Financial Deepening of Selected ASEAN Nations

Ved Pal Sheera[a]
Guru Jambheshwar University of Science & Technology, India

Ashwani Bishnoi[b]
Central University of Haryana, India

Abstract: The aftermath effects of the recent global financial crisis have reinforced the vital role that the financial sector plays in an economy in addition to its other conventional inputs in labour and capital. This study is an attempt to explore the financial deepening of selected ASEAN economies under three major crises that occurred at global and regional levels over the past two decades. Principal component analysis technique was exploited in order to compute the composite index of financial deepening. An attempt was also made to identify the prominent indicators of financial deepening in the selected ASEAN economies. It is found that while Thailand experienced a developed financial system in the early 1990s, Indonesia, Malaysia and Philippines only attained it in the mid-1990s. The financial systems of these economies were severely affected by the Asian financial crisis and it has been a struggle to maintain the pre-crisis level of development. However, all these economies, with the exception of Thailand have exhibited stable behaviour in the recent crises period. Thailand's financial system has been volatile and this could be attributed to inconsistency among the institutional and market based indicators.

Keywords: ASEAN, economic performance, financial crisis, financial deepening, principal component analysis
JEL classification: C43, G21, N25, O16

1. Introduction

Economic growth literature has pondered extensively over the influential role of a developed financial system in an economy. The importance of its role is compounded by the occurrence of two economic shocks – the global financial crisis and sovereign debt crisis. Such occurrences are a stark reminder of the association between financial systems and the fluctuations in economic fundamentals. The financial crisis emanated from the bubble in asset prices due to poor monitoring by the financial institutions, whereas the sovereign debt crisis stemmed from fiscal irresponsibility of the periphery economies of Europe. Since the occurrence of these crises, the world economies are looking towards financial stability, global regulatory mechanisms and financial development to ensure sustainable global growth. The challenge is the efficient handling of the various dimensions of finance. At the same time, the experience of the current global economic phenomenon which is ridden with uncertainty certainly demands a revisit to financial sector reforms (see Park 2011). Moreover,

[a] Haryana School of Business, Guru Jambheshwar University of Science & Technology, Hisar Haryana, India-125001. Email: *vedpal@gjust.org* (Corresponding author)
[b] Department of Economics, Central University of Haryana, Mahendergarh, India.
Email: *ashwani@cuharyana.org*

the past two decades have witnessed a volatile environment of three major crises at global or regional level. Under this scenario, it is imperative that we understand the dynamics of the financial sector as it has emerged as one of the prominent peripheral factors along with its other conventional inputs in recent economic growth literature.

The financial crisis of 1997-98 occurred in the East Asian economies as a result of instability in macroeconomic fundamentals followed by huge capital outflows caused by poor financial infrastructure amid a more liberalised environment. The Asian region, particularly the ASEAN group learnt hard lessons from the Asian financial crisis of 1997-98 and quickly embarked upon wide ranging initiatives in order to strengthen their financial system. Their approach was towards developing the domestic debt market and bond market and reforming the banking system and financial markets. These initiations have helped the regional economies to regain credibility of their financial system, which in turn has provided an uplift to other economic activities. The exposure to these crises and ability to handle them created sufficient lessons for policymakers to guide the future perspective of a functioning economic system.

After the Asian financial crisis period, the bank-based financial system in the Asian region has made considerable progress in extending the services of the financial system. But in many emerging economies of the region, the role of the financial markets has been limited in channeling savings into more long-term productive investments (Ghosh 2006). Also, the Asian region's financial system is found to be facing the multi-dimensional challenges of lack of convergence with the real sector, inability to meet all funding requirements of the private sector, structural imbalance particularly a high concentration in the banking system, less efficient functioning of financial services because of a lack of proper legal and regulatory framework and finally a stymied deepening and broadening of the regional financial markets and services consequently resulting in improper channelling of surplus funds. At the same time the need for measures to promote financial inclusion, balance regulation and innovation, and strengthen crisis prevention and management have been identified for better financial development, and thus economic growth (Park 2011). Thus it is a challenge for these economies to broaden and deepen the financial markets in order to have efficient and resilient financial systems.

A plethora of studies highlight the need for strengthening the banking sector to meet the demand of promising small and medium enterprises for microcredit, etc. Recent literature has identified various alternatives such as debt market, bond market and non-banking financial institutions for strengthening the financial system. But it is imperative to understand the dimensions within the banking sector and financial markets for the overall development of the system. It is worth shedding light on the performance of the financial system as a whole for different periods. It may facilitate the understanding of the effectiveness of policies targeted at gearing the financial system in the period of recent global economic shocks. Also, the identification of prominent indicators may provide a better understanding of the financial system, and its smoothening functions. Hence, this study distinguishes itself from earlier studies as it considers detailed measures of financial development related to the depth, activity, efficiency and resource allocation indicators of financial intermediaries as well as financial markets. Keeping in view the growing demand for better economic growth, the ASEAN region is exploring different avenues for its betterment. It demands the identification of major dimensions of financial development which may hold a significant

place in policy formulation for maintaining the momentum of the financial system. A robust financial system may have multidimensional benefits for the welfare of the economy.

The Asian financial crisis had forced the policymakers to diagnose the seriousness of the problem, and to take policy measures for damage control, stability and development of the financial system in light of the demand for high economic growth. As a first step, to overcome the funds crunch in Asia, they saw the need to develop the domestic debt market, bond market, the banking system and also the financial markets. To develop the domestic debt markets in the ASEAN countries, especially in Indonesia, Malaysia, the Philippines, and Thailand, two important sources of funds in the form of Asian Bond Markets Initiative (ABMI) and the Asian Bond Funds (ABF) were developed. The ABMI was launched in 2003 by ASEAN with the inclusion of China, Japan, and the Republic of Korea. The first ABF was established in that same year by the Executives' Meeting of East Asia Pacific Central Banks (EMEAP), a group of 11 central banks in the region including five that are part of ASEAN. The same group of central banks also established a second fund in 2005.

The occurrence of the recent global financial crisis led the ASEAN region to develop a master plan on connectivity (adopted at ASEAN's Hanoi Summit on 28 October, 2010) with the support of ADB and UNESCAP. The deficit for investment in infrastructure in the less developed parts of Asia was found to run into trillions of dollars. As per one of the estimates, a ADB–ADBI working paper calculates that the annual investment needed to close the infrastructure gaps in Asia is USD800 billion, and that this amount cannot be met by existing arrangements (Zhai 2010). In April 2011, the ASEAN finance ministers took three further steps. First, they agreed to set up the Credit Guarantee and Investment Facility (CGIF), with a capital of USD700 million, involving contributions from China, Japan, and the Republic of Korea. Second, they launched an USD495.2 million infrastructure fund later in the year to finance major infrastructure projects across ASEAN and provide a way to mobilise the region's large dollar reserves to finance its infrastructure needs. This ASEAN Infrastructure Fund was set up with an initial equity contribution of USD495.2 million (Park 2011). Finally, the ASEAN finance ministers established the ASEAN+3 Macroeconomic Research Office (AMRO) in Singapore to conduct economic and financial surveillance in support of the Chiang Mai Initiative Multilateralised (CMIM). All these wide ranging efforts along with other international agency's initiatives might have played an important role in the survival of these economies amid the volatile economic environment, but strengthening the financial systems of these economies is of paramount importance so that the growing infrastructure needs can be fulfilled in a credible manner.

The study is organised as follows. A brief review of literature is presented in Section 2. The subsequent section presents the economic performance of the sample economies for different periods. Section 4 discusses the methodology used in the study while Section 5 highlights the performance of key financial development indicators and exhibits the financial deepening index for these economies. The importance of different indicators to overall financial deepening is also identified. Finally the discussion is concluded in Section 6.

2. Literature Review

The wide ranging functions of a financial system in an economy have led researchers to define and measure the level of financial deepening in the past. Theoretically, financial deepening has been linked with the Keynesian theory - it occurs due to an expansion in

government expenditure. The injection of money by governments to boost the demand for attaining full employment increases income which results in a higher interest rate due to increased demand for money. The higher interest rate may increase the level of savings but somehow discourage private investment (Dornbusch and Fischer 1978). Later, McKinnon (1973) and Shaw (1973) came up with a rival hypothesis that depicts a positive relationship between interest rate and financial deepening. According to them, financial liberalisation instead of repression increases the interest rate which induces savings, and thus enhances the volume of investment. Further, the importance of availability of credit and a reduction in reserve ratio had been identified as an instrument for financial deepening (Matheison 1980; Fry 1995; Wijnbergen 1982).[1] Financial deepening was assumed to increase the amount of financing for production and investment through specialised and organised markets (Cheng 1980). Later, prominent studies such as Levine (1997), Levine and Zervos (1998), Beck *et al.* (1999), among others had laid down broader measures such as institutional based and market based indicators for quantification of financial development. Gelbard and Leite (1999) used measures of market structure, financial products, financial liberalisation, institutional environment, financial openness, and monetary policy instruments to construct a comprehensive index for 38 sub-Saharan African countries for 1987 and 1997. They observed that in many sub-Saharan African countries, the size of financial products remain extremely limited, interest rate spreads are wide, capital adequacy ratio are insufficient, judicial loan recovery is a problem, and the share of non-performing loans large.

Creane *et al.* (2004) examined the level of financial development for twenty Middle Eastern and North African (MENA) countries by using the principal component index. They focused on six themes, that is, development of the monetary sector and monetary policy, banking sector development, no-bank financial development, regulation and supervision, financial openness, and institutional quality. The majority of MENA countries experienced financial development from the 1960s through the 1980s. In the 1990s, many continued to experience financial deepening; however, political instability has affected the index values in a few countries. The MENA region ranked well in financial development above the newly industrialised economies of East and Southeast Asia in the 1960s but, it fell considerably behind in the 1980s and the 1990s, as these Asian countries stepped up financial deepening.

Recently, financial deepening has been identified in various stages starting from emergence of banks, stock market, development of fixed income markets and finally the derivative markets and securitisation. In this journey, greater dominance of banks and less participation of other markets has been observed in the Asian financial systems.[2] It can also be understood as a process of increasing the efficiency, depth (e.g. credit intermediation and market turnover), breadth (e.g. range of markets and instruments); and reach (e.g. access) of financial systems (Goyal *et al.* 2011).

The IMF (2012) has documented that financial systems in Low Income Countries (LICs) have grown and inclusion has broadened, but they remain small and relatively undiversified,

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[1] See Hemachandra (2003).

[2] Financial deepening without financial excesses Speech by Hervé Hannoun, Deputy General Manager of the BIS 43rd SEACEN Governors' Conference, Jakarta, 21 March 2008.

suggesting considerable scope for further deepening to reap macro-stability and growth benefits. Some other LICs, on the other hand, have gained little in-depth or diversity, with financial systems remaining rudimentary, pointing to a large reform agenda to address ensuing macro-financial vulnerabilities. On this front, the financing for small and medium enterprises (SMEs) remains a critical policy challenge. Shimada and Ting Yang (2010) examined the financial deepening of SEA countries and found that these economies have been able to improve the soundness of the banking systems and equity markets as well. At the same time they observed a lack of diversity among the domestic intermediaries. Small and medium-sized enterprises cannot access the capital markets, and are faced with a relatively less-developed banking sector. In the domestic bond markets, even relatively large private companies are not able to issue bonds with maturities that are in line with their needs. In the pursuit of financial deepening, Socorro *et al.* (2012) highlighted the key issues related to the development and deepening of ASEAN financial markets. It was found that the smaller ASEAN economies demand a developed banking system, whereas the larger ASEAN countries, where banking systems and the capital markets are relatively well developed, require other dimensions to be developed. He has explored the corporate bond market as an influential component to financial development.

The changes in the real economic activities in the recent past make the existing economic theories suspect in being able to predict the system, so the alternate is to apply exploratory instruments to gain an insight into the behaviour of the system. The Asian economies have experienced a number of changes in the period 1990 onward in the form of ranking and volume of economic activities and especially these changes have remained prominent in the financial sector. The volatile financial performances among the existing challenges demand an insightful analysis of the functions of financial systems of SEA economies for its betterment. The present study is an attempt to measure the financial deepening and its dimensions in the environment which is influenced by economic activities. This diagnosis may help in a better understanding of the changing path of financial deepening in the wake of vibrant policy measures.

For this purpose, four nations of ASEAN are considered as their economies have similar financial structures. The ASEAN group was initially formed by five countries namely, Indonesia, Malaysia, Philippines, Singapore and Thailand in late 1960s, followed by other countries during the 1990s. Presently there are ten countries in this region. The present study quantifies the financial deepening of four economies comprising Indonesia, Malaysia, Philippines and Thailand of the ASEAN region. The finance literature has documented that the countries that have joined the region from the very beginning have comparable financial structures, whereas the same is found missing in the countries that joined later. It is argued that the majority of the latter have to enhance their financial institutions first in the direction of a developed financial system (Socorro *et al.* 2012). Recently, Singapore has been categorised into Newly Industrialised Economies of Asia group along with Hong Kong, Korea and Taiwan. This development prompts the current study to focus on only four economies of the ASEAN region.

3. Economic Performance of ASEAN

This section highlights the economic performance of the Association of East Asian Nations (ASEAN). It utilises various economic indicators *viz.* real Gross Domestic Product (GDP),

capital formation, savings, current account balance and foreign investment to highlight the economic performances of the selected Asian economies. The growth rate of real GDP reflects the size and volume of economic activities in a country. The growth of real gross fixed capital formation reveals the rate of acceleration in the productive capacity and thereby indicates the potential maximum growth of the economy. Experience of the Asian financial crisis and volatility of domestic currency highlights the importance of total foreign reserves in the country. To know the availability of reserves, performance of current account balance is presented along-with foreign direct investment (FDI). To gain an insight into the economic performance of these economies in different periods, the study used data from 1960 to 2011, taking into consideration availability of data. It is divided into different sub-periods. For a better technical comparison, the sub-periods include durations of five years except for the last duration. The aggregate behaviour of economic fundamentals is also presented at the aggregate level for the period from 1960 to 2011. The performance of various economic indicators for these economies is shown in Table 1.

The Indonesian economy grew 2 per cent during 1960-65 and after that it enjoyed an average growth rate of 7 per cent till 1995. The economy embraced outward-oriented strategies in the late 1960s. Financial sector reforms were initiated in early 1980s and major banking sector reforms were set in motion in 1983, but drastic reforms came into existence in 1988. The major challenges that the Indonesian economy had faced is high inflation rate which affected the economy adversely. With the occurrence of the Asian financial crisis, the economy suffered a drastic decline and reached its lowest level of growth of 1 per cent during 1996-2000.[3] Further, it experienced a growth rate of about 6 per cent during 2006-11. In recent years, investment has stabilised and the external sector has also been performing well (Table 1). Savings and investment have shown a similar pattern of economic growth for different periods. Both the indicators are observed for an increase in value in recent years; however, a decline is noticed in the crisis period. Current account is found to be favourable for the economy since mid-1990s. The country has received significant amounts of foreign investment in recent years.

Similar to Indonesia, the Malaysian economy adopted an open economy strategy during 1960-70s. Malaysia has a well developed financial system. The Malaysian stock exchange was established in 1960s and proved to be an important source for corporate finance. Since 1970, the Malaysian banking sector was promoted through liberal policies, and in early 1990s the government launched a financial market liberalisation programme in order to promote Malaysia as a major international financial market. The opening up of the capital account has generated substantial foreign capital in the economy, but the funds were drawn back by the foreign investors with the incidence of the Asian financial crisis. The economy experienced about 7 per cent GDP growth rate up to 1990s and reached the highest level of 9.5 per cent during 1991-95. It might be supported by the accumulation of high capital formation through domestic as well as foreign sources; however the performance of the external sector had remained poor for that period (Table 1). After 1995, the growth rate of the Malaysian economy began to decline and stabilised at 5 per cent, which might be due

[3] The crisis originated from the devaluation of Thai Baht in mid-1997 and further disturbed the exchange rate of other economies too.

Table 1. Economic performance of ASEAN countries

Country	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-2000	2001-05	2006-11	1960-2011
GDP* Growth Rate (%)											
Indonesia	2.03	6.33	7.82	7.93	5.67	7.14	7.87	0.99	4.73	5.86	5.64
Malaysia	6.88	6.11	7.19	8.55	5.15	6.91	9.47	4.99	4.76	4.64	6.43
Philippines	5.23	4.62	5.78	6.07	-1.14	4.74	2.19	3.59	4.60	4.75	4.06
Thailand	7.19	9.16	5.77	8.00	5.45	10.34	8.62	0.64	5.11	3.03	6.27
GFCF as percentage of GDP											
Indonesia	-	-	-	21.95	23.88	26.24	27.01	24.67	20.94	28.73	25.15
Malaysia	16.49	16.61	23.72	25.04	32.74	26.83	39.14	31.92	22.50	20.49	25.29
Philippines	18.44	19.57	19.48	25.86	24.93	18.85	22.12	22.82	20.47	19.16	21.02
Thailand	17.01	22.66	22.93	25.49	27.83	31.82	40.30	28.00	24.94	26.10	26.45
GDS as percentage of GDP											
Indonesia	10.22	6.11	23.86	30.82	30.11	31.90	32.38	28.06	29.88	32.66	25.48
Malaysia	20.65	22.56	24.19	31.11	28.12	33.31	37.85	45.79	42.51	40.59	32.53
Philippines	21.56	21.69	23.62	26.19	20.96	19.01	16.32	15.06	15.66	16.07	19.53
Thailand	17.13	21.60	22.80	22.06	24.35	30.78	35.76	34.30	30.96	32.74	27.10
CAB as percentage of GDP)											
Indonesia	-	-	-	-	-3.60	-2.58	-2.28	1.53	2.49	1.40	-0.45
Malaysia	-	-	-5.15	2.45	-8.17	2.35	-6.49	5.57	10.74	14.93	2.93
Philippines	-	-	-	-4.99	-5.40	-1.74	-3.40	-2.83	0.28	4.07	-1.74
Thailand	-	-	-4.07	-5.40	-5.26	-2.96	-6.42	4.08	1.76	4.14	-1.51
FDI Net Inflows as percentage of GDP)											
Indonesia	-	-	-	-	0.27	0.62	1.41	0.11	0.32	1.63	0.76
Malaysia	-	2.20	3.13	3.11	3.74	2.94	6.98	4.42	2.52	3.37	3.73
Philippines	-	-0.02	0.53	0.42	0.18	1.27	1.68	2.15	1.06	1.27	1.05
Thailand	-	-	0.58	0.40	0.72	1.68	1.51	3.62	3.78	3.43	2.12

Source: WDI, 2012. Note: * Real GDP (US$), GDP: Gross Domestic Product, GFCF: Gross Fixed Capital Formation, GDS: Gross Domestic Saving, CAB: Current Account Balance, FDI: Foreign Direct Investment, - data unavailable.

to a decline in domestic and foreign investment. The saving-investment gap was smaller in 1970s, but has widened for the last decade and is reflected in the surplus current account balance. After the crisis, a decline is observed in the FDI flowing into the economy, but its proportion in relation to GDP is much higher than the other selected economies.

The economy of the Philippines enjoyed the highest growth of 6 per cent during 1970-80 widely regarded as caused by the launching of outward-oriented strategies in the mid-1960s. Investment in the economy has increased for the same period as a result of better credit facilities (Table 1). The economy reported negative growth in mid-1980s, which could be a result of poor performance of the external sector as the trade deficit stood at the highest level of 5.4 per cent for this period. The economic shocks emanating from oil supply might have influenced the growth phenomenon. But the economy recovered soon after and was able to maintain a growth of 4 per cent even in the Asian financial crisis period. The Philippines economy had been less affected by the Asian financial crisis compared to other developing countries. The shielding of the economy from the crisis could be attributed to various prudent regulatory measures adopted by the central bank of Philippines. Interest rate deregulation started in 1980s and a more liberal financial system was introduced in early 1990s. In the initial years of financial reforms, the Philippines had received a small share of capital inflows in relation to other economies, and thus saved herself from the outward plight of the capital which was experienced by other ASEAN economies. In recent years, its improved external sector performance could well be most prominent stimuli to sustain a growth rate of about 5 per cent. The current account balance has improved from a trade deficit to trade surplus, whereas other indicators like investment and savings shows a decline. The growth pattern of the Philippines economy has shown a cyclical pattern under different periods (Table 1). Savings and investment figures indicate a key policy agenda for further improvement in the economy.

Thailand pursued an-outward oriented development strategy by eliminating export taxes and reducing import tariffs in the late 1960s and early 1970s. The economy started its journey with more than 7 per cent GDP growth during the 1960s and maintained its growth pattern by registering a record level growth of 10.3 per cent during 1986-90s (Table 1). This significant growth was accompanied by a continuous increase in savings and investment. Under the financial liberalisation policy in the early 1990s, interest rate ceilings were abolished to enhance the allocative efficiency of savings, and the capital account was opened to allow free flow of trade and investment transactions. Significant performance was realised by the financial sector of the economy with the introduction of these reforms. As a result of opening up of the capital account, FDI increased in the economy after the mid-1990s. During 1996-2000, the economy lost its growth momentum and shifted to its lowest level of growth of less than 1 per cent, despite tremendous growth in the external sector and institutional environment. It might have occurred due to a weaker financial system structure that could not maintain effectively the inflows coming into the economy and ultimately resulting in a financial crisis. After 2000, the economy showed a surge in growth rate, but was again affected in recent years (Table 1). This behaviour may be influenced by the recent global financial crisis. Like Malaysia, the Thai economy may be characterised by a more foreign investment friendly environment. Moreover, all the macroeconomic fundamentals of these economies have exhibited an upward trend.

Among the selected economies, the Malaysian economy achieved relatively stable growth in per-capita real GDP during 1960-97 except for the mid- 1980s. Both Indonesia and Thailand economies are observed to have better per-capita GDP growth during 1970 to 1996. The Philippines economy survived in the challenging economic environment of low per-capita growth rate, and even huge negative growth in the early period of mid-1980s. But the economy suffered less amidst the Asian financial crisis. The economy faced internal challenges and was forced to put in place major economic reforms. The other economies showed a drastic decline in growth during the Asian financial crisis period with Indonesia and Thailand being hit the most. After 2000, the region's economies showed an upward trend in per-capita GDP growth. But the period of global financial and sovereign debt crises has been very challenging for the economies of the group (Figure 1). The behavior of other economic fundamentals of the ASEAN economies can be observed from Figures 2-5.

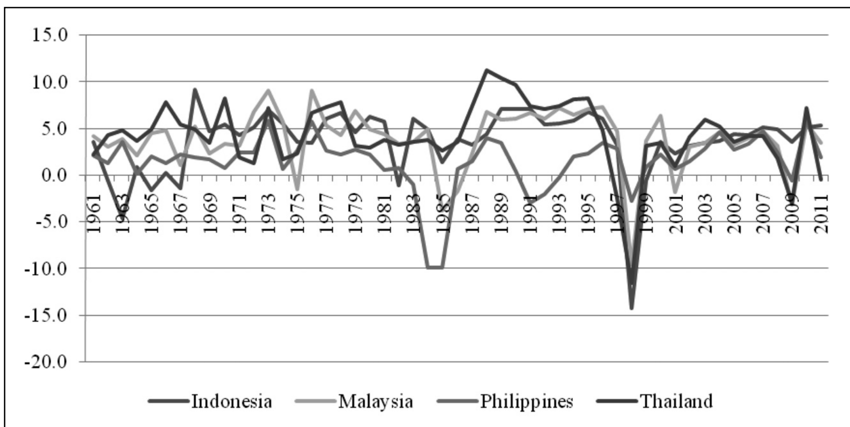

Figure 1. *Growth rates in per-capita real GDP for ASEAN (%)*
Source: WDI 2012.

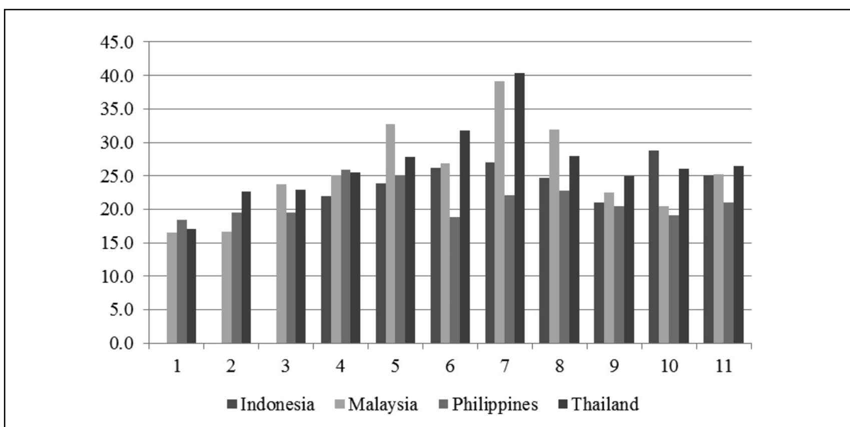

Figure 2. *Gross fixed capital formation as per cent of GDP for ASEAN*
Source: WDI 2012.

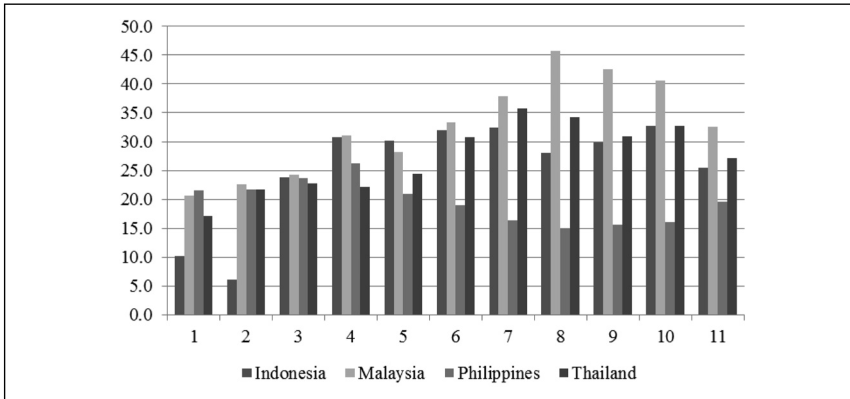

Figure 3. *Gross domestic savings as per cent of GDP*
Source: WDI 2012

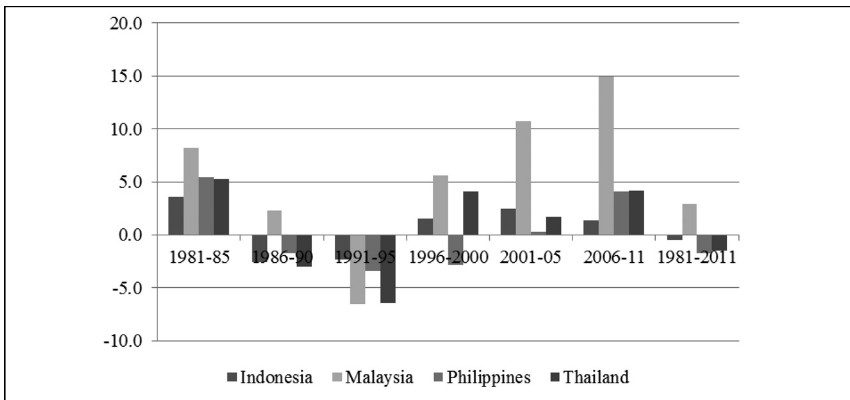

Figure 4. *Current account balance as per cent of GDP for ASEAN*
Source: WDI 2012

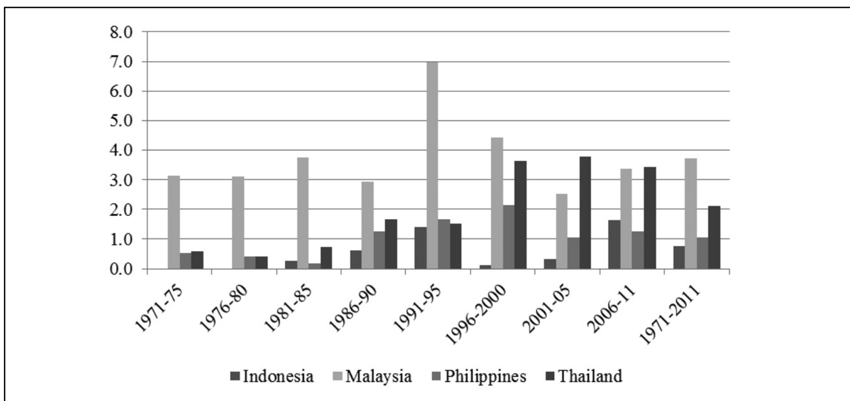

Figure 5. *Foreign direct investment (net inflows) as per cent of GDP for ASEAN*
Source: WDI 2012

4. Methodology

The methodology of the study is presented under the following headings;

4.1. Data Sources and Method

After reviewing the vast empirical literature, the study utilised various measures of financial development in an attempt to incorporate both institutional environment as well as financial markets-based environment. The indicators identified to measure the dimensions of financial development include liquid liabilities, BANK, PRIVATE, PRIVY and credit generated by the banking sector to private sector from the institutional side, and stock traded value ratio (STVR), turnover ratio (TR) and market capitalisation (MC) from the financial market. Liquid liabilities (currency plus demand and interest bearing liabilities of banks and non-bank financial intermediaries), as a percentage of GDP, measure the size of financial intermediaries. It may not be the true proxy or functioning of financial systems but draws attention to identifying the relative role of central banks and commercial banks in creating credit in the economic system. In order to know the functioning of a financial system, financial development indicator BANK defined as deposit banks' domestic credit as a percentage of total assets (central as well as deposit money banks), is used.[4] The information on this variable can be used to identify the advantageous role of commercial banks in relation to the central bank. Moreover, it is also of interest to know the allocation pattern of the credit provided by the banks, particularly whether the credit is going into the hands of the private sector or public sector. It is necessary to identify the quality and quantity of investments that foster economic growth. In order to know the allocation of savings, PRIVATE variable that equals the ratio of credit allocated to private enterprises to total domestic credit (excluding credit to banks) is used. Further, financial development indicator PRIVY is equal to credit provided to private enterprises divided by nominal Gross Domestic Product (GDP). It measures the size of domestic credit provided to the private sector (King and Levine 1993a; 1993b). The assumption underlying PRIVATE and PRIVY measures is that the financial system that allocates more credit to the private sector is more engaged in researching firms, exerting corporate control, providing risk management services, mobilising savings and facilitating exchange than financial systems that simply funnel credit to the government or state owned enterprises (Levine 1997). The study takes into account bank credit to the private sector as a percentage of GDP to measure the activity of financial intermediaries (Beck *et al.* 1999).

The above stated indicators capture the activities of the institutional dimension of a financial system. Financial markets complement the institutions and play a crucial role in ameliorating the liquidity risk and diversifying the risk. It justifies the inclusion of market related indicators of financial development. To measure market size, market capitalisation as a share of GDP is used and defined as value of domestic equities traded on domestic exchanges to GDP (Levine and Zervos 1998). To measure market activity, stock traded value ratio (STVR) is used and is equal to the value of domestic equities traded on domestic exchange to the GDP income (Kunt and Levine 1999). It measures the value of stock

[4] Central bank assets are the summation of IFS lines 12a through 12f while the deposit money bank assets are the summation of IFS lines 22a through 22f (King and Levine 1993a; 1993b).

transactions in relation to the size of the economy. It is frequently used to gauge market liquidity as it tracks trading relative to economic activity. This indicator complements the market capitalisation ratio by matching market size with trading. To measure the efficiency of the stock market, turnover ratio (TR) is used and is equal to the value of trade of domestic equities on domestic exchanges as a share of the value of domestic equity or market capitalisation. The turnover ratio is not a direct measure of trading costs or the ability to sell securities at posted prices, rather it measures the trading relative to the size of the market. It therefore reflects trading frictions and information that induces transaction. Essentially, the present study utilises liquid liabilities as percentage of GDP, BANK, PRIVATE, PRIVY, BCRDT, STVR, TR and MC for measuring financial deepening.

The study is secondary in nature and collected the information of financial indicators (mentioned above) from international sources. These sources include World Bank publication (e.g. World Development Indicators 2012, CD ROM), International Monetary Fund publications (e.g. International Financial Statistics 2012, CD ROM), Asian Development Bank publications (e.g. Key Indicators for Asia and Pacific 2012). Consistent data for different dimensions of financial development (mentioned above) are available from 1988 onwards for the majority of the economies. Hence we are able to evaluate the performance of financial systems of the selected economies for the sample period of 1988-2011. There is scope to consider the data prior to this period, but the major concern is to investigate how the financial system has travelled the journey particularly in the periods of the Asian financial crisis and recent global financial crisis. These two were financial shocks and it would be useful to consider the role of different financial indicators in the overall financial development under the crisis period. To gain better insight, it is divided into sub-periods of 1988-92, 1993-97, 1998-2002, 2003-07 and 2008-11. The period 2008-11 is marked as a period of global financial crisis and sovereign debt crisis. The period 1988-97 is classified as pre-crisis (Asian) and 1998-2011 as post-crisis period.

4.2. Method of Analysis

The Principal Component Analysis (PCA) method is used to compute the financial deepening index for given economies. It utilises the variations among the variables to construct the composite score without losing much information. The principal components which explain more than 80 per cent of communality variation are considered to get the representative composite score. The computed score of PCA for financial deepening is transformed for its mean value of 100 using the method developed by George (1980) for developing the business activity index. The same approach was also taken by Fritz (1984) to compute the financial deepening index for Philippines.

To derive the overall index, two simultaneous equations in two unknowns, C (a scalar to normalise the index) and b (the correlation between two observed variables sharing one common factor) must be solved. The index value is presumed to be zero activity and 100 at mean activity (see George 1980: 29). With standardised data, the index value is assumed to be 0 at 6σ and 100 at mean activity. Thus at mean:

$$F_{t(average)} = \sum_{i=1}^{n} f_i (Z_i + b) \tag{1}$$

where b=6 for minimum value of index; $F_{t(min)} = 0$;

$$= \sum_{i=1}^{n} C\lambda_i (Z_i + 6) = 100 \quad (2)$$

The weight of each variable in constructing the index is defined by the index coefficients g_i where

$$g_i = 100\lambda_i/(6\sum \lambda_i) \quad (3)$$

The overall index is:

$$G_i = \sum_{i=1}^{n} g_i (Z_i + 6) \quad (4)$$

However, in the index of financial deepening, k factors are required to achieve 90 per cent explanation of the communality. The respective variables are weighted based on their relative contributions as measured by their eigenvalues (ω's). When k=2, then combined score is obtained as:

$$GI\text{-}_{ij} = \sum_{i=1}^{n} g_i^1 (Z_i + 6) \frac{\omega_1}{\omega_1 + \omega_2} + \sum_{i=1}^{n} g_i^2 (Z_i + 6) \frac{\omega_2}{\omega_1 + \omega_2} \quad (5)$$

The above methodology enables us to get the financial deepening index by taking into account both types of environment (financial market-based as well as institution-based).

5. Financial Deepening in ASEAN

The resulting financial deepening computed by above mentioned technique for selected economies of ASEAN is explained as follows:

5.1. Indonesia

In the early 1990s, the role of markets in the Indonesian financial system had been meagre in terms of size and liquidity with a value of less than 5 per cent of GDP for both market capitalisation and stock traded value ratio (Table 2). The banks had played a significant role in the early stage of development of the economy. After 1992, the Indonesian financial system had surged in the market-based system as well as institutional environment. With a positive alignment in both the environments (markets as well as institutions), the country could secure a better financial deepening index. This financial growth phenomenon affected the financial crisis period as its overall index decelerated largely caused by poor resource allocation as evidenced from the declining figures of credit allocated to the private sector.[5] Commercial banks' participation in the financial system was also disturbed due to the crisis. After the crisis, it regained its momentum and progressed continuously in recent years (Table 2). However, the financial system requires more attention as the size of both the environments is small and is less active. More importantly, all the financial development indicators have shown stable behaviour even in the presence of the global financial crisis.

To get an aggregate view of the various dimensions of financial development, the PCA is utilised to convert them into single composite index. The results in Table 3 indicate that three factors explain around 90 per cent of the behaviour of the financial development of Indonesia. The variables securing higher weights are BANK (4.3), PRIVATE (4.2) and PRIVY

[5] The economy was badly hit by the Asian financial crisis of 1997-98.

Table 2. Financial development indicators for ASEAN countries (average values)

Variable	Country	1988-92	1993-97	1998-2002	2003-07	2008-2011	1988-97	1998-2011	1988-2011
MC[1]	Indonesia	4.7	26.8	23.0	33.5	37.3	15.8	30.8	24.5
	Malaysia	111.4	249.0	139.4	152.3	132.8	180.2	142.1	158.0
	Philippines	21.4	75.5	50.6	46.7	57.8	48.5	51.2	50.1
	Thailand	33.3	70.1	34.2	77.1	64.1	51.7	58.1	55.4
TR	Indonesia	40.6	41.5	41.4	48.2	60.0	41.1	49.1	45.8
	Malaysia	21.2	67.3	31.1	36.0	31.3	44.3	32.9	37.7
	Philippines	20.7	30.7	24.5	19.5	22.8	25.7	22.2	23.7
	Thailand	97.6	54.2	88.0	84.2	95.0	75.9	88.7	83.3
STVR[1]	Indonesia	1.8	10.7	9.3	14.2	19.4	6.3	14.0	10.8
	Malaysia	21.7	162.2	43.0	50.6	40.1	91.9	44.9	64.5
	Philippines	3.9	22.2	12.2	8.9	12.0	13.1	11.0	11.8
	Thailand	30.0	39.9	28.1	57.0	57.9	34.9	47.0	41.9
M3[1]	Indonesia	36.9	49.3	54.3	43.6	36.5	43.1	45.4	44.4
	Malaysia	96.7	117.0	128.9	124.4	131.7	106.9	128.1	119.3
	Philippines	36.4	56.6	65.3	59.9	58.3	46.5	61.3	55.2
	Thailand	75.0	87.8	114.3	112.2	111.8	81.4	112.8	99.7
PRIVY[1]	Indonesia	40.8	54.1	27.1	25.2	28.7	47.5	26.9	35.4
	Malaysia	105.2	170.0	178.7	124.1	112.1	137.6	140.2	139.1
	Philippines	21.7	46.0	44.2	31.1	29.9	33.8	35.4	34.8
	Thailand	81.4	138.4	119.1	102.3	119.5	109.9	113.2	111.8
Bank Credit[1]	Indonesia	40.7	52.6	57.9	45.5	37.2	46.7	47.5	47.2
	Malaysia	140.3	179.3	193.4	139.8	129.2	159.8	155.9	157.6
	Philippines	24.9	66.0	67.3	52.7	48.9	45.5	56.8	52.1
	Thailand	92.9	142.4	145.4	126.3	139.9	117.7	137.0	129.0
BANK	Indonesia	92.0	97.7	75.3	76.9	86.5	94.8	79.0	85.6
	Malaysia	97.7	94.0	93.6	95.9	96.9	95.9	95.4	95.6
	Philippines	76.7	77.4	88.7	91.1	92.4	77.1	90.5	84.7
	Thailand	93.7	97.0	95.4	97.3	97.3	95.4	96.6	96.1
PRIVATE	Indonesia	100.2	120.9	58.6	55.8	73.1	110.5	61.7	82.1
	Malaysia	90.2	86.8	88.7	89.3	86.8	88.5	88.4	88.4
	Philippines	87.4	66.0	63.1	56.4	60.4	76.7	59.9	67.2
	Thailand	90.4	98.4	80.7	83.7	88.7	94.4	84.1	88.4

Source: WDI and IFS 2012, 1 Percentage of GDP, MC: Market Capitalization, TR: Turnover ratio, STVR: Stock Traded Value Ratio, M3: Liquid Liabilities, PRIVY: Credit to private enterprises, BANK: Commercial banks credit as percentage of total credit, Bank credit: credit generated by banks to private sector, PRIVATE: Credit to private sector as percentage of total credit.

Table 3. Combined score of individual financial variables for ASEAN countries

Country/ Factor	MC[1]	TR	STVR[1]	M3[1]	PRIVY[1]	Bank Credit[1]	BANK	PRIVATE	Eigen values (EV)	EV Proportion	Proportion of Communality
Indonesia											
Factor 1	-0.42	-0.19	-0.41	0.04	0.94	0.09	0.91	0.96	3.03	43.54	0.38
Factor 2	0.41	0.29	0.43	0.92	0.27	0.86	-0.03	0.06	2.10	30.20	0.26
Factor 3	0.52	0.63	0.76	-0.38	0.16	-0.48	0.37	0.22	1.83	26.26	0.23
Combined Weight	0.32	1.28	0.98	0.69	4.35	0.52	4.30	4.24	6.95	100.00	0.87
Malaysia											
Factor 1	0.51	0.74	0.74	0.52	0.86	0.74	-0.71	-0.55	3.72	55.36	0.47
Factor 2	0.70	0.60	0.64	-0.59	-0.30	-0.53	0.12	0.42	2.16	32.19	0.27
Factor 3	0.19	0.02	0.11	0.23	-0.19	-0.06	0.59	-0.58	0.84	12.45	0.10
Combined Weight	6.46	5.51	6.38	0.28	-0.02	-0.73	2.33	-3.54	6.72	100.00	0.84
Philippines											
Factor 1	0.69	0.50	0.79	0.90	0.87	0.94	0.42	-0.60	4.33	60.91	0.54
Factor 2	0.29	0.72	0.58	-0.40	0.12	-0.13	-0.73	0.55	1.95	27.47	0.24
Factor 3	-0.59	0.18	-0.02	0.09	0.33	0.14	0.27	0.48	0.83	11.62	0.10
Combined Weight	1.61	4.87	4.42	0.37	3.22	1.81	-1.88	2.23	7.11	100.00	0.89
Thailand											
Factor 1	0.81	0.09	0.78	0.58	0.54	0.53	0.87	0.25	3.00	42.59	0.37
Factor 2	0.34	0.72	0.57	-0.16	-0.79	-0.79	0.20	-0.08	2.29	32.59	0.29
Factor 3	0.30	-0.36	-0.01	-0.78	0.13	-0.24	0.10	0.91	1.75	24.82	0.22
Combined Weight	158.75	249.58	220.16	-127.28	-293.91	-322.99	85.65	46.71	7.04	100.00	0.88

Source: Authors' computation, 1 % of GDP

Table 4. Financial deepening index for ASEAN countries

Year	Indonesia	Malaysia	Philippines	Thailand
1988	92.9	79.8	88.1	381.7
1989	100.4	84.3	95.7	803.1
1990	110.6	86.1	85.4	744.6
1991	107.4	84.1	88.7	874.1
1992	107.4	94.0	95.7	1638.5
1993	109.9	151.8	104.4	1179.9
1994	114.1	128.9	113.9	340.6
1995	115.6	110.6	112.5	-410.8
1996	118.9	134.4	128.6	-910.8
1997	124.6	115.2	124.0	-2194.5
1998	118.0	91.4	113.0	-1759.5
1999	85.0	95.1	126.2	-763.6
2000	85.3	92.1	101.5	-903.3
2001	82.6	85.7	90.1	64.7
2002	83.2	93.9	87.1	232.7
2003	84.9	101.8	84.2	823.2
2004	88.7	98.7	86.5	657.8
2005	91.1	90.5	89.1	340.8
2006	90.4	94.9	93.1	585.8
2007	96.2	98.7	106.5	14.7
2008	97.5	93.0	92.3	-109.7
2009	99.0	100.0	95.2	211.3
2010	98.0	97.9	97.2	613.6
2011	98.3	97.2	98.5	-54.8
Average Financial Deepening Index				
1988-92	103.8	85.6	90.7	888.4
1993-97	116.6	128.2	116.7	-399.1
1998-2002	90.8	91.6	103.6	-625.8
2003-07	90.2	96.9	91.9	484.4
2008-11	98.2	97.0	95.8	165.1
1988-97	110.2	106.9	103.7	244.6
1998-2011	92.7	95.1	97.2	-3.3
1988-2011	100.0	100.0	99.9	100.0

Source: Authors' computation

(4.4). The other indicators of financial development contribute relatively less to the overall deepening index (Table 3). It implies that the resource allocation pattern of financial intermediaries has a dominating role in financial development. The overall deepening index reflects that Indonesia's financial system was very developed in the late 1980s as the index value was 110.6 in 1990. The financial system had sustained the index score above an average value from 1989 to 1998 (Table 4).[6] Thereafter, the system lost its growth momentum

[6] The index value is presumed to be zero activity and 100 at mean activity. With the data standardised, the index value is assumed to be 0 at 60 and 100 at mean activity.

and index value declined drastically to 85 in 1999, quite a visible impact of the Asian financial crisis. The economy suffered a drastic decline and reached its lowest level of growth of 1 per cent during 1996-2000 largely due to the crisis. It may be inferred that the shock to financial performance has directly halted the growth journey of the country. Since 2001, a positive trend was maintained by the system, but failed to cross its mean value (100) up to 2011. The index value has remained stable even in the presence of the two recent economic shocks - global financial and sovereign debt crises. At the aggregate level, the Indonesian financial system was adversely affected by the Asian financial crisis as the index value declined from 110 during 1988-97 to 92 for the period 1998-2011 (Table 4). Indonesia's financial performance owes more to its banking activities rather than markets as evidenced by the combined weights of financial development indicators (Table 3). These facts may be utilised to make a policy decision for the development of the financial system. As the economy is heavily exploring its resources through institutional environment any improvement in this system can further strengthen the financial system. But on the other hand, there are untapped opportunities for the market-based environment to grow.

5.2. Malaysia

In the era of the early 1990s, the financial system of the Malaysian economy was largely based on institutions, but in mid-1990s, the system began to show signals of moving towards a market-based system. It is observed that the Malaysian economy was blessed with better financial markets specific to size and liquidity before the Asian financial crisis. The market capitalisation ratio had increased from 111 during 1988-92 to a whopping 249 for 1992-97, and stock traded value ratio reached a high of 162 per cent from a low of 22 per cent for the same period. This surge headed the financial system towards a market-based system (Table 2). The Malaysian financial markets received significant amount of inflows by foreign players in the preceding period of the Asian financial crisis, mainly driven by a liberalised financial system. But the financial infrastructure had failed to deal effectively with increased inflows, and with the advent of the Asian financial crisis, the size, activity and efficiency of the market were disrupted. However, performance of the institutional environment has been robust since 1992 despite the financial crisis. Just after the crisis, the system turned towards financial institutions rather than markets as institutions are considered a relatively stable source of meeting the needs of promising projects. However, the institution based system has faced a decline in the dimension of credit allocation over the last decade. In terms of activity of the financial system, the market-based system was too volatile in contrast to institutional environment. After the crisis, the economy's financial market could not achieve its previous level (before crisis) of development in terms of size, activity and efficiency. On the resource allocation front, performance remained stable before and after the Asian financial crisis. The institutional indicators had shown a positive trend from 1998-2011 (post crisis period), but the financial markets' indicators saw a decline for the same period (Table 2). It can be argued that institutional environment served the growing demand of economic agents. The Malaysian financial system had been exposed to the global financial crisis as the majority of the indicators show a dip in the crisis period (2008-11).

Three factors are identified to compute the overall financial development index of the Malaysian economy, which explain 84 per cent variance of the communality. The financial market-based variables carry significant weights in relation to institutional variables as the

weights are almost 6 for both STVR and MC, and 5.5 of TR (Table 3). In contrast PRIVATE and bank credit are holding negative weights leading to a lower value of the overall index. Here, one can argue that the overall Malaysian financial system is relatively more explained by a market-based environment than the institutional environment. The financial system had an index value of 80 in 1988 and attained unprecedented development in 1993 as the index value increased to 152 from 94 in 1992 (Table 4). Subsequently, the economy was able to sustain a high level of financial development but the financial system could not immune itself from the Asian financial crisis as the index value declined from 134 in 1996 to 115 in 1997 followed by less than 100 and even less than 90 in 2001. At the same time, the economy also suffered a dip in growth. The figures suggest that the economy might have been also affected by the global slowdown of 2001. The performance of the financial system was impacted by a drastic decline in market-based indicators. Here, it may be reasoned that the Malaysian financial system is sensitive to the stock market. The size of the market is quite large and should focus on activity and efficiency aspects to further enhance financial performance. In 2003, it showed a positive surge, but again the financial system shifted to the lower side and the index could not achieve its mean value (100). The economy's financial system could not avoid the negative consequences of the financial crisis of 97-98 in the sense that the index value declined to 95 during 1998-2011, from 107 for 1988-97. Further, the system was scarred by the recent global financial crisis and sovereign debt crisis (Table 4).

5.3. Philippines

Due to the smaller size, activity and efficiency of the financial market up to mid-1990s, the Philippines economy had survived. The economy's financial system had been relatively dominated by institutions in the early 1990s, and subsequently the system geared actively towards a market-based system. But the incidence of the Asian financial crisis turned the financial system back towards an institutional environment. The Philippines economy was adversely affected by the Asian financial crisis as the size and activity of the financial market lost their thrust (Table 2). However, the institutions were able to maintain their position in the financial crisis era. On average, the majority of its financial development indicators have shown an upward movement after the crisis (1998-2011). Similar to Malaysia, it has recorded consistent development in the institutional environment except for a marginal decline in recent years. The period 2003-07 did not prove to be a favourable time for the Philippines financial system as all of its financial development indicators except BANK showed a decline from their previous level and hence demand great attention. A policy geared towards improvements in resource allocation and activity in the financial system may be a prudent step in enhancing financial deepening.

The overall financial deepening of the Philippines economy is measured using three factors which explain 90 per cent variance of the commonality. Indicators of the market-based environment hold a significant position with respective weights of 4.8 and 4.4 for market efficiency and market activity indicators, whereas the PRIVY variable holds a weight of 3.22 (Table 3). The weights indicate financial markets playing more roles in shaping the financial deepening of the country. Its financial system was moderately developed in early 1990s as the index value hovered in the range of 85 to 100 (Table 4). The index showed better growth in 1993 as the value stood at 104.4 from its previous level of 96 in 1992. The system had sustained an index value of more than 100 for the following seven years with a slight

decline during the Asian financial crisis. In 2001, the index value declined drastically, reaching 90 from its previous level of 102 in 2000. Thereafter, the financial system lost its momentum as the computed index value was lower than the mean value (100) till 2006. The financial deepening deterioration was mainly caused by very poor response of the market along with the continuous decline in institutional performance. Some improvement is noticed in 2007 as the index value reached 107, but again dipped, perhaps due to exposure to the global financial crisis. As in the case of Indonesia and Malaysia, the Philippines financial system was also adversely affected by the Asian financial crisis as the average index value was 104 before the crisis which decelerated to 97 after the crisis (Table 4). The size and activity of financial market had been on the lower side for the last decade as these measures are about half and one tenth of GDP respectively. The efficiency measure was observed for one fourth of market capitalisation for the same period. As the financial markets indicators are having more weight, the economy should explore options to widen the size, activity and efficiency of financial markets. It also demands improvement in resource allocation as credit allocated to private sector (percentage of GDP) declined significantly from its pre-crisis level(Asian) period.

5.4. Thailand

The Thai financial market had reported a moderate level of development in terms of size and liquidity in the late 1980s, but had shown an upward trend till the Asian financial crisis broke out. The average performance of financial market was affected marginally by the crisis, but maintained its growth momentum during 2003-07 (Table 2). In comparison to financial markets, the performance of its financial institutions had been remarkable over the period of time. The impact of the Asian financial crisis was seen in the resource allocation as credit allocated to the private sector was reduced substantially. The financial crisis proved to be a worsening factor specific to the financial markets and resulted in higher negative values of the financial deepening index (Table 2). The economy has shown stable behaviour in financial development indicators despite the global financial crisis.

Three factors are extracted while computing the financial deepening index, and these factors constitute 88 per cent variance of the communality. Combined weights generated for the system are surprising figures as observed values for financial markets and institutions indicators are moving in opposite directions. Market-based variables like TR, STVR and MC hold weights of 250, 220 and 159 respectively. In contrast from the institutional side, variables like bank credit to private sector, PRIVY and M3 hold minus 323, 294 and 128 weights respectively (Table 3). Overall, the development in the financial system had been very high in the early 1990s mainly due to the institutional environment. The index value was observed to be 81 in 1988 which increased to a whopping 1638 in 1992 (Table 4). This index value is observed to be the highest in the sample period. The economy enjoyed a very favourable financial system as well as the most worst financial scenario in different eras as the highest index value reached 1638 in 1992 and the lowest a negative 2194 in 1997. Broadly, the empirical results may be treated to understand the dynamic structure of a financial system of the economy for different periods. It can be inferred that the Thai financial system was adversely affected by the financial crisis. After struggling in negative territory from 1995-2001, the financial system bottomed out in 2001. It surged very soon as its index value reached a remarkable 823 in 2003. In the following periods, it again moved

downward and the index value reached 15 (much lower than the mean value of 100) in 2007 and even reported a negative value of 110 in 2008. There was a considerable jump in the years 2009 and 2010 but the index value flinched downward in 2011. The volatile behaviour of the index in recent years is a reflection of adverse consequences of the global financial crisis and sovereign debt crisis on the country's financial system. It is also noticed that the index value declined from 244 during the 1988-97 period to negative 3 in the last decade. In brief, the Thai financial system is found to be most volatile among the ASEAN economies (Table 4). Such volatility in index values can be attributed to the financial markets and institutions not moving in the same direction which implies that a remarkable performance in financial markets does not generate positive development in institutional systems instantly and vice-versa. Policy makers need to pay greater attention to formulate policies which develop both the financial environments markets as well institutions simultaneously in order to develop a stable financial system.

6. Conclusion

The ASEAN economies except Philippines had enjoyed improved growth during the 1970-90 period. These economies attempted to maintain the same momentum of growth in the 1990s, but the occurrence of the Asian financial crisis impacted their growth adversely. In the early years of 2000s, these economies created a policy environment supported by international financial institutes which enabled them to recover from the crisis, and maintain better growth in recent years. To improve the financial system, these economies pursued a policy of financial liberalisation in 1980s focusing on a market driven system. This study on the financial systems of ASEAN economies found that each economy differs in terms of size, activities and composition; however they are competing to create a sound and stable financial environment in the region. Malaysia faced tough competition from Hong Kong and Singapore in its goal of establishing itself as an international financial centre, and this environment might have helped the economy to maintain sound development tof individual financial indicators.

Based on the importance of different indicators in the financial deepening index, it is revealed that market-based indicators are boosting the overall financial development in Malaysia, Philippines, and Thailand. To have balanced development of financial systems, these economies are also required to pay attention to improving the institutional environment such as resource allocation indicators in Malaysia and Thailand; commercial banking participation in Philippines and financial institution activity in Thailand. For Indonesia, the financial system is mainly driven by the institutional environment. The aggregate financial development index indicates that Thailand had enjoyed a developed financial system in the early 1990s whereas Indonesia, Malaysia and Philippines had shared such development in mid-1990s. With the advent of the Asian financial crisis, these economies reported substantial decline in the level of financial deepening, and even strove to hold the pre-crisis level of development. The devastating effects of the financial crisis caused these economies to embark on wide ranging efforts such as the development of the bond market, debt market, etc. In the past decade, the regional economies, except Thailand, could not post remarkable growth in financial deepening, but have been able to produce stable behaviour. The resistance of the financial systems towards recent crises indicates that these economies are marching ahead with great caution keeping in view the aim of financial stability. The present needs of

financial stability can be better met by ensuring consistency between market-based and institutional-based environments. Most of the economies of the region are able to maintain stability in the financial system, except Thailand which requires the utilisation of resources for ensuring greater alignment between these two forces of the financial system. The region's economies may utilise their growth experience during the period of 1970-90, which is well supported by a financial system that is driven by the institutional environment. The prudent policies towards strengthening the conventional banking system along with other initiatives with greater regulation may alter the financial system of these economies into a more developed and benefit sharing environment. Relying on the debt market for strengthening the present system is not a good measure as it may also create a volatile situation similar to the recent sovereign debt crisis.

The Asian financial crisis has highlighted the importance of compatibility of financial reform and key macro-economic fundamentals. Further, the effectiveness of financial reforms in establishing a sound self-sustained financial system largely depends on enhancing its basic functions. A developed financial system maintains a balance between savings and investment to realise the benefits of long-term funding while removing the asymmetry of information and moral hazard problems. In this process, there is enough scope for Philippines to increase the level of savings through an active financial system. In Malaysia, where the saving-investment gap is wider, the financial intermediaries can play a crucial role in effectively mobilising the resources towards profitable projects. In terms of size, activity, efficiency and resource allocation pattern of the financial system, the region's economies have improved; however, continuous efforts for further enhancement can prove a favourable option for strengthening the financial systems of these economies.

The major limitation of the study is not incorporating the role played by the non-listed companies, non-banking financial institutions and bond markets. However these limitations themselves provide an opportunity for extending further research on this topic while considering the detailed measures of financial development such as the derivative market, bond market and development of non-banking financial institutions. Also, the study puts forth a key research question of investigating the finance-growth relationship in the recent economic environment for the selected economies.

References

Asian Development Bank. Key Indicators for Asia and Pacific, Asian Development Outlook, Various Issues.

Beck, T., R. Levine and D.A. Kunt. 1999. A New Database on Financial Development and Structure. Policy Research Working Paper 2146. World Bank.

Cheng, Hang-Sheng. 1980. Financial deepening in Pacific Basin countries. *Economic Review,* Federal Reserve Bank of San Francisco, Summer, 43-56.

Creane, S., R. Goyal, A. Mushfiq Mobarak and E. Sab. 2004. Evaluating Financial Sector Development in the Middle East and North Africa: New Methodology and Some New Results. IMF Working Paper 04/201 (Washington: International Monetary Fund).

Dornbush R. and S. Fischer. 1978. *Macro Economics.* Mcgraw-Hill Book Company.

Fritz, R.G. 1984. Time series evidence on the causal relationship between financial deepening and economic development. *Journal of Economic Development* **9**: 91-111.

Fry, M. J. 1995. *Money, Interest and Banking in Economic Development* (2nd ed.). The Johns Hopkins University Press.

Gelbard, E. and Sergio Pereira L. 1999. Measuring Financial Development in Sub-Saharan Africa. IMF Working Paper WP/99/105. IMF

George, Edward Y. 1980. New economic indicators for EI Paso. *Southwest Business and Economic Review* **18(2)**: 1-44.

Ghosh, A. 2006. Pathways through financial crisis: India. *Global Governance* **12**: 413-429.

Goyal, R., C. Marsh, N. Raman, S. Wang and S. Ahmed. 2011. Financial Deepening and International Monetary Stability. IMF Staff Discussion Note SDN/11/16. International Monetary Fund.

Greenwood, J. and B. Smith.1996. Financial markets in development and the development of financial markets. *Journal of Economic Dynamics and Control* **21(1)**: 145-181.

Hemachandra, W. M. 2003. Financial deepening and its implications on savings and investments in Sri Lanka. *Staff Studies* **33(1&2)**: 15-32.

International Monetary Fund. International Financial Statistics Yearbook (Various Issues), World Economic Outlook October 2011, Washington, DC.

International Monetary Fund. 2012. International Financial Statistics, CD ROM.

King, R. G. and R. Levine. 1993a. Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics* **108(3)**: 717-737.

King, R. G. and R. Levine. 1993b. Finance, entrepreneurship and growth. *Journal of Monetary Economics* **32(3)**: 513-542.

Kunt, A.D. and R. Levine. 1999. Bank-based and Market-Based financial Systems: Cross-Country Comparison. Policy Research Working Paper 2143. World Bank.

Levine, R. and S. Zervos. 1998. Stock markets, banks and economic growth. *American Economic Review* **88(3)**: 537-558.

Levine, R. 1997. Financial development and economic growth: views and agenda. *Journal of Economic Literature* **35(2)**: 688-726.

Mathieson D. J. 1980. Financial reforms and stabilisation policy in a developing economy. *Journal of Development Economics* **7**: 359-395.

McKinnon, R. 1973. *Money and Capital in Economic Development.* Washington DC: Brookings Institution.

Park, C. Y. 2011. Asian Financial System: Development and Challenges. ADB Economics Working Paper Series No. 285. Asian Development Bank.

Socorro, M., G. Bautista and E.M. Remolona. 2012. Going Regional: How to Deepen ASEAN's Financial Markets. ADB Economics Working Paper Series No. 300. Asian Development Bank.

Shaw, E. S. 1973. *Financial Deepening in Economic Development.* New York: Oxford University Press.

Shimada, T. and T. Yang. 2010. Challenges and developments in the financial systems of the Southeast Asian Economies. *OECD Journal: Financial Market Trends* **2**: 137-159.

Wijnbergen, V. S. 1982. Stagflationary effect of monetary stabilisation policies: A quantitative analysis of South Korea. *Journal of Development Economics,* **10**: 133-169.

World Bank. World Development Indicators, 2012, Data Catalogue.

Zhai, F. 2010. The Benefits of Regional Infrastructure Investment in Asia: A Quantitative Exploration. ADBI Working Paper 223. Tokyo: Asian Development Bank Institute.