1.678*** {.000}	1.759*** {.000}	1.766*** {.000}	1.655*** {.000}	1.854*** {.000}	1.868*** {.000}	1.860*** {.000}	1.760*** {.000}	1.783*** {.000}	1.779*** {.000}	1.781*** {.000}
NumberObs	183	107	183	183	183	173	183	183	162	199	205	205	183	183	183	183
Pseudo R2	0.12	0.13	0.12	0.13	0.12	0.14	0.13	0.12	0.14	0.09	0.08	0.09	0.12	0.12	0.12	0.12
ll	-197.1	-106.01	-196.7	-195.94	-197.24	-180.78	-195.91	-196.04	-171.73	-219.84	-227	-225.68	-196.09	-197.37	-197.2	-197.28
aic	414.19	232.03	413.4	411.88	414.48	381.56	411.83	412.08	361.45	457.68	472	469.36	410.17	412.74	412.4	412.57
bic	446.29	258.76	445.49	443.97	446.58	413.09	443.92	444.18	389.24	487.32	501.91	499.27	439.06	441.63	441.29	441.45
chi2	53.84	32.98	54.63	56.15	53.54	58.82	56.2	55.95	54.66	41.85	40.02	42.67	55.86	53.29	53.63	53.46
p	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* p<0.1, ** p<0.05, *** p<0.01
 . *p-value in parenthesis*

Table 5.23: Tobit regression analysis: marginal effects for EMP3 (pooled precision weight)

Marginal effects after tobit

$$y = E(\text{EMP3p}^*|\text{EMP3p}>0) (\text{predict, ystar}(0,.))$$

$$= .13170029$$

Variable	dy/dx	Std. Err.	z	P>z	[95% C.I.]	X
lagin5	-0.535	0.216	-2.47	0.013	-0.96 -0.11	0.31
lagout5	0.432	0.191	2.26	0.024	0.06 0.81	0.35
lagrelativeGPrivate_GDP	0.036	0.028	1.29	0.195	-0.02 0.09	0.05
lagSTD_Reserves	0.013	0.017	0.77	0.442	-0.02 0.05	0.91
lagCA_GDP	-0.005	0.008	-0.63	0.529	-0.02 0.01	-1.90
lagBudget_GDP	-0.002	0.007	-0.3	0.761	-0.02 0.01	-2.80
lagInflation_GDP_deflator	0.003	0.001	2.11	0.035	0.00 0.00	11.00
Lagreerrelativeratio	0.013	0.003	4.68	0	0.01 0.02	100.70

Table 5.24: Tobit regression analysis: marginal effects for EMP5 (equal weight)

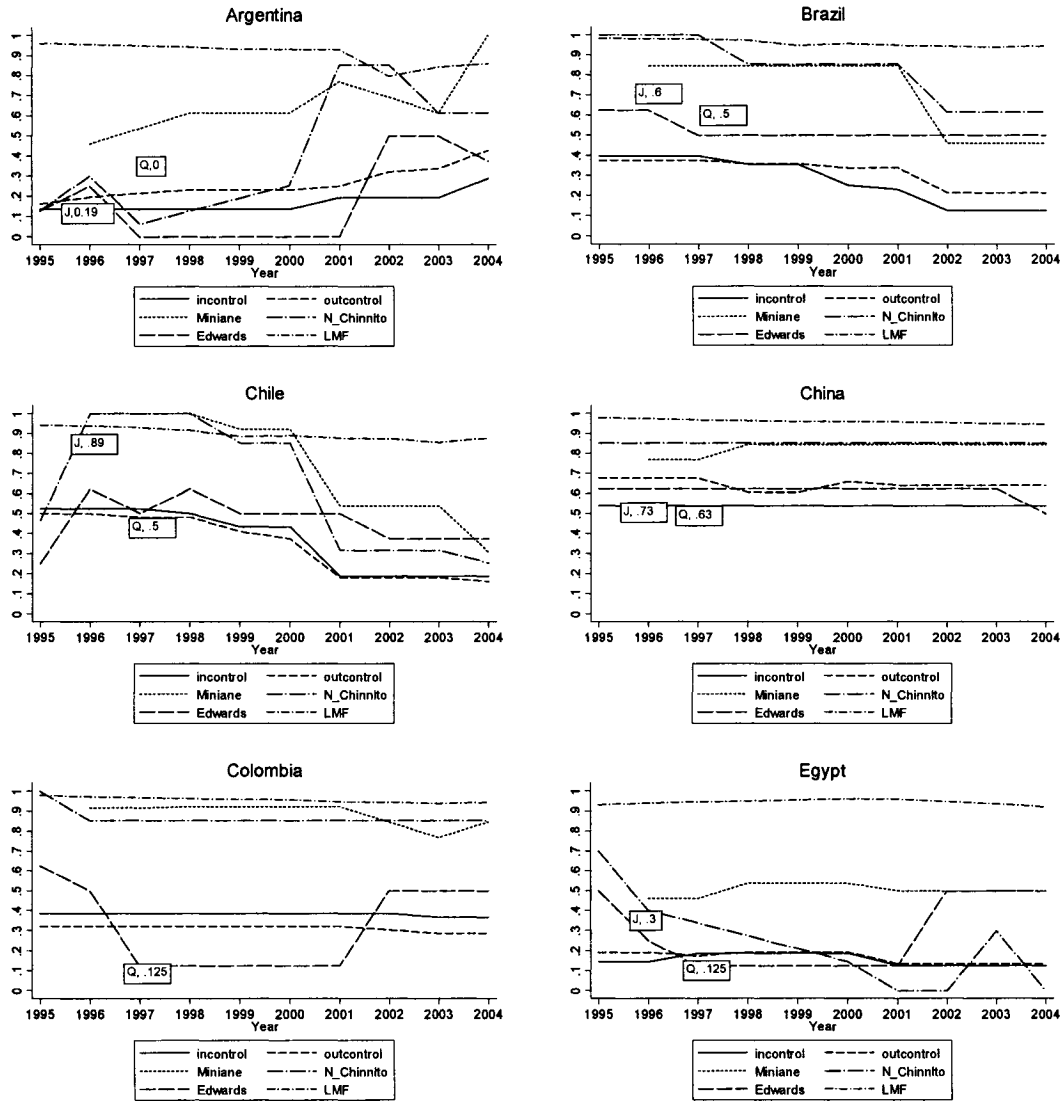
Marginal effects after tobit

$$y = E(\text{EMP5p}^*|\text{EMP5p}>0) (\text{predict, ystar}(0,.))$$

$$= 1.1817495$$

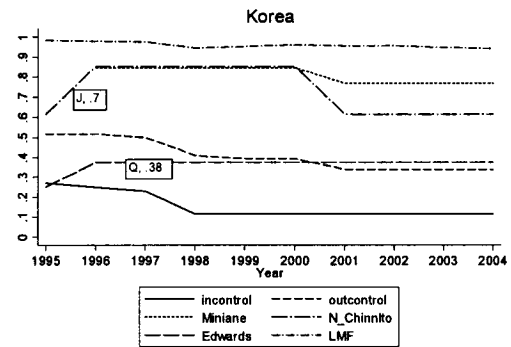
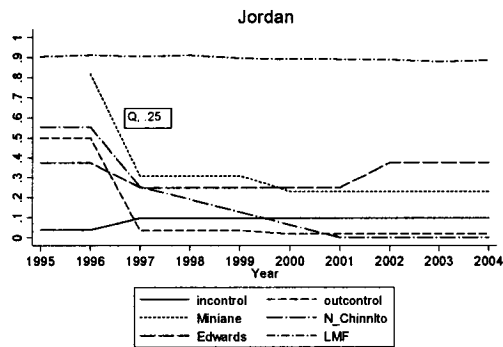
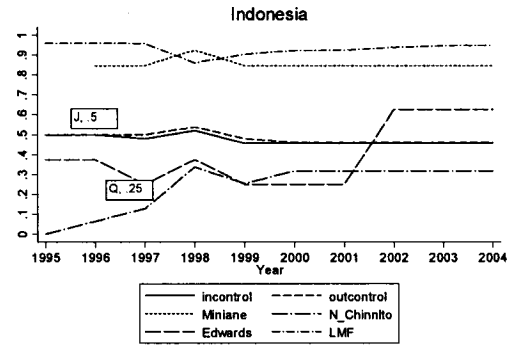
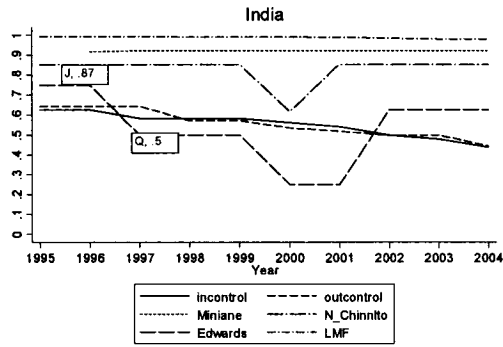
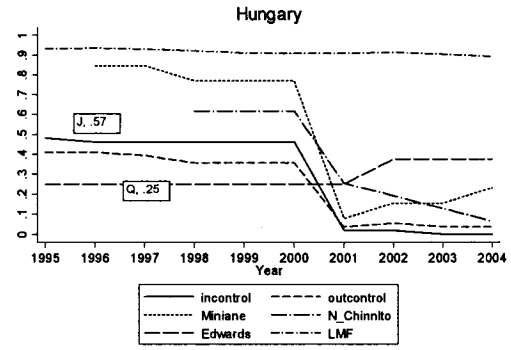
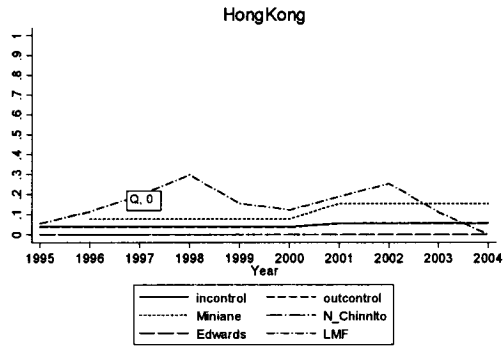
Variable	dy/dx	Std. Err.	z	P>z	[95% C.I.]	X
lagin5	-5.566	1.796	-3.1	0.002	-9.09 -2.05	0.31
lagout5	4.000	1.577	2.54	0.011	0.91 7.09	0.35
lagrelativeGPrivate_GDP	0.320	0.238	1.34	0.179	-0.15 0.79	0.05
lagSTD_Reserves	0.100	0.139	0.72	0.473	-0.17 0.37	0.91
lagCA_GDP	-0.008	0.067	-0.12	0.905	-0.14 0.12	-1.90
lagBudget_GDP	-0.032	0.056	-0.58	0.56	-0.14 0.08	-2.80
lagInflation_GDP_deflator	0.025	0.010	2.65	0.008	0.01 0.04	11.00
Lagreerrelativeratio	0.101	0.022	4.53	0	0.06 0.14	100.70

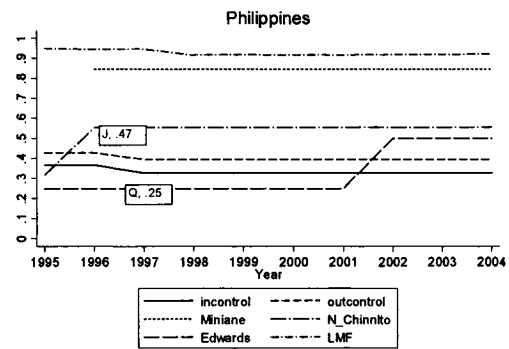
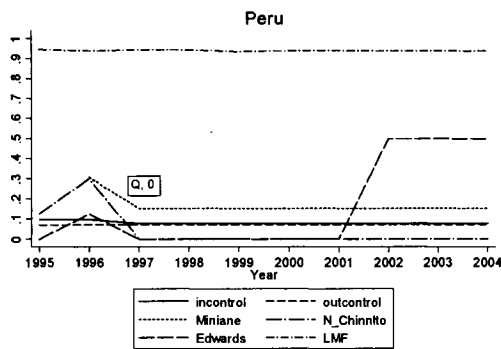
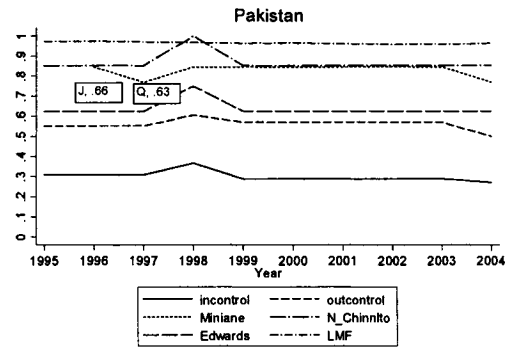
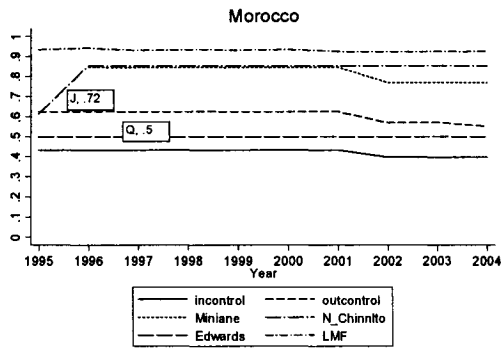
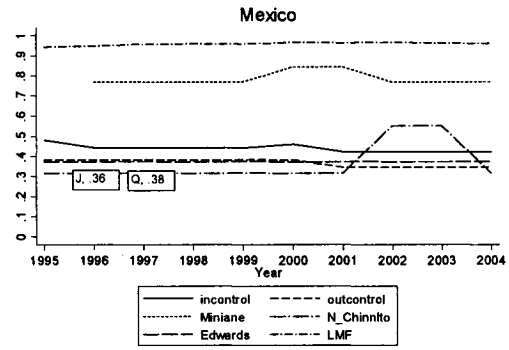
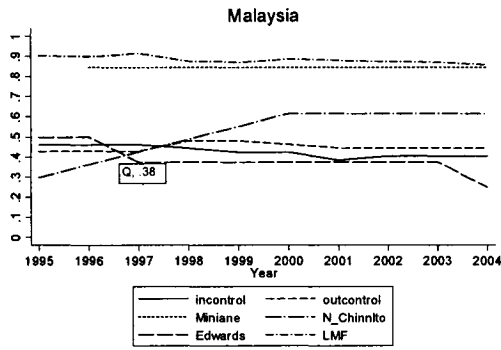
Figure 3.1 Comparing selected capital control indices



Note
 In-Control = 5 point scale control on capital inflows
 Out-Control = 5 point scale control on capital outflows
 N_Chinnito = Normalized Chinnito to 0-1 scale with reversed sign
 Q = Quinn (for 1997)
 J = Johnston (for 1996)

Edwards = Edwards Normalized to 0-1 scale with reversed sign
 LMF = sum of total external assets plus total external liabilities as a proportion of GDP.
 compiled by Lane and Milesi Ferreti (2006) Normalized to 0-1 scale with reversed sign





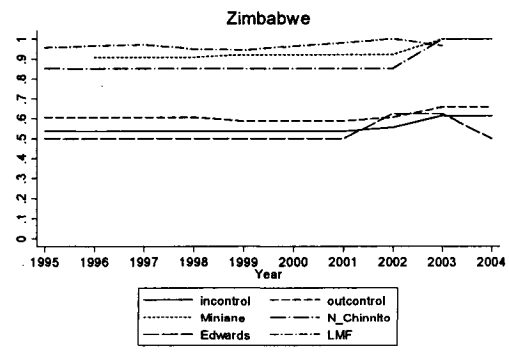
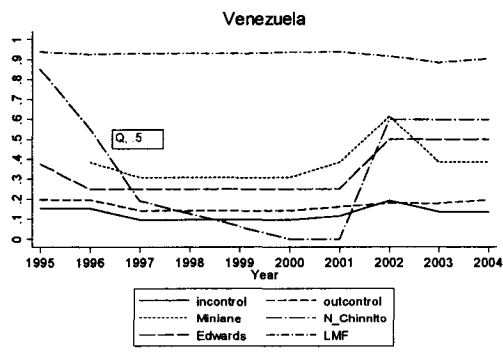
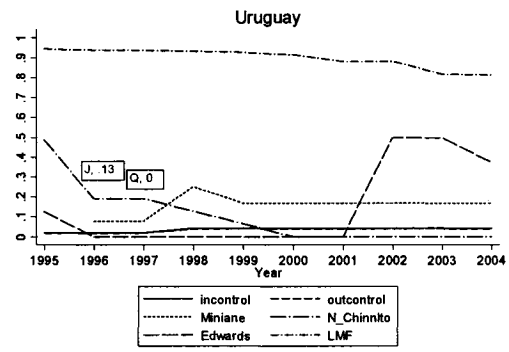
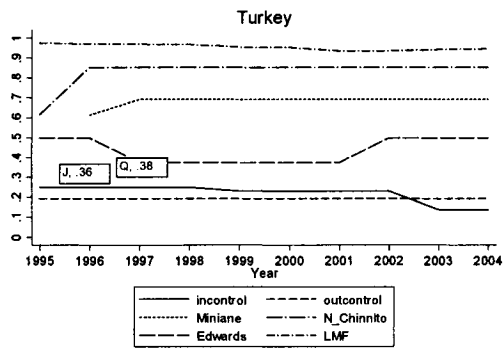
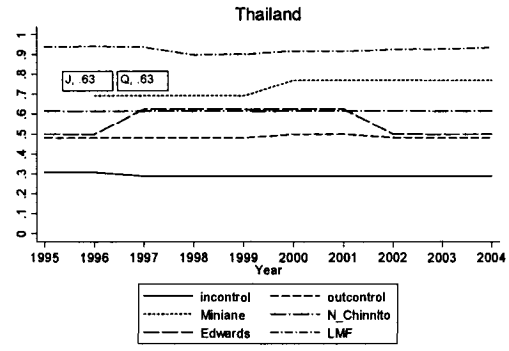
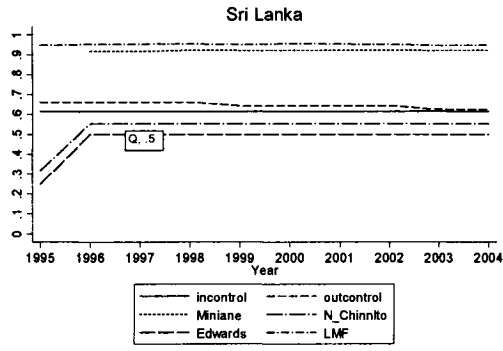
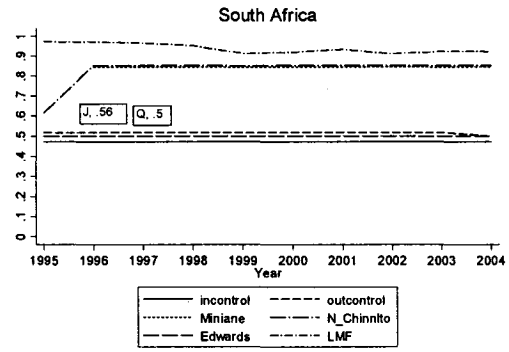
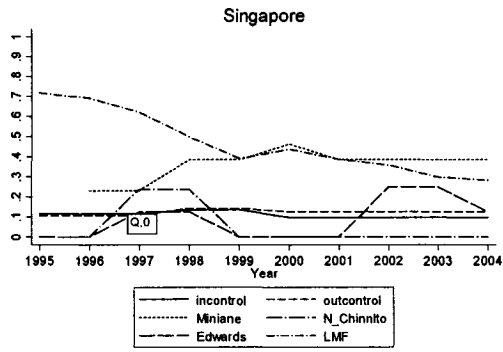


Figure 5.1 Joint Confidence Region of EMP3 with REER

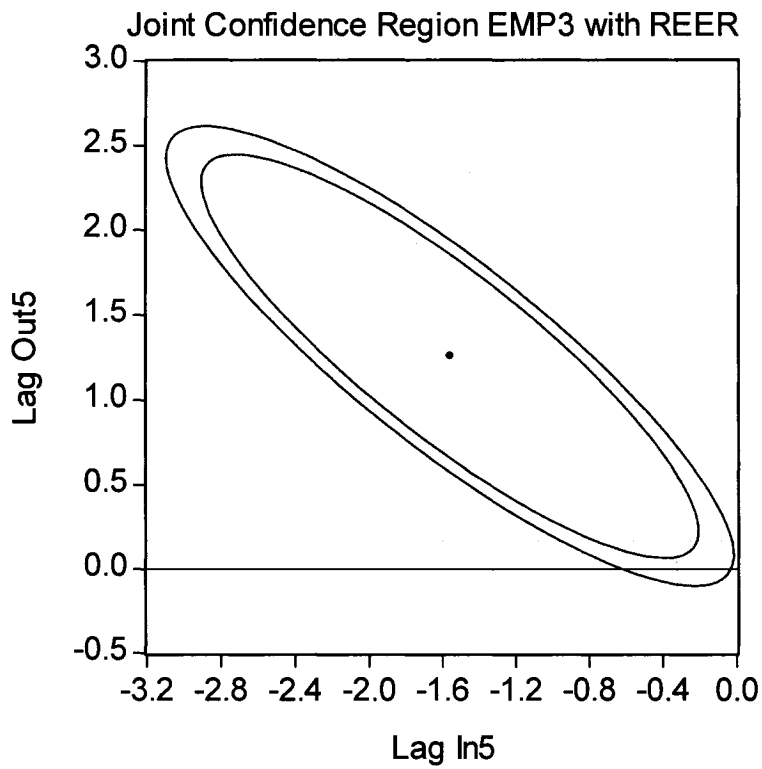


Figure 5.2 Joint Confidence Region of EMP5 with REER

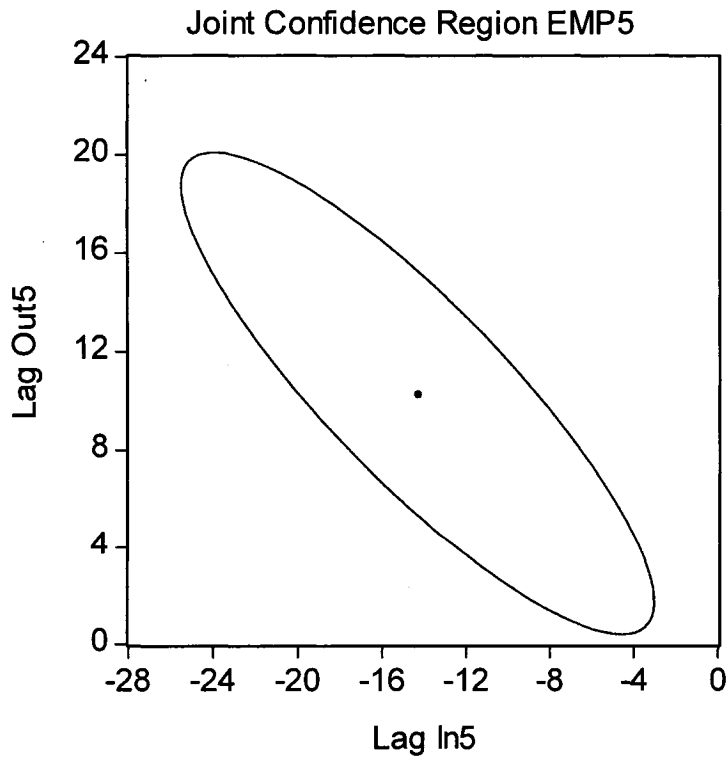


Figure 5.3 Joint Confidence Region of EMP3 without REER

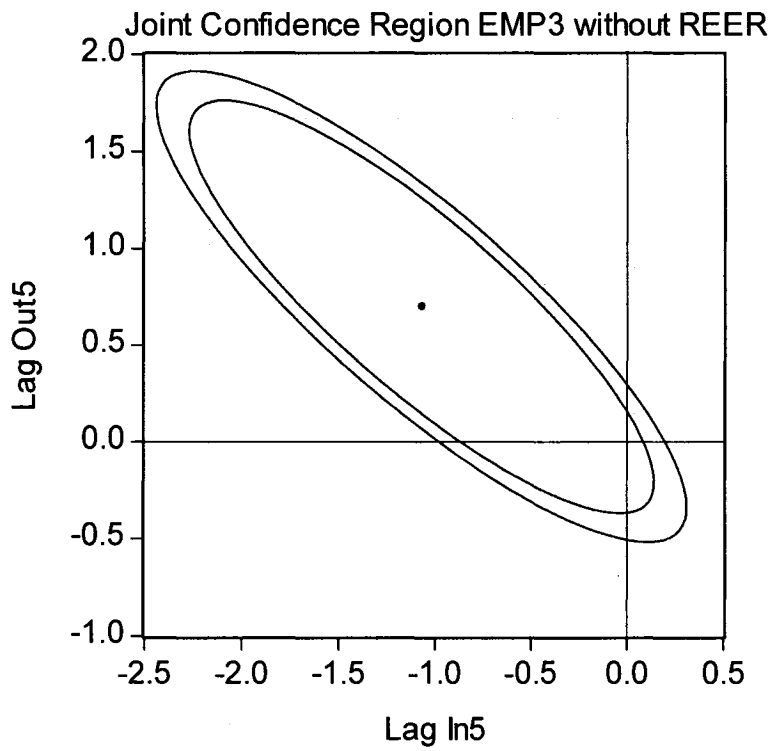
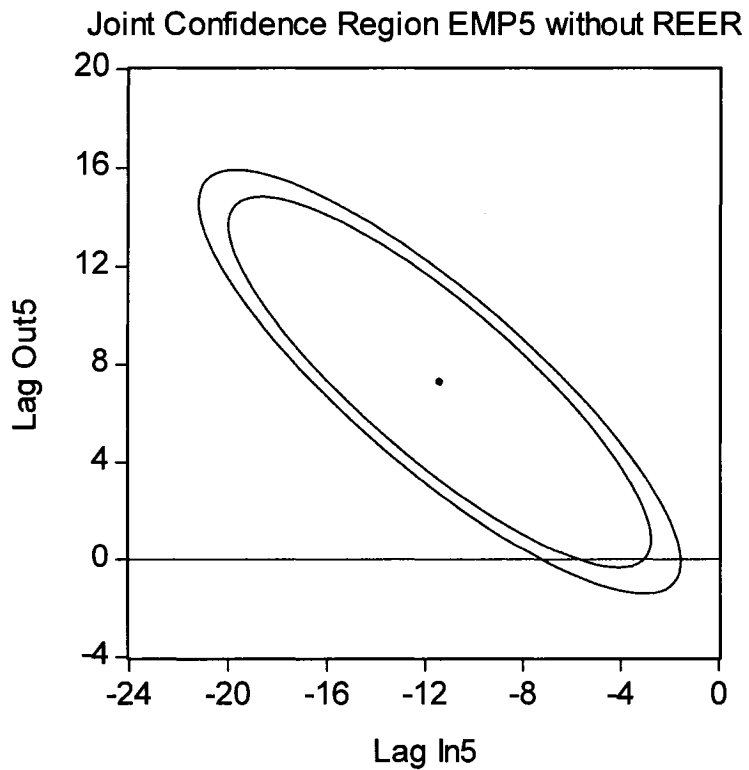


Figure 5.4 Joint Confidence Region of EMP5 without REER



Thailand 1995

Capital Transaction

Source: IMF AREAER (1996) p. 272 -275

On capital market securities

Purchase in the country by nonresidents

The maximum foreign equity participation is limited to 25% of paid-up registered capital of locally incorporated banks, finance companies, credit finance companies, and asset management companies. The combined shareholdings of an individual and his/her relations must not exceed 5% of a bank's paid-up registered capital and 10% that of finance companies and credit foncier companies. A maximum foreign equity participation is limited to 49% for other Thai corporations.

Sale or issue locally by nonresidents

The sale or issue of securities is under the jurisdiction of the Securities Exchange Commission (SEC). Under the securities law, the same rules and regulations apply to both capital market securities (those with a maturity above one year) and short-term money market securities (those debt securities with a maturity of less than one year). Foreign issuers have to comply with the same rules and regulations as the locals. Under these regulations, any companies wishing to issue securities to the public need to be approved by the SEC and file the disclosure documents with the SEC for public access.

Purchase abroad by residents

Requires approval of the BOT.

Sale or issue abroad by residents

Under the Securities and Exchange Act, there is a special regulation for the issue of securities abroad by residents. The potential issuer has to submit an application for approval to the SEC, and permission will be granted if the issuer can prove that the issue will only be traded overseas, both in the primary or secondary market. The objective of this regulation is to provide an easy channel for approving offshore issues for which the SEC has no need to protect the investors, while at the same time assuring that this channel will not be used as a leeway for domestic issuers who do not want to comply with the local regulations. There are no restrictions associated with the transfer of proceeds on funds to service debt abroad. Under exchange control law, the proceeds can be brought in without restriction, and all services payments can also be made freely.

The overall score for control on capital market transaction of inflow is 0.5 since the transactions are not required to have prior permission and are limited in foreign equity participation to less than 50 percent. This shows that foreigners are allowed to invest in Thailand without any paperwork as long as they do not invest over the ceiling imposed by the regulations. On the other hand, the outflow transactions are required to have approval from officials for issuing securities in domestic and for purchasing securities abroad by residents, so the result 0.75 is given.

On collective investment securities

Purchase in the country by nonresidents

No control on the purchase of securities offered by local fund management companies.

Sale or issue locally by nonresidents

Same regulations as for money market instruments apply.

Purchase abroad by residents

These transactions require approval of the BOT.

Sale or issue abroad by residents

Under the securities law, the launching of funds requires approval from the SEC, both locally or abroad. Only local fund management companies are allowed to issue collective investments. In addition, funds managed by local firms will be deemed to be Thai, regardless of the nationality of the majority of the unit holders. Under the Exchange Control Law, the transfer of proceeds and the transfer of funds required to service these instruments can be made freely.

There is no control on the purchase of securities offered by local fund to foreigners; however, there might be some other controls on this transaction. As a result, it could not be conducted freely. Besides, it requires approval before residents could engage in selling or issuing collective investment securities abroad. Thus score of 0.5 is given as the compromise of having less control in nonresidents' than in residents' transactions. For the control on capital outflows, it requires approval from the bank of Thailand. Thus value of 0.75 is assigned.

Korea 1999

Capital Transaction

Source: IMF AREAER (1999) p. 485 - 488

Financial credits

By residents to nonresidents

Credits and loans denominated in domestic currency of more than W 100 million a borrower require MOFE approval.

To residents from nonresidents

There are no controls for foreign exchange banks and enterprises to borrow financial credits in foreign currency abroad.

Only financial credits with a maturity of one year or less granted to enterprises with unsound financial structures require MOFE approval.

Inflows

<i>To residents from nonresidents</i>	0.25	Generally no control except a maturity of one year
---------------------------------------	------	--

Outflows

<i>By residents to nonresidents</i>	0.5	Quantitative Limits
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Chile 1995

Capital Transaction

Source: IMF AREAER (1996) p. 190 - 195

On money market instruments

Purchase locally by nonresidents

In general, these acquisitions are authorized for nonresidents, but there are regulations governing the mode of inflow. The associated capital inflow liquidation and the subsequent repatriation of proceeds must be effected through the formal exchange market. Acquisition through external loans are subject to a reserve requirement of 30%, a tax on interest of 4%, and a stamp tax of 1.2%. Acquisition through FICEs is subject to a minimum holding period of 5 years in addition to a 10% profit tax. In the case of financial investments, there is a 30% 1-year reserve requirement and a minimum holding period of 1 year, and they are subject to the general income tax law.

Sale or issue locally by nonresidents

These transactions are not authorized and neither is the promotion of these or other financial services from abroad. To operate in the domestic financial market, the company must be registered and established, and must have brought in capital for operational purposes. The legal mechanism used is the creation of a Chilean agency of the foreign corporation.

Purchase abroad by residents

The acquisition of money market instruments by individuals and nonfinancial companies is not restricted. However, the formal exchange market is not available for these operations.

Sale or issue abroad by residents

These transactions are subject to a reserve requirement of 30%.

The capital inflows are subject to a reserve requirement or Tobin's tax. This is treated as a quantitative restriction when coding capital controls measurement. Since investors do not have to go through paperwork and process of permission which official could allow the capital in the country depend on the situation. However, having reserve requirement is just reducing the amount of capital into the country. Investors could bring in capital any time when they need without undergoing any red tape. As a result, 0.5 is assigned. For the control on the outflow, the transactions are not authorized; however, investors need to register and establish themselves in order to be able to operate in the domestic market. The investors are required to have presence in the country where they are operating. Even though there are no restrictions on the capital transaction but

investors have to accrue the cost and time to operate in the country. Thus, it is not a freely operate transaction, 0.25 is given.

China 1995

Capital Transaction

Source: IMF AREAER (1996) p. 200 - 203

On capital market securities

<i>Purchase locally by nonresidents</i>	Nonresidents may only purchase B shares. The face value of B shares is denominated in renminbi, which are listed on the Chinese Securities Exchange and can only be bought by foreign investors.
<i>Sale or issue locally by nonresidents</i>	These transactions are not permitted.
<i>Purchase abroad by residents</i>	Residents, except financial institutions permitted to engage in foreign borrowing, and authorized industrial and trade enterprises or groups are not permitted to purchase securities abroad. A qualifications review by the SAFE is required for financial institutions to purchase securities abroad.
<i>Sale or issue abroad by residents</i>	Prior approval by the PBC, the SAFE, or the Securities Supervisory Board is required. Issuing bonds abroad must be integrated within the state's plan for utilizing foreign capital. Bonds can only be issued by financial institutions approved by the PBC.

The capital inflow transactions are restricted in only B shares and require prior approval, 0.75 is given. The issue of securities in China is not permitted. Private residents are not permitted to purchase securities abroad, value of 1 is given.

Colombia 2002

Capital Transaction

Source: IMF AREAER (2003) p. 238 - 240

Guarantees, sureties, and financial
backup facilities

By residents to nonresidents

To residents from nonresidents

Effective February 14, 2003, these instruments may be issued for purchases of raw petroleum and natural gas.

All payments with guarantees must be effected through an authorized intermediary or foreign exchange accounts.

These transactions must be reported to the BR and must be effected through authorized intermediaries or foreign exchange accounts, and are subject to deposit requirements.

Inflows

<i>To residents from nonresidents</i>	0.25	Through an authorized intermediary
---------------------------------------	------	------------------------------------

Outflows

<i>By residents to nonresidents</i>	0.25	Through an authorized intermediary
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Appendix 3B Selective Capital Control Chronicles

Source: IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (Argentina, Hong Kong, and Thailand)

Argentina

1995

1. Controls on capital market securities

Under the regulations of the National Securities Commission (CNV), foreign investors wishing to make a public offering of securities in Argentina must meet the same requirements as those applicable to Argentine investors. In each case they must establish a permanent representative office and a domicile in Argentina to receive notices. They must state whether the securities are also being offered to the public in their country of origin and specify the initial and periodic information requirements to which they are subject. The CNV may authorize foreign investors, considering each case individually, to submit only such information as they would periodically submit to the corresponding authority in their jurisdiction of origin.

2. Controls on money market instruments

- Sale or issue locally by nonresidents

Control is applied only for commercial papers.

3. Controls on collective investment securities

No Control

4. Controls on derivatives and other instruments

No Control

5. Controls on Commercial credits

No Control

6. Controls on Financial credits

No Control

7. Controls on Guarantees, sureties, and financial backup facilities

+To residents from nonresidents

- By residents to nonresidents

8. Controls on direct investment

+ Inward direct investment

Foreign companies are allowed to invest in Argentina without prior government approval on an equal footing with domestic firms. Foreign investors are entitled to the same rights and subject to the same obligations as domestic investors, and may enter into any area of economic activity on their own, because no law or regulation forces them to be associated with local partners. This principle applies even in cases where a foreign investment results in full foreign ownership of a domestic company.

- Outward direct investment

No Control

9. Controls on liquidation of direct investment

- Foreign investors are entitled to freely repatriate their investment, including earnings, and they may exercise their right at any time and have unrestricted access to the foreign exchange market.

10. Controls on real estate transactions

+ Purchase locally by nonresidents

For purchases of real estate in border areas, a foreign investor must seek prior approval for the project from the Border Superintendency of the Ministry of Defense. This limitation exists for national security reasons.

11. Controls on personal capital transactions

This transaction was added in 1997
No Control

12. Provisions specific to commercial banks and other credit institutions

+ *Borrowing abroad*

- *Lending to nonresidents*

Credits granted by financial intermediaries must be used in the country and must finance investment, production, commercialization, and consumption of goods and services for internal consumption or export. Invests abroad by bank are prohibited by virtue of policies on general lending.

13. Provisions specific to institutional investors

There is a 25% limit on the investment trust portfolio, but this limit does not apply to MERCOSUR.

Also, according to profitability and security criteria, no more than 10% of investments may be made in securities issued by a foreign country, and no more than 10% in the securities of foreign corporations.

In the event that the trust's assets consist of the securities, tender offer should be made in Argentina or abroad with a minimum of 75% of the investment being made in assets issued and traded in Argentina.

1996

on collective investment securities

- *Sale or issue locally by nonresidents*
"YES"

1997

on derivatives and other instruments

- *Sale or issue locally by nonresidents*
Approval of the CNV is required for public offerings.

1998

On money market instruments

- *Sale or issue locally by nonresidents*
Control is applied only for commercial papers.

1999

No significant changes occurred

2000

On capital market securities

Effective November 16; 2000, issuers making a public offering of securities both locally and abroad must present simultaneously all necessary information in Spanish to the entities that authorize the public offering and listing abroad to the CNV.

2001

On money market instruments

- *Sale or issue locally by nonresidents*

The regulations governing domestic issuers also apply. In particular, approval by the CNV is required for public offering. In addition, commercial paper must have a minimum maturity of seven days.

on derivatives and other instruments

+ / - *Purchase and Sale abroad by residents*

Forward and other derivatives contracts--except for currency and commodity swaps- are subject to CBRA approval.

Guarantees, sureties, and financial backup facilities

- *To residents from nonresidents*

Yes

2002

Financial credits

- *By residents to nonresidents*

Effective February 11, 2002, residents may extend credits to nonresidents only against pesos.

Effective September 6, 2002, a monthly ceiling of \$1 00,000 applies on extension to financial credits.

on personal capital transactions

- *Loan*

Until August 12, 2002, most transfers related to the repayment of principal on loans contracted before February 11, 2002 -with certain exceptions-were subject to prior BCRA approval.

2003

Financial credits

+ *To residents from nonresidents*

Financial credits by the private sector must be matched by sales on the MULC and must have a minimum maturity requirement for new external borrowing of 180 days (prior to June 30,2003, 90 days).

- *By residents to nonresidents*

Residents may extend credits to nonresidents within the limit for the accumulation of external assets. Effective January 2, 2003, a monthly ceiling of US\$150,000 or the equivalent applies on extension of financial credits (previously, US\$100,000). This limit was raised to US\$200,000 on March 13,2003; to US\$300,000 on March 27,2003; and to US\$500,000 on May 6,2003.

Guarantees, sureties, and financial backup facilities

- *To residents from nonresidents*

No

on liquidation of direct investment

Effective December 31, 2003, repatriation of inward direct investments by nonresidents is subject to a limit of US\$5,000 or the equivalent a month on sales of foreign exchange to nonresidents. Investments exceeding this limit require BCRA approval.

2004

Personal capital movements

"Yes"

Hong Kong

1995

Provisions specific to commercial banks and other credit institutions

No authorized institution incorporated in Hong Kong SAR or its holding company incorporated in Hong Kong SAR shall establish or acquire by whatever means without the approval of the HKMA an overseas banking corporation that becomes the subsidiary of the institution or its holding company.

All authorized institutions are required to report to the HKMA their foreign currency positions (including options) monthly. Locally incorporated institutions are required to report their consolidated foreign currency positions. The aggregate net open position (calculated as the sum of net long/short positions of individual currencies) should normally not exceed 5% of the capital base of the institution, and the net open position in any individual currency should not exceed 10% of the capital base. For subsidiaries of foreign banks where the parent bank consolidates the foreign exchange risk on a global basis and for which there is adequate home supervision, the HKMA may accept higher limits. For branches of foreign banks, the HKMA reviews and monitors their internal limits, which are usually set by their head offices and home supervisory authorities.

2000

Provisions specific to commercial banks and other credit institutions

February 18. An authorized institution incorporated in Hong Kong SAR may not acquire shares worth more than 5% of the capital base of an institution at the time of the acquisition without HKMA approval.

2001

Provisions specific to institutional investors

For the Mandatory Provident Fund schemes, at least 30% of a constituent fund must be held in Hong Kong dollar-denominated currency investments, as measured by effective currency exposure.

There is no minimum limit on the amount that insurance companies may hold in investments in locally issued securities. However, insurance companies carrying on direct general insurance business locally are required to maintain assets in Hong Kong to match their liabilities from such insurance business. The form of assets is not limited to local securities and may be in the form of cash, bank deposits, or landed properties.

Insurance companies with long-term foreign currency liabilities must enact prudential provisions to limit the effects of exchange rate changes on their asset base unless these liabilities are covered by adequate foreign currency holdings not subject to exchange risk

Thailand
1995

1. Controls on capital market securities

+ Purchase in the country by nonresidents

The maximum foreign equity participation is limited to 25% of paid-up registered capital of locally incorporated banks, finance companies, credit finance companies, and asset management companies. Maximum foreign equity participation is limited to 49% for other Thai corporations.

+ Sale or issue abroad by residents

The potential issuer abroad has to submit an application for approval to the SEC, and permission will be granted if the issuer can prove that the issue will only be traded overseas, both in the primary or secondary market.

- Sale or issue locally by nonresidents

The sale or issue of securities for nonresidents is under the jurisdiction of the Securities Exchange Commission (SEC). Under these regulations, any companies wishing to issue securities to the public need to be approved by the SEC

- Purchase abroad by residents
requires approval of the BOT.

2. Controls on money market instruments

Same regulations as for securities apply.

3. Controls on collective investment securities

+ Purchase in the country by nonresidents

No control on the nonresidents' purchase of securities offered by local fund management companies.

+ Sale or issue abroad by residents

the launching of funds requires approval from the SEC, both locally or abroad

- Sale or issue locally by nonresidents

needed to be approved by the SEC

- Purchase abroad by residents
requires approval of the BOT.

4. Controls on derivatives and other instruments

A securities company is not permitted to purchase or sell futures or options on securities, whether in its own name or for customers, or to engage in any business that is not a licensed securities business unless the SEC issues a notification or grants an approval allowing such transaction or business.

Under the Exchange Control Law, the purchase of derivative instruments by residents and the transfer of funds require approval by the BOT. There is no restriction for nonresidents to purchase and sell financial instruments in the local market. However, the issuance of warrants or equity-related instruments and bonds by nonresidents in the local market is subject to approval by the SEC.

5. Controls on Commercial credits

No Restrictions

6. Controls on Financial credits

+ To residents from nonresidents

There is no control. Repayment of financial credits to nonresidents can be made freely as long as residents have an obligation to pay to nonresidents in foreign currency.

- By residents to nonresidents

Under exchange control laws, residents may only grant loans to their affiliated company if they own at least 25% of total shares in the company. Loans must not exceed \$10 million a year without approval from the BOT.

7. Controls on Guarantees, sureties, and financial backup facilities

No Restrictions

8. Controls on direct investment

+ Inward direct investment

Foreign capital may be brought into the country and loans contracted without control, but proceeds must be surrendered to authorized banks or deposited in foreign currency accounts with authorized banks in Thailand within 15 days of receipt.

- Outward direct investment

Foreign direct investments exceeding \$10 million a year require approval from the BOT.

9. Controls on liquidation of direct investment

- All proceeds from the sale or liquidation of direct foreign investment including capital gains, *can* be repatriated without restriction upon submission of supporting evidence.

10. Controls on real estate transactions

+ Purchase locally by nonresidents

Nonresidents are not allowed to purchase local real estate except condominiums with money that originates from abroad.

- Purchase abroad by residents

Yes

11. Controls on personal capital transactions

This transaction was added in 1997

12. Provisions specific to commercial banks and other credit institutions

+ Borrowing abroad

The acquisition of foreign currency assets by purchasing securities, granting foreign currency loans, or even maintaining overseas accounts, and the creation of foreign currency liabilities are subject to the ratio of net open position to capital base requirement.

- Lending to nonresidents

Authorized banks in Thailand may lend to nonresidents in foreign currency without restriction. Foreign currency loans may be extended to residents for outward remittance or domestic use. If loans are used domestically, resident borrowers are required to convert the foreign currency obtained into baht, which they are not allowed to deposit in foreign currency accounts.

- Investment abroad

Commercial banks are allowed to buy or hold shares in a limited company in an amount not exceeding 10%.

13. Provisions specific to institutional investors

+ the National Executive Decree No. 281 imposes the 50% limit on nonresident's equity participation in any companies. Approval is required for nonresidents to issue securities

- Mutual funds and provident funds have to invest their total portfolio in the domestic market. The criteria for life insurance and non-life insurance companies to invest abroad with approval from authorities, and by using the surplus funds

1996

No significant changes occurred

1997

On capital market securities

+ Purchase locally by nonresidents

June, 1997 the foreign ownership limit of 25% of amount of shares sold for financial institutions was lifted on a case-by-case basis with the approval of the MOF.

October, 1997, foreign investors were allowed to hold more than 49% of the total shares sold in local financial institutions for up to 10 years.

On derivatives and other instruments

- the BOT introduced a series of measures to limit capital outflows.

On Credit operations

June 1997, the BOT limited transactions with nonresidents that could facilitate the build-up of baht positions in the offshore market.

11. Controls on personal capital movements (This transaction begins 1997)

- *By residents to nonresidents*

Loans: Approval from the BOT is required. Inheritances and legacies are allowed up to \$1 million a year. Thai emigrants are allowed to transfer of assets abroad up to \$1 million a year without approval from the BOT.

1998

Provisions specific to commercial banks and other credit institutions

January, 1998. A maximum outstanding limit of B 50 million on baht credit facilities per counterparty was introduced

1999

No significant changes occurred

2000

on Guarantees, sureties, and financial backup facilities

- *By residents to nonresidents*

Resident banks are not allowed to certify or guarantee transactions for nonresidents that make resident banks liable to pay baht to other entities on behalf of nonresidents

2001

on credit operations

December 28. Direct loans in Thai baht were allowed to be made to entities in neighboring countries under specified conditions and with prior BOT approval.

2002

on capital and money market instruments

July 30. Residents were allowed to purchase shares abroad under employee stock option plans up to the equivalent of \$100,000 without BOT approval. Previously, BOT approval was required for all purchases.

on credit operations

July 30. Lending to affiliated companies with ownership of at least 10% was allowed (previously, 25%).

on real estate transactions

July 30. Thai residents were allowed to purchase immovable assets for residential purposes up to the equivalent of \$500,000 a person without BOT approval. Previously, BOT approval was required for all purchases.

2003

No significant changes occurred

2004

No significant changes occurred

Appendix 4A Sources of variables

The data is annual and it covers the period 1995 to 2004

Variables	Sources	Description
<u>Capital Control Determinant</u>		
BOP Deficit / GDP	IFS	line 78CBDZF
Current Account Deficit / GDP	IFS	line 78ALDZF
Total reserves in months of imports	WDI	FI.RES.TOTL.MO
Real interest rate (%)	WDI	FR.INR.RINR
Government Budget Deficit /GDP	IFS	line 80
Inflation	IFS	line 60
Exchange Rate Regimes	AREAER	Willett, Penny, Eric
REER	JP Morgan	Real Effective Exchange Rate
Ratio of non-financial private sector to total domestic credit	IFS	line 32d / Total domestic credits: 32a through 32f
Ratio of deposit money bank domestic assets to total money bank domestic assets and central bank domestic assets	IFS	Deposit money bank domestic assets IFS(22a-22f) / (Deposit money bank domestic assets + CB domestic Asset (IFS 12a-12f))
M2 / GDP	IFS	line 34 + 35
GDP	FS	99b
Exchange rate	IFS	line RF (used for converting \$US to Local currency unit)
Trade (% of GDP)	WDI	NE.TRD.GNFS.ZS
Log GDP per capita	WDI	NY.GDP.PCAP.KD
<u>Currency Crisis and Capital control</u>		
Growth of Private Credit to GDP Ratio	IFS Joint BIS-IMF- OECD-WB Statistics	IFS line 32d
Short term Debt Reserves Ratio	on External Debt	line G
Current Account Deficit/GDP	IFS	line 78ALDZF
Government Budget Deficit/GDP	IFS	line 80
GDP Deflator	WDI	NY.GDP.DEFL.ZS
REER	JP Morgan	Real Effective Exchange Rate

Appendix 5A

Currency Crisis Indices Definitions (Dummy method)

There are many types currency crisis indices studied in this paper. Below is the explanation how to identify the label of currency crisis variables in table 5.1 to 5.16. The following shows how to distinguish the component of the label of dummy currency crisis index.

cci212:

“cc” “i” “2” “12”
“currency crisis” – “weighting method” – “threshold in term of number of standard deviations”- “months of exclusion window”

meaning: currency crisis index of individual precision weighting with 2 times standard deviation plus mean threshold, and 12 months exclusion.

The first and second characters: currency crisis

The third character:

- i: Individual precision weighting
- p: Pooled precision weighting
- e: Equal weighting

The fourth character:

- 2: 2 * standard deviation of EMP
- 3: 3 * standard deviation of EMP

The fifth and sixth characters:

- 12: 12-month exclusion window
- 24: 24-month exclusion window

Another example, ccp324 stands for currency crisis index that uses a pooled precision-weighting scheme with 3*standard deviation above mean threshold and with 24-month exclusion window. If the value is above this constraint, value of one is given, which indicates a currency crisis episode.

For each EMP_i, different thresholds in terms of a number of standard deviations (2 and 3 standard deviations) above the mean and different exclusion window (12 and 24 months) to exclude the overlapping crisis events, are used to created currency crisis indices as following:

CCi = 1 if $EMP_1 > \text{Mean} + (2 \text{ or } 3) * \text{Standard Deviation of } EMP_{it}$; otherwise 0, while

$$EMP_1 = \frac{\frac{\Delta ER_{it}}{\sigma_{\Delta ER}} - \frac{\Delta Re\ serves_{it}}{\sigma_{\Delta Re.serves}} + \frac{\Delta Int_{it}}{\sigma_{\Delta Int}}}{1}$$

CCp = 1 if $EMP_3 > \text{Mean} + (2 \text{ or } 3) * \text{Standard Deviation of } EMP_{it}$; otherwise 0, while

$$EMP_3 = \frac{\frac{\Delta ER_{it}}{\sigma_{\Delta ER}} - \frac{\Delta Re\ serves_{it}}{\sigma_{\Delta Re.serves}} + \frac{\Delta Int_{it}}{\sigma_{\Delta Int}}}{1}$$

CCe = 1 if $EMP_5 > \text{Mean} + (2 \text{ or } 3) * \text{Standard Deviation of } EMP_{it}$; otherwise 0, while

$$EMP_5 = \frac{\frac{\Delta ER_{it}}{3} - \frac{\Delta Re\ serves_{it}}{3} + \frac{\Delta Int_{it}}{3}}{1}$$

CCi...noi = 1 if $EMP_2 > \text{Mean} + (2 \text{ or } 3) * \text{Standard Deviation of } EMP_{it}$; otherwise 0,

while $EMP_2 = \frac{\frac{\Delta ER_{it}}{\sigma_{\Delta ER}} - \frac{\Delta Re\ serves_{it}}{\sigma_{\Delta Re.serves}}}{1}$

CCp...noi = 1 if $EMP_4 > \text{Mean} + (2 \text{ or } 3) * \text{Standard Deviation of } EMP_{it}$; otherwise 0,

while $EMP_4 = \frac{\frac{\Delta ER_{it}}{\sigma_{\Delta ER}} - \frac{\Delta Re\ serves_{it}}{\sigma_{\Delta Re.serves}}}{1}$

CCe...noi = 1 if $EMP_6 > \text{Mean} + (2 \text{ or } 3) * \text{Standard Deviation of } EMP_{it}$; otherwise 0,

while $EMP_6 = \frac{\frac{\Delta ER_{it}}{2} - \frac{\Delta Re\ serves_{it}}{2}}{1}$

Currency Crisis index (actual EMP):

Six major Exchange Market Pressure indices are studied:

<i>EMP1:</i>	Individual precision weighting with interest rate
<i>EMP2:</i>	Individual precision weighting <i>without</i> interest rate
<i>EMP3:</i>	Pooled precision weighting with interest rate
<i>EMP4:</i>	Pooled precision weighting <i>without</i> interest rate
<i>EMP5:</i>	Equal weighting with interest rate
<i>EMP6:</i>	Equal weighting <i>without</i> interest rate

The mathematic definitions:

$$EMP_1 = \frac{\Delta ER_{it}}{\sigma_{\Delta ER}^i} - \frac{\Delta Re\ serves_{it}}{\sigma_{\Delta Re\ serves}^i} + \frac{\Delta Int_{it}}{\sigma_{\Delta Int}^i}$$

$$EMP_2 = \frac{\Delta ER_{it}}{\sigma_{\Delta ER}^i} - \frac{\Delta Re\ serves_{it}}{\sigma_{\Delta Re\ serves}^i}$$

$$EMP_3 = \frac{\Delta ER_{it}}{\sigma_{\Delta ER}} - \frac{\Delta Re\ serves_{it}}{\sigma_{\Delta Re\ serves}} + \frac{\Delta Int_{it}}{\sigma_{\Delta Int}}$$

$$EMP_4 = \frac{\Delta ER_{it}}{\sigma_{\Delta ER}} - \frac{\Delta Re\ serves_{it}}{\sigma_{\Delta Re\ serves}}$$

$$EMP_5 = \frac{\Delta ER_{it}}{3} - \frac{\Delta Re\ serves_{it}}{3} + \frac{\Delta Int_{it}}{3}$$

$$EMP_6 = \frac{\Delta ER_{it}}{2} - \frac{\Delta Re\ serves_{it}}{2}$$

Appendix 5B List of Capital Controls indices

List of Capital Controls indices (an increase in values of each capital restriction index indicates relative intensive restriction. Some indices have been converted to conform to the other capital control index) used in the empirical study:

1. In5 and Out5: the main capital control index which combines every capital transactions and dual exchange arrangement. (In5: control on capital inflow; Out5: control on capital outflow)
2. In_sc1 and Out_sc1: 1st principal component of in5 and out5
3. Inf1 and Outf1: 1st principal component with missing value of in5 and out5
4. Capital Controls by types of capital transactions
 - 4.1 Capital Market (inCM, outCM)
 - Capital market securities
 - Money market instruments
 - Collective investment securities
 - Derivatives and other instruments
 - 4.2 Credit Market (inCR, outCR)
 - Commercial credits
 - Financial credits
 - 4.3 Foreign Direct Investment (inFDI, outFDI)
 - Direct investment
 - Real estate transactions
 - 4.4 Financial Institutions (inFIN, outFIN)
 - Provisions specific to commercial banks and other credit institutions
 - Provisions specific to institutional investors
5. In-binary and Out-binary: capital control created by assigning dummy values on each capital transactions (13 categories plus dual exchange rate arrangement) and take average. The method is similar to in5 and out5, the only difference is there are two values (0 and 1), less intensity, instead of 5 scales.
6. N_ChinnIto: Normalized Chinn-Ito (2002) index (1st standardized principal component of four different current and capital transactions.) into 0-1 scale with reversed sign to conform with other indices.
7. Miniane (2004) : The average of dummy values on 12 capital transactions and dual exchange rate
8. IMF: the average of 13 capital transactions with the value of 1 for control, otherwise 0.
9. Quinn (1997) : normalized and reversed value of capital account restriction index.
10. Johnston (Johnston and Tamirisa 1998) : value of 1 is given to each subcategory of capital transaction if there is any control, otherwise 0
11. Edwards (2005): combining data from Quinn (1997) and Mody and Murshid (2005)
12. LFM: Land and Milesi Ferreti (2006). Sum of total external assets plus total external liabilities as a proportion of GDP
13. GH: Glick-Hutchinson (2000a; 2000b) giving value of 0 if more than 5 of the 13 capital transactions are controlled, otherwise 1
14. inout: the overall average of combining In5 and Out5 together.

Appendix 5C Crisis Year by types of binary currency crisis indices

Currency Crisis Year for the threshold of *2 standard deviation* plus mean

country	year	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
Argentina	1995							⊗	⊗			⊗	⊗
Argentina	2001	⊗	⊗	⊗	⊗			⊗	⊗	⊗	⊗		
Argentina	2002		⊗		⊗	⊗	⊗				⊗	⊗	⊗
Argentina	2004									⊗	⊗		
Brazil	1995	⊗	⊗	⊗	⊗					⊗	⊗		
Brazil	1997	⊗	⊗	⊗	⊗					⊗	⊗		
Brazil	1998					⊗	⊗	⊗	⊗			⊗	⊗
Brazil	1999		⊗		⊗						⊗		
Brazil	2000						⊗		⊗				⊗
Brazil	2002	⊗	⊗			⊗	⊗					⊗	⊗
Chile	1996							⊗	⊗				
Chile	1997					⊗	⊗		⊗			⊗	⊗
Chile	1998	⊗	⊗	⊗	⊗			⊗		⊗	⊗		
Chile	1999						⊗		⊗				⊗
Chile	2001			⊗	⊗					⊗	⊗		
China	1995									⊗	⊗		
China	2003	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Colombia	1995	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Colombia	1998	⊗	⊗	⊗	⊗		⊗	⊗	⊗	⊗	⊗	⊗	⊗
Colombia	1999		⊗			⊗	⊗						
Egypt	2001	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Egypt	2003		⊗				⊗				⊗		⊗
Hong Kong	1997					⊗	⊗						
Hong Kong	1998			⊗	⊗			⊗	⊗			⊗	⊗
Hong Kong	2004					⊗	⊗						
Hungary	2003	⊗	⊗							⊗	⊗		
India	1995	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
India	1996												
India	1997	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
India	1998												
India	2000	⊗	⊗							⊗	⊗		
Indonesia	1997	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Indonesia	2001			⊗	⊗					⊗	⊗		
Indonesia	2004	⊗	⊗	⊗	⊗					⊗	⊗		
Jordan	1995	⊗	⊗			⊗	⊗						
Jordan	1996			⊗	⊗			⊗	⊗	⊗	⊗	⊗	⊗
Jordan	1997		⊗			⊗	⊗				⊗		
Korea	1997	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Malaysia	1997	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Mexico	1995	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Mexico	1998	⊗	⊗							⊗	⊗		
Morocco	2001					⊗	⊗						

Currency Crisis Year for the threshold of 2 *standard deviation* plus mean (continue)

country	year	cci224	cci212	ccp224	ccp212	cci224noi	cci212noi	ccp224noi	ccp212noi	cce224	cce212	cce224noi	cce212noi
Pakistan	1995	⊗	⊗			⊗	⊗						
Pakistan	1996			⊗	⊗		⊗	⊗	⊗			⊗	⊗
Pakistan	1997					⊗	⊗						
Pakistan	1998	⊗	⊗	⊗	⊗					⊗	⊗		⊗
Pakistan	1999						⊗						
Pakistan	2000		⊗			⊗	⊗						
Pakistan	2004	⊗	⊗	⊗	⊗					⊗	⊗		
Peru	1997							⊗	⊗				
Peru	1998	⊗	⊗	⊗	⊗	⊗	⊗			⊗	⊗	⊗	⊗
Peru	1999												
Philippines	1995	⊗	⊗	⊗	⊗					⊗	⊗		
Philippines	1997	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Philippines	2000	⊗	⊗										
Singapore	1995	⊗	⊗	⊗	⊗					⊗	⊗		
Singapore	1997	⊗	⊗		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Singapore	1998												
Singapore	1999			⊗	⊗						⊗		
Singapore	2002			⊗	⊗					⊗	⊗		
South Africa	1995			⊗	⊗			⊗	⊗	⊗	⊗	⊗	⊗
South Africa	1996	⊗	⊗		⊗	⊗	⊗		⊗		⊗		⊗
South Africa	1998	⊗	⊗			⊗	⊗			⊗	⊗		
South Africa	2001	⊗	⊗			⊗	⊗						
Sri Lanka	1995									⊗	⊗		
Sri Lanka	1996	⊗	⊗	⊗	⊗						⊗		
Sri Lanka	1997									⊗	⊗		
Sri Lanka	1998		⊗			⊗	⊗						
Sri Lanka	2000	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Thailand	1995			⊗	⊗					⊗	⊗		
Thailand	1997	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗			⊗	⊗
Turkey	1995	⊗	⊗			⊗	⊗	⊗	⊗			⊗	⊗
Turkey	2000	⊗	⊗	⊗	⊗			⊗	⊗				
Turkey	2001					⊗	⊗			⊗	⊗	⊗	⊗
Turkey	2002												
Uruguay	1998	⊗	⊗	⊗	⊗					⊗	⊗		
Uruguay	2000									⊗	⊗		
Uruguay	2001	⊗	⊗	⊗	⊗								
Uruguay	2002		⊗		⊗	⊗	⊗	⊗	⊗			⊗	⊗
Uruguay	2003								⊗				⊗
Uruguay	2004			⊗	⊗					⊗	⊗		
Venezuela	1995	⊗	⊗			⊗	⊗			⊗	⊗	⊗	⊗
Venezuela	1998	⊗	⊗	⊗	⊗					⊗	⊗		
Venezuela	2001									⊗	⊗		
Venezuela	2002	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗			⊗	⊗
Venezuela	2003		⊗		⊗				⊗		⊗		
Venezuela	2004							⊗	⊗				
Zimbabwe	1997	⊗	⊗	⊗	⊗					⊗	⊗	⊗	⊗
Zimbabwe	1998					⊗	⊗	⊗	⊗				
Total		46	55	42	48	39	45	32	37	48	56	31	37

Currency Crisis Year for the threshold of 3 *standard deviation* plus mean

country	year	cci324	cci312	cci324noi	cci312noi	ccp324	ccp312	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
Argentina	1995												
Argentina	2001	⊗	⊗			⊗	⊗			⊗	⊗		
Argentina	2002		⊗	⊗	⊗							⊗	⊗
Argentina	2004												
Brazil	1995												
Brazil	1997	⊗	⊗							⊗	⊗		
Brazil	1998					⊗	⊗	⊗	⊗			⊗	⊗
Brazil	1999		⊗	⊗	⊗								
Brazil	2000								⊗				
Brazil	2002												
Chile	1996												
Chile	1997												
Chile	1998	⊗	⊗			⊗	⊗			⊗	⊗		
Chile	1999			⊗	⊗			⊗	⊗			⊗	⊗
Chile	2001												
China	1995												
China	2003					⊗	⊗	⊗	⊗			⊗	⊗
Colombia	1995												
Colombia	1998	⊗	⊗							⊗	⊗		
Colombia	1999												
Egypt	2001	⊗	⊗	⊗	⊗					⊗	⊗	⊗	⊗
Egypt	2003		⊗		⊗						⊗		⊗
Hong Kong	1997												
Hong Kong	1998												
Hong Kong	2004												
Hungary	2003	⊗	⊗							⊗	⊗		
India	1995			⊗	⊗							⊗	⊗
India	1996												
India	1997												
India	1998			⊗	⊗					⊗	⊗	⊗	⊗
India	2000												
Indonesia	1997	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Indonesia	2001												
Indonesia	2004					⊗	⊗			⊗	⊗		
Jordan	1995	⊗	⊗	⊗	⊗								
Jordan	1996												
Jordan	1997		⊗			⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Korea	1997	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Malaysia	1997	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Mexico	1995	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Mexico	1998									⊗	⊗		
Morocco	2001												

Currency Crisis Year for the threshold of *3 standard deviation* plus mean (continue)

country	year	cci324	cci312	cci324noi	cci312noi	ccp324	ccp312	ccp324noi	ccp312noi	cce324	cce312	cce324noi	cce312noi
Pakistan	1995			⊗	⊗								
Pakistan	1996												
Pakistan	1997												
Pakistan	1998	⊗	⊗			⊗	⊗			⊗	⊗		
Pakistan	1999												
Pakistan	2000		⊗	⊗	⊗								
Pakistan	2004									⊗	⊗		
Peru	1997												
Peru	1998	⊗	⊗			⊗	⊗	⊗	⊗			⊗	⊗
Peru	1999			⊗	⊗								
Philippines	1995					⊗	⊗			⊗	⊗		
Philippines	1997	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Philippines	2000												
Singapore	1995					⊗	⊗			⊗	⊗		
Singapore	1997	⊗	⊗			⊗	⊗			⊗	⊗		
Singapore	1998			⊗	⊗							⊗	⊗
Singapore	1999						⊗				⊗		
Singapore	2002												
South Africa	1995												
South Africa	1996	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
South Africa	1998	⊗	⊗	⊗	⊗					⊗	⊗		
South Africa	2001			⊗	⊗								
Sri Lanka	1995												
Sri Lanka	1996					⊗	⊗			⊗	⊗		
Sri Lanka	1997												
Sri Lanka	1998			⊗	⊗								
Sri Lanka	2000			⊗	⊗								
Thailand	1995												
Thailand	1997	⊗	⊗	⊗	⊗			⊗	⊗			⊗	⊗
Turkey	1995			⊗	⊗							⊗	⊗
Turkey	2000												
Turkey	2001	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Turkey	2002												
Uruguay	1998					⊗	⊗			⊗	⊗		
Uruguay	2000												
Uruguay	2001									⊗	⊗		
Uruguay	2002	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗			⊗	⊗
Uruguay	2003												
Uruguay	2004						⊗			⊗	⊗		
Venezuela	1995			⊗	⊗							⊗	⊗
Venezuela	1998												
Venezuela	2001												
Venezuela	2002	⊗	⊗			⊗	⊗			⊗	⊗		
Venezuela	2003			⊗	⊗							⊗	⊗
Venezuela	2004												
Zimbabwe	1997	⊗	⊗							⊗	⊗		
Zimbabwe	1998												
Total		23	28	27	28	25	27	15	16	32	34	23	24

Appendix 5D Truncated Currency Crisis by types of weighting scheme of EMP (percentage)

Country	year	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
Argentina	1995	0	0	0	0	0	0
Argentina	1996	0	0	0	0	0	0
Argentina	1997	0	0	0	0	0.179	0
Argentina	1998	0	0	0	0	0	0
Argentina	1999	0	0	0.015	0	0.665	0
Argentina	2000	0.095	0.022	0.185	0.024	1.607	0.098
Argentina	2001	1.443	0.381	2.788	0.412	23.848	1.662
Argentina	2002	1.786	2.315	0.516	0.778	2.609	7.143
Argentina	2003	0	0	0	0	0	0
Argentina	2004	0	0	0.035	0	2.430	0
Brazil	1995	0	0	0	0	0	0
Brazil	1996	0	0	0	0	0	0
Brazil	1997	0.787	0.242	0.396	0.146	2.911	0.772
Brazil	1998	0.230	0.232	0.104	0.105	0.433	0.669
Brazil	1999	0.751	0.996	0.168	0.280	0.594	2.509
Brazil	2000	0.034	0.133	0	0.036	0	0.333
Brazil	2001	0.353	0.246	0.001	0	0.719	0.374
Brazil	2002	0.846	0.719	0.107	0.048	1.550	1.487
Brazil	2003	0	0	0	0	0	0
Brazil	2004	0	0	0	0	0	0
Chile	1995	0	0	0	0	0	0
Chile	1996	0.081	0	0.019	0	0.605	0
Chile	1997	0	0	0	0	0	0
Chile	1998	1.008	0.569	0.354	0.124	2.678	0.715
Chile	1999	0.696	0.715	0.109	0.119	0.471	0.853
Chile	2000	0.310	0.175	0.062	0	0.782	0.161
Chile	2001	0.615	0.730	0.037	0.098	0	0.840
Chile	2002	0	0	0	0	0	0
Chile	2003	0	0	0	0	0	0
Chile	2004	0	0	0	0	0	0
China	1995	0	0	0	0	0	0
China	1996	0	0	0	0	0	0
China	1997	0	0	0	0	0	0
China	1998	0	0	0	0	0	0
China	1999	0	0	0	0	0	0
China	2000	0	0	0	0	0	0
China	2001	0	0	0	0	0	0
China	2002	0	0	0	0	0	0
China	2003	0	0	0	0	0	0
China	2004	0	0	0	0	0	0
Colombia	1995	0.405	0.462	0	0	0.154	0.376
Colombia	1996	0	0	0	0	0	0
Colombia	1997	0.722	0.973	0.047	0.092	0.324	1.121
Colombia	1998	1.425	0.838	0.274	0.171	1.758	1.157
Colombia	1999	0	0.966	0	0.150	0	1.235

Country	year	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
Colombia	2000	0.269	0.311	0	0	0.040	0.164
Colombia	2001	0	0	0	0	0	0
Colombia	2002	0.301	0.623	0	0.008	0	0.611
Colombia	2003	0.003	0	0	0	0.011	0
Colombia	2004	0	0	0	0	0	0
Egypt	1995	0	0	0	0	0	0
Egypt	1996	0	0	0	0	0	0
Egypt	1997	0	0	0	0	0	0
Egypt	1998	0	0.089	0.016	0.030	0	0.121
Egypt	1999	0.803	0.686	0.240	0.230	0.719	0.935
Egypt	2000	0.654	0.629	0.130	0.128	0.521	0.750
Egypt	2001	0.731	0.715	0.067	0.065	0.513	0.750
Egypt	2002	0.105	0.051	0	0	0.062	0.028
Egypt	2003	1.202	1.248	0.077	0.081	0.806	1.266
Egypt	2004	0	0	0	0	0	0
Hong Kong	1995	0	0	0	0	0	0
Hong Kong	1996	0	0	0	0	0	0
Hong Kong	1997	0	0	0	0	0	0
Hong Kong	1998	0.073	0.214	0.018	0.032	0	0.134
Hong Kong	1999	0	0	0	0	0	0
Hong Kong	2000	0.303	0	0	0	0.013	0
Hong Kong	2001	0	0	0	0	0	0
Hong Kong	2002	0	0	0	0	0	0
Hong Kong	2003	0	0	0	0	0	0
Hong Kong	2004	0.084	0.082	0	0	0	0
Hungary	1995	0.203	0.049	0	0	0	0
Hungary	1996	0.304	0.832	0.172	0.256	0.194	1.498
Hungary	1997	0.668	0.926	0.167	0.208	0.564	1.436
Hungary	1998	0	0.138	0	0	0	0
Hungary	1999	0	0.337	0	0	0	0
Hungary	2000	0.258	0.575	0	0.023	0	0.570
Hungary	2001	0	0	0	0.015	0	0
Hungary	2002	0	0	0	0	0	0
Hungary	2003	0.139	0	0	0	0.094	0
Hungary	2004	0	0	0	0	0	0
India	1995	1.605	0.950	0.177	0.128	1.022	0.827
India	1996	0	0	0	0	0	0
India	1997	0	0.020	0	0	0	0
India	1998	0.149	0.248	0	0	0	0
India	1999	0	0	0	0	0	0
India	2000	0.061	0.050	0	0	0	0
India	2001	0	0	0	0	0	0
India	2002	0	0	0	0	0	0
India	2003	0	0	0	0	0	0
India	2004	0	0	0	0	0	0

Country	year	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
Indonesia	1995	0	0	0	0	0.407	0
Indonesia	1996	0	0	0	0	0	0
Indonesia	1997	1.476	0.809	1.206	0.356	10.632	3.745
Indonesia	1998	0	0	0.002	0	2.093	2.351
Indonesia	1999	0	0	0	0	0	0
Indonesia	2000	0.013	0.018	0.005	0.011	0.533	0.882
Indonesia	2001	0.366	0.208	0.292	0.091	2.431	0.750
Indonesia	2002	0	0	0	0	0	0
Indonesia	2003	0	0	0	0	0	0
Indonesia	2004	0.297	0.062	0.326	0.028	3.101	0.367
Jordan	1995	0.246	0.246	0	0	0	0
Jordan	1996	0.358	0.194	0.123	0.106	0.440	0.429
Jordan	1997	0.413	0	0	0	0.134	0
Jordan	1998	0.498	0.416	0.236	0.228	0.690	0.920
Jordan	1999	0	0	0	0	0	0
Jordan	2000	0	0	0	0	0	0
Jordan	2001	0	0.156	0.061	0.086	0	0.345
Jordan	2002	0	0	0	0	0	0
Jordan	2003	0	0	0	0	0	0
Jordan	2004	0	0	0	0	0	0
Korea	1995	0	0	0	0	0	0
Korea	1996	0.235	0.055	0.028	0	0.579	0.152
Korea	1997	2.760	2.055	0.894	0.698	4.989	4.668
Korea	1998	0	0	0	0	0	0
Korea	1999	0	0	0	0	0	0
Korea	2000	0	0	0	0	0	0
Korea	2001	0	0	0	0	0	0
Korea	2002	0	0	0	0	0	0
Korea	2003	0	0	0	0	0	0
Korea	2004	0	0	0	0	0	0
Malaysia	1995	0.368	0.130	0.146	0.063	0.949	0.235
Malaysia	1996	0	0	0	0	0	0
Malaysia	1997	2.337	1.844	0.558	0.386	3.466	2.735
Malaysia	1998	0	0	0	0	0	0
Malaysia	1999	0	0	0	0	0	0
Malaysia	2000	0.171	0.074	0.066	0.032	0.408	0.129
Malaysia	2001	0	0	0	0	0	0
Malaysia	2002	0	0	0	0	0	0
Malaysia	2003	0	0	0	0	0	0
Malaysia	2004	0	0	0	0	0	0
Mexico	1995	0.971	0.289	0	0	1.025	0
Mexico	1996	0	0	0	0	0	0
Mexico	1997	0	0	0	0	0	0
Mexico	1998	0.722	0.304	0.177	0	2.375	0.406
Mexico	1999	0	0	0	0	0	0
Mexico	2000	0	0	0	0	0	0
Mexico	2001	0	0	0	0	0	0
Mexico	2002	0.162	0.111	0	0	0.197	0
Mexico	2003	0.002	0.082	0	0	0	0

Country	year	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
Mexico	2004	0.139	0	0.015	0	0.779	0
Morocco	1995	0	0.007	0.080	0.169	0	0.524
Morocco	1996	0.022	0.060	0	0	0	0
Morocco	1997	0.249	0.354	0	0	0	0.136
Morocco	1998	0	0	0	0	0	0
Morocco	1999	0	0	0	0	0	0
Morocco	2000	0.702	0.601	0.235	0.189	1.090	0.982
Morocco	2001	0	0	0	0	0	0
Morocco	2002	0	0	0	0	0	0
Morocco	2003	0	0	0	0	0	0
Morocco	2004	0	0	0	0	0	0
Pakistan	1995	0.842	0.730	0.616	0.378	3.499	1.836
Pakistan	1996	1.373	1.227	1.241	0.930	5.772	4.206
Pakistan	1997	0.069	0.041	0	0	0	0
Pakistan	1998	0.381	0	0.267	0	6.465	0
Pakistan	1999	0.809	0.419	0.324	0	6.816	0
Pakistan	2000	0.706	0.604	0.190	0	2.236	0.222
Pakistan	2001	0	0	0	0	0	0
Pakistan	2002	0	0	0	0	0	0
Pakistan	2003	0	0	0.184	0	3.980	0
Pakistan	2004	0.607	0.255	0.873	0.122	7.583	0.604
Peru	1995	0	0.299	0	0	0	0
Peru	1996	0.192	0.124	0	0	0	0
Peru	1997	0.578	0.323	0.011	0	0.385	0.045
Peru	1998	1.704	1.548	0.208	0.186	0.990	1.159
Peru	1999	0.765	1.123	0.075	0.127	0.047	0.819
Peru	2000	0.100	0.176	0.032	0.043	0.026	0.197
Peru	2001	0	0	0	0	0	0
Peru	2002	0	0	0	0	0	0
Peru	2003	0	0	0	0	0	0
Peru	2004	0	0	0	0	0	0
Philippines	1995	0.482	0.143	0.158	0	2.006	0.037
Philippines	1996	0	0	0	0	0	0
Philippines	1997	2.268	1.734	0.741	0.415	4.913	2.691
Philippines	1998	0	0	0	0	0	0
Philippines	1999	0	0	0	0	0	0
Philippines	2000	0.954	0.706	0.222	0.071	2.035	0.878
Philippines	2001	0	0.073	0	0	0	0.024
Philippines	2002	0.017	0.122	0	0.016	0	0.161
Philippines	2003	0.061	0.075	0	0	0	0.043
Philippines	2004	0.121	0.113	0.048	0.043	0.190	0.210
Singapore	1995	0	0	0	0	0.224	0
Singapore	1996	0	0	0	0	0.492	0
Singapore	1997	1.749	1.226	0.530	0.130	4.494	0.996
Singapore	1998	0	0	0	0	0	0
Singapore	1999	0.257	0	0.204	0	2.148	0
Singapore	2000	0.097	0.054	0.002	0	0.309	0
Singapore	2001	0.358	0.565	0	0.081	0	0.488
Singapore	2002	0	0	0	0	0	0

Country	year	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
Singapore	2003	0	0	0	0	0	0
Singapore	2004	0	0	0.039	0	1.549	0
South Africa	1995	0.017	0	0	0	0	0
South Africa	1996	1.457	1.119	0.997	0.942	3.533	4.508
South Africa	1997	0	0	0	0	0	0
South Africa	1998	0.913	0.511	0.205	0.140	1.393	1.147
South Africa	1999	0	0	0	0	0	0
South Africa	2000	0.354	0.528	0.088	0.116	0.461	1.098
South Africa	2001	0.815	0.994	0.122	0.151	0.956	1.854
South Africa	2002	0.171	0	0.059	0	0.492	0
South Africa	2003	0	0	0	0	0	0
South Africa	2004	0	0	0	0	0	0
Sri Lanka	1995	1.275	0.576	0.581	0.004	5.691	0.250
Sri Lanka	1996	0.443	0.423	0.090	0.074	0.445	0.433
Sri Lanka	1997	0.663	0.461	0.124	0	1.624	0.041
Sri Lanka	1998	0.859	0.835	0.074	0.054	0.545	0.532
Sri Lanka	1999	0.728	0.644	0.280	0.211	1.332	1.005
Sri Lanka	2000	1.893	1.559	0.759	0.483	4.197	2.334
Sri Lanka	2001	0.338	0.595	0	0	0	0
Sri Lanka	2002	0	0	0	0	0	0
Sri Lanka	2003	0	0	0	0	0	0
Sri Lanka	2004	0.755	0.657	0.141	0.060	1.095	0.481
Thailand	1995	0	0	0.016	0	1.641	0
Thailand	1996	0.057	0	0.065	0	0.965	0
Thailand	1997	2.262	2.116	0.645	0.527	3.694	3.844
Thailand	1998	0	0	0	0	0	0
Thailand	1999	0	0	0	0	0	0
Thailand	2000	0.619	0.419	0.265	0.102	2.062	0.761
Thailand	2001	0.148	0.018	0.100	0	1.033	0.035
Thailand	2002	0	0	0	0	0	0
Thailand	2003	0	0	0	0	0	0
Thailand	2004	0	0	0	0	1.154	0
Turkey	1995	0	0	0	0	0.380	0
Turkey	1996	0.402	0.433	0	0	0	1.032
Turkey	1997	0.874	0.865	0.112	0.087	1.826	2.389
Turkey	1998	0.573	0.562	0.104	0.071	1.352	1.564
Turkey	1999	0.557	0.569	0	0	0.682	1.505
Turkey	2000	0.605	0.361	0.752	0.079	7.125	1.037
Turkey	2001	2.038	1.352	2.287	0.398	20.734	3.981
Turkey	2002	0	0	0	0	0	0
Turkey	2003	0	0	0	0	0	0
Turkey	2004	0	0	0	0	0	0
Uruguay	1995	0.490	0.424	0	0	1.144	0.139
Uruguay	1996	0.412	0.440	0	0	0	0.482
Uruguay	1997	0.149	0.162	0	0	0	0
Uruguay	1998	0.131	0	0.027	0	2.526	0
Uruguay	1999	0.161	0.177	0	0.015	0	0.270
Uruguay	2000	0.286	0.026	0.269	0	3.848	0
Uruguay	2001	0.542	0.108	0.516	0	6.610	0

Country	year	EMP1	EMP2	EMP3	EMP4	EMP5	EMP6
Uruguay	2002	2.805	2.639	1.579	1.301	7.509	7.276
Uruguay	2003	0	0	0	0	0	0
Uruguay	2004	0.044	0	0.509	0	6.472	0
Venezuela	1995	0.901	0.889	0.405	0.400	2.038	2.982
Venezuela	1996	0	0.032	0	0	0	0.155
Venezuela	1997	0	0	0	0	0.057	0
Venezuela	1998	0.919	0.347	0.451	0.203	3.147	1.160
Venezuela	1999	0	0.109	0	0.001	0	0.370
Venezuela	2000	0.026	0	0	0	0.115	0.002
Venezuela	2001	0.603	0.506	0.407	0.365	1.524	1.682
Venezuela	2002	1.125	0.808	0.377	0.239	3.130	2.722
Venezuela	2003	0	0	0	0	0	0
Venezuela	2004	0	0.052	0	0	0	0.186
Zimbabwe	1995	0	0	0	0	0	0
Zimbabwe	1996	0	0	0	0	0	0.350
Zimbabwe	1997	0.632	0.346	1.336	1.052	6.428	5.569
Zimbabwe	1998	0	0	0	0	0.484	0
Zimbabwe	1999	0	0	0	0	0	0
Zimbabwe	2000	0.074	0.129	0.371	0.426	1.382	2.863
Zimbabwe	2001	0.248	0.352	0.899	1.002	1.700	4.039
Zimbabwe	2002	0	0	0	0	0	0
Zimbabwe	2003	.	.	.	.	.	.
Zimbabwe	2004	.	.	.	.	.	.