CHAPTER II

REVIEW OF LITERATURE

The objective of this chapter is to provide brief idea about literature evidences and behaviors of capital flow, determinants of international flows, impacts of capital mobility to macroeconomic vulnerability of recipient nations, restrictions on capital movement with its outcome, evolution of capital control index, evidences of crisis generated by short-term capital flows and consequences of liberalization in Thailand with instabilities from short-term capital flows.

2.1 Capital flow

2.1.1 Compositions and behaviors of capital flow

The compositions of capital flow mainly consist of foreign direct investment (FDI), portfolio investment—equity securities and debt securities—and other investments, such as trade credits, loans and so on. It was theoretical customary to distinguish between long-term capital flows (e.g., FDI) and short-term capital flows(e.g., portfolio flows, short-term debts and loans). Most recipient countries always welcome desirable patterns of capital flow that invests in the recipient countries with long period or long-term capital flow. It is often argued that foreign direct investment is a desirable pattern of capital flows to the host country, as it may come up with positive externalities such as technology spillover and dissemination of management expertise. From the foreign investors' point of view, foreign direct investment may be motivated by strategic considerations in addition to the usual rate of returns objectives. Portfolio investment

flows can be either long-term or short-term capital mobility that are difficult to manage with if the recipient countries do not have well-regulated macroeconomic policies or strong fundamentals (Khan and Reinhart, 1995).

Typically, short-term capital mobility that are deemed speculative, more volatile and reversible are called as "hot money" and long-term capital flows that are less volatile and stable are inferred as "cool money" based on fundamentals and reversibility. Many observers mentioned that the foreign flows were unsustainable because of short-maturities, such as Turner's study, in 1991, ranked volatility of flow in capital accounts. His empirical result showed that short-term bank lending was the most volatile and long-term bank flows as the least volatile, followed by foreign direct investment flow. Reisen (1933) emphasized that the main capital flows that moved to Latin America that generated crises were hot money rather than cool one. Nunnenkamp (1993) pursued Reisen's approach and concluded that hot money was the major problem of crisis and could flow into recipient countries with various pattern.

Sophisticated financial engineering instruments are available to finance any project, treasury bond with one-year maturity can be sold on secondary market and rolled over continuously. Claessens, Dooley and Warner (1995) found that the capital flow components can be substituted each other; long-term flows can be often as volatile as short-term flows. It would be difficult to distinguish whether hot or cool flows by given explicit label because it might not represent implicit nature of the flow. Dooley (1995) pointed out that the capital flows into developing countries in 1970s were cool money in name because of restrictions of the market; the flows that generated Latin American debt crisis in 1982 should have been considered official short-term capital flow (hot money).

In the case of Thailand, current and capital accounts were opened since 1985, with liberalization of both foreign direct investment and portfolio investments; however, exchange control restrictions were applied latter period in order to the repatriation of interest, dividends and principal of portfolio investment. Cross-border borrowing by Thai residents was allowed but subject to permission by the Bank of Thailand. A couple of years later, 1988, Thailand also encountered large volume of capital, especially volatility of hot flow that could visit the country and reversed rapidly. Most of foreign capital

inflows went into Thailand for the sake of investment rather than smooth consumption (Bundit, 1996).

In the complexities of globalization, it is very hard to say whether capital flows are hot or cool money from looking at label attached. Claessens, Dooley and Warner (1995) suggested that the way to distinguish between hot and cool flows was to observe their behaviors by using coefficients of variation (CVs) and autocorrelation methods. He found that hot flow in one country can be cool money in other countries. Bundit (1996) employed autocorrelation functions to test whether capital flows in Thailand were hot or cool money and found out that net foreign portfolio investment in Thailand was much more volatile and unpredictable known as hot money.

2.1.2 The determinants of capital flows

At the end of 1980s, a tide wave of capital surged into the emerging market economies of East and South East Asia, including Thailand, owing to both external (or "push") and internal (or "pull") factors. The external factors induced capital to the recipient countries, included the lower returns from interest rate, recessions of industrialized economy, and regulatory changed relating with international portfolio diversification, all taking place in the developed countries. The internal factors attracted flow of capital to the recipients included their sound economic policies, exchange rate stability, deposit guarantees, and stable economic fundamentals. Those factors accelerated capital to Thailand in 1988, Malaysia and the Philippines in 1989, Indonesia in 1990, and 1990-1991 for Korea. (Calvo, Leiderman and Reinhart 1996; Bartolini and Drazen 1997; Chuhan, Claessens and Mamingi 1998; Montiel 1998; Villanueva and Seng 1999). Chuhan, Claessens and Mamingi (1993) studied roles of domestic and external factors in motivating portfolio capital inflows by using monthly bond and equity flows from the United States to 9 Latin American and 9 Asian countries over the period January 1988 to July 1992, they found that internal and external variables were equally important in Latin America but internal factors had sums of significant standardized coefficients

that were 3-4 times greater than external variables in Asia for both bonds and equity flows.

Schadler et al. (1993) mentioned that solely domestic factors were the main causes of capital inflows to 6 emerging markets that are Chile, Colombia, Egypt, Mexico, Spain, and Thailand. The World Bank (1997) provided the most systematic evidence related with the importance of domestic factors but variables employed were not similar to Schandler, et al.'s assessment. The World Bank noticed that internal forces were the main which drove fund flows, for instance, fundamentals affect the long-term rates of returns to investors. Countries with the strongest fundamentals (i.e., high investment-to-GDP ratio, low inflation and low real exchange rate volatility) received the largest flows as percentage of GDP whereas countries with very poor fundamentals did not attract private flows and foreign direct investment was the largest component of private flows to emerging markets although sensitive to macroeconomic fundamentals.

Calvo, Leiderman and Reinhart (1996) argued that the internal factors could not explain many world incidents. He suggested that the decline in world real interest rates pushed investors to emerging markets. Fernandez-Arias and Montiel (1995) concluded that formal evidence indicated that falling interest rates in advanced economies played a dominant role in driving capitals to developing countries and those flows were not restricted to countries with historical reform record.

In the case of Thailand, Nongnuch (1990) examined major determinants of foreign portfolio investment and pattern of portfolio investment in Thailand by using monthly data during 1985-1988. The empirical outcome showed that Thai stock, risk of Thai and foreign stock, political shock, foreign investor wealth and foreign exchange risk were dominated from inflow. Jariya (1991) found that capital inflows during 1975-1985 were influenced by interest rate differentials, risk factors and capital control. The results ensured that net capital inflows were affected by portfolio adjustment, interest parity, risk factors and capital control. The study also ensured that monetary policy in short-run was effective when capital control was imposed.

Ruangrat (1993) focused on Nonresident Baht Accounts from international trade, commercial banks and financial system after financial liberalization in Thailand by using descriptive methodology with data during 1989-1993. She found that foreign funds from Nonresident Baht Accounts was increased after implement second phase of foreign exchange control relaxation in 1991. Somchai (1997) studied short-term capital inflows in Non-resident Baht Accounts among 5 major sources of capital (Hong Kong, Japan, Singapore, Great Britain and the United States) with monthly data between 1991-1995. He found that short-term flows were determined by covered interest rate differentials, expected exchange rate and lagged inflows of Nonresident Baht Accounts.

Bundit (1996) concluded that net foreign portfolio investment in Thailand was a hot money by nature and very volatile and unpredictable from employing autocorrelation test. The determinants of net foreign portfolio investment in his study were consumer price index, forward premium, P/E ratio, private investment index, interest rate differentials, relative risk between Set Index and NYSE and Set Index by using data during 1990-1996.

Warunya (1997) focused on private capital movement of Thailand after unrestricting and deregulating in foreign exchange regulation in early 1990s. The results showed that unrestricting in foreign exchange market affected economic growth, amounts of import, value of price earning ratio and the unrest situation in Thailand. Jiraporn (1999) indicated that rate of return on financial market, private investment index, consumer price index, forward premium and proportion of levels of risk between Thailand stock market and New York Stock Exchange were the major factors determining the net capital flows in portfolio investment. And monetary instruments used by the Bank of Thailand could be effective partially to absorb liquidity from financial system.

Channarong (2003) studied the impact of factors on money flows in capital and financial accounts of Thailand in both private and government sectors from January 1993 to December 2001. He found that the differences of economic growth rate and inflation rate between Thailand and the United States led money inflows to Thailand. Interest rate differentials and exchange rate between Thailand and the United States were negatively

correlated with money flows. And monetary instruments used by the Bank of Thailand can be effective partially to absorb excess liquidity from financial systems.

2.1.3 How capital flows affect recipient countries

Thailand removed restrictions on capital account transactions since early 1990s for the sake of compatibility of global economic liberalization that forced both industrial and developing countries to unblock capital movement. Economic theory mentions that capital account liberalization leads to global economic efficiency, allocates world savings to the recipients who are able to use them most productively, and increases social welfare. However, the theory was confirmed by Fischer study in 1997, liberalization also enabled corporations in the countries to raise capital in international markets at a lower cost. The story was suggested that liberalization could lead to further improvement of a financial system which enhanced productivity in the real economy by facilitating transactions and by better allocation of resources. In reality, the ability of capital flows to stimulate long-run growth in developing economies has been ambiguous. Many countries that liberalized their capital accounts encountered increasingly volatility in capital flows and a change in the composition of flows imply that the growth-enhancing impact of capital flows were deterred.

Despite these ambiguities, Quinn (1997) showed that changes in capital account openness were associated with higher long-run growth. Rakshit (2001) also constructed the theoretical model of the beneficial effects of free capital movements to support Fischer's claim. Fischer (1998, 2003), Obstfeld (1998), Rogoff (1999) and Summers (2000) suggested that capital movements always flow from capital-abundant or developed countries where the return to capital became relative low to capital-scarce or developing countries where the return to capital was high. The surge flows into the developing countries reduced their costs of capital, stimulated a transitory income, increased in investment and growth that permanently lifted its standards of living as Neoclassical theory emphasizes that flows of international capital should be smooth a country's consumption or production.

Geert et al. (2000, 2001) also found that their incidences of financial liberalization were associated with subsequent economic growth. Klein and Olivei (1999) displayed that liberalization led to financial deepening but only for key industrial countries, leading them to propose that emerging nations that poor political economic institutions might get benefits from liberalization. Bosworth and Collins (1999) emphasized that private capital flows were generally found to have a significant impact on domestic investments, with the relationship being strongest for foreign direct investment and international bank lending and weaker for portfolio investments, whenever a country was poor and even low saving rate, capital from outside the country could raise investment productively. Summers (2000) suggested that capital inflows brought significant social benefits. Edwards (2001) found that economic liberalization led to growth in middle to high-income nations. Arteta et al. (2001) revisited Edwards's study; they confirmed his point that liberalization has a contingent relationship with growth. Chanda (2001) found that while countries increased levels of ethnic heterogeneity, they could gain benefits from liberalization. By contrast, a country which was more homogenous societies, it could represent lower growth. Blanchard and Giavazzi (2002) focused on the liberalization of Greece and Portugal for joining the European Monetary Union. They found that capital inflows increased investment and consumption but the adverse effects could be seen when an economy was opened to capital inflows with relatively low domestic returns. Foreign capital might still enter the country to achieve diversification (Kraay and Ventura, 1999). In other word, it could not be presumed that foreign capital inflows could boost domestic investment. Developing economies could fall in this category because the lack of complementary infrastructure with lower returns, as also advanced economies that was liberalized to capital flows with where risk-adjusted returns were equalized. Eichengreen and Leblang (2003) studied on several important propositions. Capital controls might serve to insulate economies from international crises and the relationships might differ when time passed by. Klein (2003) showed evidence that middle-income nations gained from capital account openness.

The alternative study by many economists found no linkages among economic fundamentals and capital mobility. Rodrik (1998) discovered that there was no correlation between growth rate of recipient countries and the capital liberalization

(openness). Arteta, Eichengreen and Wyplosz (2001) found a weak association between growth and capital accounts liberalization, like Arteta and Kraay (1998) could not find evidence of linkages between capital account liberalization and growth. Moreover, Eichengreen (2001) faced ambiguous effects on liberalization for any impact on growth. Edison et al. (2004) surveyed ten papers of liberalization and found that only three papers of unambiguously positive effects of liberalization on growth. Prasad et al. (2003) found that solely 3 empirical studies represented significant positive relationship, from 14 studies, between international financial integration and economic growth.

Notwithstanding, it is hard to say that private capital flows solely drive growth (some economists believed that domestic growth often drives capital flows). IMF (2001) tested for four institutional preconditions but found no statistically significant effects. Alesina, Grilli and Milesi-Ferretti (1994) found no relations between the levels of capital account openness and economic growth for advanced industrial nations. Grilli and Milesi-Ferretti (1995) could not find effects in emerging market nations and it was ensured by Rodrik extension in 1998. Mody and Murshid (2005) examined the capital flows–domestic investment relationship for 60 developing countries from 1979 to 1999 and argued that even liberalized countries attracted new capital flows instead.

In the real world, financial innovation and globalization have made financial situations increasingly difficult for governments to control either inbound or outbound foreign capital flows when the undesirable flows penetrate domestic economy as Stiglitz (2002) claimed that limitations of the dispersal of cross-border financial integration that could reduce speculation attacks and helped recipient countries prevented macroeconomic shocks that generated to financial crises, for instance, India and China were spared from either currency crises and affect of widespread of contagion crisis late 1990s, as the reasons was they did not allow capital movement freely.

2.1.4 Evolution of capital control index

Lots of original empirical papers of measuring capital liberalization attempted to measure capital mobility by using literature explanations by IMF published in the Annual Report on Exchange Arrangements and Exchange Restrictions, for instance, Alesina et al. (1994) examined the capital-control evasion by highlighting the ability to transfer foreign exchange between countries through exports and imports and using a dummy variable index of capital controls as well as Rodrik (1998) constructed a dummy variable index of capital controls, which took a value of "1" when capital controls were in place and "0" otherwise.

Klein and Olivei (1999) used the Annual Report on Exchange Arrangements and Exchange Restrictions to construct an index during 1986-1995 which each country had capital accounts opened. The study concluded that countries with opened capital accounts over some or all of these periods had a significant increasing in financial depth than countries with continuing capital account restrictions. Razin and Rose (1994), Leblang (1997), Chinn and Ito (2002), Glick and Hutchison (2005), and Glick et al. (2006) also used IMF indicators based on the Annual Report on Exchange Arrangements and Exchange Restrictions to construct a zero and a one classifications of openness of the countries.

The problems with using the binary, a one and a zero, indicators were well-known. Voth (2003, p. 271) wrote, "Along with other authors [....], we find that the inability of earlier studies to find a significant effect of capital controls on most economic control variables was caused by the use of simple dichotomous variables as indicators for capital controls." Another limitation of these IMF-based binary indexes was not seperation between de jure and de facto controls, and did not differentiate according to different intensities of capital restrictions, or type of flow being restricted. Montiel and Reinhart (1999) and Chinn and Ito (2002) addressed this issue by combining IMF and country-specific information to construct indexes on the intensity of capital controls in a number of countries. In an effort to deal with some of these measurement problems, The

Montiel and Reinhart's results concluded that Asia's increasing reliance on 'hot money' was largely due to the policy response to the surge in capital inflows.

Quinn (1997) also developed index by using the explanation in the Annual Report on Exchange Arrangements and Exchange Restrictions to construct the intensity measurement of capital account openness during 1950-1997. He separated capital account transactions into two categories as capital account receipts and capital account payments, each of the two categories score between 0 and 2. A score of 0 represents the most restrictive where payments for capital transactions are completely forbidden, while a score of 2 indicates that capital transactions are not subject to any taxes or restrictions. Intermediate scores—broken into increments of 0.5—indicate intermediate levels of restrictiveness, then, he added the scores for the two categories to create a variable, which ranges from 0 to 4. Edwards (2001) also used Quinn's index tests for relationship between capital controls and long-run growth rates of 20 industrial and emerging economies during the 1980s to test whether the impact of capital account policy varies according to a country's level of development. He found that capital account liberalization had positively effect to growth after a country achieves a certain degree of economic development.

Mody and Murshid (2002) used annual report of IMF for constructing an index of financial integration that covers 150 countries between 1966 and 2000, from a value of 0 to 4, measured financial openness based on 4 indicators for government restrictions that impact capital mobility. The four indicators are the liberalization of the capital accounts, the openness of the current accounts, the stringency of requirements for the repatriation and/or surrender of export proceeds and the existence of multiple exchange rates for capital account transactions. For each variable a one indicates a relatively open regime and a zero indicates that a country has closed capital and current accounts, places restrictions on its export receipts and further operates a system of multiple exchange.

Quinn and Toyoda (2003) developed a new index that provides greater detail on the intensity of controls. using a new annual, fine-grained, measure of capital account openness for 83 nations from 1947 to 1999. They argued that measurement error in key independent variables accounted in part for conflicting results in prior scholarship on the

topic. Capital account liberalization had a direct effect on subsequent growth in both developed and emerging market nations. Within emerging market nations, a higher level of current account liberalization referred to capital account liberalization associated with subsequent growth.

Edison et al. (2004) compared Quinn's (1997) index with another index in many countries and many periods of time regarding to the Annual Report of the Exchange Arrangements and Exchange Restrictions. The result showed that a country which had a closed capital account would represented high correlation between the two indexes.

Sebastian (2007) constructed three new indexes that the first index was the Capital Mobility index (CM) by combining information from Quinn (2003) and Mody and Murshid (2002) works with information from country-specific sources, scales of the Quinn and Mody and Murshid indexes were made compatibly which had 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. The second index that was compiled by Lane and Milesi-Ferretti (2006) was constructed from data on international assets' positions. This index, called Lane and Milesi-Ferretti index or LMF, was calculated by summation of total external assets and liabilities as a percentage of GDP, a higher value of this index denoted that the country is more integrated to world financial markets. The third index was constructed by Miniane (2004) considered 14 indicators[4] based on yearly data from information in Annual Report of Exchange Arrangements and Exchange Restrictions (AREAER). A maximum score of 1 indicated that the country imposes at least some degree of control in all of the categories; while a score 0 indicated no explicated capital controls on any categories. The scale of index was produced by using summation of a

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[4] Fourteen indicators of Miniane (2004) consists of Capital Market Securities, Money Market Instruments, Collective Investment Securities, Derivatives and Other Instruments, Commercial Credits, Financial Credits, Guarantees, Securities and Financial Backup Facilities, Direct Investment, Liquidation of Direct Investment, Real Estate Transactions, Personal Capital Movements, Provisions Specific to Commercial Banks and Other Credit Institutions, Provisions specific to Institutional Investors and Dual Exchange Rate Arrangements.

zero and a one value of all categories and divided by fourteen. In general, such measures capital account openness reflects a country's official intentions toward financial integration and, hence, could be used to assess the effectiveness and effects on actual cross border capital flow.

2.1.5 Measuring of capital liberalization

Many empirical studies have been skeptic about the tolerance of capital control to affect macroeconomic variables. Capital controls may lose effectiveness as they become more permanent because economic agents can find ways to evade, especially in the long-run (Dooley 1996). Johnston and Ryan (1994) studied on bureaucratic competence of emerging countries claimed on the effectiveness with which capital control measures. The result showed that capital controls were more effective for industrial countries than developing countries. Cardoso and Goldfajn (1997) studied the effect of capital control on capital inflows during 1983-1995 and concluded that capital control represented only temporary effect on capital inflows, the effectiveness was less than 6 months. Forbes (2003) emphasized that capital controls did not limit vulnerabilities of crisis.

Glick and Hutchison (2004) examined the effectiveness of capital controls on delaying financial crises from obtaining panel regression with 69 countries. Their conclusion emphasized that restriction on capital flows were not effective. Eichengreen and Leblang (2002) analyzed on panel regression estimation of 47 countries. They concluded that capital controls diminished economic growth. However, their study did not separate the effects of capital controls between capital inflows and outflows.

Garcia and Barcinski (1998) and Garcia and Valpassos (2000) focused on capital controls in Brazil. They found that capital controls on capital inflows were effective from foreign capitals that had a purpose to earn high returns on public debt during 1994 and 1996. Simone and Sorsa (1999) and Edwards, Valdes and De Gregorio (2000) also stressed that existing of capital controls might limit its effectiveness in changing the composition of the capital inflows to Chile.

2.2 Evidences of international crises generated by short-term flow

Volatility in capital flows have been seen as a major evidence of international financial instability and it can lead to currency crises and, even, financial crisis. The original view of currency crisis happened since Bretton Woods system was introduced after the World War II and was explained by Krugman (1979) and Flood and Garber (1984) as first-generation crisis models. In this generation, during 1945-1973, a country faced currency crisis when inconsistencies arise between preserving pegged exchange rates, while US dollar and gold turned out to be a major source for determining exchange rate among industrial nations. Many countries had a tough work to pursue fixed or crawling pegs as well as protecting both monetary and fiscal for the sake of internal stability and competitiveness. For the countries that were part of a pegged exchange rate system, such as Bretton Woods or the EMS, crises were an endemic part of the system. The crises occurred because of unexpected shocks that might make unsustainable policies that were previously compatible with existing exchange rate arrangements. Market participants understood that these tensions and precipitated an attack on the currency by short selling when destabilizing shocks occur. For instance, Great Britain crises in 1947-1949 and 1967, French Franc crisis in 1968-1969, US dollar in crisis in 1960 and the Bretton Wood's collapsed in 1973.

During 1947-1949, Great Britain, as well as other European countries, had an enormous balance-of-payments deficit in gold and dollars from outcome of the World War II. In order to unify the Bretton Woods Articles and accelerate current account convertibility, the United States and Canada allowed Great Britain to lend a US$ 5 billion loans to restore current account convertibility on July 11, 1947. After 6 weeks, Britain reserves lost by US$ 1 billion and currency convertibility were suspended on August 20, 1947. In the summer of 1949, confidence in the official exchange rate of Pound Sterling was weakened remarkably, establishing the opportunity for a speculative attack on one way bet. Finally, Great Britain had to release value of Sterling devalued from parity of US$ 4.03 (pre-World War II) to US$ 2.80 on September 18, 1949 from speculative attack. This situation could also affect other 23 counties on their currencies. However, devaluation of Great Britain in 1949 became good news, combining with Marshall Plan

could raise surplus in current account among European nations and generated balance of currency systems for convertibility and pointed out drawbacks of adjusted peg for raising arbitrage opportunities of speculators. The second round of Sterling crisis that happened again in 1967 was generated by conflicts of internal and external economic targets in 1964. Great Britain needed to promote either expansionary monetary and fiscal policies to reduce unemployment rate. The outcome led rapid growth of inflation, current account deficit, and shrank on the international reserves that generated speculative opportunities against Sterling. The Great Britain government decided not to devaluate currency and neglected to unbind internal problems. By contrast, Great Britain adopted a surcharge on imports instead. In 1965, a loan was transferred at the amounts of US$ 4 billion by IMF and G-10 combining with contractionary fiscal policies, and restrictions on capital outflow temporarily improved the external situation but in the spring and summer of 1966, Sterling was under pressure again. Rapid growing and improving the balance of payments and the seamen's strike led to instability. British became worsening as unemployment rose and the balance of payments deteriorated. A currency attacked sterling on November 17 generated one day devaluation of the pound up to US$ 2.40.

In May 1968, the student riots in France happened and extended throughout the whole country. The established unions raised hourly wage rates by 11 percent, shortened the work week, and provoked a flight of capital into DM and gold. France tightened price controls, restricted imports and some external payments, introduced subsidies for exports and imposed exchange controls. Credit restrictions replaced these measures in September. In November a flight from French francs to DM increased tensions and major European exchange markets were closed down on November 20. Between April and November, France's foreign reserves lost up to US$ 2.9 billion. France authority decided to reduce public spending, raised indirect taxes, ruled ceilings on commercial bank lending, and increased interest rates. These measures were ineffective to slow down the deficits in the French current accounts during the first two quarters of 1969. French restricted again on bank credit, raised minimum reserve requirements for hire purchasing amounts and froze funds for public investment in July. In order to fight against currency devaluation, France injected short-term debts at amounts of US$ 2.3 billion, the shrink on French reserves

still carried on. French resistance was ended on August 10, 1969,. Eventually, French Franc was devalued by 11.1 percent.

Gold reserves in the United States declined below the level of its total liquid liabilities to all foreign holders of assets denominated in dollars in mid-1960 that put pressure on the London gold market. On October 27, 1960, the gold price touched US$ 40 per ounce. After Kennedy won election in November 1960, gold was drained from lack of confidence in the administration's commitments on gold convertibility at specific price. The response of distrust made US authority ruled capital controls and raised policies to improve the balance of payments, adopted the monetary and fiscal policy mix, stemmed conversion of outstanding dollars into gold, and enlisted the Federal Reserve in foreign exchange market intervention.

While French franc was devalued in August 1969, France reserves dramatically changed from deficit at US$ 1.7 billion on current accounts to become small surplus in 1970. But increasing in French reserves generated huge balance of payments deficit in the United States. US expansionary policy fostered a market perception that the DM was undervalued in relation to the dollar, stimulating capital outbound to Germany. Eventually, the United States allowed a dollar devaluation on August 15, 1971. The convertibility of the dollar was formally abandoned. The effect obliged other nations to hold dollars or to trade them for fluctuation on price determined by demand and supply of the market and the situation led to alliances revalue their currencies. International exchange markets around the world, excluded Japan, closed down. Even though, a readjustment of currency parities was arranged at a meeting at the Smithsonian Institution in Washington D.C. on December 17-18, 1971. But the central rates established at the Smithsonian meeting lost credibility. Money supply and inflation continued to rise in the United States and both the balance of trade and the US balance of payments deficit soared. The new central rates did not cease the outflow of dollars and crisis erupted in March 1973. This came up with collapse of the Bretton Wood system (Bordo and Schwartz, 1996).

It could be concluded that currency crisis in the first-generation consisted of poor government policies from persistent government budget deficits combining with pegged

exchange rate generated to speculative targeting and crisis was inevitable from the persistence of policies and, hence, the timing was predictable.

The second-generation model was introduced by Obstfeld (1994, 1996). Speculative attack occurred from rational expectations. It was challenged by the perspective that currency crises reflected self-fulfilling prophecies that were not closely related to measured fundamentals. Crises, instead, could happen under conditions of multiple equilibria in the foreign exchange market as Mexican crises in 1976 and 1982, Chile's currency crisis, 1982 and Crisis in the European Exchange Rate Mechanism in 1992-1993.

After World War II, Maxico adopted pegged exchange rate regime and restricted on exchange convertible, the two episodes of crisis in Mexico were generated in different structures with controversy among internal and external instabilities. In 1972, expansionary fiscal policies were introduced to reduce the budget deficits. As a result the growth rate of the monetary base accelerated from 19.6 to 33.8 percent during 1971-1975. During 1974-1976, foreign external debts replaced internal debts that generated huge uncontrollable deficit financing, notwithstanding, the monetary base continued to grow firmly. Inflation increased greater than 20 percent per annum that generated private investment and the real price of imports declined during 1973-1974. The deficit in the current accounts plunged from lower than US$ 1 billion to US$ 4.4 billion during 1971-1975, capital flight US$ 5.3 billion during 1974-1976. Until October 1976, the peso was devalued to 23 peso per dollar.

During 1978-1982, the world oil price was skyrocketed. Oil business was a major source of Mexican aggregate income. Unfortunately, the Mexican government expenditures were greater than revenue from oil exporter. The large fiscal deficits combined with balance-of-payments deficits generated high inflation, real interest rate became negative and foreign debt was grew up. By mid-1981 devaluation of the peso was unavoidable, a depreciation of the peso was announced on February 17, 1982, approximately 40 percent (Buffie 1990).

Chile announced to fix exchange rate at 39 peso a dollar in June 1979. At the end of 1981, Chile was sunk into recession. Aggregate output declined dramatically from mid-1981 to mid-1982. The unemployment rate was raised almost 30 percent, trade deficit was expanded, foreign reserves lost significantly and domestic credit surged. Inflation jumped up again and investor's expectations expected that the peso must be devalued once again. Capital inflows stopped and expected to move away. Not only Chile ceased to be an attractive economy for foreign investors but also an external factor (rising in US real interest rates) made the United States successfully attracted for capital inbounds. After currency devaluation in 1982, Chile threw away a nominal anchor. At the end of 1982, the peso value went down to reach 73.4 peso per dollar. The trial and error learning experiences with wrong strategy led overvaluation of currency that was bound to economy collapsed and came up with by-product such as inflation (Dornbusch, Goldfajn, Valdes, 1995).

Germany was an anchor in the European Monetary System. Other European nations had to fix their currencies with DM. German decided to reunify in 1990, the Germany government adopted budget deficit policy in order to finance reunification. This situation generated high inflation to the country; hence, the Bundesbank had to maintain internal stability by ruling policy restriction. While high domestic interest rates, the United States became devaluation. The situation pulled capital inflows to Germany, German real exchange rate was appreciated. For the existing nominal exchange rate arrangements to be plausible, other European countries had two decisions that were to reduce their inflation rates below the German inflation rate or realign their currencies. Spain, Portugal, Italy, Sweden and Finland could not maintain fixed rate from imparity situation. The Italian lira was the first currency exposed to market distrust of its parity. In July, capital outflow was accelerated when Italy imposed a wealth tax on deposits and the government declined responsibility for the foreign liabilities of a bankrupt state holding company. On August 28, 1992, Italy had to withdraw from the ERM. On September 8, Finland was exhausted its reserves and unwilling to defend the peg by raising short-term rates above the existing level of 14 percent and floated the Markka.

Sweden was under attack on the Krona, raised the rate charged by the central bank for overnight bank reserves to 75 percent, and borrowed DM to add to its reserves. The Swedish central bank raised its lending rate to 500 percent. On September 20, 1991, all currencies under attack that had survived were near their ERM floors. When the Krona again came under attack twice, after a few hours the Krona was free as well as the Norwegian Krone was allowed to float on December 10, 1993. French franc came under attack on September 23, 1992. Both the Banque de France and the Bundesbank intervened heavily. That attack was repulsed on January 4, 1993, the French Franc was again near its ERM floor but both central banks firmly stated their readiness to defend it Bordo and Schwartz, 1996).

The wave of attacks visited to Spain and Portugal in 1993. On May 13, the peseta was again under pressure, and the third time since the 1992 currency attacks began, the peseta and escudo were devalued.

The third-generation crisis model was happened since 1990s. This generation could be defined as a currency mismatch in financial and banking sectors. This crisis was explained by many studies, for instance, Aghion, Bacchetta and Banerjee (2000), Krugman (1999), Schneider and Tornell (2004), Corsetti, Pesenti and Roubini (1998) and Edison, Luangaram and Miller (1998). The example can be expressed as Mexican crisis in 1994, Argentine crisis in 1995 and Asian crises in 1997-1998, Russian crisis in 1998 and Brazilian crisis at the end of 1998.

The Mexican crisis could be displayed in two stages. In early 1994, foreign investors became more worry about election instability in Mexico. Capital inflows into Mexico dropped sharply in the second quarter of 1994, threatening Mexico with currency depreciation and slower growth. The Mexican Central Bank expanded domestic credit in response to the slowdown of international lending. The central bank also continued to peg the exchange rate, after an initial modest depreciation. The result was a steady loss of reserves in 1994, from US$ 28 billion in February 1994 to just US$ 10 billion in early December 1994. After the change of government in early December, rumors started to spread about devaluation. Reserves plummeted further in mid-December around US$ 6

billion at their nadir. The currency was devalued and exchange rate was floated between mid of December 1994.

The second stage of the Mexican crisis emerged immediately after the devaluation. International and domestic creditors of the Mexican Government suddenly started to infer that the Government owed around US$ 28 billion of short-term dollar denominated debts (Tesobonos) within the following few months, but the government had only US$ 6 billion of reserves. Inability of borrowing funds to service the US$ 28 billion in Tesobonos made Maxican government fell the due. Nonetheless, the Mexican government became default in early 1995 again.

The Argentine crisis followed in the wake of the Mexican crisis. Domestic and foreign investors became distrust about Argentina's commitment to its pegged exchange rate. Even though the economy was performing strongly in 1994 and early 1995, investors began to withdraw funds from Argentine banks in the aftermath of the Mexican collapse and in anticipation of the forthcoming election in May. Argentina escaped from full-fledged collapse following an emergency international bailout loan, combining funds from the IMF, World Bank, Inter-American Development Bank and some private creditors.

The Asian countries were under attacks, like Mexico and Argentina, in the early 1990s while the East Asian economies continued to achieve rapid economic growth in the 1990s, there were indeed growing imbalances and weaknesses in the East Asian economies both at the microeconomic and macroeconomic levels. The inflows led to appreciating real exchange rates, a rapid expansion of bank lending and especially increasing vulnerability to a reversal in capital flows. When capital inflows stopped and started to flow out in late 1996. Property prices also fell that was unable to meet a foreign debt payment due on February. These developments provided the first clear indication that financing companies heavily exposed to the Bangkok property market were in trouble. The Baht came under attack in late 1996, and twice more in 1997. As growing of the fragile conditions of private property sector and financial institutions, speculation started rumors about foreign exchange reserves were dwindling and the result was to float the Baht on July 2, 1997. Foreign creditors reacted by withdrawing capital from around

the region and exchange rates became devaluation by 20 percent or more (Steven and Jeffrey 1998).

This pressure put directly on other Asian currencies—Malaysia, Indonesia and even South Korea—encountered currency depreciation. The overall equity securities began to decline while crisis's impact expanded across countries. Latin America was the region which received a new shock but the effect was greater than the past, even through, Latin America and South East Asia had not a significant trade partner relationship.

Russia was one of the countries which received an effect of contagion crisis in August 1998. Russia began with defaults on debt obligations from decision to adopt huge budget deficits by financing short-term debts. The next destination of widespread contagion crisis was Brazil that became under attack in November 1998 (Sull, 2006).

The severities of crisis were more increase over time. The crisis originated from currency crisis in the first generation and became more complexity in latter generation. The currency crisis in the latest episode came up with other types of crisis such as debt crisis or banking crisis. For instance, the third crisis generation produced a new type of crisis called "twin crisis" and extended from a country or a region to widespread area—contagion crisis[5]. The next generation of crisis might be occurred from the subprime crisis in the United States or happened with newly sophisicated pattern as Krugman mentioned. No one can tell whether the next generation of crisis would be, the pattern of crisis can be known whenever it plays out.

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[5] Contagion crisis that is defined by the World Bank is the transmission of shocks to other countries or the cross-country correlation, beyond any fundamental link among the countries and beyond common shocks. This definition is usually referred as excess co-movement, commonly explained by herding behavior.

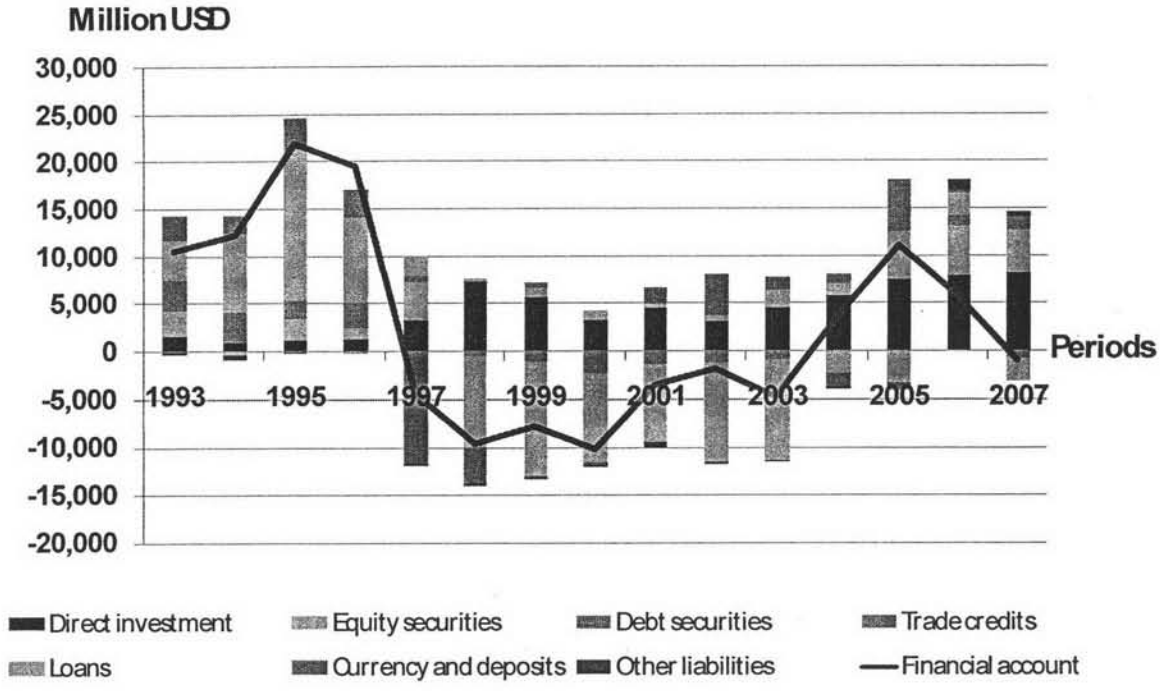
2.3 Consequences of the liberalization in Thailand and measures announced for coping with capital flows

Thailand started liberalization on current and capital accounts since 1985. In 1986, the authorities reduced tax impediments to inbound portfolio investments, especially for the sake of purchasing Thai mutual funds. In 1990, three mutual funds were established in order to attract foreign portfolio investments. Thai government also implemented a comprehensive financial reform plan in order to restructure the financial system with the stated of purpose that "coordinating, synchronizing several aspects of the reform with the ultimate objectives to enhance competitiveness, flexibility, efficiency, and stability of the financial sector."

In 1991, the Investment Promotion Act was promoted to attract foreign direct investment abroad. An attractive measure was also announced by the government that allowed multinational enterprises occupied 100 percent of ownership for export firm. Thailand lifted ceilings on commercial bank deposit rates in 1991 as well as abandoned control on interest rate since 1992. At that time, investment funds, interest and loan repayments by foreign investors were completely liberalized. Between 1991-1992, tax treatments were imposed directly on capital gains, dividend payments, royalty payments, and interest payments on foreign debentures. In June 1992, ceilings on finance and credit foncier companies' deposit and lending rates and on commercial banks' lending rates were removed.

The Bangkok International Banking Facility (BIBF) was established in 1993 aiming at driving and fostering the development of Bangkok as the center of financial hub in South East Asian region. Other liberalization regulations also announced during 1985–1996 for relaxing control on capital accounts, included creating Nonresident Baht Accounts at domestic commercial banks, lowering reserve requirements and eliminating conditions of purchases of foreign currency by residents and transferring of Baht overseas.

Figure 4: Composition of capital flows in BOT's capital and financial accounts



Source : Bank of Thailand

At the end of 1994, Thailand abandoned foreign exchange restrictions on current accounts and attempted to free for foreign investment with subject to some restrictions on foreign ownership, such as foreign companies could not be listed on the Stock Exchange of Thailand (SET), restricted on being ownership in real estates and banking sectors.

The result from liberalizations raised a rapid vulnerability both macroeconomic and microeconomic fundamentals, for instance, surging in capital inflows, increasing reliance on foreign capitals, shortening of the maturity structure, rapidly growing on credit, increasing leverage of the Thai corporate sector and rising in risk profile of financial institutions and transactions.

The Bank of Thailand started sterilizing the upward surge in capital inflows with accumulation on foreign reserves and deposits from the public sector since 1988. At that time, net foreign reserves grew at 54 percent on average every year and in some periods jumped up nearly 90 percent. Thailand was to rely on contractionary monetary policy

with overheating pressures from capital inflows combining with rising in interest rates the multiplier effects started to make trouble to Thai economy. Monetary instruments used during 1993–1996 were less effective for dealing with overheating situation from capital inflows. Despite the decreasing in effectiveness of monetary policy, fiscal policy was not yet implemented to restrain those periods. In 1996, the fiscal surplus shrunk to 1.6 percentage of GDP.

International market conditions before 1995 facilitated achieving high economic growth rate based on development of exports with maintaining a stable nominal exchange rate (the periods before July 1997, nominal exchange rate in Thailand remained fairly constant, Baht was stabilized at 25 baht per dollar with only small changes around this value, except a 10 percent devaluation in 1981 and 18 percent devaluation in late 1984), despite domestic inflation being higher than the relevant the United States.

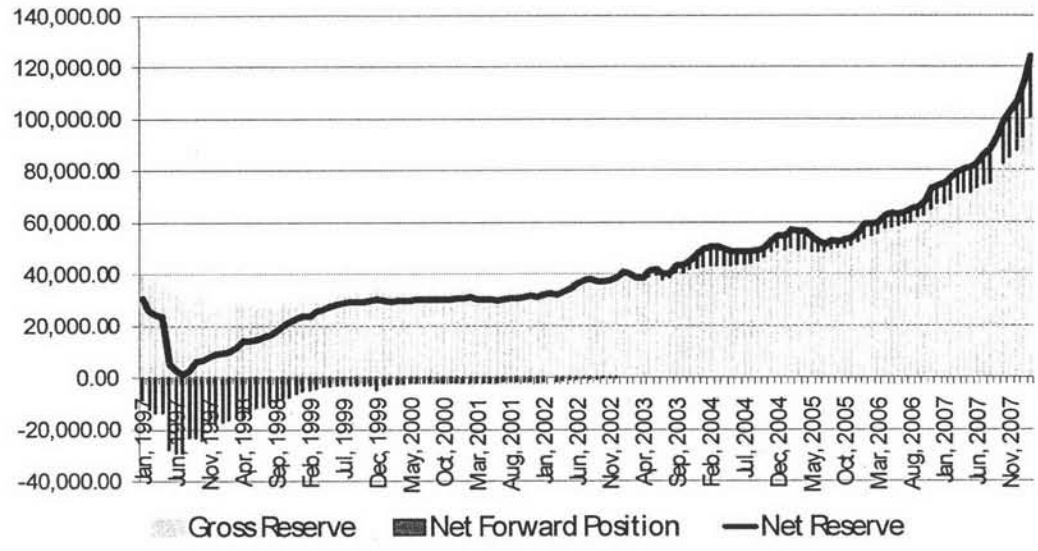
Height interest rate was attractive foreign investors. As a result made Thailand and many East Asian countries received a large inflow of hot money and experienced a dramatic run-up in asset prices. At the same time, the regional economies of Thailand, Malaysia, Indonesia, the Philippines, Singapore, and South Korea experienced high growth rates (8-12 percentage of GDP).

Fixed exchange rates encouraged external borrowing and led to excessive exposure to foreign exchange risk in both the financial and corporate sectors. In 1996, crucial economic factors began to change their economic environment. As US economy recovered from a recession in the early 1990s, the Federal Reserve Bank began to raise US interest rates to head off inflation. This situation made the United States relatively attractive investment destination. At the same time, export growth in Thailand slowed sharply since 1996, deteriorating their current account position. Loss of confidence in Thailand's economic and financial system as well as the Thai Baht prompted speculators to attack the Baht during 1996 and mid-1997. The Bank of Thailand losted substantial amount of international reserves from defending the Baht before adopting the floating exchange rate regime. In addition, large debt repayments due to creditor calls also exerted substantial pressure on Thai Baht. Baht dropped half of its value and reached the lowest

value at 56 baht per dollar in January 1998. The Thai stock market crashed 75 percent in 1997.

Figure 5: The Bank of Thailand reserves

(Unit: Million US$)



Source: Bank of Thailand

Recent upsurge on foreign capital flew into Thailand again since 2001 from instabilities in US market and accelerated in 2006 from expected recession of subprime problem in the United States, especially inflow of non-bank transactions in capital accounts was increased remarkably.

Table 3: Compositions of Thai capital flow after the contagion crisis

Balance of Payments (US$) (Millions of US Dollars)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Current account	14,291.00	12,466.00	9,328.00	5,114.00	4,685.00	4,784.00	2,767.00	-7,641.81	2,174.16	14,922.60
Capital and financial account	-9,742.00	-7,908.00	-10,261.00	-3,474.00	-1,845.00	-4,759.00	3,628.00	11,085.43	5,718.74	-924.56
a. Capital account	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b. Financial account	-9,742.00	-7,908.00	-10,261.00	-3,474.00	-1,845.00	-4,759.00	3,628.00	11,085.43	5,718.74	-924.56
1. Direct investment	7,360.00	5,742.00	3,371.00	4,631.00	3,164.00	4,614.00	5,786.00	7,545.04	7,978.14	8,284.80
2. Portfolio investment	331.00	-106.00	-712.00	-881.00	-1,606.00	-73.00	3,071.00	5,510.39	3,637.54	-4,744.68
(1) Assets	12.00	0.00	-152.00	-361.00	-903.00	-942.00	1,199.00	-1,529.27	-2,028.58	-8,337.18
(2) Liabilities	319.00	-106.00	-560.00	-520.00	-703.00	869.00	1,872.00	7,039.66	5,666.12	3,592.50
2.1 Equity securities	265.00	946.00	897.00	351.00	544.00	1,789.00	1,331.00	5,099.81	5,203.72	4,417.41
Inflow	6,761.00	5,114.00	4,766.00	1,832.00	1,807.00	7,727.00	7,064.00	74,863.09	90,427.39	41,159.31
Outflow	-6,496.00	-4,168.00	-3,869.00	-1,481.00	-1,263.00	-5,938.00	-5,733.00	-69,763.28	-85,223.67	-36,741.91
2.2 Debt securities	54.00	-1,052.00	-1,457.00	-871.00	-1,247.00	-920.00	541.00	1,939.84	462.40	-824.90
2.2.1 Monetary authorities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	225.15	415.91	-619.31
Inflow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	538.12	1,189.39	511.04
Outflow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-312.97	-773.49	-1,130.34
2.2.2 Government	-217.00	-463.00	-350.00	-45.00	-152.00	3.00	213.00	259.66	-115.08	-1,163.02
Inflow	1.00	5.00	895.00	1,450.00	3,053.00	3,933.00	2,413.00	3,377.78	2,684.26	362.71
Outflow	-218.00	-468.00	-1,245.00	-1,495.00	-3,205.00	-3,930.00	-2,200.00	-3,118.12	-2,799.34	-1,525.73
2.2.3 Bank	-85.00	106.00	-86.00	0.00	238.00	-60.00	15.00	0.00	50.00	-53.07
Inflow	2.00	115.00	0.00	0.00	256.00	0.00	15.00	0.00	50.00	40.00
Outflow	-87.00	-9.00	-86.00	0.00	-18.00	-60.00	0.00	0.00	0.00	-93.07
2.2.4 Other sectors	356.00	-695.00	-1,021.00	-826.00	-1,333.00	-863.00	313.00	1,455.04	111.57	1,010.49
Inflow	690.00	384.00	282.00	916.00	1,098.00	282.00	1,511.00	3,210.90	2,352.81	2,117.67
Outflow	-334.00	-1,079.00	-1,303.00	-1,742.00	-2,431.00	-1,145.00	-1,198.00	-1,755.86	-2,241.24	-1,107.18
3. Other investment	-17,433.00	-13,544.00	-12,920.00	-7,224.00	-3,403.00	-9,300.00	-5,229.00	-1,970.01	-5,896.95	-4,464.68
Errors and omissions	-2,815.00	26.00	-684.00	-323.00	1,394.00	118.00	-660.00	1,978.68	4,848.70	3,104.15
Overall balance	1,734.00	4,584.00	-1,617.00	1,317.00	4,234.00	143.00	5,735.00	5,422.30	12,741.60	17,102.20
Reserve assets	-1,734.00	-4,584.00	1,617.00	-1,317.00	-4,234.00	-143.00	-5,735.00	-5,422.30	-12,741.60	-17,102.20

Source: Bank of Thailand

The huge liquidity led Thai Baht appreciation almost 17 percent from 2005 and raise height demand for domestic currency. The Bank of Thailand tried to decompose mass flow twice times by softened policy on November 7 and December 4, 2006. The measure in November had a purpose to control capital inflow and allow outward of capital movement such as prohibiting financial institutions to issue and sell Bill of Exchange in Baht to non-residents, permitting financial institutions to buy Thai Baht bonds issued in Thailand by juristic persons in ASEAN+3[6] and so on.

On December 4, 2006, the volatility of liquidity flows could not be diminished. The Bank of Thailand had to impose stronger measures to curb with the volatility in the

[6] ASEAN + 3 means ASEAN countries + China, Japan and South Korea

foreign exchange market for protecting rapid appreciation of exchange rate such as prohibiting selling and buying all types of debt securities through sell-and-buy back transactions for all maturities.

The volatility of the Thai Baht could not be stopped as usual and exchange rate kept going appreciation. The Bank of Thailand, therefore, decided to implement an unremunerated reserve requirement (URR)[7] or 30 percent capital control on capital inflows on December 18, 2006.

Unfortunately, a day after the Bank of Thailand's announcement overall stock prices fell by almost 20 percent. In the evening of December 19, Minister of Finance had to remove the severe capital control measure from stock market and many subsequent relaxations are declared.

The unremunerated reserve requirement measure worked though December 2006 to March 2008 with relaxing and offering many alternative options to create positive climate for foreign investors. Eventually, the Bank of Thailand had to abandon unremunerated reserve requirement from the market on March 3, 2008.

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[7] The unremunerated reserve requirement was regulation that forced all financial institutions to withhold 30 percent of foreign currencies bought or exchanged against the Thai Baht for any transactions (except transactions related to trades in goods and services, repatriation of investments abroad by residents, and foreign direct investment). In case that, customers wish to repatriate their funds earlier than a year have to lose one-thirds of the amount.