Macro Volatility, Institutions, and Financial Architecture: A Perspective from Thai Experiences since 1970s

Piriya Pholphirul

Abstract

This paper uses national income identity to focus the causal relationships among Thailand’s aggregate volatility, deficient financial structure, financial liberalization, and financial crisis. Relatively good macroeconomic policies and diversified structure were able to compensate for financial imperfections and the weak structure of corporate governance in the financial sector in the period 1970-1990. Under these conditions, real GDP growth was positive, inflation was relatively low, and consumption was relatively less volatile than GDP. The 1997 crisis, however, severely affected the ability of central authorities to smooth fluctuation. Investment and consumption volatility increased substantially. This implies that, when counter-cyclical policies are difficult to implement and incomplete markets exist, it is much more difficult to stabilize consumption.

Keywords: Financial Crisis, Financial Liberalization, National Income, Thailand

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I. Introduction

Over the course of several decades, the Thai economy was growing at a very satisfactory rate. Between 1960 and 1995, the average real GDP growth rate was about 7.7 percent per annum. This led to substantial improvements in the welfare of the Thai population. Especially in the early 1990s, the country’s economic performance was regarded as an example of the so-called “East Asian Economic Miracle” (World Bank, 1993). Yet, just a few years after this categorization, the country experienced a severe financial and economic crisis. Key elements of the 1997 crisis reflected Thailand’s cumulative balance of payment problems, particularly persistently large current account deficits. Since public debts surged significantly, the country became effectively insolvent, in that there were not enough useable foreign reserves left to meet foreign obligations. Assistance from the International Monetary Fund (IMF) was therefore needed, and a painful adjustment process to recover from the crisis had to be carried out.

Many qualified observers have agreed that the main cause of the crisis was the country’s acceptance of IMF Article VIII in the early 1990s, which lifted foreign exchange controls on current account transactions; this step marked the beginning of a series of financial liberalization measures. Thailand had thus embarked on a course involving comprehensive liberalization of domestic financial markets and capital account transactions. Since Thailand’s financial system was not sufficiently sound or resilient to cope with situations created by large inflows of deposits and foreign funds as well as the subsequent expansion of domestic credit, the crisis was triggered by the floating of the baht currency in July 1997, which aggravated the underlying weaknesses of the country’s financial system and corporate sector.

This paper examines Thailand’s crisis experience based on the hypothesis regarding to the above story:

“There is a bi-directional causality between macroeconomic volatility and institutions: high volatility and crises contribute to deteriorating the rules of the financial game; weak institutions reduce financial deepening and the ability to manage risks and this failure enhances further aggregate volatility”.

We will explain the case of Thailand’s financial crises in 1997 by examining situations that comply with the hypothesis. The deficiencies and weaknesses of financial institutions indicate that the financial market failures in Thailand in 1997 were largely due to imprudent regulation, poor corporate governance, immature financial structure, and inconsistent macroeconomic policy. Exogenous shocks and macroeconomic volatility also played the role of sparking the crises. These crisis events then caused the country’s performance to deteriorate over all.

This paper is organized into four sections. Section II analyzes the structural patterns and aggregate volatility of the Thai economy by using the national income identity. It shows that Thailand could successfully maintain economic stability under stabilization policies in the periods before the 1990s. However, it clearly finds that the 1997 financial crisis increased the country’s aggregate volatility. Section III identifies the main sources of shocks, both domestic and external, but with emphasis on external
sources such as the volatility of trade and capital flows. Section IV examines the 1997 financial crisis and illustrates the bi-directional causal relationship between macroeconomic volatility and financial institutions. The changes in the rules of the game regarding the implementation of financial liberalization in the early 1990s show the existence of the linkages between international financial architecture (IFA) and domestic financial architecture (DFA). It also examines the evidence that the 1997 crisis originated in deficient institution-building, imprudent regulation, and an inconsistent currency exchange rate regime, all of which could cause economic turmoil. Section V recommends some responsive policies and concludes.

II. Structural Patterns and Aggregate Volatility

Notwithstanding the 1997 crisis, we can observe how well the Thai economy performed in the past if focus is given to various macroeconomics indicators, for example, the real growth of national income, inflation or changes in price levels, and rates of employment. Nonetheless, despite a history of high and steady growth, periods of instability did occur, as in other countries, and Thailand experienced several economic shocks. Even though most such shocks were transmitted from outside the country, some emerged as a result of internal factors. Since macroeconomic variables show how well the country could adjust itself to those shocks, a number of questions might be addressed: first, how could the Thai economy perform adequately during the period 1970-1989 even though a number of external shocks affected the country’s current account? Second, what were the main causes of the shocks since 1990 that finally led to such turbulence in financial markets and the severe crises toward the end of the 1990s?

2.1) Long-run Patterns of the Thai Economy

The main goal of this section is to analyze the aspects of the Thai experience on macroeconomic volatility. First of all, we can divide Thailand’s economic experience during a period of three decades (1970-present) into four subperiods as follows:

Subperiod I: 1970-1985

The decade of high growth and satisfactory stability in both the global and the Thai economies from 1960 to 1969 came to an end in the early 1970s, starting with the changes in the international monetary system after the collapse of the Bretton-Woods system. With regard to external shock at that time, the gold standard was abandoned and many countries including Thailand were forced to adopt a floating exchange rate system. Thailand chose to peg its currency to the US dollar, which thereafter proved to be a costly decision when the US dollar appreciated against other major currencies during the period 1978-1985. The Thai Baht therefore appreciated, which caused the country to lose its competitiveness.

Other serious economic problems during this subperiod were two oil crises. In 1973, the Organization of the Petroleum Exporting Countries (OPEC) triggered the first oil crisis, which resulted in a fourfold increase in the price of oil internationally. The first oil price shock did not damage Thailand’s current account position immediately
because the export price of the country’s primary products rose during that period, which mitigated the adverse effects of the oil shock.\footnote{According to Warr (1993), the reason that Thailand was less adversely affected by the oil crisis as compared with many other oil-importing countries was because of the high prices and ready markets for Thai exports that tended to offset the increase in the cost of imported oil.} After three years of recovery during the period 1976-1978, the global economy was ensnared by a second oil shock. This time, Thailand faced real difficulties when that oil crisis hit in the period 1979-1980, i.e., with mounting budget deficits and government debts, but without the relief provided in the form of a commodity price boom as had occurred during the first oil shock.

**Subperiod II: 1986-1980**

After more than half a decade of economic difficulties and strenuous management of macroeconomic policy, Thailand had since 1986 entered an era of historic economic prosperity. Several factors were the cause of the impressive economic performance during the second half of the 1980s. First, a global economic change took place that had a tremendous impact on Thailand’s economic structure. Based on the Plaza Accord of 1985, Japan, Hong Kong, Taiwan, and Singapore adjusted the value of their currencies upward. The consequent influx of foreign investments and new technology into Thailand completely changed the Thai economy and industrial sectors. Second, exchange rate realignment caused relocation of multinational firms that chose Thailand as one of their major production bases. With cost-effective production, large inflows of foreign direct investment flooded into Thailand at an unprecedented rate from 1987, facilitating a boom, especially in the manufacturing sector. Third, along with the major currency realignments since 1986 there had been a sharp decline in oil prices, which also greatly benefited Thai exports, because the value of the Baht, which was virtually pegged to the US dollar, weakened steadily against the Yen and major European currencies. Fourth, the political system was relatively stable during the period 1980-1988, which encouraged steady economic growth. The stable system further enhanced the positive atmosphere, thus facilitating private investment. Fifth, after suffering from declines in global prices during the first half of the 1980s, prices for most major crops picked up in 1987, and remained high until the 1990s. The second half of the 1980s into the 1990s was therefore a prosperous time for the Thai economy, the average growth rate of which during this period was 10 percent annually.

**Subperiod III: 1991-1996**

Consequent to the rapid growth of the economy, speculation in real estate and financial securities, especially in the stock market, took place at an alarming rate. Both domestic and international investors rushed in without proper risk analysis; they were supported by over-optimistic views of the financial institutions that provided credits to financially-constrained firms. During this period, several drastic changes occurred in Thailand’s financial arena. One of the major factors affecting the Thai economy was the financial liberalization that took place during the first half of the 1990s. Thailand had liberalized capital inflows and allowed banks to operate offshore banking facilities. In the early 1990s, total private inflows were about 20 times the level of the mid-1980s. In 1995 alone, more money flowed into Thailand than had during the entire decade of the 1980s.
Subperiod IV: 1997-present

In mid-1997, Thailand experienced a crisis that included insufficient international reserves, the instability of the Thai Baht, weakness in the financial system, high levels of non-performing loans (NPLs), high inflation, liquidity shortage, large capital outflows, a dramatic contraction of GDP, and a very high unemployment rate. The financial crisis brought an abrupt halt to Thailand’s decade of rapid economic growth. The economic growth rate became negative for the first time ever (the GDP growth rate was -1.4 percent in 1997, and -10.5 percent in 1998). Further, the recovery from the crisis was shaky; growth during the recovery period almost stagnated and was marked by a rising trend in unemployment.

2.2) Aggregate Volatility of the Thai Economy

In terms of output growth volatility, measured by the standard deviation of variable growth rates, Thailand is considered a relatively stable economy among the emerging economies, with a growth volatility of about 0.044, which is however higher than that of some developed countries: Japan (0.027), Australia (0.018), and the United States (0.022).²

Table 1: International Comparison of Mean Output Volatility

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>0.044</td>
<td>0.029</td>
<td>0.033</td>
<td>0.057</td>
</tr>
<tr>
<td>Selected OECD Countries</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>0.027</td>
<td>0.032</td>
<td>0.013</td>
<td>0.014</td>
</tr>
<tr>
<td>Australia</td>
<td>0.018</td>
<td>0.015</td>
<td>0.026</td>
<td>0.013</td>
</tr>
<tr>
<td>United States</td>
<td>0.022</td>
<td>0.027</td>
<td>0.024</td>
<td>0.016</td>
</tr>
<tr>
<td>Selected ASEAN Countries and China</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.040</td>
<td>0.030</td>
<td>0.035</td>
<td>0.052</td>
</tr>
<tr>
<td>Singapore</td>
<td>0.040</td>
<td>0.031</td>
<td>0.040</td>
<td>0.045</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.041</td>
<td>0.012</td>
<td>0.026</td>
<td>0.060</td>
</tr>
<tr>
<td>Philippines</td>
<td>0.035</td>
<td>0.017</td>
<td>0.050</td>
<td>0.024</td>
</tr>
</tbody>
</table>

Source: Author’s calculation. Data collected from World Development Indicator, various years.

Nevertheless, if we focus on the period 1970-1980, Thailand’s output is less volatile that that of Japan and about the same level as that of the US These results shed some light on the evidence that Thailand’s aggregate volatility was not high as compared with international standards in the period prior to the 1997 crisis. The initial conditions in Thailand did not include marked aggregate volatility. The standard deviation of total consumption growth, investment growth, and income growth determine the aggregate volatility of each variable. The definition of a complete-market approach is imposed here to predict the relationship between consumption and

² Although using a standard deviation is not a perfect measure of estimating volatility, many studies in the literature compare this variable across countries by following this practice (e.g., Easterly, et al. 2000; Ramey and Ramey, 1995).
income volatility. The model assesses excess volatility in terms of the agents’ hedge to mitigate consumption risk. Household consumption should be lower than income volatility in order to interpret the financial market’s ability to generate consumption-smoothing behavior. Accordingly, non-smoothing consumption is the result of imperfections in market structures and institutions. From the computation, since consumption was less volatile than output, this indicates that Thailand had the ability to successfully maintain its consumption-smoothing behavior indicating no signal of failure in the financial market.

Table 2: International Comparison of Aggregate Volatility

<table>
<thead>
<tr>
<th>Periods</th>
<th>Thailand</th>
<th>Selected OECD Countries</th>
<th>Selected ASEAN Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Japan</td>
<td>Australia</td>
</tr>
<tr>
<td>Consumption</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970-1980</td>
<td>0.020</td>
<td>0.029</td>
<td>0.014</td>
</tr>
<tr>
<td>1981-1990</td>
<td>0.041</td>
<td>0.013</td>
<td>0.016</td>
</tr>
<tr>
<td>1991-2002</td>
<td>0.056</td>
<td>0.010</td>
<td>0.011</td>
</tr>
<tr>
<td>1970-2002</td>
<td>0.042</td>
<td>0.024</td>
<td>0.014</td>
</tr>
<tr>
<td>Investment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970-1980</td>
<td>0.141</td>
<td>0.077</td>
<td>0.242</td>
</tr>
<tr>
<td>1981-1990</td>
<td>0.139</td>
<td>0.046</td>
<td>0.195</td>
</tr>
<tr>
<td>1991-2002</td>
<td>0.189</td>
<td>0.039</td>
<td>0.111</td>
</tr>
<tr>
<td>1970-2002</td>
<td>0.161</td>
<td>0.060</td>
<td>0.178</td>
</tr>
<tr>
<td>Government Expenditure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970-1980</td>
<td>0.062</td>
<td>0.032</td>
<td>0.024</td>
</tr>
<tr>
<td>1981-1990</td>
<td>0.046</td>
<td>0.013</td>
<td>0.018</td>
</tr>
<tr>
<td>1991-2002</td>
<td>0.036</td>
<td>0.011</td>
<td>0.012</td>
</tr>
<tr>
<td>1970-2002</td>
<td>0.052</td>
<td>0.023</td>
<td>0.019</td>
</tr>
<tr>
<td>National Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970-1980</td>
<td>0.029</td>
<td>0.032</td>
<td>0.015</td>
</tr>
<tr>
<td>1981-1990</td>
<td>0.033</td>
<td>0.013</td>
<td>0.026</td>
</tr>
<tr>
<td>1991-2002</td>
<td>0.057</td>
<td>0.014</td>
<td>0.013</td>
</tr>
<tr>
<td>1970-2002</td>
<td>0.044</td>
<td>0.027</td>
<td>0.018</td>
</tr>
</tbody>
</table>

Source: Author’s calculation. Data collected from World Development Indicators, various years.

Figure 1 illustrates the evolution of the nine-year rolling variance of GDP growth, variance of consumption growth, variance of investment growth, and variance in saving (GDP minus consumption) growth. It predicts a clear consumption-smoothing pattern of the Thai economy during the pre-1997 crisis period. However, there was a
substantial increase in the variance of all aggregate variables during the crisis events. Output volatility surged as well as consumption volatility, while volatility of investment growth increased remarkably due to a collapse of investment share. Even though we explain smoothing consumption in the pre-crisis period, the quality of the counter-cyclical policies attributed to smooth consumption deteriorated during the crisis, thus consumption became more volatile.

Since the variance of saving did not change much after the crisis, it therefore implied the smoothing of saving rather than the smoothing of consumption was privileged in the post-crisis period. Given that saving equals investment plus the trade account (exports minus imports) and investment volatility was much higher after the crisis, the smoothing of saving reflects a negative correlation between investment and the trade account. In other words, the role of shock absorber played by consumption was replaced by net exports. This fact might indicate that the fall in the availability of foreign funds constrained investment and forced the country to run trade surpluses during the crisis periods.\(^3\)

**Figure 1: Nine-year Rolling Variance of GDP Growth, Consumption Growth, Investment Growth, and Saving**

However, the conclusion might be changed if the standard deviation of investment is measured; it is found to be much more volatile than that of output growth. Even though this evidence might also be applied to other countries, investment in Thailand was found to be more volatile than that in other ASEAN countries, especially during the period 1990-2002 owing to the forces of globalization and financial liberalization. The investment share was found to be quite stable at about 0.293 (29.3 percent of GDP) during the period 1980-1985. In the boom decade (1986-1996), the ratio

\(^3\) It should be noted that, both in 1997 and 1998, import compression and export surges in terms of the baht also helped cushion the impact of the reduction in private spending.
increased substantially from 0.264 (26.4 percent of GDP) in 1986 to a high of 0.425 (42.5 percent) in 1996. As mentioned previously, the early stages of the post-1985 boom were driven by the relocation to Thailand of manufacturers from Japan, Hong Kong, and Taiwan. At the beginning of 1990, the increase in investment share was followed mainly by the aforementioned asset price bubble and speculation. When the bubble burst, banks faced difficulty as borrowers began to default. NPLs rose rapidly as a result of a sharp decline in investment to 0.213 (21.3 percent of GDP) in 1998, reaching the low of 0.197 (19.7 percent of GDP) in 1999.4

**Figure 2: Thailand’s Investment Share of GDP**

To confirm the above conclusions about excessive investment volumes, aggregate variables can be extracted to identify the degree of persistence. The simplest model posits the “generalized autoregressive conditional heteroskedastic” (GARCH) model for examining a number of variants in the basic model for conditional volatility. Excess volatility can be measured if the aggregate variables, displaying a high degree of persistence when the model would define the changes in volatility, are caused by time-varying values of the standard deviation of the term of shocks. Using quarterly data from the second half of 1993 to the first half of 2005, we estimate the GARCH-M process to allow the mean of a variable to depend on its own conditional variance. The estimated results confirm that volatilities are found to negatively affect the growth of the following aggregate variables: output, consumption, and investment. The estimated equations of output growth, consumption growth, and investment growth are significant at conventional levels, and the estimated values of the autoregressive coefficients imply stationary condition and convergence. By observing the estimated coefficients that are all significant, the coefficient of conditional variance of investment growth is -1.327, while those of output and investment are -

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4 This resulted from a deceleration of investment in real estate, especially in the construction of residential buildings, commercial buildings, condominiums and factory buildings. Purchases of machinery and equipment for the production of goods and services also slowed in accord with the reduction of capital utilization in the manufacturing sector in the crisis period.
0.454 and -0.881, respectively. Intuitively, Thailand’s investment growth is determined more significantly by its volatility than by the other aggregate variables: consumption and output. 5

Table 3: Generalized Autoregressive Conditional Heteroskedastic (GARCH) Process of Aggregate Volatility

<table>
<thead>
<tr>
<th>Variables</th>
<th>Output</th>
<th>Consumption</th>
<th>Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.015***</td>
<td>0.024***</td>
<td>0.118***</td>
</tr>
<tr>
<td>(t-statistic)</td>
<td>-5.09</td>
<td>-3.78</td>
<td>-4.49</td>
</tr>
<tr>
<td>Conditional variance</td>
<td>-0.454**</td>
<td>-0.881*</td>
<td>-1.327***</td>
</tr>
<tr>
<td>(t-statistic)</td>
<td>(-1.99)</td>
<td>-1.72</td>
<td>(-2.73)</td>
</tr>
<tr>
<td>AR(1)</td>
<td>0.356**</td>
<td>0.361***</td>
<td>0.323**</td>
</tr>
<tr>
<td>(t-statistic)</td>
<td>(-2.15)</td>
<td>(-3.09)</td>
<td>(-2.51)</td>
</tr>
<tr>
<td>MA(4)</td>
<td>0.363**</td>
<td>0.341***</td>
<td>0.28**</td>
</tr>
<tr>
<td>(t-statistic)</td>
<td>(-2.33)</td>
<td>-4.59</td>
<td>-2.37</td>
</tr>
<tr>
<td>Prob. F-Statistics</td>
<td>0.10</td>
<td>0.12</td>
<td>0.19</td>
</tr>
<tr>
<td>Observations</td>
<td>48</td>
<td>48</td>
<td>48</td>
</tr>
</tbody>
</table>

Note: *** 0.01, ** 0.05, * 0.1 significance levels.

In conclusion, results found both standard deviations and volatility modeling confirm that investment variable is the main source of aggregate volatility in Thailand. The idea is as simple as analyzing the consumption-output relationship. Investment was very volatile throughout the periods, especially during the 1990s, which corresponded to the financial crisis in 1997. The country’s aggregate volatility was not high as compared with international standards in the period prior to the crisis in the 1990s. Investment volatility surged remarkably prior to the crisis. However, there have been substantial increases in aggregate volatility after the crisis. In general, Thailand has undergone several economic shocks transmitted from outside the country; however it enjoys a reasonable degree of macroeconomic stability in many critical aspects, especially exchange rate stability.

III. Financial Liberalization and External Volatility

However, until the beginning of 1990s, a series of liberalization measures were taken resulting in much less control over the flow of foreign currencies into the country, which caused asset speculation and excessive investment in Thailand. During that period prior to 1997, investment volatility surged remarkably. Nonetheless, there have

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5 Since the conditional variance coefficient is significant only at the 10 percent level, this is consistent with the fact that growth volatility reflects on investment and saving rather than consumption, although post-crisis consumption becomes more volatile.
been substantial changes in volatility after the crisis. Investment fell substantially due to firms’ financial constraints. Both output volatility and consumption volatility increased; the explosion of aggregate volatility during the crisis therefore indicates the presence of a severe economic crisis.

3.1. Stabilization Policy and Diversified Structure of the Thai Economy

Concentrating on stabilization policies was the main reason why the country could maintain economic stability even in times of financial crises. However, since Thailand’s economic structure is generally linked to the international arena, as discussed previously, one of the most important strategies was maintaining exchange rate stability. In 1984, Thailand utilized the currency basket system, pegging the Baht to the value of a number of currencies, specifically those of its trading partners, particularly the US dollar. This strategy was very important; it kept the value of the Baht tied to a basket of major currencies rather than to the US dollar alone. In addition, the currency basket system also enabled to the Bank of Thailand to manage the value of the Baht by changing the weight structure of the currencies in the basket.\(^6\)

The second stabilization strategy was the country’s effective controls on public spending and the installation of discipline with regard to external debt creation. A “zero growth” fiscal policy was adopted in 1986-1987, freezing the government’s overall real spending not to exceed the previous year’s level. The newly created external debt within the public sector was controlled by setting up an upper limit each year.

Undoubtedly, financial stability and macroeconomic stability are intricately related. A sense of prosperity during expansion gives rise to over-optimism, complacency, and over-confidence. Bold and risky projects, propelled by excessive credit expansion, are undertaken unnecessarily. Part of the reason for the crisis may be related to the very success that Thailand had experienced with regard to the good economic performance it experienced over many decades, and particularly the very rapid growth after 1995; this probably led to a sense of economic over-confidence. As soon as over-valuation of asset prices had been realized, a loss of confidence, pessimism, and over-reaction set in, increasing the number of bankruptcies, non-performing assets, and bank runs, all of which are the order of the day in a debt-deflation economy. The greater the amount of debt accumulated over the expansion phase of the cycle, the deeper the trough and the longer the duration of the recession. Even though financial stability and macroeconomic stability are related to each other, financial instability leads to macroeconomic instability and vice versa.

Besides the stabilization and adjustment policies implemented during the 1980s, the diversified structure of the Thai economy was an important factor that helped to mitigate its aggregate volatility. Diversification distinguishes between “market diversification” and “product diversification”. Market diversification is explained by analyzing the diversification of the country’s export and import markets. Risks from a given shock from a country’s trading partner are lower if market diversification exists. In comparison to other emerging countries, Thailand’s export structure is diversified among different product groups, a situation which indicates a low dependence on a

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\(^6\) For example, the Bank of Thailand decided to increase the US dollar’s weight in the basket after its sharp decline in late 1985, which played an important role in boosting Thai exports from 1986.
particular export sector. Export diversification is considered important in explaining why Thailand could maintain economic stability despite the occurrence of crisis. The country is slightly dependent on relatively few primary commodities for export earnings. Unstable prices for these commodities have less adverse impacts for the country to in order to face serious terms of trade shocks. The Herfindahl-Hirschman Index (HHI) is computed to measure the extent of Thailand’s export diversification.\(^7\) HHI is found to vary around 0.25-0.3, which implies a high degree of export diversification (or low extent of export concentration). The point concerning the diversification of the Thai economy is very important here in suggesting why aggregate volatility did not diminish because of the volatility of capital flows under terms of trade stability.\(^8\)

**Figure 3: Herfindahl-Hirschman Index and Thailand’s Export Diversification**

![Herfindahl-Hirschman Index and Thailand’s Export Diversification](image)

Source: Author’s calculation. Data collected from PC-TAS, United Nations.

### 3.2) Volatility of Trade and Capital Flows of the Thai Economy.

Even though the evidence indicates that economic diversification is a special pattern for mitigating the terms of trade volatility, which are linked to lower aggregate volatility, Thailand still experiences some degree of volatility in trade specialization. In comparing between the volatility of export side and the volatility of import side, it demonstrates that the volatility of the percentage of import growth during the period

\(^7\) Herfindahl-Hirschman Index is a quantitative measure of export concentration (or the inverse of diversification). The more diversified the composition of exports, the lower is the value of this index.  
\(^8\) Besides export diversification, another positive feature of Thailand’s export structure is the high degree of intra-industry trade among ASEAN countries. Intra-industry trade is not only a main driver of growth in global trade as Krugman (1995) suggested, but also serves as one of the main driving forces of intra-regional trade within ASEAN. Pholphirul (2005) estimated the Intra Industry Trade (IIT) Index for Thailand, the ASEAN-4 (Indonesia, Singapore, Malaysia, and Philippines), and East Asian countries such as China, South Korea, and Japan. Intra-industry trade is higher within the ASEAN countries, especially within major product groups such as textiles, machinery, auto parts, and chemicals.
1985-2005 was higher than that of export growth during the sample periods. This evidence implies the possibility that external liquidity constraints might exert downward pressure on import demand via changes in real exchange rates.

Figure 4 shows the evolution of openness and the evolution of the rolling variance of the growth rate of exports (X) and imports (Y). The variance of the growth of imports is higher than the variance of the growth rate of exports. Since volatility of imports increased as a consequence of the 1997 crisis, while the variance of the exports did not change substantially, this evidence is consistent with the arguments that:

- Imports were affected by financial constraints. The depreciation of the domestic currency and the tightening of credit during the crisis period reduced investment by lowering the demand for imported capital goods, and
- Increasing the diversification of exports induces a long-run fall in the variance of exports. In this situation, the failures in the credit market, both the international side and the domestic side, create a link between import volatility, which affects capital goods, and aggregate volatility.

**Figure 4: Evolution of the Rolling Variance of the Growth Rates of Exports and Imports**

![Figure 4: Evolution of the Rolling Variance of the Growth Rates of Exports and Imports](image)

Source: Author’s calculation. Data collected from International Financial Statistics, IMF.

Also shown in Figure 5, since the crisis induced permanent changes in domestic absorption (as a ratio of GDP), the level of trade openness, the country’s ability to run trade surpluses, and limited access to foreign funds caused the capital account/exports ratio to fall substantially since 1997, and it never recovered to the pre-financial liberalization level. This result is paradoxical in that Thailand opened its capital account to improve access to external finance, but the ultimate result was just the opposite, and this occurred despite the fact that the economy is currently more open to trade. This suggests that failures in institution-building and the crisis can have long-lasting effects on financial development.
Figure 5: Domestic Absorption, Openness Ratio, and Capital Account/Exports

![Graph showing domestic absorption, openness ratio, and capital account/exports over time from 1965 to 2003.](image)

Source: Author’s calculation. Data collected from International Financial Statistics, IMF.

Figure 6 presents additional evidence by using quarterly data. There are simultaneous structural breaks in the import/export ratios (M/X) and capital account/export ratios (CK/X) after the 1997 crisis. In 1997, these ratios fell below the one standard deviation limit as a consequence of the sudden stop in growth. Since exports were relatively stable, the fall is explained by the co-movement between imports and the availability of external funds. Given this co-movement, it would be odd to attribute the fall in imports to a productivity shock. Since the mean of the annual import growth rate increased to 23.5 percent during the period 1985-1990 and the mean of the annual export growth rate reached a high level of 19.9 percent during that period, exports and imports offset each other, and did not show evidence of the country’s severe current account shock. During this period, Thailand exercised the ability to run trade deficits that proved to be particularly limited. Therefore, export volatility is likely to have a bearing on import volatility.

The Thai experience highlights the fact that capital flows in emerging markets are often more volatile than in other developed economies, and are driven by sentiment rather than fundamentals. Such volatility can impose substantial risks on market agents, which they may not be able to sustain or manage. The authorities began to liberalize international capital flows in the 1980s with the relaxation of restriction on foreign direct investment (FDI). Since they focused on liberalizing portfolio investment in the stock market and bank loans, liberalization of portfolio and banking flows was accompanied by the relaxation of foreign exchange controls. Starting in 1991, the authorities began to relax foreign exchange restrictions on capital-account-related transactions, promoting cross-border capital flows by financial institutions. One important strategy for capital account liberalization was the establishment of the Bangkok International Banking Facility (BIBF), an offshore banking center, in 1993. Thailand saw growing inflows of foreign capital. While they were mainly in the form of FDI until the early 1990s, they recently shifted to short-term inflows. The increased openness of the capital account, together with financial market deregulation, led to a

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9 See Sirivedhin (1997) for the implications of capital account liberalization in Thailand.
higher degree of capital mobility, largely reflected in the growing importance of short-term banking flows, portfolio investment, and non-resident baht accounts. In addition, the removal of interest rate ceilings allowed funds from overseas to become an increasingly important source of financing domestic investment, fueling speculation, and current account deficits.

Figure 7 provides evidence of financial liberalization and capital movements. First, the relationship between credit (CR) and money supply (M1) can be observed. The credit/money supply ratio (CR/M1) shows a marked upward trend in the pre-crisis period, but it fell substantially after 1997. It can be implied from this phenomenon that the source of credit was not the “traditional” financial system, but the newly created BIBF segment. Credit creation was then associated with capital inflows via BIBF. Second, the figure shows the rolling correlation between the credit/GDP ratio and capital account/export (CK/X) ratio. This nine-year rolling correlation has always been positive (with the exception of the crisis period). This implies that both expansions and contractions of domestic credit were closely correlated with capital flows. Third, the rolling correlation between import/export ratio (M/X) and capital account/export ratio (CK/X) is also highly positive. This is evidence showing a consistency in credit and capital flows, which have a substantial bearing on imports and domestic absorption.

**Figure 6: Import/Export Ratio (M/X) and Capital Account/Export Ratio (CK/X)**

Source: Author’s calculation. Data collected from International Financial Statistics, IMF.
In sum, Thailand’s economy attained strong and stable growth throughout the three decades between 1960 and 1990, even though the country was slightly disturbed by external volatility (e.g. oil price shocks) in some years. The fundamental reasons why Thailand was able to handle external volatility better than various other developing countries were that the Thai economy had a well-diversified structure and stable macroeconomic policies. Consequently, several current account shocks (e.g., price rises for oil and other commodities) did not affect the Thai economy very severely. In the early 1990s, the transmission mechanism that established the linkage between capital account shocks (i.e., liberalization) and domestic aggregate demand worked through the credit channel generated by the newly created BIBF system. Changes in the rules of the game created by the BIBF matter to aggregate fluctuations and thereby matter to aggregate volatility. The origins of the weaknesses of the financial sector fall into two broad categories: (i) excessive lending without prudent management of assets and liabilities, and (ii) inadequate regulatory and supervisory frameworks. Both of these will be discussed later.
IV. Financial Liberalization, Financial Institution, and Financial Crisis

The origins of the 1997 crisis could be traced to the early 1990s when the country accepted the IMF Article VIII, which lifted foreign exchange controls on current account transactions; this marked the beginning of a series of financial liberalization measures. However, financial liberalization was made difficult because of the deficiently-designed institution-building of financial institutions under the conditions analyzed in the previous section, particularly because of the inability to manage shocks and policy errors during the period of financial liberalization. Therefore, this section is worth screening in detail for the causes, effects, and consequences of the 1997 crisis by investigating a series of financial liberalization measures in the first half of the 1990s, scrutinizing the actual causes of the 1997 crisis from the viewpoint of deficiency of domestic financial structure, and summarizing valuable lessons from the institution-building process.


Rapid expansion of the Thai economy starting in the end of 1980s, which was led by the industrial and service sectors, engendered demands for more complicated and diversified financial services. The Bank of Thailand launched a plan in 1990 to improve Thailand’s financial system, with the aim of reducing official interventions, increasing competition among financial institutions and developing new accommodative instruments and services. Thailand’s acceptance of IMF Article VIII in May 1990, which lifted foreign exchange controls on current account transactions, marked the beginning of a series of financial liberalization measures. The second round of liberalization in April 1991 lifted most restrictions on capital account transactions. The third round, in February 1994, gave more freedom to outward direct investment, travel expenditures, and additional channels of cross-border payments.

BIBF was permitted to be established by financial institutions in September 1992. To enable BIBF to compete with other centers, its transactions were granted various tax privileges (e.g. reduction of corporate income tax, and exemption from special business tax and withholding tax on interest income). Furthermore, the government in January 1995 decided to allow BIBF to open branches in the provinces. BIBF played a crucial role in expanding international bank loans. The authorities established BIBF for several purposes: (a) to encourage the extension of foreign-currency-denominated bank loans to Thailand (“out-in” loans) to meet the funding needs of Thai firms and to finance infrastructure development, (b) to attract foreign banks with a good reputation, technology, and know-how so as to introduce more competition into the banking system and to improve the efficiency of Thai commercial banks, and (c) to encourage foreign banks to extend loans to the greater Indochina area, including Cambodia, Lao PDR, Myanmar, and Vietnam (“out-out” loans).

Figure 8 illustrates the evolution of the BIBF-generated credit/GDP ratio. It is clear that there was an explosive growth in credit since the early of 1990s until the maximum point was reached in 1997. During that year, BIBF loans reached a high of about 40 percent of GDP.
Since banks and finance companies played a key role in intermediating capital inflows in Thailand, it is also obvious that the explosion in credit came in the form of the out-in loans, which increased substantially in 1996, just before the 1997 crisis was triggered. Bank borrowing played a relatively minor role during the period 1988–1992. This occurred as a result of the establishment of the BIBF and was due mainly to two factors: first, BIBF institutions were granted considerable tax advantages; and second, many Thai firms which could not directly access overseas capital markets were able to borrow from BIBF Thai banks. Thailand thereafter saw growing inflows of foreign capital. Even though those capital inflows were mainly in the form of foreign direct investment until the early 1990s, they later shifted to short-term inflows, including bank loans. The volume of financial sector credit extended to the private sector also expanded significantly.

**Figure 8: BIBF/GDP**

![Graph showing BIBF/GDP](image)

Source: Author’s calculation. Data collected from Bank of Thailand.

### 4.2) Thailand’s Financial Crises in 1997

Financial liberalization induced a flood of capital funds into Thailand in the period 1990-1996, fueling investment spending, speculation, and current account deficits. What was extremely threatening was that those liberal capital flows strongly disturbed the traditional transmission mechanisms of monetary policies. The variable that became highly vital and influential was the exchange rate. One notable point is that, though more freedom was given to cross-border capital flows, the government still pegged the value of the Baht currency to the same basket of currencies adopted in 1984. As the US dollar commanded a predominant weight, roughly 85 percent of the
basket, the Thai Baht did not move much against the US dollar. Therefore, numerous private corporations and financial institutions resorted to cheap foreign borrowings without purchasing forward cover to protect themselves against exchange risks. To the central authorities, how the exchange rate should be handled was a big puzzle, because allowing it to be determined by market forces could cool down capital inflows, but price instability would emerge. As a result, maintaining exchange rate stability meant nullifying the effects of typical monetary policies.

It can be demonstrated that the rapid but imbalanced GDP growth was fueled by foreign capital. Net capital inflows between 1990 and 1996 averaged 13.3 percent of GDP each year, thus boosting the country’s external debt outstanding from US$ 29 billion, or 40.1 percent of GDP, in 1990 to US$ 91 billion, or 65.9 percent of GDP, in 1996. With such mounting foreign debts, the private short-term portion surged from 22 percent to 50 percent, generating more vulnerability in the face of liquidity shocks.

In addition, during the period 1990-1996, the central authorities decided not to allow the exchange rate of the Baht to move freely or in accordance with market forces, mainly for the purpose of upholding price stability. Meanwhile, stronger competition in the financial system pushed domestic financial institutions to extend credit imprudently and excessively, engendering economic bubbles and excessive risk. Speculative and imprudent lending from BIBF inflated several “bubble sectors,” especially in the stock market and the real estate sector. Consequently, the asset quality of financial institutions deteriorated markedly.

Another cause of growing macroeconomic disequilibrium was the exchange rate. During that time, the appreciating US dollar lifted the value of the Baht, because the Baht’s value was tied to the US dollar-dominated currency basket (about 85 percent of the basket, as mentioned previously). Meanwhile, Thailand’s inflation exceeded that of the United States to such a degree that the excess rose from 0.3 percent in 1993 to approximately 3 percent in 1995-1996. Consequently, investor confidence was critically shaken. Fear of a forthcoming devaluation plus widespread bankruptcies instigated massive capital outflows to such an extent that the government found it necessary to float the Baht at the beginning of July 1997. The subsequent plunge in the value of the Baht sparked a severe financial crisis and an economic recession together with numerous other persistent problems.

In conclusion, Thailand’s economic meltdown in mid-1997 has been attributed largely to the following three significant policy errors:

- Liberalization of foreign capital flows while keeping the exchange rate rigid
- Premature liberalization of financial institutions

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10 According to Renaud (2000), approximately 45 percent of domestic investment came from foreign direct investment and approximately 15 percent of that total was from BIBF procedures. Also, approximately 5 percent and 15 percent of BIBF inflows respectively were allocated to construction equipment financial institutions directly or indirectly related to the real estate market, say, real estate finance. The main proportions of housing credit in Thailand were from commercial banks.
• Failure to prudently monitor and supervise financial institutions

These three policy errors were closely linked. In the presence of healthy GDP growth and a stable exchange rate, foreign capital inflows were strongly encouraged by the measures liberalizing exchange controls. The flood of capital inflows generated vigorous competition with credit extension by local financial institutions. Even though local financial institutions were given more freedom to compete, as elaborated in the previous section, these institutions were unaccustomed to the new financial instruments. Yet, they felt that they had to try their best to compete with foreign capital; otherwise, they would lose clients rapidly. Therefore, local commercial banks as well as finance companies undertook heavy competition but misbehaved in various respects, for example, extending excessive credit without adequate collateral or capital support, and without careful forward-looking assessments or the exercise of prudence on asset quality. Such misbehavior could have been avoided if the central bank’s officers had been able to closely monitor and supervise financial institutions. Unfortunately, those officers were not acquainted with new financial techniques and strategies. Consequently, local commercial banks and finance companies mishandled competition as well as their balance sheets and thereafter encountered serious problems. The situation was worsened by the Bank of Thailand’s decision to step in to rescue weak local financial institutions for stability purposes, because those rescue operations aggravated the macroeconomic imbalance (i.e., larger current account deficits and faster inflation) originally aroused by the foreign capital inflows.

Nevertheless, it was not the policy inconsistency by itself that sparked the speculative attack against the Baht in 1997. Rather, it was the negative actual outcomes of policy inconsistency, i.e., ballooning current account deficits and external debts that stimulated speculation.\(^\text{11}\) This demonstrates that the commercial banking crises were closely correlated with Thailand’s unpreparedness for financial liberalization. Therefore, the 1997 financial crisis in Thailand has been attributed to the following factors that caused deficient domestic financial architecture institutions.

1. Commercial banks as well as finance companies lacked good credit appraisal systems for evaluating loan requests. Instead, they tended to depend more on collateral and over-priced such collateral, while ignoring project feasibility.
2. Commercial banks and finance companies gave preference to intra-affiliate credit as well as that connected with their shareholders or management directors.
3. In the presence of financial liberalization and a booming domestic economy, commercial banks and finance companies were tempted to extend excessive credit without adequate prudence, thus engendering a financial bubble. Worse yet, some of that credit clustered around a few sectors, raising the risk of bubbles.
4. Other related problems were the under-qualified staff of commercial banks and finance companies, maturity mismatching, too much foreign exchange risk exposure, too loose a system of asset classification, loan loss

\(^\text{11}\) Experiences in other countries are similar. Kaminsky and Reinhart (1995) noted that, among 25 countries in their study, in up to 18 of them, financial liberalization did not last longer than five years before a financial crisis was encountered (e.g., Brazil, Chile, Indonesia, Mexico, and Venezuela).
provisioning, and capital inadequacy. Most of these problems arose from allowing too much flexibility and subjective judgment to play a role in implementing rules and regulations.

The evidence relating to the 1997 financial crisis clearly demonstrates that the crisis originating in these deficiently-designed institution-building measures severely hindered the stability of the Thai economy. The major cause of the above-mentioned problems was that Thailand’s financial sector had been long protected. Domestic financial institutions therefore remained rather immature in competing efficiently with international forces brought about by financial liberalization measures (e.g., BIBF). Unsurprisingly, these domestic (both public and private, large and small) financial institutions misbehaved in various respects. Worse yet, the government tended to assist them when they encountered problems. Such a situation created moral hazards and encouraged further misbehavior. Consequently, floating the exchange rate became unavoidable.

After the Bank of Thailand adopted the floating exchange rate system in July 1997, the value of the Baht declined drastically. So did the price of stocks and real property because of the close linkage between the financial system and the real economic sectors. Numerous finance companies were near bankruptcy. The government suspended the activity of 58 of the total 91 finance companies; however, it announced guarantees for the deposits and loans of commercial banks and finance companies.

Originally, most official resolution measures were aimed primarily at finance companies. Later on, it became apparent that some commercial banks faced severe problems as well. Their asset quality rapidly deteriorated and public confidence started to be shaken. Depositors made massive withdrawals of funds, while foreign creditors started to refrain from rolling over maturing debt, which compelled ailing banks to seek assistance from the FIDF. These liquidity shortage problems were so critical that 7 out of 15 commercial banks had to borrow funds from FIDF every day. In October 1997, the government utilized the following measures and explicitly intervened in three banks, the deposits of which accounted for up to 10 percent of those of all commercial banks.

1. Commercial banks had to improve their capital funds by writing off bad debts and raising new capital.
2. Commercial banks had to comply with new rules, which are more stringent than previously with regard to asset classification and loan loss provisioning.
3. Commercial banks were prohibited from paying dividends on their shares in 1997 and 1998.
4. Foreign entities were permitted to hold more than 49 percent of bank shares for 10 years.

In March 1998, the Bank of Thailand tightened regulations on asset classification, loan loss provisioning, and realization of income in its efforts to upgrade financial institutions to international standards by 2000. For example, loans were classified into five levels (instead of three as was the practice previously), and so was loan loss provisioning. Financial institutions were required to report their status to the Bank of Thailand on a quarterly instead of yearly basis.
Table 4: New System of Asset Classification and Loan Loss Provisioning, Effective July 1998

<table>
<thead>
<tr>
<th>Loan classification</th>
<th>Months overdue</th>
<th>Provisioning (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Previous</td>
</tr>
<tr>
<td>1. Pass</td>
<td>&lt; 1</td>
<td>-</td>
</tr>
<tr>
<td>2. Special mention</td>
<td>1-3</td>
<td>-</td>
</tr>
<tr>
<td>3. Substandard</td>
<td>3-6</td>
<td>15</td>
</tr>
<tr>
<td>4. Doubtful</td>
<td>6-12</td>
<td>100</td>
</tr>
<tr>
<td>5. Loss</td>
<td>&gt; 12</td>
<td>100</td>
</tr>
</tbody>
</table>

The above-mentioned tightening of regulations on asset classification and loan loss provisioning clearly demonstrates a valuable lesson, that is, if rules are prudently articulated in the sense that they conform to international standards and can be rapidly or effectively implemented (e.g., classifying debts on their “passed due date”, the extent of required provisioning depending upon the months overdue), then all parties concerned will remain cautious. Commercial banks will screen their potential clients in greater detail, and they will closely monitor their clients’ status after extending credit. On the part of customers, they will try their best to comply with the terms of borrowing since not doing so would adversely affect banks, which would be more ready to impose punishments (such as penalty fees or less credit lines) as a result of the required provisioning.

The efforts exerted by the government to restructure the financial system in various formats as mentioned above absorbed a stupendous amount of resources. For instance, in 1998 the IMF estimated that the Thai government devoted 20 percent of GDP to support liquidity and another 8 percent of GDP to increase capital funds. According to a World Bank estimate, the public debt of four countries in Asia, especially that of Indonesia and Thailand, surged at an unbelievable pace during the period 1996-2000. The enormous incremental debt burden of the governments, which arose from attempts at financial restructuring, should help to provide many important lessons for both creditors and debtors if another financial crisis is to be averted in the future.

V. Policy Recommendation and Conclusion

In sum, this paper uses national income identity to explain the causal relationships among Thailand’s aggregate volatility, deficient financial structure, financial liberalization, and financial crisis in 1997. Relatively good macroeconomic policies and diversified structure were able to compensate for financial imperfections and the weak structure of corporate governance in the financial sector in the period 1970-1990. Under these conditions, real GDP growth was positive, inflation was relatively
low, and consumption was relatively less volatile than GDP. The 1997 crisis, however, severely affected the ability of central authorities to smooth fluctuation. Investment and consumption volatility increased substantially. This implies that, when counter-cyclical policies are difficult to implement and incomplete markets exist, it is much more difficult to stabilize consumption.

What happened in Thailand before the 1997 crisis was overspending fuelled by superfluous and incautious lending of domestic financial institutions together with excessive foreign borrowing. Commercial banks and finance companies offered credit to their clients too hastily in order to compete with abundant capital inflows. Some of these domestic financial institutions also functioned as facilitators of foreign borrowings. In any case, two distressing problems emerged: a surge in low-quality assets of domestic financial institutions, and an expansion of foreign indebtedness. Those poor-quality assets could be substantiated by the skyrocketing NPL ratio, which exceeded 50 percent after 1997. Eventually, the central authorities found it inevitable to float the Baht currency in the middle of 1997. In sum, four immediate recommendations can be made as follows:

1. Changes (e.g., financial liberalization) should be made only when all the parties concerned are ready.
2. Policy consistency should be continually maintained.
3. As most financial markets around the world are closely linked, the domestic macro-financial policies of small developing countries should be steadily adjusted for the purpose of achieving harmony.
4. In case overspending is unavoidable, strong attention should be paid in advance to the role and status of domestic financial institutions, that of foreign capital, and the country’s external debt-servicing capacity.

Fortunately, the central authorities in Thailand started to realize that, in order to achieve solid progress in the development of the financial system, it is necessary to have firm roots or a firm basis. A new financial sector master plan (FSMP) was therefore drawn up in 2002 and eventually approved by the Thai government in 2004. FSMP is aimed at consolidating financial institutions to attain more professionalism, effective supervision, and provision of more equality plus stability.
References


