Integration level of equity markets in APEC’s emerging countries: Are emerging markets regionally or globally integrated?

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Abstract

Supported by the investment barriers removal, financial deregulation and improved macroeconomic policies during the last three decades, the process of financial integration in those markets, emerging markets in general and emerging markets within Asia Pacific Economic Cooperation (APEC) in particular, has been pro-actively accessed these days. Moreover, recent trend in globalization in many APEC countries and especially in the emerging markets has triggered a stronger financial integration progress across countries. Nevertheless, it is surprising to find that these countries not only benefited from regional financial integration but also experienced global financial integration in the same period. Markets over the last two decades, which have been highlighted by financial crises occurred among those APEC emerging countries in the early of the year 1997, have raised political, social and economic questions. One of prominent questions among them: “Are emerging markets in APEC regionally or globally integrated?” has raised our interest in measuring the integration level in these countries. Our thesis paper, therefore, seeks to answer the question on the degree of financial integration level in nine APEC emerging countries. Collecting stock indexes from the Chile (Santiago Stock Exchange), China (Shanghai Stock Exchange), Indonesia (Indonesia Stock Exchange), Malaysia (Bursa Malaysia), Mexico (Mexican Stock Exchange), Philippines (Philippines Stock Exchange), Peru (Lima Stock Exchange), Russia (RTS Russian Stock Exchange), Thailand (Thailand Stock Exchange), we compute empirically the integration scores for these nine countries. We then compare the level of global financial integration and regional financial integration for each market during the examined time. Results of this study indicate that our nine sampling countries integrated in different levels. Not surprisingly when we conclude that the financial integration degree of those countries has not been stable over time due to various objective reasons that we also examine through our literature review for individual market.

Keywords: emerging countries, APEC, global financial integration, regional financial integration.
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# Table of Contents

CHAPTER 1 - Introduction .................................................................................................................. 1

1.1 Background ............................................................................................................................... 1

1.2 Research Question .................................................................................................................... 2

1.3 Research Objective and Purpose ............................................................................................. 2

1.4 Rationale for the Study ............................................................................................................. 3

1.5 Disposition of Dissertation ...................................................................................................... 4

CHAPTER 2 - Conceptual Issues/Literature Review ....................................................................... 5

2.1 Financial Integration Concept ................................................................................................ 5

2.2 Integration Approaches ......................................................................................................... 6

2.2.1 The Law of One Price ........................................................................................................ 6

2.2.2 The term structure of interest ........................................................................................... 7

2.2.3 Capital Asset Pricing Model (CAPM) ................................................................................. 7

2.2.4 Black Scholes .................................................................................................................... 8

2.3 Impacts of Financial Integration: Risks and Benefits ............................................................... 8

2.4 Dimension of financial market integration ............................................................................ 11

2.4.1 National, Regional and Global .......................................................................................... 11

2.4.2 Full market segmentation, Mild Market Segmentation and Full Market Integration. 12

2.5 The Determinants of financial Market Integration ................................................................. 14

2.5.1 Market attributes ............................................................................................................. 14

2.5.2 Economic Fundamentals ................................................................................................. 15

2.5.3 World information .......................................................................................................... 15

2.6 The Development of APEC Market Integration .................................................................. 15

2.7 Equity Market Integration Situation in Emerging Countries ............................................... 18

2.8 APEC Emerging Equity Markets .......................................................................................... 20

2.8.1 Chile (Santiago Stock Exchange) ...................................................................................... 21

2.8.2 China (Shanghai Stock Exchange) .................................................................................. 23

2.8.3 Indonesia (Indonesian Stock Exchange) ......................................................................... 25

2.8.4 Malaysia (Bursa Malaysia) ............................................................................................... 27

2.8.5 Mexico (Mexican Stock Exchange) ................................................................................ 30
List of Tables

Table 1 Ranking of Asia-Pacific economies, based on their world market shares, 2008 ..............16
Table 2 Real GDP Growth in APEC Member Economies, 2000 – 2008 (Annual Percentage Change) ................................................................................................................................. 18
Table 3 Summary of Bursa Malaysia's 2009 Initiatives / Events Highlights ...........................................29
Table 4 Stock prices correlation ................................................................................................................43
Table 5 Degree of stock price co-movement increases over time ...........................................................44
Table 6 Differences between Quantitative and Qualitative ................................................................58
Table 7 Descriptive result of market indices' daily returns, 1995-2008 ....................................................68
Table 8 Correlations between individual stock market return and regional and global benchmark respectively. .........................................................................................................................69
Table 9 Adjusted Chile regional and global integration scores ...............................................................74
Table 10 Adjusted China regional and global integration scores ..............................................................75
Table 11 Adjusted Indonesia regional and global integration scores .......................................................77
Table 12 Adjusted Malaysia regional and global integration scores .......................................................79
Table 13 Adjusted Mexico regional and global integration scores ............................................................81
Table 14 Adjusted Philippines regional and global integration scores .....................................................83
Table 15 Adjusted China regional and global integration scores ..............................................................84
Table 16 Adjusted Russian regional and global integration scores ............................................................86
Table 17 Adjusted Thailand regional and global integration scores ............................................................87
Table 18 Investment priorities for region markets .....................................................................................89
Table 19 Investment priorities for world markets .....................................................................................89
Table 20 the differences between regional and global integration scores of respective countries through time ........................................................................................................................................91
List of Figures

Figure 1 Total market capitalization of nine emerging sampling countries, 1995-2008. (Measured in USD millions) .................................................................................................................. 20

Figure 2 Market Capitalization of Santiago Stock Exchange, 1995-2008 (measured in USD) ....... 22

Figure 3 Market Capitalization of Shanghai Stock Exchange, 2002-2008 (measured in USD) ....... 23

Figure 4 Market Capitalization of Indonesia Stock Exchange, 1995-2008 (measured in USD) ....... 25

Figure 5 Market Capitalization of Bursa Malaysia, 1995-2008 (measured in USD) ..................... 27

Figure 6 Market Capitalization of Mexican Stock Exchange, 1995-2008 (measured in USD) ....... 30

Figure 7 Foreign flows to debt markets (measured in millions of USD) ........................................ 31

Figure 8 Pension funds investment in equity and foreign securities .............................................. 32

Figure 9 Domestic debt market in Mexico .................................................................................... 32

Figure 10 Performance of the Philippine stock market ................................................................. 33

Figure 11 Market Capitalization of Philippines Stock Exchange, 1995-2008 (measured in USD) .... 34

Figure 12 Market Capitalization of Peru Stock Exchange, 1995-2008 (measured in USD) ......... 35

Figure 13 Indice General de la Bolsa de Valores de Lima (IGBVL) .................................................. 36

Figure 14 Russian stock Exchange indices 1995–2000 ................................................................. 37

Figure 15 Development of Russian debt market ......................................................................... 38

Figure 16 Russian stock Exchange indices 2000 -2010 ............................................................... 39

Figure 17 Market Capitalization of Russian Stock Exchange, 1995-2008 (measured in USD) ....... 39

Figure 18 Market Capitalization of Thailand Stock Exchange, 1995-2008 (measured in USD) ...... 40

Figure 19 Comparison of Thailand’s capital market situation over time ........................................ 42

Figure 20 Market shares of loans, bonds, and equities ................................................................. 42

Figure 21 Thailand financial openness generally improved but still lagged behind developed economies ......................................................................................................................... 43

Figure 22 Deductive Integration Research Process ........................................................................ 57

Figure 23 Research ‘Onion’ for integration analyses ............................................................. 60

Figure 24 Country indices—annual average (measured in U.S. dollars from 1995 to 2008) .......... 66

Figure 25 Regional versus global integration of nine emerging countries (Unadjusted) ............. 70

Figure 26 Unsystematic risks of nine emerging sampling countries ........................................... 70
Figure 27 Adjusted regional and global integration of nine emerging sampling countries.........72
Figure 28 Adjusted unsystematic risk of nine emerging sampling countries.........................72
Figure 29 Chile regional and global integration, 1995-2008...............................................74
Figure 30 China regional and global integration, 1995-2008..............................................75
Figure 31 Indonesia regional and global integration, 1995-2008.........................................77
Figure 32 Malaysia regional and global integration, 1995-2008........................................78
Figure 33 Mexico regional and global integration, 1995-2008..........................................80
Figure 34 Philippines regional and global integration, 1995-2008....................................82
Figure 35 Peru regional and global integration, 1995-2008...............................................84
Figure 36 Russian regional and global integration, 1995-2008.........................................85
Figure 37 Thailand regional and global integration, 1995-2008.......................................87
CHAPTER 1- Introduction

This chapter is designed to provide readers with a brief understanding about the background behind the topic and the rationale that motivates our study. Research question and purpose are given. Dissertation’s disposition is presented to give the readers to understand the structure of thesis.

1.1 Background

“Think the U.S. is poised on the edge of a recession? Buy emerging markets. Think the U.S. will skate by with only a slowdown? Buy emerging markets.” (Jame Saft, Reuters, 2007)

The aforementioned statement is one of many positive comments on how attractive the emerging markets have been to investors. Particularly the financial crisis started in US in the summer of 2007 did not strongly affect the emerging markets. On the contrary, most of them experienced the stock markets peak in the last quarter of 2007. For instance, Brazilian stock market rose more than 70% in 2007; Indian stock market increased almost 50% in 2007 and Chinese stock market which received an exchange-traded that surged nearly 60%. It has been said that while many developed countries were hit adversely, the crisis did not cause an overall decline in GDP but rather a growth slowdown in emerging markets. Nevertheless, the subsequent “recovery” has been seen to be faster in emerging markets. In any case, there is a very strong evidence that emerging markets are converging rapidly. Those characteristics of emerging markets draw much attention from different perspectives. Analysts have commented that the rise of emerging markets is changing the landscape of the global economy since these markets finally have indicated their potential growth during the recent global recession. Supported by strong growth and rapidly integrating regional trade and production linkage, emerging markets have become the main players of the world economy. Besides the significant influences on global markets as crucial goods manufacturers and main commodities consumers, rapid financial globalization is another force to enhance their financial position in the world. All cited factors combined with the increase of direct investment, financial flows and other forms of financial openness drive the economies of emerging markets increasingly inter-dependent.

Global financial market integration has dramatically increased during the last few decades. Initially, this process reflects clearly in growing capital flows between developed countries to emerging market countries. Moreover, one of the most important factors, that attract investors’ interest toward the emerging markets, is the opportunity to get outstanding return possibilities. In financial world, “high risks and high returns” are often together. However, emerging markets still have been one of selected options to investors because the markets can be used effectively in diversification strategy to reduce risks. In order to know whether a market can be used in diversification effectively, the market should show how different it is in financial integrated level compared to the others. That is to say, if a financial market is low integrated, it is possible to lower portfolio risks by diversification. Therefore, developed market is known to be less effective in cross-country diversification due to their highly financial integration levels. As a result, in response to the global trend, financial integration has consequently spread to emerging countries where the removal of capital controls has been encouraged, the technology progress has increased quickly, the deregulation of domestic financial markets has been expanded, and financial innovation has continuously been developed. In a research investigating the development of financial integration in emerging
market economies, Gurnain (2008, p.20) shows that the integration level of emerging markets has been improved although the progress comparatively slow compared to industrialized countries. According to Garcia-Herrero and Wooldridge (2007, p.57), the financial markets of emerging countries have turned to be increasingly integrated into international financial systems the early 1990s. In addition, the financial markets around the world have become increasingly integrated. At the same time, the co-movements among leading countries have been improved. Both economic theoretical and empirical findings proved that the economic growth has been strongly contributed by the integration and development of financial markets through allocating capital more efficiently and removing investment barriers. The financial integration, therefore, has become an important issue to any country’s economy. Recently, the trend towards increased integration has led to the establishment of various common markets and trading blocs across the globe such as European Union, African Regional Economic Communities (RECs), The Association of Southeast Asian Nations (ASEAN), Asia-Pacific Economic Cooperation (APEC) and The Group of Twenty (G-20). The mentioned establishments have accelerated the pace of the dramatic changes of global financial landscape. The reason behind the formation is to internationalise individual market and open domestic economies. Furthermore, emerging markets appear to be more attractive when the integration comes. For example, the equity capitalization of Mexico in 1985 was 0.71 percent of GDP in 1985 and foreign investors could access it only through the Mexico Fund Trading on New York Stock Exchange. In 2007, this figure rose to 38.9 percent of GDP. In February 2008, 13 percent of total debt-out standing was brought by foreign investors who invested a total amount of USD 25.2 million on local currency government securities and 92 percent of these holdings were in long – term government bonds (Sidaoui, 2008, p. 345).

There have been vast literatures on financial market integration in general. (Bekaert & Harvey, 1995; Bracker, Docking & Koch, 1999; Canjels, Prakash-Canjels & Taylor, 2002; Barari, 2004; Carrieri, Errunza & K. Hogan, 2006, p920; Barari, Lucey & S. Voronkova, 2008; Arouri & Jawadi, 2009) However, there are not many studies mentioning about financial integration within APEC. We are, therefore, on the way observing the changes of financial world, by not ignoring opportunities, through our thesis, to extend the literatures by examining and analyzing the financial integration levels in emerging markets through times. Our scope of research will be limited in emerging markets of APEC area.

1.2 Research Question

Our primary research question is “Are emerging markets in APEC regionally or globally integrated?”

1.3 Research Objective and Purpose

Our objective is to find out integration level degree of emerging countries within APEC region with regional and global markets respectively in the time period of January 1, 1995 to December 31, 2008. The purpose is to see which markets are the most promising in the region, which seem to be lagging behind and which are in moderate pace. In our opinion, with this study, we can provide investors the investment priorities considering the financial integration status of the markets
1.4 Rationale for the Study

"When we speak of Asian integration," says Mr. Madhur, Senior Director, Office of Regional Economic Integration at the Asian Development Bank "we mean regional-integration and global connection. APEC provides a platform for all of this to happen."

Asia Pacific Economic Cooperation (APEC) is one of the most dynamic regions among various economic blocs. Being one of the strongest economic regions, APEC deserves to receive a lot of attention to find out how far the economy can go. According to an updated report in March 2010, APEC Senior Official, Mr. Kurt Tong mentioned that the region accounted for more than half of the global GDP and more than 60 percent of exported products go to the Asia-Pacific. He also said that the top priority in APEC would be the removal of barriers to trade and investment to create more opportunities to receive more investment. Therefore, it is noticeable that markets within Asia Pacific Economic Cooperation (APEC) are getting more integrated among themselves and with the rest of the world. Although some Asia – Pacific countries were lagging behind in the Millennium Development Goal (MDG) which was set up in order to obtain the development goals of the region, many barriers have been slowly removed to promote integration. Nevertheless, the fast growing performance in APEC has attracted huge foreign direct investment. From these aforementioned factors, we are keen on writing the topic on emerging market finance to investigate the degree of globalization or regionalization that the emerging markets within APEC have specifically reached.

In addition, reading some studies analyzing integration levels over a fixed period of time such as asset pricing studies (Errunza, Losq & Padmanabhan, 1992, p.105) studies analyzing integration levels recursively or with events such as asset pricing studies (Barari, 2004, p.655; Lagoarde-Segot and Lucey, 2007, p.79), co-integration studies (Barari, Lucey and Voronkova, 2008, p.869) and integration levels depending on market development and key political, economic and financial events (Lucey and Muckley, 2004, p.1), we want to get in depth understanding on the integration process and levels for emerging markets in APEC. Having stated that the financial integration for countries within this region would be supported by strength the region possesses, we take our interest to examine the financial integration of emerging countries in this area to see how much differences are there among member countries and in related to other countries outside the region. Most of the countries we investigate belonging to Asian countries, which can be argued to perform well since they are being supported by the economic growth of the area. The other countries are also presented and analyzed under the association with socio-economic factors as well.

Some studies have worked on the financial market integration for various purposes. Some of the studies exist on the benefits of investment portfolio diversification (Beaulieu, Gagnon and Khalaf, 2009, p.249; Fratzscher, 2002, p.165; Grubel, 1968, p.1299; Lagoarde-Segot and Lucey, 2007, p.34) while the others assert on contagion once the market becomes integrated (Alper and Yilmaz, 2004, p.353; Tai, 2004, p.381-382; Gray 2009, p.299-300). Within the scope of our thesis, we will purely study the financial integration levels among involved APEC’s emerging economies by computing the integration scores and rank the score that each market gained from the period of 1995 until 2008. Furthermore, we take our interest from data collection to observe the changes during the Asian financial crisis of 1997-1998 and what happened next in the aftermath of it. We also observe the pattern of these countries from the beginning of the recent global crisis that broke out in 2008 and it has been believed that emerging markets have not been affected seriously.
1.5 Disposition of Dissertation

The rest of our dissertation is organized as follows:

- Chapter 2 presents a review of relevant literature on financial market integration including the concepts, the determinants, its measurement and also a brief summary of the integration levels of each emerging market in APEC involved in our study. We also present updated information on individual market so that readers can have a better view on the elements that encourage or prevent the financial integration towards to country’s economy.

- Chapter 3 deals with the background of our thesis idea and describe methodology and data that are employed in our thesis

- Chapter 4 analyzes and discusses the result generated from Akdogan approach on our study as well as integration analysis of individual countries that are involved in our study including the challenges ahead and future efforts recommendations to improve integration levels.

- Chapter 5 consists of the conclusions drawn from our study, limitations and integration direction for the future.
CHAPTER 2- Conceptual Issues/Literature Review

This chapter is designed to present a review of relevant literature on financial market integration including the concepts, the determinants, its measurement and also a brief summary of the integration levels of each emerging market in APEC involved in our study. We also present updated information on individual market so that readers can have a better view on the elements that encourage or prevent the financial integration towards to country’s economy.

2.1 Financial Integration Concept

Financial integration has become a nature in the globalization era today. The goal is to achieve the equalization of rates of returns, unify and integrate respective markets. In general term, “integration” is the process by which segmented markets open up and are unified for participants to enjoy the same unimpeded access to international trade and finance from various markets. This process provides important implications on the benefits of the international portfolio diversification and brings financial stability to a country (Ibrahim, 2005, p100).

There is an increased continuous cooperation from individual market to ensure the markets are gradually integrated. To promote integration, market authorities amalgamate all interest and ensure the policies implemented are able to attain the law of one price which is the equalization of the rate of return on similar assets. The market authorities have implemented policies initiatives such as the removal or reduction of domestic and international control on assets trading to globalize individual financial market. The integration process occurs when the barriers of domestic and international trade in financial assets, goods and services have been removed. In another words, integration happens when markets liberalization and deregulation are implemented. Another sign of integration process is that the government reduces the controls on the market by avoidance or non-enforcement. (Jain. S & Bhanumurthy. N. R 2005, p19) For those reasons, integration is a mix combination among the interest of consumers, investors and financial institution. Consequently, financial market integration brings a tendency for prices of goods, services and financial assets of different markets to converge. This process is highly facilitated through the deregulation, globalization and advances in information technology. To catch up the trend and utilize its benefits, central banks all over the world have sped up the integration level by focusing on developing their financial markets which have been believed that can lead the countries out of recession after some lessons from financial crises during the last few decades.

Obviously, the integration level is more expected to be high for developed financial market than developing countries. However, at the same time, the flexibility of government in emerging markets toward to the globalization lead them to remove the restrictions on pricing of various assets, which is one of the pre-requisites to be of financial market integration. The development of technology on electronic payment and communication systems has decreased the arbitrage opportunities across financial centres dramatically and thereby adding the mobility of funds among countries to be more reachable.

As a result, investors often look forward to the financial integration because it helps rapid flows of fund from “less returns markets” to “high returns markets” and, in this process; it brings about equality in returns. From another perspective, we can say that a market is
completely integrated once the assets that have the same risk characteristics will have the same price although they are traded in different markets. However, when the markets are completely segmented, investors face and price different specific risk. The price of assets will diverge according to the risk characteristic and location of investments. (Boyle.G, 2009, p.1)

In other words, investors’ attitudes towards risk and trade off between risk and return on assets will surely be affected through integration progress.

Financial integration happens under the enforcement of formal international agreements which are signed across countries to promote long term economic growth. When mentioning about a formal international treaty, there are two basically distinct elements should be highlighted. One is the provision on cooperative responses to financial disturbance. The other is financial barrier elimination among member countries. Furthermore, harmonization of regulations on financial systems is strongly advised to implement so that member economies can fully access the regional financial integration on markets, taxes and regulations. (Ho, N.W, 2009, p71) On the other hand, financial integration can emerge without formal international treaty. The process will usually go through silent agreement on sharing financial information, the participation of foreign members in domestic banking industry, the lending from international financial market to domestic firms.

To simply put, in integrated financial markets, domestic investors easily approach foreign assets and foreign investors can trade domestic assets freely. Therefore, regardless of location, among integrated markets, assets that bear identical risk should share the same expected returns.

2.2 Integration Approaches

At the theoretical level, market integration can be explained in several ways. Some popular studies we can rely on are The Law of One Price, Term Structure of Interest Rates, Parity Conditions such as Purchasing Power Parity, covered and uncovered interest parity condition, Capital Asset Price Model (CAPM), Arbitrage Price Theory and Black Scholes’ principle of pricing derivatives. In our opinion, these approaches are chosen instead of the others because they are known to be very basic-related foundation for any financial issue in general and financial integration in particular.

2.2.1 The Law of One Price

The Law of One Price (LOOP), pioneered by Augustin Cournot (1927) and Alfred Marshall (1930), is known as the cornerstone of measuring the financial market integration. The main point of LOOP is referred to as the equilibrium where there is no opportunity for arbitrage. According the LOOP, the specific requirements under this Law are the involvement of perfect information, homogenous commodities and the absence of taxes, transportation costs, externalities, and transaction fees and so forth. In integrated markets, LOOP states that the expected returns on identical assets should be generated comparably among countries regardless of location. Under the regime of LOOP, once the equilibrium of price is violated among sellers, the equality of price will be quickly and smoothly restored. Basically, the market is known to be completely integrated once the LOOP holds. According to Chen and Knez (1995, p.287), there are two notions of “integrated market”. First, we can say the two markets cannot be integrated, in any sense, if the prices for the same products or the return for the same portfolio are generated differently. Second, there is no market integration once
the opportunities of arbitrage across markets still exit. However, according to a study carried by Asplund and Friberg (2001, p.12) on the holding of LOOP in some markets, identical goods that are sold at the same location even do not have the same price because of the currency exchanges (the data were collected and analyzed from duty free stores in Scandinavia). Therefore, while LOOP provides the basic framework for studying the financial market integration, other studies conducted by Errunza & Losq (1985, p.105), Bekaert & Harvey (1995, p.404), Canjels (2002, p.1-2) on measuring market integration have been done with different arguments to provide alternative principles. These studies also build up the operational linkages among financial market segments.

2.2.2 The term structure of interest

One of the most important subjects that constitute the equilibrium conditions in capital market and has been attracted much considerable attention so far is the term structure of interest rates. Basically, the term structure of interest is generally acknowledged to measure the relationship among the yields of the risk free government securities that differ only from their time of maturity. This study has long been one of the most concerned topics of economists. It embodies the future event of the market by offering a complete schedule of interest rates across time. The term structure of interest rates derived from various versions of expectations hypothesis, the liquidity preference hypothesis and market segmentation hypothesis that help divide market integration into the maturity spectrum such as short, medium and long term period of the financial market. In term of economic literature, the term structure of interest rate is able to provide a lot of useful information about future paths of inflation and growth, which is contribute as a good tool in policy making in most countries.

2.2.3 Capital Asset Pricing Model (CAPM)

As being mentioned above, markets are completely integrated if assets with the same risks have identical expected returns regardless of the market’s location. Risks, in these situations, are referred to the exposure to some common factors of the world. The reward for investors who are willing to take risks should be evaluated on the level of risks they accept to hold. The reward to risks in integrated markets is not important because it is common in these markets. Meanwhile, in other segmented, reward to risks is not the same because the levels of risk are totally different. In order to test whether the presence of fully integrated market exists, the asset pricing theory - Capital Asset Pricing Model (CAPM) that first was expounded by the Nobel prizewinner, William Sharpe (1964) and other theoreticians such as Lintner (1965), Mossin (1966), Treymor (1965) and Black (1972) have been widely used. This financial theory has dominated the academic literature and influenced greatly the practical world of finance and business. Four decades later, CAPM has been employed in different applications such as portfolio selection, mispriced stocks, measuring portfolio performance, determining the cost of capital and gauging the extent of integrated markets through beta. A central tenet of this model assumes the equilibrium conditions prevail. In this model, systematic risk, as measured or defined by beta, is the only factor that can affect the level of required return on a share for completely diversified investors. The CAPM contemplates the linkage between market instruments and risk free instruments such as government securities. However, this model is created on the foundation of a number of assumptions that are clearly unrealistic such as there are no taxes or transaction costs, investors are identical and information is freely available. In addition, according to Tobin (1958), the most efficient portfolio must be the
market portfolio. And all investors are assumed to hold the market portfolio in combination with risk-free lending and borrowing, leveraging or deleveraging in order to obtain the desired level on rate of returns based on the risks that they accept to take (Glen Arnold, 2008, p.285). As found out by Stulz (1999, p.12), financial integration should be associated with a decrease in the risk premium in equilibrium. Consequently, expected returns on equity and the cost of capital will be reduced. The study has been employed by earlier studies on financial market integration to assess the degree of market segmentation.

### 2.2.4 Black Scholes

The fourth principle, Black and Scholes (BS) (1973) is commonly known as the foundation of modern of option pricing model that links the relationship between derivatives on the one hand and cash/spot market of underlying assets on the other. According to this model, if the parity relation in the put-call parity theorem is ever violated, an arbitrage arises. In Black-Scholes formula, the option value is demonstrated by fair values for options independent of their exchange-traded price (Neil.A. Chriss, 1997, p.28). Black Scholes also assumes that stock, bond and options are fully integrated and there is no market arbitrage opportunity. Furthermore, the forward spot parity is widely used to measure and analyze the relationship between foreign exchange forward and the money market instruments. However, the main assumption made in the BS is there are no transaction costs. Meanwhile, in reality, the price of underlying assets increases proportionally because of the trading costs.

Furthermore, financial market integration is impacted by economic and financial factors which are created through information efficiency, for example, when economic agents form the expectation on new policy and new regime for new development.

### 2.3 Impacts of Financial Integration: Risks and Benefits

According to a report conducted by Reserve Bank of India on Currency and Finance 2005-2006, as being integrated, a market serves, firstly, as a bridge for authorities to transmit important price signals. Secondly, being an efficient integrated market, the country’s economy can highly promote the domestic savings, encourage more investment and therefore, lead to economic growth. Thirdly, financial market integration helps the country emerge as an international or regional financial centre after reaching necessary requisite. Fourthly, financial market integration leads to a stable financial status due to the logical resource allocation, effective competition enhancement and intermediaries’ cooperation. Fifthly, the integrated markets bring more innovations and cost effective intermediation so that the financial services that are offered to members could be accessed easily. Sixthly, integrated financial markets create an efficient information environment and influence on market discipline. Last but not least, market integration encourages the adoption of modern technology and payment systems to improve the quality of financial services. Above have we just mentioned about the importance of financial integration toward the development of a country.

According to the definition given by Baele, Ferrando, Hordahl, Krylova and Monnet (2004, p.6), an integrated financial market is confirmed when all participants experience a single set of rules, enjoy equal access and are treated equally. Therefore, it is undeniable that financial market integration offers many advantages to any potential market that is planning to move
towards to the process. However, a coin always has two sides. So does the financial integration. It provides many benefits but it also involves different kind of risks. Evaluating the risks and benefits that financial integration bears is a complex issue. In order to see a clear picture, it is strongly advised to examine the issue from different angles.

Under perspectives of individual, corporate, institutions or sovereign, the risks and benefits of financial integration can be assessed differently. Being compared to international integration, the benefits brought by domestic integration are not easily measured. However, as the basic layer for any economic growth, the domestic financial integration place a crucial pillar of market-based economy where it promotes domestic savings, allocate risks, reduce external financial shocks, helps achieve a better governance, contribute a more stable economy, lower the volatility of macroeconomic, reduce risk and therefore, gain higher economic growth (Sundararajan, Karacadag & Elliott, 2003, p.3). Consequently, in term of hierarchy, domestic financial integration will come first, followed by global and regional market integration. Thanks to the domestic financial integration, financial market can avoid the risk related to foreign capital, including currency and maturity mismatch (Kose, Prasad, Rogoff & Wei, 2003, p.3). This domestic integration also offers an effective channel for political transmission (Pétursson, 2001, p.2).

Meanwhile, size, composition and quality of capital inflows constitute global integration which provides direct and indirect benefits (Kose et al, 2006, p.52). The integration progress leads to a process of prices convergence on financial assets throughout the world to support an effective fund allocation. On the other hand, the restriction on financial openness prevents the development of the market to the whole world. Arguments will apparently support financial openness for efficiency. The efficiency implies that the financial openness can share the risk smoothly, enhance the positive impact of capital flows on investment, improve macroeconomic discipline as well as bring greater stability to domestic financial system associated with financial openness (Agenor, 2001, p.5). Financial openness brings a chance to domestic markets in term of increasing the degree of efficiency among financial intermediaries through lowering cost and excessive profits; thereby the cost of investment and resource allocation can be improved (Levine, 1996, p.2-3; Caprio and Honhan, p.48, 1999).

An empirical study conducted by Charlie Mccreevy (2007, p.83) on international integration in European countries during the last seven years proved that this process had supported the development of cross-border trade, both intra EU and international as it was mentioned above. Hence, European markets have become more attractive for domestic capital and foreign investments. It also has fostered the competition in the internal market among service providers so that benefits have been offered in terms of lower prices, better quality and more product varieties. In terms of investment, operating costs, products and services, firms were allowed to benefit from economic of scale and scope. Consequently, prices for goods and services have been lower and more innovative products. The market integration also impact on overall macroeconomic when it came to the growth potential among countries in Europe. Coming to the benefits for consumers, the impact of further integration is twofold. Besides the directly positive effect on increased product variety, improved quality and lower prices, consumers can access more investment opportunities, reduce investment cost and gain better returns in a long term period. From this empirical study, with integration, financial stability has been strongly confirmed to be improved. Through it, different sectors meet its financing at lower cost and the process provides the society in financing the major structural economic challenge by recommending more efficient “pan – European markets” in long term.
It is believed that financial integration among countries has two clear positive impacts. It can, on the one hand, enhance the capital allocation efficiently, and on the other hand, help investors diversify different kind of risks. However, through the last global financial crisis, which is widely considered the worst after the Great Depression, a questions mark has been raised to benefits cited and showed the cost of financial integration could be considerable.

Financial market integration also bears some risks and costs. A major one is contagion which can be clearly seen during the financial crises. Tan et al (2009, p5) discovered that the recent credit crunch in 2008 has seriously jeopardised the world economies due to the fact that the ever increasing high financial interdependence between each other. In order to see how contagion works through financial market integration, there are two channels should be mentioned. The first one is “domino effects”, also known as the real channel, where real exposure affects participants in other segments. The second one is the information channel which is caused by lack of accurate and timely information. As a result comes out when the risk of contagion from one market is spread to other markets because of the close linkage among integrated countries then it lead to systemic instability.

There are more potential costs in term of globalization integration associated with the costs for capital flows and cost of fund misallocation that might hamper the growth effects and exacerbate domestic distortions; costs due to the loss of macroeconomic instability, high degree of capital inflow volatility. These costs cause a part to herding and contagion effects. A major risk on the foreign bank penetration is mentioned as one of risks associated with costs (Dadush, Dasgupta and Ratha; 2000, p.57). From empirical studies (Chuhan, Perez-Quiros & Popper, 1996, p.3; Sarno and Taylor, 1999, p.338), direct investment tends to be less volatile than other forms of capital flows. Volatility of capital inflows directly associates with exchange rate instability under flexible exchange rate or impacts on official reserves under a pegged exchange regime. During the expansion of exports, the fluctuation of nominal exchange rate absolutely can affect on it if there is no appropriate hedging technique. On the other sides, the effect of large capital inflow can lead to a fast monetary expansion, cause inflationary pressures, real exchange appreciation and then current account deficit will be impacted.

Observing the previous crises until the current one, there are more conclusions on the side effects of globalization openness in general and contagion in integrated markets in particular. Therefore, some economists have urged that increasing the capital account liberalization and releasing capital flows should be considered carefully because they can have negative impacts on global financial stability (Rodrik, 1998, p.9; Bhagwati, 1998, p.7-8). However, there are other arguments proposed that increased financial openness would increase the opportunity to enhance the level of the country from lower to middle income status (Kose et al., 2006, p.2 & p.21). Basically, in order to utilize the benefits that financial market integration can bring to a segmented market for financial system stability and sustainable economic development, the country obviously should set up well-planned macroeconomic policies, develop strong financial system and implement an appropriate legal framework.

Unlike trade integration of which all benefits are apparent to observe, the financial market integration needs the segmented markets reach the “threshold” of preparedness and resilience of the economy to maximize the full benefits brought by financial integration (Kose et al., 2006, p.32-34). Therefore, a full test should be taken to see whether a country has reached the “threshold” to start its integration process. After that, each country should be aware of its
specific and contextual features to get the optimal integration. It is strongly advised that financial integration needs to be approached carefully and preferably within the setup framework that catches the most outstanding issues of the country. Ideal balance, there appears to have a greater advantage once the country is benefiting the well-managed and appropriate global process that will bring more utilization once combined the effective interventions by the authorities. In fact that no country is freely impacted by external imposed rules. Thus, coming up with the idea to enhance the efficiency of financial sector, fostering competition among institutions and developing a transparent and symmetric dissemination of maximum information to the markets are strongly recommended.

2.4 Dimension of financial market integration

Financial markets are very diverse and not uniform. Some markets are dealing only with local markets such as money and credit market segments which involve participation of local banks and other financial institutions and agencies. But, some other markets are international in nature such as foreign exchange markets or stock markets which require cross listing of securities and participation of foreign financial institution. The risks incurred are also very different from each market. Therefore, financial market integration was introduced to incorporate markets into one.

To measure whether the markets are integrated, there are several characteristics should be noted. Basic theory says that markets are said to be integrated if the law of one price holds. The markets are efficient and market rates can therefore be determined. When markets are integrated, they share common trends and move together in term of rates and returns. The risk adjusted returns on similar assets can therefore be converged across the markets. When the markets are more integrated, the rates of returns should only reflect the fundamental factors such as the differences in term of quality, risk and liquidity on the assets. The returns on financial products are reliable and based on risk and maturity profile of financial instruments. The rates of returns are associated to the reference rate or benchmark. The rates of various segments of financial markets are interconnected. No arbitrage opportunity is available, as the flow of resources from one market segment to another will completely wipe out the chances for gaining profit through arbitrages.

2.4.1 National, Regional and Global

According to Reserve Bank of India (2007), Markets can be said to be integrated in three dimensions, **nationally, regionally** and **globally**. Global and regional market integration has been speeding up in the world economy today since the globalization concept was introduced. It can also take place **horizontally** and **vertically**. Horizontal integration refers to the inter-linkages happened among domestic which is normally happened on local integration and vertical integration happened between domestic markets and international financial markets which usually occur in regionally and globally integration.

**National integration**

Domestic financial market integration requires more horizontal linkages of various segments such as savers, investors and intermediaries. Market interest rate under horizontal integration provides the basic liquidity for the formal financial system and also central banks adopt it to measure the tightness of monetary policy. Domestic markets can only be integrated if intermediaries operate concurrently in various segments.
Regional Integration

At region level, integration refers to the correlation between a given country and the major financial markets serving at that particular region. Economic integration will be easier to be obtained at the region level, as the market makers are mostly concentrated in those particular geographical centers. Regional financial market integration is an important process among all developing financial markets as to strengthen institutions and upgrade local practice so that they are able to compete internationally.

Global integration

The opening up and liberalization of domestic market and institutions to the free cross-border flow of capital and financial service can be said as global financial integration. To achieve that, national standards and laws must be harmonized by the adopting commonly agreed minimum standards or mutual recognition of standards. Barriers such as capital control and taxation must be removed. Not only the barriers, but also the obstacles to the movement of goods and services across border must also be abandoned.

Among the three kinds of geographic integration mentioned above, regional and global integration often receive a lot of attention from investors all over the world. There have been three main forces that drive the broadening and deepening of cross border financial integration (García-Herrero and Wooldridge, 2007, p.58). The first one is the behavior of domestic and foreign participants. The behavior are contributed by the changes in the advanced technology which increase the availability on information then open the capital flow from international market to domestic market. A second driving factor is the policies or regulations implemented by national authorities. This element could be observed through the implementation on opened financial systems and market oriented reforms that authorities from emerging markets in the mid-1980. The result can be said to reach a better achievement when emerging countries continuously have obtain their financial goals. However, the financial crisis affected the removing capital control but the financial system reform has been still continued. The last force is the multilateral action taken by member countries. Many countries have opened doors to welcome more opportunities in cooperating with each other. The international community has developed standards in order to ease the function of different financial systems. Many of them have made effort in order to achieve harmonization with international standard. There are more and more formal trade and investment agreements which offer more strength to regional than to global integration (García-Herrero and Wooldridge, 2007, p. 59). In short, under any kind of integration, the cross-border integration should be encouraged in every country so that more benefits can be gained.

2.4.2 Full market segmentation, Mild Market Segmentation and Full Market Integration

Bekaert & Harvey (1995, p404) adopted Asset Pricing Theories and interpreted market segmentation differently from definition given by Reserve Bank of India. The theories define market segmentation into 3 broad categories:

- Segmented market/ Full Market Segmentation
- Partially segmented market /Mild Market Segmentation
- Integrated market/ Full Market Integration
Segmented Market/ Full Market Segmentation

Capital asset price model which was introduced and discussed by Sharpe (1964), Lintner (1965) and Black (1972), assumed that markets are segmented. They found that United States was completely segmented.

\[
\begin{align*}
E(R_i) &= r_f + \beta_i \left[ E(R_m) - r_f \right] \\
\left[ E(R_m) - r_f \right] &= \gamma(W) \sigma_m^2 \\
E(R_i) &= r_f + \gamma(W) COV(R_i, R_m)
\end{align*}
\]

Full market segmentation focuses on the local risk factor from domestic market portfolio. \(R_i\) represents the required rate of return on firm \(i\)'s stock and \(r_f\) constitutes the risk free rate in the domestic market. Beta is measured by the beta coefficient of firm \(i\) with domestic market portfolio. Market return is taken from the expected return on domestic market.

Partially Segmented Market/ Mild Market Segmentation

Errunza and Losq (1985, p105) found a relationship between segmentation and integration from hybrid CAPM, which was called mild segmentation, means that the markets are neither segmented nor integrated. However the theory was somehow against with some findings which proclaimed that some markets have in fact become more integrated through time.

\[
\begin{align*}
E(R_i) &= r_f + \beta_i \left[ E(R_m) - r_f \right] \\
E(R_i) &= r_f + \gamma(W) COV(R_i, R_m) + \gamma(W) COV(R_i, R_m)
\end{align*}
\]

Under mild market segmentation, foreign investor can only be allowed to hold a subset of domestic securities. Domestic securities can be divided into tradable and non-tradable. Pricing of tradable securities rely on world factor. Non tradable pricing consists of super risk premium which compensates investor for holding non tradable securities.

Integrated Market/ Full Market Integration

The studies conducted by Harvey (1991), Wheatley (1988) and Dumas (1994) on CAPM assumed the markets are perfectly integrated. At completely integrated market, no arbitration opportunity is theoretically available.

\[
\begin{align*}
E(R_i) &= r_{fs} + \beta_{i} \left[ E(R_{m}) - r_{fs} \right] \\
\left[ E(R_{m}) - r_{fs} \right] &= \gamma(W) \sigma_{m}^2 \\
E(R_i) &= r_{fs} + \gamma(W) COV(R_{fs}, R_{m})
\end{align*}
\]

Full market integration focuses on global portfolio return and risk free rate. \(R_f\) and \(R_w\) represent risk free rate and global portfolio returns respectively. Therefore, pricing under full integrated market solely relies on internationally un-diversifiable factors. However, in the end
of the studies, they rejected the hypothesis that the markets are integrated as they found inefficiency in the market. (Bekaert & Harvey, 1995)

Previous researches have suggested 3 assumptions: all markets are perfectly integrated, individual markets are perfectly segmented and local markets are partially integrated with the degree of integration being constant. (Bekaert & Harvey, 1995) Hypothesis of complete integration was rejected in several studies. Also, Erruza, Losq and Padmanabhan (1992, p. 949) conducted the research on the hypotheses of the above 3 assumptions and found out strong evidence to support the hypothesis of mild segmentation especially for emerging countries. Brazil, Chile, Greece, Korea and Mexico were accepted under mild segmentation. Particularly, Mexico was then found to be the most integrated market. However, India, was rejected under mild segmentation hypothesis, was then discovered to be the most segmented market within the samples. Chile, Greece, Korea, and Mexico were rejected under hypothesis of complete segmentation but Argentina and Zimbabwe were both accepted under complete segmentation hypothesis. In some studies, Argentina and Zimbabwe were said to be in the between of mild segmentation and complete segmentation. The results aligned with the outcomes generated by Erruza and Losq. (1985, p.105) Whether the markets are either fully integrated or fully segmented, the degree to which many countries are integrated is time varying. As long as there is a transformation from market segmentation to market integration, valuation of payoff and stock prices return movement will change in respect of the degree of integration improvement. The result may be out of our expectation or may be partially expected. (Bekaert & Harvey, 1995)

2.5 The Determinants of financial Market Integration

It is also important to look at the factors which drive integration. The driving forces such as economic growth, market liquidity, banker system quality, trade intensity, financing openness, overlapping trading hours and common border for stock market integration determine integration level. The most famous studies have classified the determinants into three categories such as market attributes, economic fundamentals and world information.

2.5.1 Market attributes

Market attributes, which play vital roles in determining the integration level, include market development, market performance and market volatility. The better the markets are developed, the higher the capital inflow for portfolio investment. Levine and Zervos (1998) discovered a positive correlation between the stock market development and capital mobility and risk diversification respectively. Market performance can be measured dividend yields differential. Dividend yields differential can explain the degree of market integration being affected by market performance and it can be measured by the different between local and world dividend yields to understand the degree of integration between each other. (Bekaert & Harvey, 2000) Also, dividend yields work closely with cost of capital. From the movement of cost of capital, we manage to know the integration level. Higher dividend yields differential can symbolize lower level of integration with the region and world market. Volatility of stock price has been used to explain stock movement. Many argue that volatility is one of the major factors for the stock market crash. Therefore, volatility can bring effect on market integration. (Bollerslev, Chou & Kroner, 1992, p20)
2.5.2 Economic Fundamentals

Financial markets integration can also be affected by some fundamental factors which can decide the state of economy. The fundamentals include exchange rate volatility and the changes of international currency reserves which decide economy stability, inflation and interest rate which determines price level and the ratio of total trade to GDP which explains trade openness and the ratio of total bloc trade to total trade which measures regional trade intensity. (Collier, Hoeffler, & Pattillo, 2001, p60; Tai. 2004, p390; Chuah. 2004) Economic stability means a lot for market integration development. Economic instability will be an obstacle for the financial development. With an adverse effect on financial development, the volatility of economic fundamentals will worsen integration development.

Price level, which is determined by inflation and interest rate, will affect integration development. High inflation will lead to low investment activities in the region. Higher interest rates work against stock market integration, as they will discourage capital flowing from equity to bond market. Trade openness, which will bring positive effect on GDP growth, contributes positively to market integration. Trade openness represents a close relationship to future economic growth and also indicates economic development level. Therefore, it brings an effect on market integration. (Bekaert & Harvey, 1997 & 2000) Regional trade intensity shows how well the markets are integrated regionally. (Frankel and Wei, 1998) Heaney and Hooper (1999) discovered that world stock market integration is positively related to the existence of economic blocs.

2.5.3 World information

World information has been categorised into three different aspects of information such as world market attributes, world economic stability and world investment sentiments. World market attributes, particularly, includes the information from world market liquidity, world dividend yields and world market volatility. Each of the information will have significant effect on market integration movement. The higher the market liquidity is, the better the market performance gains. It will then lead to a better investment flow across the border. Higher world dividend yield represents better investment climate. Both have positive relationship with market integration. World market volatility, however, negatively impacts on market integration. It is in fact found out that the impact could be also positive after controlling for market size and financial liberalization. (Gerard, Thanyalakpark, & Batten, 2003; Carrieri et al, 2006)

2.6 The Development of APEC Market Integration

Asia Pacific Economic Cooperation (APEC) was established in Jan 1989 initiated by Australia Prime Minister Bob Hawke. APEC is an economic bloc which consists of 21 countries, including Australia, Brunei Darussalam, Canada, Chile, and People’s Republic of China, Hong Kong, Indonesia, Japan, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, The Republic of the Philippines, Republic of Korea, The Russian Federation, Singapore, Taipei, Thailand, United States and Vietnam. APEC’s members are working on the basis of non-binding commitment and they respect dialogue and equality from the views of all members. In contrast of World Trade Organization (WTO) or other economic blocs, APEC has no treaty obligation required of the members and the decisions and policies made within APEC are not mandatory to be undertaken by the members. The goal for the establishment is

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1 Information retrieved from http://www.apec.org
to cooperate on region trade, investment liberalization and facilitation in order to enhance the competitiveness of the region and also economic growth and prosperity in the region. In other words, the formation of APEC is to promote market integration.

We can say that the profits brought by Asia Pacific region have contributed a lot to the world economy. In addition, within Asia Pacific region, there have been more policies and new innovation to enhance and deepen their regional integration. We can say Asia Pacific region plays an important role in the world’s economy because based on the world market share; top five economies in the world are located within Asia Pacific region (As shown in Table 1):

<table>
<thead>
<tr>
<th>Rank</th>
<th>Economy</th>
<th>Import share</th>
<th>Rank</th>
<th>Economy</th>
<th>Export share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>7.10</td>
<td>1</td>
<td>China</td>
<td>9.23</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>4.78</td>
<td>2</td>
<td>Japan</td>
<td>5.05</td>
</tr>
<tr>
<td>3</td>
<td>Republic of Korea</td>
<td>2.73</td>
<td>3</td>
<td>Russian Federation</td>
<td>3.02</td>
</tr>
<tr>
<td>4</td>
<td>Hong Kong, China</td>
<td>2.46</td>
<td>4</td>
<td>Republic of Korea</td>
<td>2.73</td>
</tr>
<tr>
<td>5</td>
<td>Singapore</td>
<td>2.01</td>
<td>5</td>
<td>Hong Kong, China</td>
<td>2.39</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rank</th>
<th>Economy</th>
<th>Import share</th>
<th>Rank</th>
<th>Economy</th>
<th>Export share</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>Micronesia (F.S.)*</td>
<td>0.00056</td>
<td>42</td>
<td>Palau</td>
<td>0.00019</td>
</tr>
<tr>
<td>45</td>
<td>Palau</td>
<td>0.00037</td>
<td>43</td>
<td>Vanuatu</td>
<td>0.00019</td>
</tr>
<tr>
<td>46</td>
<td>Nauru</td>
<td>0.00027</td>
<td>44</td>
<td>Micronesia (F.S.)*</td>
<td>0.00018</td>
</tr>
<tr>
<td>47</td>
<td>Niiue</td>
<td>0.00019</td>
<td>45</td>
<td>Niiue</td>
<td>0.00006</td>
</tr>
<tr>
<td>48</td>
<td>Tuvalu</td>
<td>0.00017</td>
<td>46</td>
<td>Tuvalu</td>
<td>0.00005</td>
</tr>
</tbody>
</table>

Since the formation in 1989, the members regularly attend annual meetings and introduce various policies to stimulate the growth of the region by reducing tariffs and removing other trade barriers, creating efficient domestic economies and increasing export activities. For instance, during the meeting in Bogor, Indonesia in 1994, the leaders agreed to work on ‘Bogor Goals’. The goals emphasized on free and open trade investment in Asia Pacific region by 2010 for industrialized economies and by 2020 for the emerging economies. Also, at the meeting of year 2001 in Shanghai, the leaders agreed to support Doha Development Agenda\(^2\) which proposed during WTO’s meeting and also endorsed Shanghai Accord which was proposed by United States. The purpose was to emphasize the implementation of open market, structural reform and capacity building. The meeting has then led to a decision to improve APEC transparency standards, reduce transaction costs in Asia Pacific Region and embrace trade liberalization policies which relating to information technology, goods and services.

\(^2\) Doha Development Agenda (DDA) is the trade negotiation within the World Trade Organisation. The purpose is to reduce trade barriers around world so that countries can trade globally without any obstacles. The major issues are mainly related to agriculture, industrial tariffs and non tariff barriers, services and trade remedies.
In order to achieve what have already been decided and planned in the Bogor Goals, APEC established ‘Three Pillars’ which help the members strengthen respective economies by sharing resources within the region and obtaining efficiencies the three pillars are mentioned below:

- Trade and Investment Liberalization
- Business Facilitation
- Economic and Technical Cooperation

**Trade and Investment Liberalization**

The members devote to minimize and gradually remove tariff and non tariff trade and investment barriers. They are strongly against protectionism as it will only bring negative effect such as high prices for the goods and services and inefficient marketplace to respective economies. Therefore, Free Trade Area of Asia Pacific (FTAAP) was introduced in 2006 by APEC Business Advisory Council. Due to lack of implementation in Doha Agreement, APEC introduced FTAAP which was more ambitious and complete than the Doha Agreement.

**Business Facilitation**

The job scopes include reducing cost of business transactions, improving access to trade information and ensuring the policies developed parallel with the business strategies. Investors can, therefore, conduct business more efficiently. The cost of business transactions across Asia Pacific region was lowered by 6%. By the end of 2010, the members are hoping to reduce additional 5% in business transaction cost in order to stimulate import and export activities within the region.

**Economic and Technical Cooperation (ECOTECH)**

The function of ECOTECH is to provide training and cooperation to enlarge capacities in all members’ economics in order to take advantage of globalization. Members can enjoy institutional and personal level of training so that they are able to meet the challenges ahead.

With the emphasis of three aspects mentioned above, the members can enjoy training and employment opportunities, large and efficient market place, cheaper goods and services and enhance the opportunities to enter international markets. Since APEC devotes to liberalize the trade activities such as import and export, goods and services can then move freely. The stock market should be more liberalized than before and will gradually be integrated completely. With all the efforts aforementioned, APEC achieved a remarkable growth from 2000 to 2008 (as shown in Table 2):
2.7 Equity Market Integration Situation in Emerging Countries

Neoclassical theory assumes that financial integration can bring more growth to emerging markets because it leads the flow of capital from rich countries to be invested in high growth rate countries but low saving (Giannetti and Ongena, 2009, p.182). Emerging stock markets are always a hot topic to be discussed in many financial researches, particularly the integration level. Thanks to financial liberalization, which has been largely introduced and developed in many emerging countries, triggers the implementation of structural adjustment programs in order to achieve goal to be integrated. In the study conducted by Bekaert and Harvey (1995), emerging markets are not homogeneous and the degrees of financial integration are different from each other due to the differences in intensity and efficiency of those reforms. The extent of emerging stock market integration processes has been very much contributed by the interaction between international, regional and local economic and political variables. (Reserve Bank of India, 2007) For instance, Arouri & Jawadi (2009) studied particularly on Mexico and The Philippines, economic and social stability has significantly contributed to Mexican stock market integration. Whereas, integration in The Philippines has been impacted by many structural reforms, particularly liberalization and privatization since 1985 and country fund since 1989. Also, it was found that integration relationship is significantly more important for Mexico compared to The Philippines.

Bekaert and Harvey (1985) studied about the degree of market integration in emerging countries and concluded that the process is time varying. Several emerging stock markets had become more integrated at the end of the sample test. Adler and Qi (2003) tested the integration level of Mexican market and discovered that a partial integration relationship between Mexican stock market and North American Market. It was also found that the price of common^3^ and specific^4^ sources of risk is significant. Besides, the degree of integration during Mexican crisis in 1994 has been decreased. Bekaert & Harvey (1997) tested Asian and Latin American emerging market and concluded that majority of emerging markets are partially integrated with the world market. The degree of integration was found time varying as well. Carrier el at (2006) contributed the same result align with above study.

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<tbody>
<tr>
<td>Australia</td>
<td>3.4</td>
<td>2.1</td>
<td>4.3</td>
<td>3.0</td>
<td>3.8</td>
<td>2.8</td>
<td>2.8</td>
<td>4.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Brunei</td>
<td>2.9</td>
<td>2.7</td>
<td>3.9</td>
<td>2.9</td>
<td>0.5</td>
<td>0.4</td>
<td>4.4</td>
<td>0.6</td>
<td>-1.5</td>
</tr>
<tr>
<td>Canada</td>
<td>6.2</td>
<td>1.8</td>
<td>2.9</td>
<td>1.9</td>
<td>3.1</td>
<td>2.9</td>
<td>3.1</td>
<td>2.7</td>
<td>0.5</td>
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<tr>
<td>Chile</td>
<td>4.6</td>
<td>3.6</td>
<td>2.2</td>
<td>4.0</td>
<td>6.0</td>
<td>5.6</td>
<td>4.6</td>
<td>4.7</td>
<td>3.2</td>
</tr>
<tr>
<td>China, People’s</td>
<td>8.4</td>
<td>8.2</td>
<td>9.1</td>
<td>10.0</td>
<td>10.7</td>
<td>10.4</td>
<td>11.6</td>
<td>13.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>8.0</td>
<td>0.5</td>
<td>1.8</td>
<td>3.3</td>
<td>8.5</td>
<td>7.1</td>
<td>7.0</td>
<td>6.4</td>
<td>2.5</td>
</tr>
<tr>
<td>Indonesia</td>
<td>5.4</td>
<td>3.6</td>
<td>4.5</td>
<td>4.8</td>
<td>5.0</td>
<td>5.7</td>
<td>5.5</td>
<td>6.3</td>
<td>6.1</td>
</tr>
<tr>
<td>Japan</td>
<td>2.9</td>
<td>0.2</td>
<td>0.3</td>
<td>1.4</td>
<td>2.7</td>
<td>1.9</td>
<td>2.0</td>
<td>2.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Korea</td>
<td>8.5</td>
<td>4.0</td>
<td>7.2</td>
<td>2.6</td>
<td>4.6</td>
<td>4.0</td>
<td>5.2</td>
<td>5.1</td>
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Table 2 Real GDP Growth in APEC Member Economies, 2000 – 2008 (Annual Percentage Change)
Note: Local currency based.
Source: IMF, World Economic Outlook, April 2009.

^3^ World Market and currency risk
^4^ Local market
Kasa (1992) mentioned in his research that stock markets are perfectly integrated over long horizon when they share common stock price movement which is corresponding to the theory of law of one price. He found a long run co-integration relationship between the stock markets. Masih and Masih (1997) mentioned in their study on newly industrialized Asian countries that a long run co-integration relationship between the developed markets and Hong Kong, Singapore, Taiwan and South Korea respectively. Lim, Lee & Liew (2003) measured the integration level within Asian region and found out there was a common force to bring the markets together in the long run.

Kim & Lee (2008) examined the degree of financial integration of East Asian economies and found out that integration increased significantly after Asian Crisis in both regional and global extents. They also examined both real and financial integration. Real integration has been in fast movement due to the increased in intraregional trade among the East Asian economies. The degree of regional financial integration is lower than the extent of real integration in East Asian economies. Integration process within Asia was faster than integration with US. From his study, we found the fact that crisis or contagion can motivate integration level. East Asian Stock prices have moved closely with each other and with US market since crisis. Also, stock prices show the degree of integration financial market of East Asian economies increased substantially after Asian crisis. Ratanapakon and Sharma (2002) conducted event study on five emerging stock indices and showed the degree of integration increased during and after the crisis period.

In the study conducted by Fung, Tam & Yu (2008, p 35), the result showed that massive integration movement has been discovered from year 1994 to 2001 and followed by a slow down from 2002 to 2006 and integration revival appeared again in 2007 to 2008. Jeon et al (2006) discovered the integration level in Easy Asia has been improved and the global factors played vital roles in the realized integration level.

However, Roca and Selvanathan (2001) found no short term and long term co-integration among stock markets of Australia, Hong Kong, Singapore and Taiwan. Phylaktis and Ravazzolo (2000) discovered a lack of integration phenomena during the 80’s for Singapore and Hong Kong. Edda & Brian (2009) discovered high degree of stock market integration for New Zealand and Japan. Stock market of India and Thailand were surprisingly found to be more integrated than Singapore. However, stock market integration for Singapore cannot be confirmed and relied in his study. He also mentioned that Australia and New Zealand are significantly not integrated between each other even though they have strong historical ties and similar economy.

Based on the data from International Financial Corporation for the period of 1976-1992, Harvey (1995) accepted emerging markets are not fully integrated to the world capital market. Chou et al (2002) investigated integration relationship between Asian emerging capital markets and the rest of the world during the period of 1985 to 1996 and found that world capital markets are not integrated. But particularly for Asian emerging market have become more integrated with the world market after 1991. Global integration was rejected due to the segregation of Asian Emerging Markets from the rest of world during 80’s. But, after 1990, Asian emerging markets became well integrated with the world capital market.

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5 Outward oriented economies policies, lower trade barrier and introduce free trade agreement
6 Government promoted cross border financial transaction through financial market deregulation and capital account liberalization.
2.8 APEC Emerging Equity Markets

There was a period of liberalization and transformation going around Asia Pacific region during the beginning of 1990s. The transformation and economic liberalization have triggered a strong wave of remarkable economic growth and high foreign direct investment inflows. Stock market was a direct beneficiary and market capitalization has been gradually increased during that period. Stock market capitalization is often employed to study financial development. However, in measuring market integration, it is seldom included and often neglected the importance toward the integration process. Tan et al (2009, p24) mentioned in the research that market capitalization plays vital role to determine market integration. Stock market capitalization growth rate can tell the size of equity market. Furthermore, in this study, it determines the Asia Pacific integration level and helps restructure the region become an integrated market block.

![Figure 1 Total market capitalization of nine emerging sampling countries, 1995-2008. (Measured in USD millions)](image)

Source: World Federation of Exchange

Figure 1 presents the total market capitalization of nine emerging sampling countries from year 1995 to 2008 measured in USD. The nine emerging sampling countries are basically export driven countries. The stock market capitalization values of these countries fluctuated during the sampling period. According to Figure 1, the total market capitalization has grown up from 665 billion in 1995 to 6,714 billion in 2007. Unfortunately, the Asian financial crisis in 1997 and the recent credit crunch in 2008 have caused serious distortion to the financial market performance and brought severe economic downturn. We noticed a significant shrink on the stock market capitalization value after both crises. The values of market capitalization have experienced doubled reduction. Having said that, a relatively fast recovery from the 1997 Asian financial crisis and the stable and robust movement of the economic during the 2000s which has positively benefited individual stock market will contribute to fast recovery from the recent credit crunch when the markets are integrated. Click and Plummer (2005) discovered integrated markets would easily spread out economic problems among each other but it could also speed up each other’s recovery from crisis.

Besides, according to Datuk Ranjit Ajit Singh (2009, p.26), many of these sampling countries struggle with serious corporate governance issues and require more support from the...
governments, corporate sector, industry players and regulators to improve corporate governance standards, for instance, implementing code of corporate governance practice, improving transparency level and reducing financial reporting gap, to ensure market integration. Furthermore, the markets are still lack of liquidity engaged with high transaction cost.

Therefore, in this section, we present the current degree of regional and global integration of each emerging countries and the effort each market has contributed to the process of financial integration. We will mention, base on our literature review, main indicators that have impacted on financial integration progress. They include:

1. Financial markets.
2. Financial institutions.
4. Others: they will be assessed particularly on individual country to see besides the basic elements that impact on financial integration, there is any indicator that can influence on the development of financial integration.

The equity markets, will be accessed in this chapter, are listed below:

- Chile (Santiago Stock Exchange)
- China (Shanghai Stock Exchange)
- Indonesia (Indonesia Stock Exchange)
- Malaysia (Bursa Malaysia)
- Mexico (Mexican Stock Exchange)
- Philippines (Philippines Stock Exchange)
- Peru (Lima Stock Exchange)
- Russia (RTS Russian Stock Exchange)
- Thailand (Thailand Stock Exchange)

2.8.1 Chile (Santiago Stock Exchange)

Chile has been actively contributing efforts to increase financial integration with regional and world markets since the past decade. They started first integration progress in the mid of 1970s by opening the economy to foreign trade, liberalising capital markets, relaxing interest rate and credit controls but due to the weak institutions and poor macroeconomic fundamental, the liberalization led to a major financial crisis in 1982. The liberalization was considered a success though to end 30 years of financial restriction. The liberalization of capital market had brought a huge inflow of foreign investment to the market since and deepened the market structure in term of size, depth and liquidity.

Recent continuous efforts to encourage market integration included the removal of regulatory burdens and capital gains taxes in the local stock market for international investor. Also, the crises, particularly Asian and Russian crises, happened between 1997 and 1998 have led to the policy framework revision which accelerated integration progress in Chile. The efforts brought not only an increased in shares for both foreign assets and foreign liabilities held by domestic investors but also a commitment to foster solid and efficient regulatory system which reduce the financial relationship constraint between domestic and international investors. (Desormeaux & Cifuentes , 2004, p.1)
Given more profitable investment opportunities by domestic market which resulted from the market policy framework reformation, market became more attractive and market capitalization has then been gradually increased. Figure 2 represents Market capitalization of Santiago Stock Exchange from 1995 to 2008. As its high level of regional and global integration, the market is sensitive and easily affected by the economic events. The fluctuation of Chile market capitalisation from 1995 to 2002 have been very much affected by the effect of several events such as Asian crisis in 1997, Russian Crisis in 1998, September 11 attacks in 2001. However, from year 2002 onwards, market capitalization received stable and dynamic growth from USD 49 billion to USD 212 billion in 2007.

![Santiago SE](image)

Figure 2 Market Capitalization of Santiago Stock Exchange, 1995-2008 (measured in USD)
Source: World Federation of Exchange

The recent Chilean financial market reformation can be categorised into two stages which subsequently introduced in 2001 and 2003. Chilean government introduced ‘three pillar’ capital market reformation project (RMC1) in 2001. Previously, investors had to pay 15% capital gain tax on the sales of stocks purchased through stock exchange. With the imposition of RMC1, the regulation has been eliminated. Market liquidity level has been enhanced and market access has then been improved. In June 2003, CMRII has been introduced to improve competitiveness of the market by upgrading and simplifying the financial system. Besides the removal of capital gains tax, the transaction cost has been widely reduced, greater flexibility has been created and market efficiency level has been improved. The proposed reform improved the efficiency and transparency level of equity market. (United State of America Department of Commerce, 2005)

Errunza, Carriera and Hogan (2007, p.932) discovered Chile was segmented at the beginning of 1990s due to high taxes and holding requirement period for foreign investors. Jong & Roon (2001, p.11) found out that there were 50% of the assets were not available to be traded by both domestic and foreign investors in Chilean Market and concluded the market had a high level of segmentation. Desormeaux, Fernandez and Garcia (2009, p.140) mentioned that the integration process in Chile was impressive from 1998 to 2008 and have deepened the financial linkages between Chile and the rest of the world. Raul Aza (2010), the vice president of Peruvian regulatory agency Conasev, commented that the integration of Peruvian, Chilean and Colombian stock markets will be fully completed by December 2011.
2.8.2 China (Shanghai Stock Exchange)

Since China’s open-door policy has been introduced in 1979 by Deng Xiao Ping, it has gradually improved China’s global presence. A huge inflow of foreign direct investments originated from labour intensive, capital and technology intensive industries help boost Chinese market and transform Chinese economy into a more market oriented economy (Li & Zhang, 2009, p.4). Besides, it has increased the influence of Chinese markets on other countries’ economies. The fast growing size of Chinese equity market and the reduced restriction on market policies have triggered high integration progress in whole Chinese market.

Figure 3 shows market capitalization of Shanghai Stock Exchange from 2002 to 2008. There are two main stock exchanges, namely Shanghai Stock Exchange and Shenzhen Stock Exchange, in mainland China and Shanghai Stock Exchange has larger market size compared to Shenzhen Stock Exchange. It can be observed that market capitalization value has gradually increased. From 2002 to 2005, market capitalization progressed constantly. From year 2006 onwards market capitalization value rocketed to 3,700 billion USD in 2007 and has made Shanghai Stock Exchange the second largest equity market after Tokyo Stock Exchange. The global crisis in 2008 has also negatively affected Chinese market, particularly manufacturing industry whose export business heavily relies on US and western European countries have significantly reduced global demand during the crisis (Li & Zhang, 2009, p.8). Foreign direct investment declined heavily and Shanghai Stock Exchange received only USD 1425 billion market capitalization in 2008.

China has progressively improved its global presence by stimulating and welcoming foreign direct investment. The accession to WTO in 2001 after 15 years of negotiation between WTO and China was a remarkable milestone in promoting global market integration. (World Trade Organisation, 2001) With the WTO accession agreement, China has committed to open its economy and relax its market tighten policies in order to improve market access and provide more predictable market for trade and foreign investment. The commitment included the substantial tariff reduction and the removal of non tariff barriers will improve China’s global integration through time. (Rumbaugh & Blancher, 2004, p.5) After the accession of WTO,
China immediately participated in Free Trade Agreement with the Association of Southeast Asian Nation to promote regional integration. (Bergsten, 2007, p.170)

China placed strict control to its capital outflow which result high saving rate. However, the government now allow market access for domestic investors to foreign bonds and equity markets. Chinese citizens could only acquire 8000 USD before May 2006 but a new quota has been introduced to allow a maximum yearly 20,000 USD foreign exchange purchase. (Hakkarainen, 2006, p.6)

The accession to WTO focuses mainly on international trade but it also significantly affects the Chinese capital market. In order to comply with the WTO accession agreement, an open, efficient, transparent capital market is required. Transformation of equity market can be categorised into 2 major stages (Greenwood, 2001, p.97):

Stage 1: The structured -segmentation of four markets.

Chinese government categorises foreign direct investment into coastal regions and Special Economic Zones (SEZs) are mainly for national investors, who come from Hong Kong and Taiwan. Chinese markets have been divided into different classes, namely A shares are for local fund raising and B shares are for international fund raising.

Stage 2: The subsequent market liberalization of the Chinese stock market

Chinese government liberalised the market by imposing Qualified Foreign Institutional Investor (QFII) in 2002 and Qualified Domestic Institutional Investor (QDII) in 2006. Prior the introduction of QFII, foreign investors were not allowed to trade Yuan-denominated A shares in both mainland stock exchanges. With the introduction of QFII, foreign investors can purchase stakes in Chinese companies which encourage strong interaction between Chinese and regional market as well as the global market. (Tian.G, 2007, p.14) Latest figure released in September 2009 showed a total of 88 foreign institutional investors have been granted permission and yet the access to yuan-denominated “A” shares are still restricted with a maximum quota to USD 30 billion. (China Securities Regulatory Commission, 2009)

QDII allows financial local financial institution investing in offshore financial markets both in equities and bonds market through certain fund management institutions, insurance companies and securities companies which have been consented by China Securities Regulatory Commission. However, certain restrictions are still imposed on the program which restrict the movement of capital and limit domestic investors the access to foreign markets. Chinese government promises to enlarge the scope of QDII program and reduce restriction in the years coming, particularly the introduction of an agreement made in April 2008 between China Banking Regulatory Commission and US Securities and Exchange Committee has given Chinese individuals opportunities to invest in US stock market. (Robinson. K. T & Newman. D. B 2008, p.2)

level of equity markets within Greater China region and concluded each of them were still segmented from each others.

2.8.3 Indonesia (Indonesian Stock Exchange)

The economy of Indonesia is growing and in which the trade and foreign direct investment play vital role stimulating the economy. Indonesia is a member of ASEAN which formulate trade policies to enhance integration among ASEAN member countries. Indonesia is also a member of G-20 major economies which seek for global cooperation on international financial system and promote policies that support international financial stability and encourage regional and global integration. Since 1980s, the rising of Asian emerging equity markets, particularly Indonesia, have brought them huge foreign direct investment by international fund management houses. (Hung and Cheung, cited in Karim, Abdul Majid, Karim 2009, 1995, p.2)

Figure 4 presents market capitalization of Indonesia stock exchange from 1995 to 2008. Indonesia Stock Exchange was named after the collaboration between Jakarta Stock Exchange and Surabaya Stock Exchange in 2007. The size of Indonesia market is relatively smaller compared to other neighbourhood emerging countries such as Malaysia and Thailand. Indonesia suffered from various crises internally and externally from economic, political and social and environmental aspect since 1990s. During 1996 to 1998, Indonesia not only suffered from serious financial turmoil resulted from Asian financial crisis but also experienced serious internal political and security problems. There were severe disturbances on the street and crime rate soared tremendously. The May 1998 riots in Indonesia trigged by the fall of Suharto and partly due to Asian Financial crisis resulted attacks between Indonesian Malays and Indonesian Chinese was the highlight during that period. The social situation was imperative and financial system was fragile at that time. As shown in figure 4, market capitalization fell almost by two thirds from USD 90 billion to USD 22 billion between 1996 and 1998. The growth rate slumped tremendously from 4.7% in 1997 to -13.1% in 1998. (Mansor, 2006, p.424)
Indonesia devotes in promoting regional and global integration with the determination to work align with AFTA, APEC and WTO. The introduction of liberalization package issued in May 1995 which helped reduce tariff up to year 2010 was to stimulate liberalization environment in region. However the reduction of tariff only didn’t cover all sectors. Having been severely affected by Asian Financial crisis in 1997, Indonesia had to accept the financial aids from IMF in order to survive from the difficulties. Therefore, a structure reform program was subsequently implemented to open up the economy. (Haidi, 1999)

Since the 2000s, the impact of September 11 attacks in US, terrorism attack in Bali in 2002, tsunami waves in 2004 and the recent credit crunch in 2007 have put Indonesia in a very difficult social and financial position. It can be observed that Indonesia has been struggling to improve its investment climate and keep welcoming more capital inflow to the market since 2000 as shown in figure 4. The effort Indonesia contributed was rewarded by the highest market capitalization received in the past 10 years. Indonesia received the highest market capitalization up to USD 211 billion in year 2007. It was also due to the merger between Jakarta Stock Exchange and Surabaya Stock Exchange in 2007. (Indonesia Stock Exchange, 2010) Unfortunately, the global crisis in 2007 dragged the economy down and the market capitalization in 2008 was USD 98 billion.

There are some efforts done by Indonesia such as the formation of functioning legal and judicial system, the adoption of internationally acceptable accounting and disclosure standards and the effort to promote competitive processes to reform the market from crisis, increase its competitiveness and stimulate integration level with regional and global market respectively. A significant step worth to be mentioned was the removal of 49% limit on foreign ownership of companies listed on both Jakarta and Surabaya Stock Exchange in 1997. (US Department of Treasury, 1998, p.290)The imposition of 49% limit on foreign ownership was firstly introduced in 1989.

In addition, Indonesia introduced Capital Market Development Program Cluster (CMDPC) from 2006 to 2009 which aim at promoting high financial flexibility to enhance its competitiveness and its integration to both regional and global market. (Asian Development Bank, 2009, p.2) With this program, market capitalization was targeted to be increased 30% by the end of 2009; price information disclosure and financial liquidity to enhance and market transparency level to increase. (Asian Development Bank, 2007, p.2) The policies will improve Indonesia integration level with regional and global market.

However, there are some controversies on the regulation implemented which aims at improving integration level. For instance, the regulation was said to welcome foreign direct investment, but it was in fact implemented against foreign investor. Foreign investors cannot maintain bank accounts in Indonesia unless they agree to pay tax to Indonesia government from their world wide income. In term of corporate governance structure, IMF’s Global Financial Stability Report 2006 pointed the weaknesses in regulatory capacity and legal infrastructure in some emerging countries and Indonesia was also included in the study. The quality of overall regulatory control is questioned. (Kaufmann, Daniel, Kraay and Massimo Mastruzzi, 2006, cited in Park, Y. C & Wyplosz, C 2008, p.27)

We found no much empirical studies which focus on Indonesia financial market and its integration level. Roll (1995, cited in Karim, A. B 2009, p. 2) confirmed that no empirical studies on Indonesia equity market in western scholarly journal. However, there are some studies took Indonesia as one of the sample from a broad discussion on stock market.
integration in Asia Pacific markets. Janakiramanan and Lamba (1998, cited in Karim, A. B 2009, p2) discovered that Indonesian market was relatively segmented. Ibrahim (2005, cited in Karim, A. B 2009, p. 4) concluded that Indonesian stock market was isolated from its neighbourhood emerging markets but integrated to world market.

2.8.4 Malaysia (Bursa Malaysia)

Malaysia has been active in financial sector reform to improve financial system and encourage regional and global financial integration. For instance, New Economy Policy and National Development Policy which are both focused national integration and the recent Third Outline Perspective Plan and Third Industrial Master Plan which are focused towards both regional and global integration. Furthermore, given the privatisation policy and high growth of the country, the market capitalization has increased tremendously. The average market capitalization during 1980s was RM 62 billion and within 10 years market capitalization increased to RM 807 billion in 1996. (Mansor, 2006, p.427) Demirguc- Kunt & Levine (1996, cited in Mansor. H 2006, p.427) ranked Malaysia third in terms of market capitalization growth rate.

![Market Capitalization of Bursa Malaysia, 1995-2008](image)

Source: World Federation of Exchange

Malaysia started its stock trading activities in 1930s when Singapore Stockbroker Association was established to manage securities dealings in Malaya. Malaysia Stock Exchange was subsequently established in 1964. The stock exchange was named as Stock Exchange of Malaysia and Singapore. After the separation of Singapore and Malaysia in 1965, the exchange was divided into Kuala Lumpur Stock Exchange and the Stock Exchange of Singapore. In April 2004, Kuala Lumpur Stock Exchange (KLSE) was renamed as “Bursa Malaysia”. (Bursa Malaysia, 2010)

Figure 5 presents market capitalization of Bursa Malaysia from 1995 to 2008. Prior to Asian crisis, it can be observed that Malaysian equity market experienced a great increase and it was due to the large portfolio investment flowing during the early 1990s. Unfortunately, the Asian financial crisis in 1997/1998 caused financial turbulence in many east and south Asian markets. Malaysia was one of the victims and share prices in Bursa Malaysia fell tremendously. The crisis negatively affected the growth performance from 7.3% in 1997 to -
7.4% in 1998. The crisis didn’t only influence currency and stock market but also spread to banking and real sector. (Mansor, 2006, p.424) As shown in figure 5, the market capitalization reduced more than 68% from USD 305 billion in 1996 to USD 95 billion in 1998. According to historical data, the index soared from 644 points at the end of 1992 to 1275 points at the end of 1993 and remained above 1000 points till middle of 1997. Unfortunately, Asian crisis crashed the market seriously and caused a tremendous drop in Kuala Lumpur Composite Index (KLCI) from 1077 points by the end of June 1997 to 262 in September 1998. (Athukorala, 2001, cited in Mansor. H 2006, p.424) After the crisis, instead of receiving financial aids from IMF, the government introduced various macroeconomic policies such as pegging exchange rate to US dollar, capital control and reflationaly policy in order to restore its competitiveness in regional and global market. Malaysia government employed capital control and pegged RM3.80 per USD in order to overcome the crisis. (Mansor, 2006, p.424) With the introduction of capital control, Malaysian economy recovered and recorded a positive growth of 6.1% in 1999. Furthermore, it has made Kuala Lumpur Stock Exchange one of the fastest growing financial markets in the world for international investors. (Mansor, 2006, p.427) However, whether the market has become a highly integrated equity markets is still doubtful. Capital controls that were imposed after the crisis isolated domestic stock market from volatile financial markets. It plays a vital role in prohibiting equity market integration. It is not a surprise to see that the equity market is still segmented.

As shown in figure 5, Malaysia has attracted huge foreign direct investments during 2000s. However, Malaysia stock market was also affected by September 11, 2001 attacks in New York City as US which was the major importer for Malaysian goods, reduced its imports. (Yeoh, Zainudin and Hooy, 2009, p.6) The impact from this event was lower compared to Asian financial crisis. Before the global crisis in 2007/2008, it had received investment USD 325 billion. Unfortunately, the global crisis in 2008 has negatively affected Malaysian market and brought market capitalization value back to the same level as late 1990s. In order to overcome the crisis, the government introduced two stimulus packages of RM 7 billion and RM 60 billion. (Yeoh et al, 2009, p.7) The usefulness of the packages prevented the market crash but whether it has successfully brought the country out from depression is still questioned.

Malaysia plans to develop its stock market into a broad based capital market which has important regional presence. Malaysia has been developing a corporate governance framework by adopting international-recognised regulatory infrastructures to protect investors.

Malaysia received insufficient supports for the region integration and contributed efforts to actively improve region integration. Namely, CIMB group established a CIMB Asean Research Institute (CARI) which focuses on driving Asean economic and social integration. CARI will focus on some important areas such as Free Trade Agreement, non trade barriers,

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7 The main purpose behind capital control was to separate domestic financial market from volatile portfolio capital flows and speculative activities that seriously affect domestic stabilization policies after crisis. Malaysia had an offshore market for Ringgit during the crisis and it was the main reason behind the exchange rate turbulences as ringgit has been used for speculative purposes. Government therefore restricted the offshore market by stopping repatriation of externally held ringgit deposits to Malaysia after September 1998. Ringgits outside Malaysia are no longer legal tendered. However in Sept 1999, the government implemented exited levies that differ according to whether capital was already in the country or flowing to the country after that date and according to length of stay. This levy system was later modified to make the Malaysian equity market more attractive to international investors.
improving financial market integration, improving and introducing more regulations to ensure market transparency protected. (The star online, 2010) Also, after 1997 Asian financial crisis, Malaysia joined the ASEAN +3 forum to provide high co-operation sustain regional macroeconomic and financial stability and also promote regional financing agreement in 2000 which help improve integration level. The discussion generated a scheme which includes ASEAN SWAP Agreement and network bilateral swap arrangement among members. (Yi, 2005, p.15) The impact of the scheme on integration level is still yet confirmed. In addition, Malaysia established cross border mutual recognition arrangement in place and work closely with regional financial centres. In term of equity market trading system, Malaysia adopts high technology solutions which provide direct market access and market making for the investors. (Bursa Malaysia, 2010)

Bursa Malaysia has contributed effort in several ways to improve its accessibility, enhance its efficiency and develop an internationalised market. Table 3 shows steps Bursa Malaysia took in 2009 for market integration.

![Table 3 Summary of Bursa Malaysia's 2009 Initiatives / Events Highlights](source: Bursa Malaysia, 2010)

Particularly, the enhancement of KLCI to FBM KLCI (FTSE Bursa Malaysia KLCI) in January 2009, a key event in 2009, has shown Bursa’s Malaysia efforts to promote regional and global integration by adopting an internationally accepted index methodology to measure its benchmark index. The improved index employs high speed calculation in every 15 seconds. The previous speed used was 60 seconds. The changes will increase the transparency level, market efficiency and improve credibility. (Bursa Malaysia, 2010)

In term of improving corporate governance structure, Bursa Malaysia introduced new Unified Board for equity fund raising market to enhance its efficiency level in August 2009. With this new board structure, it provides greater certainty and reduces both time-to-market and regulatory cost. The new structure will attract more listings on Malaysia equity market. (Bursa Malaysia, 2010)
2.8.5 Mexico (Mexican Stock Exchange)

Mexico is the biggest Latin American market in APEC region. The country is known to be a friendly market for foreign investors because they have been able to access the financial market since the last two decades due to the reduction of foreign investment barriers. Moreover, in order to enhance the integration of Mexico into the world market, the country recommended the country funds and listed depository receipts (DR) (Mohamed & Jouini, 2009, p.1). There have been various factors that accounted for a high level of financial integration of the Mexican stock market into the world market: improved economic and social stability, financial structure reforms, liberalisation that included a commercial and financial deregulation of economic activities (Mohamed & Jouini, 2009, p.2). Consequently, the only Mexican stock exchange, Bolsa Mexicana de Valores (BVM) which is the second largest stock exchange by market capitalization in Latin America currently, showed an outperformance that was reflected through the strong growth of its capitalization from 1995.

![Figure 6 Market Capitalization of Mexican Stock Exchange, 1995-2008 (measured in USD)](source)

Before 1995, the value of stock market in Mexico was considered the highest in Latin America. It was the 13th place in terms of market capitalization/GDP (Martínez & Werner, 2002, p.5). However, the country was facing with a series of speculative attacks, reflected by the devaluation of peso in December 1994. In order to deal with the 1994-1995 crises, the country implemented stabilization program to guarantee the solvency of the economy. Besides that, the government was responsible to favor the investment environment by promoting the modernization of the financial sector and reducing the investment barriers so that could attract more international investors. In addition to these reforms, the government employed different legal regulation in order to improve the unhealthy situation. Among deregulation, the elimination of restrictions on foreign investment in the financial system was worth to be mentioned because it helped the country access fresh capital and brought technical expertise to the financial industry; the legal reform on deposit insurance framework; a better corporate resolution law; the law on protection creditors’ right (Sidaoui, 2008, p.343). Moreover, it strengthened the integration with North America and tried to benefit from its regional integration within the NAFTA. The relationship with USA was strongly encouraged in order to increase foreign direct investment which reached more than 11 billion US dollars.
in 2000 against 4.4 billion US dollars in 1993. As the result, the capital market of Mexico increased quickly after 2001. Moreover, there were many positive results after the government had implemented various measures so that the country could recover from the financial crises and easily penetrated financial integration. According to a report on Country Strategy Paper (2006, p.8) Mexico became a member of the Asia-Pacific Economic Co-operation (APEC) in 1993. In 1994, it joined Organization for Economic Co-operation and Development (OECD) and in 1995 it became a founding member of the World Trade Organization. Mexico was also one of the founding members of the European Bank for Reconstruction and Development (EBRD). In the meantime, Mexico also improved it regional position through network expansion and regional agreements on trading liberalization. “Trade agreements have been signed with Chile (1992), the US and Canada (NAFTA, 1994), Colombia and Venezuela (1994), Costa Rica (1994), Bolivia (1995), Nicaragua (1997), Israel (2000). During 2000, Mexico also concluded negotiations with the EFTA countries and the so-called Northern Triangle (El Salvador, Guatemala and Honduras). The country is also is a member of the Free Trade Area of the Americas (FTAA).”

Another important component of the process of financial integration is reflected through the number of foreign banks in local financial systems. In Mexico, the participation of foreign banks illustrated through percentage of the total of assets in the system increased from 59.3 percent in 2000 to 85.4 percent in 2007 (Galindo, Izquierdo and Rojas-Suarez, 2010, p.18). Those figures, compared across Latin America countries, indicated that Mexico stood out as the second highest country that had participation of foreign banks in the region. Foreign exchange market was said to be financially integrated when there was no presence of capital controls and an implementation on a floating exchange rate. Therefore, the volume traded and number of participants increased double in 2004-2007 (Sidaoui, 2008, p.344) was a further evidence for the higher degree of financial integration in Mexico. Financial integration with global financial system was presented through a wider base of foreign investors in the local bond and money markets (Figure 7)

![Figure 7 Foreign flows to debt markets (measured in millions of USD)](source: Emerging Portfolio Fund Research. (Sidaoui, 2008, p.346))

Financial integration also means the easy access to foreign equity market for domestic investors. A sharp increase of Mexican investors toward the foreign assets revealed that the country experienced a higher degree of financial integration over years (in this case from 2005-2008).
The non-government peso-denominated bonds issued by foreign entities were another sign to illustrate the degree of financial market integration in Mexico during the last ten years. The euro-peso bonds were equally with peso denominated bonds. This fact, through the chart below, was highlighted to see the market integration development in Mexico clearly.

2.8.6 Philippines (Philippines Stock Exchange)

Philippine is also considered one of the biggest emerging markets in Asia. However, before 1995, the financial system was known for three outstanding problems: an over-value exchange rate, a weak banking system and an insufficient level of reserves (Sachs, Tornell and Velasco., 1996, p.44). Therefore, the capital market became less attractive to foreign investors. The limitation on foreign ownership investment set up by the country was stringent among the countries within Association of Southeast Asian Nations (ASEAN). In order to improve its financial integration process, the country implemented deregulation on financial sectors and improved the infrastructure of information and advanced technology since 1990s. During the liberalization that started in 1960s, as the first phase, different reforms were implemented to help the economy derive net benefits by stimulating the country economic growth. From 1994, the Philippine economy under the new President Fidel Ramos was more opened to international investments in term of ownership restriction, capital market access, and foreign exchange restriction, international equity offerings. However, the financial
growth of this country exhibited an uptrend during the period 2000-2007, illustrated via the peso appreciation (2005-2007), the rise in stock index (2004-2007) and the fall in domestic interest rates (Gonzalez, 2008, p.392).

The Philippine stock market enjoyed a boom in 1999 but the trend no longer existed in the following year because the country faced political and economic challenges. In details, the peso was appreciated relative to the US dollar from 2000 to 2004 but it began to appreciate from 2005. In 2004, the market recovered gradually and posted a very high record during the first six months of 2007. Thanks to strong economic fundamentals, easing US interest rates and net foreign investment inflows (Gonzalez, C.M., 2008, p.393), the growth of stock exchange from 2004-2007 recorded good figures.

![Figure 10 Performance of the Philippine stock market](image)

*Source: Gonzalez, C.M., 2008, p.394*

Furthermore, the country, from 2000-2007, actively participated to various trade agreements within region in order to promote the development of the capital market and stabilize the financial system. Together with other countries in the region, Philippines joined Asian Bond Market Initiative (ABMI) which aims to broaden and deepen the ASEAN+3 region’s capital markets and in order to access find easier; the Chiang Mai Initiative (CM) that aims to support short-term liquidity needs for temporary balance of payment difficulties among member countries; Bilateral Investment Treaties (BITs) which promote investment, Economic and Technical Cooperation (ECOTECH) that aims to assist APEC members reach the Bogor Goals of liberalized trade and investment in the Region, economic partnership agreement (EPA) with APEC member countries. The country has, therefore, benefited from foreign direct investments (FDIs) originating from APEC economies. According to a recent report researched by Medalla et al (2009), member countries imported 80 percent of the country’s export and provided 77 percent of the country’s import needs (p.7), almost 1/3 of the BITs signed by the Philippines involve APEC member economies (p.9). The tight cooperation with APEC also helped Philippines comply with its Standards and Conformance successfully. Among the emerging markets that participate APEC, Philippines is one of the most benefited countries that have earned much advantages within the region cooperation.

Like many other markets, the Philippine economy was impacted and slowed down considerably in 2008 due to the global crisis. However, as many other emerging markets, its economic slowdown was not primarily caused by this crisis but a surge inflation from sharp rise in food and fuel prices plus a lesser extend the US recession (Yap, Reyes, and Cuenc, 2009, p.12). The impact of global crisis was indicated from a sharp drop in equity prices, and
exchange rate volatility (Yap et al, 2009, p.4). Meanwhile, the stock market was actually one of the least markets which was influenced by the global financial crisis in the Asia Pacific region when its main index fell by 24 percent between July 2008 and January 2009 (Yap et al, 2009, p.4). In order to lead the country to avoid the negative effects, the government has responded timely and comprehensively thanks to measures designed to face the financial crisis in 1997. Moreover, regional financial cooperation has been facilitated by consolidating the bilateral and sub-regional free trade agreements through the support of Asian Development Bank (ADB). These ongoing programs such as Chiang-Mai Initiative, Asian Bond Markets Initiative (ABMI) and the Asian Bond Fund (ABF) once again help the country reduce dependence on markets outside APEC and attract foreign investments. This strong cooperation also means the financial integration within region is tightened.

![Philippine SE](image)

*Figure 11 Market Capitalization of Philippines Stock Exchange, 1995-2008 (measured in USD)*

*Source: World Federation of Exchange*

The successful implementation of reforms that promoted liberalization of domestic capital supported by international investors’ interest in country equity market has brought increasing flows of foreign capital to Philippine equity market since 1995. The Philippines posted good figures of capitalization during the period of 1995-2008, with the exception in 2002 and 2008, in tandem with robust growth and positive prospect for the stock exchange. (Figure 11) After relatively being stable for 2 years since 1997 (the Asian financial crisis), the pattern of market capitalization started to show a downtrend for the next 3 years and then uptrend was dominated for next years. However, the impact from global crisis in 2007 reduced the market capitalization dramatically by the end of 2008.

### 2.8.7 Peru (Lima Stock Exchange)

From a small and poor country, Peru witnessed a massive flow of foreign direct capital to its market during the early 1990s thanks to the implementation of stabilization programs and macroeconomic improvement besides its structural reforms. The structural reforms combined with the deregulation of the financial system and capital liberalization opened a door for the country’s economy to access the international financial markets and generated fresh capital inflows that improved the country’s economy. The output growth rate increased from −5.1% in 1990 to 5.3% in 1997 (Renzo, Quispe and Gondo, 2008, p.364). The country’s market capitalization through its Bolsa de Valores de Lima (BVL), the stock exchange of Peru, began to rise up positively.
Figure 12 presents the movement of market capitalization in Peru from 1995-2008 which shows a massive flow of capital after 1995. However, like other countries, Peru also faced with external financial crises that prevented the country from accessing international capital. From 1997, the capital inflows to Peru diminished due to the Asian, Russian and Brazilian crises in 1997, 1998 and 1999 respectively. These international crises had negative impact on the country’s financial capital inflows. In addition, the country suffered significant outflows once there was political conflict caused by the presidential and congressional elections in 2000 and 2001 (Velarde, 2008, p.232). The outflows quickly influenced on financial system and the foreign exchange market but the foreign direct investment increased in the same period (Renz et al, 2008, p.364). Policy responses to capital outflows were implemented through an increase in the short-term interest rate in 1998 that restrained domestic currency depreciation. Meanwhile, other monetary policies, macroeconomic stability programs and government and supervisory measures were employed in order to guarantee the solvency of the banking system. From 2002 to 2007, the country strongly implemented the “macroeconomic stability, the proper management of the exchange rate and a high level of international reserves” (Velarde, 2008, p.233). The country’s market capitalization kept increasing until 2008 when the global financial crisis occurred. The country has recently experienced significant economic growth due to increasing capital inflows supported by high levels of global liquidity and favourable economic conditions during the last 5 years. The stock market index of Peru stock exchange also has had the similar pattern as of market capitalization. It also reflected that there had been a gradual recovery in the stock index in 2003 favoured by the stable macroeconomic environment of price stability, fiscal discipline and financial solvency. Although Peruvian stock index stagnated during 2008 due to global financial crisis, it quickly got back on the growth path in the first quarter of 2009. In 2009, the growth rate of this country reached 9.8% which was one of the world’s fastest rates. The country is predicted to be one of the most prosperous economies and weather the financial crisis better than most other countries in the world. The country economy’s boost can be explained because its growth rate has been contributed much by mining industry, economic activities and the demand of China and India.
Peru was just the first Latin American country to join APEC in 1998, before Mexico in 2002 and Chile in 2004. After joining APEC, the trade volume of Peru had increased 30 percent as up to 2008. Proactively accessing foreign market through APEC to sign a number of bilateral free trade agreements, Peru has exported yearly to Asia around 7 billion US dollars. Currently, being a member of APEC, Peru enjoys a trade surplus with China that facilitates the trade growth to one of the biggest market in the world.

2.8.8 Russia (RTS Russian Stock Exchange)

Russia is one of the biggest emerging markets. According to MSCI Barra, a leading provider of equity market, the big emerging markets outperformed in 2006 was China leading at 59% return in US dollar, second by Russia at 50%, followed by India at 48%, Brazil at 38%, and Mexico at 36%. Russia has been still mentioned in financial world with a deep financial crisis in 1998 after the asset market boom in 1995. During the period of 1995 to 2001, Russia was facing with various financial fluctuations that obviously impacted on the level of financial integration of the country. However, the country, once again, made another surprise to financial world when it could forcefully recover well after that. In the beginning of 1995 to mid of 1997, Russia financial market enjoyed a booming time when the value of its bonds and stocks increased highly besides the fast growth of foreign investors’ participation. Being supported by political victories and different economic reforms that aimed at the monetary stabilization, inflation control and economic transition so as to facilitate the economic growth for the country’s future, the international investors were very optimistic. During this time of period, the Russian financial market witnessed increasing capital flows into the market from USD 6 billion in 1994, USD 13.5 billion in 1995, USD 28 billion in 1996 to USD 40 billion in 1997 (Jithendranathan and Kravchenko, 2002, p.3). In addition, some barriers were gradually removed to foreign investors who would like to access government bond market since 1996 besides the trade regime had been liberalized and all these actions strongly supported for financial integration process; or in 1997, three month financial credits that came to be matured could be raised abroad without permission from Central bank of Russia. Moreover, in 1995, the establishment of Russia Trading System (RTS) facilitated the development of Russian stock market thanks to its trading technologies provided by NASDAQ. In addition, the financial market regulation system was formed based on the model of developed countries where focus on investors’ protection and information
transparency (Mirkin and Lebedeva, 2006, p.5). Before 1998, the barriers of integration of Russia was lower than a lot of developing countries when domestic investors were allowed to invest in foreign equity, although there was some limitation; while foreign investors did not face with difficulties in moving their profits from Russia (Jithendranathan and Kravchenko, 2002, p.5). However, the banking system of the country remained weak because it was incapable to carry out its basic function “market-oriented intermediation between savers and investors in the real sector” (Barisitz, Bogetic, Fungalova, Solanko, Havlik, Invushin, Osakovsky, Revoltella, Lehmann, Nowotny, Valencienne and Sutela, 2009, p. 48).

The financial crisis in 1998 caused by the background of poor fundamental in Russia hit the financial market down. Budget crisis, banking system vulnerability, unstable international market (South Asian market in 1997) and increasing political uncertainty induced foreign investors to continue selling Russian stocks (Lucey and Voronkova, 2005, p.11). Then the Russian banking system was facing the increased claims from foreign lenders and it worsened the situation. The central bank, therefore, had to let the rouble depreciate. The motivation from the crisis drove the country to improve its political and financial stability. Therefore, from mid 1999 to 2001, the government broadened political stabilization, economic reform and fiscal tightening in order to reach a very fast recovery in term of monetary and fiscal conditions. During this recovery, the task of proactive integration was a priority of economic policy, reflected by the quick accession to key international organizations (including APEC in 1998) and the opening of its domestic stock and bond markets. As a result, Russian economy gained the growth back or could say it was increasingly hard to overlook. Output was expanding quickly, exchange rate and currency was stabilized, budget execution was improved and political stability was strongly supported (Barisitz et al, 2009, p.52). The results, obviously, were so good that quickly got the confidence from foreign investors back. In brief, from 2000 onwards, the financial sector and stock market developed very fast because it was very easy for international as well as local investors to access the market. Most of the transactions are traded via Russian Trading System (RTS) and Moscow Interbank Currency Stock Exchange (MICEX). In RTS, there are dominated by international investors because trading is dominated by stock and main currency is US dollar; while local traders focus on MICEX. The stock market became integrated locally that attracted domestic financial companies and small individual investors to participate MICEX. Consequently, the market was known to reduce the opportunities for arbitrage and speculations (Fribourg, 2010, p.8). At the same time, the Russian market became internationally as well with very small impacts from local factors (Fribourg, 2010, p.8).

![Figure 14 Russian stock Exchange indices 1995–2000](image-url)

*Source: Fribourg, 2010, p.11*
Although the slowdown in US and EU economies and financial and political instability in Latin American were highlighted during 2001-2003, the Russian economy grew. Despite the political risk that threatened the investment environment, the overall results for the year were positive thanks to the increasing price of selected blue chips. After the financial crisis in 1998, Russia imposed some restrictions on convertible local currency and levied certain limitation on the ease of domestic investors who invested foreign equity. However, the financial market was still quite open to foreign investors and it was believed that no new barriers imposed on foreign investment in Russia during that time (Jithendranathan and Kravchenko, 2002, p.5).

From 2003, all restrictions for non-resident investors to enter the domestic market were cancelled. This helped the market gain 30% non-resident investors. The bond and stock markets were growing very fast after 2000 thanks to the potential benefits from these emerging markets, the presence of foreign investors and the removal of barriers to global financial world. Gradually, the liberalization in the Russian capital market and currency regime has simplified the access for foreign investors to access the domestic securities market (Mirkin and Lebedeva, 2006, p.22). From 2004, the growing of Russian financial market was said to be one of the most dynamic markets in the world. An easy repatriation of revenues for foreign investors was considered as another unrestricted entry into the market. Besides that improvement, the capital market employed financial engineering to offer various investment tastes to investors that create more space for the country to enhance the financial integration opportunity. As the result, the large increase in volumes determined the meaningful increase of the bond market which was displayed through the chart below (figure 15). At the same time, the trend for the number of traded issues also achieved a high growth.

![Figure 15 Development of Russian debt market](image)

*Source: Mirkin and Lebedeva, 2006, p.9*

Ambitious banking reform has been implemented since 2005 to improve the transparency in the sector. Consequently, Russian banks have already become more transparent under the comments of internal and external factors although there have been much improvements to be done. The growth rate of Russian capital market from 2003 to 2006, which reflected by the six fold increased market capitalization, increased interest from both major international organizations and individual investors to actively join in national IPOs. During this period of time, the up and down situation of the financial markets was strongly impacted by the changes in political system and political issues. Despite the global crisis summer of 2007, the Russian stock market continued to grow. However, from the end of 2008 to 2009, the stock market dropped by 70 percent although this time the market had huge foreign currency reserve which was a lesson withdrawn from the financial crisis. As the main characteristic of Russia is major energy exporter, the country was hit hard by the price of oil, gas and metal.
Moreover, the political uncertainty, reflected by the South Ossetia war in 2008, lack of transparency in banking and unstable economy has made the situation worse. As the result, the capital flight out of Russian in 2008, once again, was an illustration for the foreign investors’ sensitivity toward to political events.

The diagram below indicated the changes of Russian stock indices during 2000 to February 2009. It illustrated the increasing trend after the financial crisis 1998 supported by a lot of barrier removal. Unfortunately, the capital flight in 2008 made the indices drop dramatically. However, the trend has been getting better after that.

![Diagram of Russian stock Exchange indices 2000 -2010](image)

*Source: Fribourg, 2010, p.11*

Coming to market capitalization of Russia stock market, it has been always ranked top of emerging markets once it closed to 1.5 trillion US thanks to the rapid expansion of the domestic oil sector. However, the major supposed to be oil and gas sector contribute a little (6 billion) than capitalization of all other publicly traded companies (Kvint, 2008, p.18). According to Kvint (2008, p.19), the 10 biggest publicly traded companies accounted for 92.12% of the total market capitalization.

![Diagram of Market Capitalization of Russian Stock Exchange, 1995-2008](image)

*Source: World Federation of Exchange*
Figure 17 shows market capitalization of Russian Stock Exchange from 1995 to 2008. It is noticeable that market capitalization value has been gradually increased from 1995. From 2002 to 2005, market capitalization progressed constantly. From year 2005 onwards market capitalization value rocketed to 1.5 trillion US dollars in 2007 and has made Russian stock market capitalization belonged to top ten of emerging markets. However, as the common trend to other emerging markets, Russian market capitalization dropped slightly in 2008 due to financial crisis that started from United States in 2007 and quickly expanded to the world in 2008.

2.8.9 Thailand (Thailand Stock Exchange)

The Stock Exchange of Thailand, also known as SET, still remains having low stock valuation across emerging market in APEC because the investors worry about the country’s political turmoil. The market reflected upswing and downswing trend over time especially after the financial crisis in 1997 (figure 18). Due to the improved investment sentiment and implemented reforms after the financial crisis, the Thai Stock Exchange pushed up market capitalization after 1997. Unfortunately, the market capitalization of the Stock Exchange of Thailand dropped after 1999. The market cap quickly bounced back strongly after that drop and kept the growth rate as high as it can until the US economy plunged into crisis. The market capitalization dropped by as much as half (47.7% in 2008). However, the market capitalization recovered along with other stock markets in 2009 when foreign capital flew back into Asian countries although it was small against the capital outflow in 2008.

![Figure 18 Market Capitalization of Thailand Stock Exchange, 1995-2008 (measured in USD)](Source: World Federation of Exchange)

It is widely known that Thai economy grew at a very satisfied rate between 1960 and 1996 where the average growth was about 7.7 percent annually. The country was known as “East Asian Economic Miracle”. It embarked a period of integration to the world and the region economy. Bekaert & Harvey (1995, p.429) also showed that the level of integration of Thai equity market sharply increased beginning 1986. However, due to some barriers on foreign investors such as the property ownership restriction, the global integration was limited. Moreover, the trend was also shown via the sharp increase on import and export activities across countries in the region. Therefore, before 1996, Thailand’s integration showed a strong
trend in region rather than the global integration. Thanks to economic liberalization, the country enjoyed a great economy success during 1986-1996. However, the restructuring led to the failure in 1997 and prevented the globalization progress. In July 1997, the financial world witnessed the Thai economy was substantially damaged by the collapse of Thai baht that led many countries into a deep recession. Consequently, Thai capital market faced server issues with bond market, equity market, capital mobilization, liquidity and investors. The aftermath issue was not an easy task for the economy to recover well after the hit. In order to response to the crisis, Thailand had to accept the IMF assistance because of a substantial deterioration to the financial system. The Thai government did take several measurements to correct problems in the financial system. At the same time, Thailand has recognized that there should have been more cooperation among countries in terms of economic policy in the region. The capital market of Thailand was known to be limited because it was the bank-centered design under the Thailand’s corporate governance and financing structure. Therefore, Thai government has implemented the restructuring program on its financial systems and has expanded new fiscal policy in order to take the economy out of the recession. During 1998, suggested approaches were carried to restructure the financial sectors such as the central bank injected the liquidity, closed insolvent financial institutions, proceeded the takeovers, restrained regulatory, solved the bad assets and helped the public and private by injecting capital. That can explain how come regional integration became a main force during this time.

It is said that the Thai market recovered well after the financial crisis thanks to external demand from United Stated and other foreign countries. It could be a force that drove the global integration during 1999-2000 higher than regional integration. After that, during the period of 2001-2006, the government under former Prime Minister Thaksin promoted a “dual track” economic policy (which is named this government distinctive policy as “Thaksinomics” - Thaksin’s Economics) that encouraged international competitiveness of the nation combined with domestic stimulus program. As the result, real GDP growth in Thailand increased sharply from 2.2 percent in 2001 to 7.1 percent in 2003 and 6.3 percent in 2004. The Chiang Mai Initiative in 2000 highlighted the need of preventing the currency attacks besides the crisis contagion in the future. This was a crucial initiative for financial cooperation among member countries. Moreover, the bond markets also joined the Asian Cooperation Dialogue in order to strengthen the capital markets in the region and lessen heavy dependence on financial support from other parts of the world. At the same time, Thailand’s economic and financial structure, under the new reform, was compared to the U.S model and was suggested to be brought closer to this model so that it could attract more outside investors not only in the region. This time, the closure of bankrupt financial institution helped to reduce the number of solvent financial institution and the merger and acquisition of unprofitably banks were encouraged. Thus, there are less banks and bigger size than before the crisis. The government, indeed, encouraged the participation from foreign banks so that the financial market could enjoy a better competitive environment and technology upgrading has been promoted. In those years, the Thai authorities involved in the foreign exchange market to reduce the volatility of the nominal exchange rate in short term. Because of this reason, the central bank tightened foreign exchange reporting requirements. During this period, the government recognized the benefits that capital market could yield on banks. Accordingly, the two "capital market development master plans” were set up. The first period started from 2002 to 2005 and the second in 2006 to reach until 2010. Several measures were taken up to promote the capital market so as to make it more attractive to investors and issuers. The result, could be said, was successful when examining the indicators illustrated in the figure 19 after finishing as the time schedule. Meanwhile, the phase 2 is currently being implemented in order to improve the situation to a better stage.
This implementation of this plan contributed to the increasing volume in the bond market which brought finance to the public deficits. The main focus of this plan was then the corporate bond market of which the size was less than 15% of the equity market. The second aim was to increase the share of individual investors so that the low liquidity could be avoided. And the third focus was to support for the second aim when the government concentrated on promoting the increase of institutional trading so that the relative importance from individual investors could be reduced. As a result shown in figure 20, the Thai financial market showed up as a more diversified trend than ever. This trend also strengthened the belief that the financial structure became more stable and the financial system was able to handle withstand shocks.

In order to measure the financial integration of Thailand this period obviously, the law of one price should have been considered. By using data from stock market and stock prices of some countries in APEC, Park and Bae (2002, p.10, p.12 & p.77) applied the co-integration test to examine the long-term relationship of stock prices. The result, interestingly, showed that no regional integration actually happened after the crisis up to 2002. However, from the table 4, Thailand appeared to have stronger correlations with Indonesia, Malaysia, Philippine each other than United State or Japan. It meant during this period, the regional integration between Thailand and other three countries was stronger.
Regarding about the financial openness – an indicator to examine the country’s integration into the global financial market, during this time, Thailand had a low but rising level of financial openness on barriers to capital movement toward to global market.

Also during the period of 2000-2005, Thailand proactively joined bilateral Free Trade Agreements (FTAs) that proliferated in the Asia-Pacific region as well as elsewhere and Regional Trade Agreements (RTAs) so as to enhance its competitiveness in the global market as well as to improve the country economy after the crisis and to diversify the markets. As a result, the regional and global integration during this time were intertwined slightly. According to a report for APEC issued by Chhibber, Ghosh and Palanivel (2009, p.27), Thailand, to certain extend, recovered after the financial crisis during this time when the investment rate reached 28 percent in the 2003-2005 compared to 41 percent in the pre-crisis time. In the same time, the saving rate was higher at 31 percent. As being explained by economic, the pattern was in the correct trend where the saving rates were often higher than investment rates in the post crisis and vice versa for the pre-crisis period.

In 2005-2007, the Thai economic expansion was moderate when average real GDP growth reached 4.9 percent only. This number could be explained by domestic policy uncertainty, rising violence and heavy impact from devastating tsunami in 2004. In 2008, the global crisis and political uncertainty continued impact on Thai’s economy. In 2007, Thailand’s economy relied heavily on export (at a 18.2 percent annual rate). However, the regional integration in Thailand from 2006 has increased sharply onward. Thanks to the success of the implementation of various policies on banking system, the operational independence increased. This effect, in return, enhanced the Thai financial system that encouraged the regional integration tighter.
In order to see clearly the degree of financial integration of the market, stock markets was recommended to see how deep the financial integration the country has reached.

Table 5 displays the cross-country correlation among stock markets from 2001 to 2006 classified into two sub-periods. The result indicated Thailand had tight cross-country linkages between APEC countries and the stock market moved close to others market and also with the U.S market. It highlighted the financial regional integration trend in Thailand had began. On the other hand, in 2008, thanks to the low exposure to toxic assets, Thai banks have not been much impacted from the global financial crisis. Moreover, the minimum reliance on overseas funding also helped Thai financial systems kept a good position during the turmoil. 80 percent the source of funds mainly came from domestic deposits and bills of exchange. Currently, the bank of Thailand uses macro-prudential and micro-prudential framework to monitor and better the sound of financial system. The government also encourages the regional integration across countries so that Thailand also can get more benefits in processing cross-border transactions. In addition, Thai’s government has tried utmost to help the country out of the recession successfully. The progress of financial regional integration could be highlighted because various initiatives have been undertaken such as Economic Review and Policy Dialogue (ERPD), Chiang Mai Initiative (CMI), Asian Bond Markets Initiative (ABMI) that have been contributed to the success of financial regional integration to the country today. Among others, ABMI has been turned to be an important policy among member countries, which focus on eliminating the currency and maturity mismatch then promote the financial cooperation across countries in the region. The Thai stock market has remained one of the most favourite destinations in emerging markets for foreign investors during the last decades due to its relative low P/E ratio. Furthermore, being supported by the world strong growth in recent years, we believe Thailand can gain higher level of financial integration in coming years.
2.9 General measurement of market integration

There were many old times studies which used various methods to test integration level of markets. For instance, Solnik (1974) used International Asset Pricing Model (IAPM) to apply for European data. Stehle (1977) tested integration hypothesis by using US data. Errunza & Losq (1985, p105) used emerging countries to test mild segmentation hypothesis. Jorion and Schwartz (1986), Wheatley (1988) adopted MLE procedures which generated by Gibbons (1982) and Stambaugh (1982) to measure integration level for Canadian securities in North America market. But still the studies couldn’t reach any conclusion. Based on IAPM theories, Jorion and Schwartz failed to accept integration hypothesis but Wheatley accepted that the equity markets are internationally integrated. Alexander et al (1986) conducted event studies for securities trading in segmented market but found no adequate evidence for the integration of stock market. Geweke’s integration measurement was used in Bracket et al (1999) for nine developed countries from 1972-1993. They concluded that the nine stock markets have become more integrated over time. Tan and Tse (2002) adopted Geweke’s stock integration measurement by looking at the co-movement of daily stock returns from different market to analyze market integration and performing vector autoregressive (VAR) analysis to investigate the response among each market in terms of size and time required for responses to be fully taken place. They both discovered that the interaction among the markets have been improved substantially after crisis. Unit root test and VAR analysis were both used by Dwyer and Hafer (1988) and Eun and Shim (1989). Koch and Koch (1991) employed dynamic simultaneous equation model to investigate integration level and concluded a growing regional interdependence relationship over time among the sample markets. Univariate and multivariate approaches were used by Jeon and Chiang (1991) to measure the stock movement in New York, London, Tokyo and Frankfurt. VAR analysis was appeared in Janakiramanam and Lamba’s studies (1998) to measure the relationship in terms of daily return between the selected stock markets. Phylaktis (1999) used co-integrating methodology by assessing the equalization of real interest rate, concluded that pacific basin region have improved substantially on its integration levels. Qin, Cagas, Ducanes, Ramos and Quising, (2007) suggested new approach, which combined Dynamic Factor (DF) and Error Correction Model (ECM), to examine the process of regional market integration in 12 Asian economies and to understand regional dynamic factor which caused the markets segmented and explain short-run price adjustment during integration period. Tan et al (2005) tested financial integration in Asia Pacific region by using stock market capitalization. It was a well integrated two step co-integration procedures invented by Engle 12 and Granger (1987). With that method, it can measure long run relationship without any biases and can generate reliable and appropriate t and F statistic.

In summary, various indicators are used to measure the degree of market integration. As we have mentioned before that markets are integrated when the law of one price holds, it means that the generated cash flows should have same return. Therefore if there is any different in prices or returns will then be considered as segmented. There are many ways to be used as indicator of integration, such as looking into price convergence, co-movement of stock prices and return correlation. Literatures have mentioned three broad categories of measurements which are price-based measures, quantity-based measure and regulatory and institutional measures of financial integration. With all these measurement, most studies are able to produce a partial and basic view of the whole financial integration process.
2.9.1 Price-based measures

The measurement focuses on the equalization of rates of return. It includes the testing by looking at interest rate parity condition, real interest rate parity, yield differentials, the movements of asset returns and returns dispersion. (Fung, L et al 2008, p20) Through return dispersion, we are able to know the integration level by looking at the price convergence. Correlation analysis shows the co-movement of the assets and it can be served as an integration indicator. Danareksa Research Institute (2004) used 10 year government bonds yield to examine the market integration in ASEAN economies and discovered no significant convergence outcomes. They, therefore, said that the slow convergence problem in the region was contributed by the underdeveloped bond market in most East Asian Economies. By looking at the correlation between two markets in a long run, one can discover the evidence of market integration. In dynamic co-integration analysis, authors suggested that if the standardised trace statistic is greater than 1, co-integration can be identified and vice versa. The result indicated that Asian equity markets were found to be less integrated. However, from 1997 to 1998 during the period of Asian financial crisis, the result showed significant co-integration among the four dragon markets. It means that Asian equity markets appeared to be more integrated after the crisis. The integration trend has sustained the similar results up to the mid 2001.

2.9.2 Quantity based measures

Quantity based measures include testing that incorporated a number of other variables such as foreign direct investment, savings-investment correlations, consumption correlations or current account transactions to discover capital mobility between savings and investment. If there is perfect capital mobility, no relation between domestic savings and investment can be found. Besides, net capital flow can also be employed to measure integration level. Kim and Lee (2008, p.3) measured the integration levels by looking at the size of cross border assets. The study concluded the financial markets in East Asian were considerably less integrated. It was mainly due to the low incentive for diversifying portfolio, the underdeveloped financial markets, deregulation of the financial markets, the instability in both monetary and exchange rate regimes within the region. The degree of integration can be measured by looking at the synchronisation of market cycles in different economies. Fung et al (2008, p.21) conducted the study on Asian equity markets. Except for mainland China and Thailand, they concluded that almost 66% of the whole sample period, the equity market cycles of Asian equity markets were found to be similar with other equity market cycles in the region. Also, they employed MSCI Far East Free Index as a benchmark to test the integration. The result showed four dragon blocs appeared to be more integrated with the region than the others. Integration level in Asian Equity markets have been improved, yet, the extents are still remained weak and the researchers have not seen any great improvement since 2002. The degrees of integration in developed markets are higher than the emerging countries.

2.9.3 Regulatory and institutional measures of financial integration

The measures focus on qualitative aspect of financial integration. For instance, by looking into regulatory and institution formation and policies introduced by government authorities, a study can find out whether or not it has any effect on capital flows, financial services, legislative control on market transaction, entry and exit barriers which are able to bring significant effect on market integration. (Tan et al, 2009; Kim & Lee, 2008; Reserve Bank of India, 2007)
There are also some setbacks for using above measurements. Some studies suggested using correlation of local market return with world return to measure the degree of integration. However, it may not always reliable as a country, which industry mix is very different from world mix, could be perfectly integrated into the world market with low or negative correlation. Regulatory measures are not widely used in research studies as it might not be binding for all aspect of possible barriers. For instance, investment restriction could also be used as a measurement to test integration level. But, the results raised a lot of problematic questions, partly due to the various types of restrictions which are not binding for all investors. Investors could have different ways to enter the market. So, it may be mistakenly concluded that the markets are segmented by looking at investment restrictions.

2.10 Akdogan and Barari Approach

There are many measurements can be employed to study equity market integration. For instance, looking at correlation coefficient of equity returns and assessing the validity of interest rate parity relations across national boundaries can tell the integration level of the markets. The main objective of the study is to measure the integration level of emerging countries within APEC region and compare the development among each other. The degree of global integration of APEC region will also be assessed. To initiate the test, we decided to employ measurement introduced by Akdogan (1996, 1997) and the method has been extended by Mahua Barari (2004) to measure the integration level in other regions as the method allows us to access regional and global integration simultaneously.

2.10.1 Akdogan’s Approach (1996, 1997)

Akdogan (1996) introduced a variation model based on an international risk decomposition model as developed by Markowitz–Sharpe–Lintner and suggested it as a quantifiable measurement technique for testing integration levels. He tested a sample of 26 countries which consist of both developed and developing countries from 1972-1989. He measured the degree of integration level of each domestic equity market and compared with other markets within the region and also outside the region. Simply put, he measured the integration of an equity market by comparing with a global benchmark portfolio. To be precise in his studies, he divided the samples into two sub periods, particularly the 1970’s and 1980s. His method focused in exploring the long run equilibrium relationship among the sample markets. If the stock movements of the markets show common trends in the long run, the markets can be said as co-integrated. In an integrated market, the diversification opportunities will be reduced. (Akdogan, 1996, p.33-39)

Additionally, Akdogan (1997) extended his previous methodology and suggested a similar approach called capitalization adjusted integration scores which measure local market indices against a global benchmark. The integration scores were measured by using country b values and compared against the benchmark value and then compute the portion of systematic risk or beta in total risks which relative to the global benchmarks. The larger the systematic risk portion is, the higher the level of integration reaches. However, due to the nature that the market capitalization would change over time, Akdogan suggested adjusting the beta portion by the country’s market capitalization portion in the world market value. Therefore, the result, which generated from different equity markets, could be more comparable. From the integration scores, he ranked emerging markets according to their capitalization adjusted
integration scores. He managed to assess the degree of integration globally and draw conclusion whether the markets are integrated with world market or segmented among themselves. He then concluded that the integration development of emerging markets was in time varying nature. (Akdogan, 1997, pp.82-90)

By dividing the samples into two sub periods, Akdogan could understand the changes on the integration level over time. He provided recommendations at the end of the studies to fund investment managers in the investment strategies on country funds. The changes of integration scores over time imply diversification opportunities and benefits available at the particular markets. The lower the integration scores is, the higher the segmentation which leads to diversification opportunities. With that particular nature, it offers higher risk adjusted return for international investors. (Akdogan, 1997, pp.82-90)

In the findings of his studies, UK, Japan, France, Australia and majority of emerging markets became more integrated in the 1980s. Yet, some of the European markets such as Finland, Spain, Denmark and Italy were found to be more segmented at those periods. There was no absolute segmentation or integration found in his studies. Therefore, he concluded the markets were mildly segmented aligned with the theory introduced by Errunza and Losq (1985, p.105). (Akdogan, 1996, p.33-39 & Akdogan, 1997, pp.82-90)

2.10.2 Extended methodology by Mahua Barari (2004) - A time-varying analysis

With solely Akdogan approach, we can only know the degree of integration level towards the world market. However, as countries have been classified into different regions, countries can actually be found to be more integrated within the region and, yet, more segmented from the world market. Therefore, Barari (2004) spotted the weakness of Akdogan and proposed an extended theoretical measurement for measuring integration level regionally and globally. He improved Akdogan’s approach into 2 dimensions. Firstly, he included the beta of the return between single country and region market and the beta between single country’s return and world market return. With the consideration of the regional beta and global beta, the research can then produce accurate results. Secondly, he employed time varying analysis to understand changing pattern of integration level within the region and with the world market as well as the financial integration movement. It was conducted by observing the changes of integration scores through time. Simply put, from Akdogan’s work, Barari also used the standard single-index return generating process where integration scores are computed for country indices against world benchmark and a regional benchmark index. By assessing integration scores against a global benchmark, it can tell the degree of integration with the world. However, country can be less integrated with the world but at the same time can be more integrated with region where the country is located. (Barari, 2004, pp.649-657)

Barari (2004) conducted integration research with his extended methodology on the 6 countries within Latin American region, namely, Argentina, Brazil, Chile, Colombia, Mexico and Venezuela with the sample period from January 1988 to December 2001. He discovered that the regional integration was significant during the late 1980s and the beginning of 1990s.

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8 The reduction of integration score of a particular country will attract international investors to invest in that country for earning diversification benefits.
9 Akdogan employed the measurement on medium sized European capital markets such as Finland, Denmark, Spain and Italy and suggested that those European capital markets along with most emerging markets showed segmentation and could be one of the hot cakes for international portfolio investments.
However, global integration was found to be weak during the sample period. (Barari, 2004, pp649-657)

2.10.3 Empirical results from previous studies

How should investors or portfolio managers optimize their fund allocation? Can they see which markets are mostly segmented so that they can allocate their fund accordingly? Akdogan papers (1996, 1997) answered these questions by extending the international risk decomposition model to investigate the differential degrees of market segmentation across the world market. This measure has quickly become one of the most effective apparatuses to evaluate the opportunity on the investment of emerging markets thanks to its easy implementation. In this part, we have gathered some relevant studies that are somehow we apply for our thesis.

There exists an extensive literature on the topic of financial market integration (Akdogan 1996, Barari 2004; Bekaert & Harvey, 1995; Errunza, Losq, & Padmanabhan, 1992, p549; Giannetti & Ongena, 2009, Lagoarde-Segot & Lucey, 2007). However, there are not many handful studies that have compared the degree of financial integration among countries on a global level and regional level (Barari, 2004, p.650)

Akdogan’s approach has been widely used in many integration studies. However, these studies did not use purely Akdogan’s work but combining Akdogan’s measure with others’ methods in order to gain better results in term of ranking levels of financial integration degree across countries. Below are some studies on financial integration levels for different economic regions.

Following Akdogan (1996), Barari constructed portfolio $\beta$ values by using country index returns. Explaining for the reason why he used the country index returns instead of industrial factors, the authors gave out some studies that had been done by the other researchers such as Roll (1992), Heston and Rouwenhorst (1994), Errunza (1994) and Serra (2000). These articles discussed about the importance of choosing the right indicator for building the $\beta$ values of a portfolio. Among them, only Roll (1992) insisted that country’s industrial structure played an important role in explaining its stock behavior. Meanwhile, other authors supported for country composition of a portfolio and gave empirical evidence on how denomination of a country factors to industry factors. The author, therefore, used aggregate country index returns to compute portfolio values in his study. Also, Barari (2004) mentioned that the test which divided the sample periods into two sub periods could not constitute time varying nature and the outcome would be subjective to the cut point and the date selection. According to Lucey (2004) supposed that such comparison between regional and world is very useful in seeing the tendency toward the structure of regional economic, political alliances and the internally regional integration, especially in EU.

In Barari’s paper, the author did not simply follow Akdogan’s method (1996). He mentioned an example done by Bekaert and Harvey (1995) in which they pointed out the rewards investors receive from investment stem from the equity risk premia. In addition, the equity risk premia, partly, is affected strongly by the time varying nature. Barari, therefore, used the time varying nature to observe the movement of financial integration. If Akdogan partitioned his data into subsample then compared the integration scores, Barari chose to calculate and plot the integration scores over different time windows (he ran his subsample under historical
and moving average windows). The author believed that in case that there did not exist detailed information associated to the cutoff points, the results run from the subsample were likely not accurate since they were very sensitive to the cutoff points chosen. Furthermore, the $\beta$ value, computed for integration score, was impacted by the time interval. Thus, the author supposed any description or test regarding to market integration omitting the time variation was likely to yield only partial results. Thus, the author suggested to plot the integration scores over different time windows so that this measure could allow running the results that tracked closely to the time varying nature of integration. The characteristic of data collection in this paper is “the S&P monthly stock price index for each country, and the S&P monthly Latin index as a proxy for the regional benchmark index” (Barari, 2004, p.655)

After running the empirical result of time-varying integration scores on a group of six Latin American countries between 1988 and 2001 by extending the Akdogan model to assess the market integration with global and regional benchmark, the author concluded that most of the countries in his sample move toward regionally and likely away from global integration. His findings also supported to the findings that were concluded by Heaney et al. (2002) when the authors investigated for the same Latin American countries for the same period of time but different method was applied. He also pointed out that the pace of global to regional integration during mid 1990s increased and remained strong after that. The author also applied the same method to see the effects of the contagion caused by the Asian financial crisis on Latin American countries due to the increased global integration.

Lucey and Birg (2006) once again implemented the time-varying integration score analysis to measure the integration of smaller European equity markets. The objective of this paper was to study the levels of market integration in smaller European countries and find out its implications for international portfolio investment allocation. By choosing a sample of eight Central and Eastern European countries, namely the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia, the authors provided researchers the integration status of these countries between 1993-2004. To start explaining how Akdogan approach worked and how Barari model was run, the authors reviewed the literature on the development of financial market integration over the years. The authors decided to follow the Akdogan’s model and the extended approach of Barari and utilized the international risk decomposition model to rank the degree of international equity market integration. Within this study, Lucey and Birg (2006) emphasized the necessity of an issue regarding to using beta estimates in empirical research. To them, beta played an important role in measuring the expected covariance on the assets’ returns with the returns on a market portfolio. After Akdogan (1997), Barari (2004) also discussed about a critical issue of using beta estimation due to its instability and its over time variance tendency. Since beta was likely sensitive to time intervals once it was obtained. Barari (2004) computed and plotted integration scores over historical and average time windows to point out this issue and thus to clearly show the changes of time varying nature. The authors aptly commented that they used betas as a source measure the sensitivity of a country to the global market and then betas were used to calculate the integration scores. The author took Barari method to approach the integration level by calculating and plotting the integration scores and then to observe the time variation of integration status. Data characteristic in this study were observed as monthly prices collected from the Standard and Poor (S&P) indices of the eight countries, the European S&P EU350 index as for the regional benchmark index and an international S&P Global 1200 as the world benchmark index. After estimating the integration scores for the eight small European countries, the authors broke down their sample into two groups:
Group 1: Countries both integrated regionally and globally. Group 2: Countries are integrated with only the regional market but segmented with the world market.

The findings were very useful in helping investors diversify their portfolio and allocate their fund accordingly to obtain the expected returns that were rewarded for accepting the relevant risks.

Lagoarde-Segot and Lucey (2007) came up with a study on the capital market integration in Middle East and North Africa (MENA) in order to contribute to the previous literature (Neaime, 2002; Erdal and Gunduz, 2001; Gunduz and Omran, 2001; Alper and Yilmaz, 2004) on the integration among countries in MENA by using four co-integration methodologies. First, the standardized exchange-converted U.S. dollar equity indices was employed instead of the local prices which was used to analyze for cross market. Second, the authors implemented the Johansen (1988) model and other methods developed by Gregory and Hansen (1996), Harris et al. (2002), and Breitung (2002) to examine the relationship between MENA markets and other financial center that is presented via the presence of bivariate cointegrating vectors. According to the authors, this methodology was used to examine the existence of the hypothesis of “a stable, long-run relationship offsets the benefits stemming from international diversification” (Lagoarde-Segot and Lucey, 2007, p.38). Third, the authors applied the Barari (2004) approach, which was actually another version of the extended Akdogan (1995, 1997). This method allowed researchers to capture the time-varying nature of integration before the authors came up with their assessments on the impact of political issues, financial and economic events on the formation of market integration. Finally, they discussed the implications of the results for international portfolio allocation thanks to the computed integration scores that are adjusted by levels of relative markets. Data characteristics were relied on Standard and Poor’s (S&P) IFC index in U.S. dollars. Instead of using monthly indices like other studies, the authors use daily indices ranging from 1998 to 2004 since Voronka (2004, p.635) also chooses daily data in order to avoid lack of information on market interactions contained in high frequency series. The regional benchmarks were obtained from S&P IFC database. The MSCI World Free Index was used as the world markets. Finally, in order to adjust integration level to market capitalization, these indexes were taken from the Arab Monetary Fund for each country and from MSCI for regional benchmarks. After employing four methodologies in order to have a closer observation on MENA financial market integration, the authors concluded that the hypothesis of a stable and the existence of long run bivariate relation between each tested market and European Monetary Union (EMU), the United States, and a regional benchmark was rejected. However, the movement of MENA markets toward international financial integration was confirmed based on the analysis using the basic Akdogan’s method. Furthermore, by adopting three step methodology, the investigation of effect on selected financial, economic, and political events had been added to extend the Barari’s approach. Consequently, another finding of heterogeneous reaction of markets to the various categories of shocks was concluded. Finally, the implementation of adjusting integration levels by market capitalization criteria presented some most promising markets in the region and other markets that followed behind.

In order to gauge nature, timing and levels of market integration, Ameer (2006) took a sample of six South East Asian countries (India, Malaysia, Korea, Thailand, Pakistan and Indonesia) in his study. He used two different models to investigate the changing pattern of time on stock market integration. This paper used TARCH model to examine the effect of
volatility spillover on stock markets. However, as we limited our scope of our thesis that we just focus on how researchers work on evaluating financial market integration by using methodology of time varying nature, we will mention more about the first part of this study where the author reappraised the levels of market integration in six aforementioned countries by using the estimation technique of Barari (2004) and its result. First of all, Ameer calculated the regional integration scores and global integration scores by employing the Barari (2004) framework to investigate the gradual integration of a country in his sample toward regional and the world market. Then he used the TARCH model to test the effect of financial liberalization on the returns of his sample. The data collection was obtained as weekly stock prices from DataStream for the six stock indices. The author uses MSCI All Asia and Pacific Index and MSCI World Index as proxies for regional and world benchmark for his calculation on subsequent regional integration scores and global integration scores. The data was covered in a period of time from 1990 to 2004. The author, after using the time varying regional and global calculation, recognized that these countries had been more global integration than regional integration before Asian crisis. Most of the countries had the same financial integration pattern but Pakistan that seemed to be more segmented than integration despite the fact that foreign investors had more free access to stock markets. The author also used the results to explain more the impacts and implication that the levels of market integration bring to financial, political and economic events and vice versa.

After studying the four articles mentioned above, we recognize that the Akdogan’s approach has contributed a basic method for all extended studies latter. Basically, all the studies employed his original formula or model but extended their methodology within his framework.

Akdogan’s basic framework to measure market integration.

\[ p_i + q_i = 1 \]

where \( p_i = [\beta_i^2 \var(R_g)/\var(R_i)] \) and \( q_i = \var(\varepsilon_i)/\var(R_i) \) measure the \( i^{th} \) country’s contribution to worldwide systematic and unsystematic risk, respectively.

However, there is no following research after his study simply used the above model. Barari (2004), Lucey and Birg (2006) and Ameer (2006) extend his model to their own added multivariate framework to fit their studies’ purposes. For example, besides examining the two previous factors, these researchers extended to the third component as follow:

\[ a_i + b_i + c_i = 1 \]

in which \( a_i \) measures the \( i^{th} \) country’s contribution to regional systematic risk, \( b_i \) measures the \( i^{th} \) country’s contribution to global systematic risk, and \( c_i \) measures the \( i^{th} \) country’s unsystematic risk.

Lagoarde-Segot and Lucey (2007) decomposed the risk model into four components:

\[ a_i + b_i + c_i + d_i = 1 \]

so that he can measure integration level of his samples with the two regions, the global besides measuring the country’s unsystematic risk.

In our opinion, this approach has brought a tool to investors in different areas measuring the
integration level of the markets they will allocate their funds wisely. In short, we have just above presented the four studies that basically used Akdogan theoretical framework in order to build their own researches in different financial markets. Thanks to the presence of these articles, we have some evidence on how well the model works and what the contribution of each article has made so that we have more confident to apply it in our empirical study.
CHAPTER 3- Research Methodology

This chapter is designed to deal with the background of our thesis idea and describe methodology and data that are employed in our thesis.

3.1 Background

It was not easy for us as the first step to choose the topic for our thesis. In financial world, there are so many issues that we can discuss in broad and in details. We have been thinking about the topic since our autumn semester ended. Finally, we came up with the ideas to write something about Asia financial markets where both of us come from. Consequently, our final choice was based on some courses that we learnt when we were exchange students in France. There were some finance courses that focused on emerging markets where have been considered attractive markets for investors who would like to take risks in order to gain high returns compared to developed markets. After our bachelor degree, one of us worked for banking industry in Vietnam where financial transactions and financial movements were observed clearly. We had a chance to see that more and more foreign investors came to invest in Asian countries; especially emerging markets where were supposed to be more flexible to investors day by day. Seeing the potential markets growing everyday and observing the attraction of the financial markets here, we decided to focus on writing something related to financial emerging markets. Furthermore, at the time our member worked for a foreign bank in Vietnam, there were customers who came to ask about opportunities to invest in emerging markets. Those questions ranged from which markets they should invest, how they could invest in those markets and which industries they should consider for their investment priorities. We discussed the issue together and came up with the idea that we could investigate the financial market integration for emerging markets within APEC region.

We found out there were researches that studied on financial integration levels on different regions but not emerging markets in APEC. Therefore, we recognized that it would be more interesting for us to get in depth with this topic so that we could have a chance to see how the emerging markets in this region are going. Being fully aware that there exist complexities with our topic, we decided to take overall view of the whole markets in general and emerging markets in particular.

In order to investigate and evaluate the integration level of nine emerging markets in APEC, We, firstly, give a comprehensive review considering a general view on how those markets worked and the factors influence integration progress of nine financial markets in our study. To avoid any preconception we had on the market, we collect information from different books and articles and researches that have been widely recognized by publication. There have been many studies and researches that help us study and understand this topic. Most of all, our previous studies in finance, accounting and in research methodology in business administration were of great help. Secondly, we utilize our practical finance experience to do this research. In our work with customers and the courses we took, we found out what kind of information we need when investors came to emerging markets. However, we also emphasize that the outcome of our thesis will not be impacted by any preconceptions we mentioned above because all of data and information we present in this topic are from reliable financial sources and reports of studied countries. Our aim finally is to provide the list of emerging markets to the investors after we rank their integration level in term of regional and global perspective.
Chapter 3 aims at discussing different research philosophies, approaches and techniques which are commonly used in academic findings. The philosophical position adopted is vital to determine research direction and the approach is important to decide the research process later on.

3.2 Research Philosophy

Three possible research philosophies such as positivism, interpretivism and realism are widely used in academic research world. According to Mark, Philip and Adrian (2009, p.113-116), they interpreted three philosophies in below ways:

With positivism philosophy, the researchers usually work on observable data to produce credible knowledge. To achieve that, they explore the existing theories and develop hypotheses. Once the hypotheses are confirmed, they will strengthen the credibility of the existing theories, and vice versa. If the hypotheses are rejected, the existing theories will once again be challenged and improved to be a better one which can suit the real world. Therefore, positivist studies are mostly done by using qualitative approach and with the results generated from the approach, statistical analysis is then produced. Positivism can produce more objective results than other philosophies as it mainly employs mathematical formulas in generating results which restrict the ability of researchers to produce subjective analyses and interpretations. (Mark, et al, 2009, p.114)

Researchers critically criticise the positivism as it doesn’t consider complex management of the world which sometimes go far beyond the theories. Therefore, interpretivism is suggested. Interpretivism is a subjective research philosophy which involves high human factor and feelings in the research. It is highly recommended to be used in business and management research which involves high human behaviour analysis. (Mark, et al, 2009, p.116)

Realism falls between positivism and interpretivism. It could be said as a mixture of both philosophies. Realism differs the way of interpretation from positivism. Realism advocates that there is no single form of interpretation can exclusively be relied or adopted on an observables data. There are always other ways of interpretation that can be used to uncover the hidden reality under the surface of observable data. Realism research emphasizes on scientific criteria as positivism does. However, it recognises the importance of human behaviour involvement in developing theories. Therefore, human experience is required to produce the results and theories. Simply put, realism philosophy of research is always theory focused but it does not restrict the way of interpretation. The research design in realism is able to be experimental despite of qualitative method or qualitative method is adopted. (Mark, et al, 2009, p.114)

Positivism is usually adopted among ‘resources’ researchers to develop knowledge but interpretivism is more commonly employed by the ‘feelings’ researchers. Pragmatism proposes that research question is the main determinant of which research philosophy such as positivism, interpretivism or realism is employed. (Mark, et al, 2009, p.109) With our research question “Are emerging markets in APEC regionally or globally integrated?”, we find that positivism philosophy is more suitable than others to generate the conclusion. The purpose of this paper is to investigate the integration levels in each emerging APEC market and also access to its implications. To measure integration, the most appropriate resource to be adopted is to access to each local market prices indices and the relationship with regional
and global price indices respectively. The study will be mainly using mathematical approach to produce conclusion, our study, therefore, can be considered as positivism focused.

3.3 Research Approaches

At this section, we assess the type of research approach that can be suitably adopted in our research. There have been two central research approaches that may bring the success of the new knowledge acquisition in Western research traditions, namely the inductive and deductive research approaches (Hayde, 2000, p.82). The less known approach, abductive reasoning that does not follow either the pattern of deduction or induction but arises from the insight that most great advances in science (Taylor, Fisher, and Dufresne, 2002, p.315-316).

Inductive reasoning is a theory development process that the researcher moves from the basis of observation on specific instances to general law to establish his or her own generalizations about the phenomenon that is under investigation. If researcher’s ambition is to develop the new theory, more inductive research should be applied. (Arlbjørn and Halldorsson, 2002, p.28) Contrary to this procedure, the deductive research approach works from the more general to very details of a researched issue. It guides the researcher to use a testing process which leads to the establishment of theory or generalization then seeks to see whether the theory applies to specific instances (Hayde, 2000, p.83). In other words, with an inductive stance, theory is the outcome of research (Bryman & Bell, 2007, p.14) or from facts to theory (Taylor et al., 2002, p.316)

A research approach is known as the path of “conscious scientific reasoning” (Kovács, and Spens, 2006, p.375). Therefore, finding the right research approach plays an important role in writing research papers. On the way we are seeking for the right research approach, we identify what point in reasoning came first, theory or empirical study. From there, we collect the data from financial sources. They are used as platform to increase the knowledge of financial market integration. Furthermore, our aim is to link and compare our literature review on financial market integration with our empirical findings on the nine emerging countries. As the nature of our thesis is to test the existing theory not creating the new scientific, (Arlbjørn and Halldorsson, 2002, p.27) we agree that deductive approach is the most suitable research approach for our study. The steps that we are taking are described in Figure 22. That means deductive research process is applied for our study. With this approach we will first follow the research process of in depth-literature review with provided theoretical knowledge from textbooks and other studies first in order to find a logical argument or conclusion based on the connection between different variables in our study. Second, we suggest our own hypotheses to test them by using quantitative approach, namely extended Barari integration score approach (2004), in order to answer our research question mentioned above “Are they regionally or globally integrated?”. Several hypotheses are suggested as below after reading several literature inputs at chapter 2.

Hypothesis 1: Emerging Markets within APEC region are regionally integrated but far beyond integrated with world market.

Hypothesis 2: Emerging Markets within APEC region are regionally segmented but globally integrated.
Later on, we will compare the regional and global integration by looking at the ratio of regional to the global integration. Thereafter, we will capture the changing pattern of financial integration from the time varying integration score. At the implication part, we will assess the impact of financial contagion on integration, particularly the global crisis in 2008. Since we believe that integration has its time varying nature, therefore, we will also study the evolution of equity market interrelationships over time to avoid generating partial result and make our study more concrete than other studies. (Bekaert & Harvey, 1995, p.430) We will plot the integration scores over time and can therefore trace the time varying nature of integration. With the integration scores tested, we can then know the validity of our hypotheses.

Our conclusion will then be presented under the form of hypotheses. After our testing part in an empirical setting, we will commence our general conclusion. This conclusion will be withdrawn from corroboration or falsification of the previous hypotheses. The sequence of our study will follow “the logical sequence of the research is from rule to case to result” (Kovács and Spens, 2005, p.137)

3.4 Research Techniques

As we discussed the research approach to conduct our thesis in the previous part, we are moving forward to seek an appropriate well-defined research technique based on scientific principles. In research world, both qualitative and quantitative methods have a place, but employing the right approach is a question to every researcher. In addition, it is believed that the distinction between qualitative and quantitative research is helpful on methodological

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10 In this particular test, we will divide the sample period into two sub samples and comparing integration scores across the sub samples. We can clearly see the different between pre and post of the event. However, the cut off time will often be questioned on its validity. The integration scores are relied on the country beta value and they are very sensitive to the time interval.
issues, although the status can be ambiguous sometimes (Saunders, Lewis and Thornhill, 2009, p.28). After following the research framework that guides us to decide deductive reasoning is our final research approach, the content of our analysis will be assessed in order to see whether qualitative technique or quantitative technique or the combination of two techniques is the best technique for our writing. Hence, in the scope of our thesis, we would like to distinguish the basic elements that make the difference between the two techniques so that readers can easily recognize the reason we choose quantitative technique under deductive approach aforementioned for our empirical part.

There has been no rule on deductive method must employ quantitative research or qualitative method must be used by inductive approach. However, according to Saunders, Lewis and Thornhill (2009, p.280) the fundamental differences between quantitative and qualitative research strategies can be distinguished as presented in Table 6 in terms of three areas:

<table>
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<tr>
<th>Principal orientation to the role of theory in relation to research</th>
<th>Quantitative</th>
<th>Qualitative</th>
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<tr>
<td>Deductive: testing of theory</td>
<td>Inductive: generation of theory</td>
<td></td>
</tr>
<tr>
<td>Natural science model, in particular positivism</td>
<td>Interpretivism</td>
<td></td>
</tr>
<tr>
<td>Ontological orientation</td>
<td>Objectivism</td>
<td>Constructionism</td>
</tr>
</tbody>
</table>

Table 6 Differences between Quantitative and Qualitative
Source: Authors

Sometimes, researchers find difficulties when they use only one method to carry out their studies. Therefore, in order to support for any single complex project where the weaknesses of quantitative and qualitative research are obvious, the term ‘mixed methods research’ is used as simple shorthand to stand for the combination of the two aforementioned methods. It is employed when researcher combine interview with observation or ethnography with semi-structure interviewing. As a result, each method will fill in the gap that researchers need during their studying in order to achieve the conclusions from their context.

In finance research industry, most of research literatures have been dominated by large-scale quantitative studies because the methods have provided various innovations in econometric analysis combined with “extensive and reliable financial databases” (Burton, 2007, p.6). Back to our case where we study the integration levels across emerging markets in APEC, we purely engage to finance perspective. Our process consists of theory summary, propositions building, data gathering and results analysis. Our propositions are drawn from theory and then tested on nine studies countries by collecting numerical (quantifiable) data. We will interpret the data under extended Akdogan’s approach which is a science model and was developed in order to gauge the integration scores. Final steps will be assessed after our conclusions are done to see how precision our hypotheses can reach or how far our propositions have gone. From those steps, our research methods mainly focus on processing and analysing data.

Furthermore, a deductive approach, which describes the relationship between theory and research, implies that research method is quantitative. In addition, a quantitative method is employed to measure, describe or explain a phenomenon. The objective of study is to investigate and understand the financial integration levels among countries. Therefore, from all the steps that are conducted, we do think that our choice of research method is conventional quantitative analysis combined with deductive approach.
3.5 Research Strategies

The goal of our research is to generate or discover new knowledge and idea for our readers. Therefore, research strategy plays important role to ensure the quality of data is properly used in order to develop reliable theories and conclusions. Mark, Philip and Adrian (2009, pp141-150) classified research strategies into 7 types:

- Experiment
- Survey
- Case study
- Action research
- Grounded theory
- Ethnography
- Archival research

Experiment is useful in studying causal link between one independent and another one or more dependent variables. (Hakim, 2000) It is mainly adopted in explanation research to answer ‘how’ and ‘why’ questions. However, Mark, Philip and Adrian (2009, p142) discovered that experimental strategy was not realistic for many business and management research questions that involve human participation. For instance, they will always be the situation that employers or management level persons do not want to participate in the experiments which they think it will only waste their time but not bring any benefit to them. Therefore, experiment strategy is commonly adopted on captive population.

Survey is a common strategy in deductive research approach to conduct business and management research. Surveys are easy to collect large amount of information from known sizeable population. It is normally done by producing questionnaires and research standardizes responses which can be used for comparison and analysis. (Mark et al, 2009, p.144) However, the design of questionnaires is crucial to determine the quality of information obtained. The questionnaires must be well structured in order to capture proper responses from respondents. Also the limit to the number of questions can sometimes restrict the feedback from the respondents on the research issue.

Case study aims at answering the question ‘why’, ‘what’ and ‘how’. It is broadly used in explanatory and exploratory research. Mark et al (2009, p.146) discovered that a well organised case study can in fact help research challenge the existing theory and develop a new idea to fulfil the research question.

Compared to other research strategies, action research places emphasis on action. With this approach, a minor change on observable data can easily be detected. It focuses on 4 major themes in research studies: (Mark et al, 2009, p.147)

- The purpose of research
- The involvement of practitioners in the researchers. A close collaboration between practitioners and researchers is very much involved.
- A continuous researching process which consist the nature of diagnosing, planning, implementing and evaluating.
- A clear implication or result is produced which can inform other context.
Grounded theory is widely used in inductive research approach which emphasizes in producing theory. Grounded theory is helpful to identify business and management issues. However, it requires effort to manage this strategy. Otherwise, it can easily lead to over simplification in developing theory. (Mark et al, 2009, p.148)

Ethnography is a strategy being used for inductive research approach. The biggest drawback is its time consuming feature as researchers need to integrate themselves in the researched world completely in order to be able continuously developing new idea on what is being observed over an extended time period. (Mark et al, 2009, p.149)

Archival research can be widely used in exploratory, descriptive and explanatory research. It enables the research topics which involve the phenomenon in the past and study about the changes on the observable data over time. However, the analysis will then only be restricted with administrative record and document. Also, some data may be missing or the research may not have valid access to some databases for confidentiality reason. Therefore, it can only be useful if data required are all available for the research. (Mark et al, 2009, p.150)

For our study, we decided to employ archival research as our research strategy for several reasons. We believe integration level vary through time. Therefore, historical data is very important for us to understand the nature behind the variation of data. Also, we believe that day to day activities in local, regional and global market can tell us whether the markets are integrated or segmented. The daily changes of data tell us the degree of integration level. The movement of local, regional and world market indices and the relationship among each other have then become the principal sources to develop the conclusion later on. Many integration studies (Akdogan, 1996 & 1997, Birg & Lucey, 2006, Lagoarde-Sego & Lucey, 2007) also adopted daily stock prices and market indices in their analyses.

By assessing several indicators from the theory of research methodology, we present our final conclusions for research philosophy, research approach, research technique and strategy which we find them more suitable for our topic. Figure 23 presents the research ‘onion’ for our paper.
3.6 Integration Levels Research Formation

3.6.1 Data and Statistical Methodology

In this section, the data used to conduct our analysis are presented. In chapter 2, literature review, we mentioned on how financial integration could be measured. According to literature review, liquidity and turnover data are used as quantitative indicators to measure the linkage among domestic financial market integration. In order to see the global integration, capital flow should be accounted for. In addition, in the coming part, we will explain the formula that was developed by Akdogan (1996, 1997) in order to compute the integration scores. From the formula, we are going to calculate beta from the covariance and variance of each market with regional benchmark or global benchmark. Hence, our thesis suggests that equity indices and market capitalization are indicators based on quantitative research should be employed. From finance perspective, the stock data is considered one of the good indicators to calculate the integration scores thanks to its less volatility and less prone to measurement error. Furthermore, price index data are more available and more accurate. Therefore, our research can be categorized under price-based measure.

Equity indices provided by S&P/IFCG for each country was our first option. Unfortunately, data availability problems prevented a timely monitoring of developments (the data we need from S&P/IFCG has been deactivated since 2008) which the impact from the recent global crisis from 2008 is important to our findings. Therefore, for our empirical analysis, our data finally comes from the Datastream under Market Sector criteria. It has been known that Datastream is one of the best reliable sources for financial statistical database thanks to its vast database of over 140 million time series. All series used in this thesis are daily-data base because daily data is said in the literature to “capture potential short lived interaction” (Girad and Rahman, 2002, p24) better than monthly data that cannot describe the effect of capital movement in short-term occurrence. As a result, in order to provide more robust and updated result, our data set comprises of daily stock closing prices for the nine emerging countries in APEC: Chile, People's Republic of China, Indonesia, Malaysia, Mexico, Peru, The Philippines, Russia and Thailand. Papua New Guinea is excluded in our empirical part because the country’s data is not included in any part of Datastream. Half of these indices are denominated in U.S dollars, extracted from the Datastream. The rest are quoted in local currency units that we did not convert into U.S dollars since we are going to compute our Beta based on the return of the closing prices.

For regional benchmark, we use Asia Pacific Indices from Standard and Poors (S&P). S&P Asia Pacific Index is a free float-adjusted market capitalization index which is used to measure equity market performance in Asia Pacific markets.

To examine the degree of market integration of emerging markets in APEC with the world, we use the All Country World Index of Morgan Stanley Capital International (MSCI) measured in U.S dollars. MSCI is known as a free float-adjusted market capitalization weighted index. This source has been one of the most widely used in the financial industry because it represents 80% of world market capitalization that measures the equity market performance of developed and emerging markets. As of June 2009, it is comprised of 23 developed and 22 emerging market country indices.

Finally, Individual market capitalization values are obtained from World Federation of
Exchange. World Federation of Exchange consists of 52 regulated stock exchanges around the world. They regularly announce market statistic, develop and promote standards in the markets. We employ NYSE market capitalization as global benchmark market capitalization and Tokyo Stock Exchange as region benchmark market capitalization. With the data available, we can examine the interdependence relationship between individual stock market within the framework in Asia Pacific region and world market respectively.

### 3.6.2 Research Time Period

Our data covers the period from January 02 1995 to December 31 2008. Time period from 1995 to 2008 is chosen as it includes the Asian financial crisis and post financial crisis period. It also includes the recent global financial crisis from 2007.

### 3.6.3 Integration measurement- Akdogan’s formula (1996, 1997)

Thanks to the rapid technology invention which helps promote and improve interdependence among markets, the world economies have become more integrated than before. Also, with the policies introduced, the government have been gradually reducing trading barriers among the markets. But the efficiencies of the policies or the developments of market infrastructures have triggered our interest to examine the integration level of markets through times.

Akdogan’s approach suggested that we can easily find out the degree of integration by looking at the portfolio diversification opportunities. The approach has taken country’s systematic risk into account and the proportion it has on the benchmark market portfolio signifies whether market has become more integrated or still remained as segmented. The market is said to be more integrated when the country’s risk represent large part of the benchmark market portfolio.

Akdogan’s approach was generated from asset pricing model. The formula is presented as below:

\[
R_i = \alpha + \beta R_w + \varepsilon_i
\]

- \(R_i\) = Rate of return of country’s market index.
- \(\alpha\) = The alpha of the simple regression.
- \(\beta\) = Systematic risk of the country vis-a-vis the global benchmark portfolio. To calculate beta, we use the covariance between country’s return and world return and divided by the variance of benchmark’s return.
- \(R_w\) = Market return of global market indices.
- \(\varepsilon_i\) = Represents idiosyncratic shocks.

The above formula was generated from Capital Asset Pricing Model (CAPM). To further explore the formula, Akdogan assumed \(\alpha\) to be zero and take the variance of the equation to examine the integration level.
The variance of equation will be arranged as below:

\[ Var(R_i) = \beta^2 Var(R_e) + Var(\varepsilon_i) \]

The right hand side equation can be also expressed as the equation of total risk. Akdogan set \( P_i \) as \( \beta^2 Var(R_e) \) and \( Q_i \) as \( Var(\varepsilon_i) \). Therefore, the formula has then been transformed to the equation below:

\[ P_i + Q_i = 1 \]

\( P_i \) represents the proportion of systematic risk of individual country in global market portfolio. It measures the individual market contribution to global market risk. It can tell whether the market is still segmented or integrated with global portfolio. The higher the \( P_i \), over time, the market is therefore regarded as more integrated to global market, and vice versa. Since the whole equation can be expressed as total risk, \( P_i \) represents systematic risk and therefore \( Q_i \) refers to unsystematic risk. (Akdogan, 1996, p.33-39)

### 3.6.4 Capitalization Adjusted Integration Score (1997)

However, each country expresses differently in term of systematic risk relative to market value share. The adjusted integration score extended by Akdogan (1997) has taken market capitalization value into account. Market capitalization measures the total value of a company or stock. As country market value varies over time and the market size of each country index in different from each other, Akdogan, therefore, extended his methodology and suggested an adjusted integration scores in order to make the samples study more comparable. To calculate it, Akdogan divided systematic risk equation above with differences in market capitalization. (Akdogan, 1997, pp.82-90)

The adjusted integration score is presented as below: 

\[ adjp_i = \frac{\beta_i^2 VarR_e \cdot \varepsilon_i}{VarR_i \cdot Wig} \]

\[ adjq_i = \frac{Var(\varepsilon_i)}{VarR_i} / Wig \]

Where \( \frac{Wig}{MC_i} \cdot MC_g \)

\( \varepsilon_i \) is measured by taking the proportion of country market capitalization on world market capitalization. With this adjusted integration scores, Akdogan was able to measure the systematic risk contribution of a sample country to the world systematic risk and also the country market capitalization contribution to the world market capitalization.

### 3.6.5 Extended Barari’s formula (2004)

Barari (2004, p.649-657) added regional beta and global beta into the equation which presented as below:

\[ R_i = \alpha + \beta_{i}U_r + \beta_{o}R_{o} + \varepsilon_i \]
$U_r$, is the residual, can be measured by following equation:

$$R_r = \alpha + \beta_r R_g + U_r$$

The above equation measures the rate of return of regional index. In which, $\alpha$ is perfectly correlated with region index return, while $\beta_r R_g$ is uncorrelated with domestic market return and $U_r$ is uncorrelated with first and second component. The residual cannot be explained by $R_g$.

Similar to Akdogan’s approach, he took the variance of the equation and divided both sides by $\text{Var}(R_i)$.

$$\text{Var}(R_i) = \beta_r^2 \text{Var}(U_r) + \beta_g^2 \text{Var}(R_g) + \text{Var}(\varepsilon)$$

$$\frac{\text{Var}(R_i)}{\text{Var}(R_i)} = \frac{\beta_r^2 \text{Var}(U_r)}{\text{Var}(R_i)} + \frac{\beta_g^2 \text{Var}(R_g)}{\text{Var}(R_i)} + \frac{\text{Var}(\varepsilon)}{\text{Var}(R_i)}$$

Therefore, $a_i + b_i + c_i = 1$

Where, $a_i$, refers to $\frac{\beta_r^2 \text{Var}(U_r)}{\text{Var}(R_i)}$, measures country’s contribution to regional systematic risk.

$b_i$, refers to $\frac{\beta_g^2 \text{Var}(R_g)}{\text{Var}(R_i)}$, tells country’s contribution to global systematic risk and $c_i$ refers to $\frac{\text{Var}(\varepsilon)}{\text{Var}(R_i)}$, indicates unsystematic risk. Therefore we can measure regional integration and global integration by looking at $a_i$ and $b_i$ measurements respectively. By looking at the changes of $a_i$ and $b_i$, we can easily see the trend of regional integration towards global integration movement. Finally, to make the samples more comparable, Barari adjusted the integration scores by regional and global market capitalization.

$$\text{Var}(R_i) = \frac{\beta_r^2 \text{Var}(U_r)}{\text{Var}(R_i)} + \frac{\beta_g^2 \text{Var}(R_g)}{\text{Var}(R_i)} + \frac{\text{Var}(\varepsilon)}{\text{Var}(R_i)}$$

$$\text{adj} a_i = \frac{\beta_r^2 \text{Var}(U_r)}{\text{Var}(R_i)} \Bigg/ W_w$$

$$\text{adj} b_i = \frac{\beta_g^2 \text{Var}(R_g)}{\text{Var}(R_i)} \Bigg/ W_g$$

Where $W_w / g = \frac{MC_i}{MC_{w / g}}$

**3.7 Reliability and Validity**

As we mentioned above that quantitative approach will be employed in our study, reliability of data collected and validity of the measurement adopted become very important to decide
the quality of our findings whether or not it is trustable. Reliability and validity are two different concepts but both are very crucial elements to be taken care in a research study.

Joppe (2000, cited in Golafshani. N 2003, p.598) defined reliability as the extent to the consistency level of the result over time and if the result can be regenerated under similar methodology, the measurement used can be regarded as reliable. There were three types of reliability discussed by Kirk and Miller (1986, p.41-42, cited in Golafshani. N 2003, p.598) in respect of quantitative research:

- The degree to which a measurement, given repeatedly
- The stability of a measurement over time
- The similarity of measurements within a given time period.

For our research, we employ Barari’s extended approach to measure integration level. We understand that integration progress can be reached regionally and globally. A country can be more regionally integration and globally segmented, and vice versa. This method, as we mentioned in the previous chapter, has been widely used by researchers. The results were generated for countries that also received similar results from other studies which had been done by different approaches. Therefore, we adopt Bavari’s extended approach which allows us to access the degree of integration level of both region and global simultaneously.

Joppe (2000, cited in Golafshani. N 2003, p.599) defined validity as the degree of the accuracy level of the findings. There are two types of validity, namely external and internal validity, should be both concerned in a research study. External validity refers to the extent which the results are widely acceptable or generalisable. Internal validity refers to the rigor of the research design which determines the quality of findings. Generally in quantitative approach, construct validity is often employed. It consists of producing initial concept, designing research question and generating hypotheses to decide which data is required.

To ensure reliability of our findings, we employ market indices as major input of our study. We noticed that integration progress generally originated from international trade through the policies and regulation implemented by each country. From the movement of market indices which are easily affected by the trade policies and regulation which encourage integration, we can produce reliable result on integration level.
Chapter 4 Result & Analysis

This chapter is designed to analyze and discuss the result generated from Akdogan approach on our study as well as integration analysis of individual countries that are involved in our study including the challenges ahead and recommendations for future efforts to improve integration levels.

The purpose of the study is to determine the integration levels of nine emerging countries within APEC region, namely, Chile, China, Indonesia, Malaysia, Mexico, Peru, Philippines, Russia and Thailand, for the time periods from 2nd January 1995 to 31st December 2008. The research does not include two emerging countries, particularly, Papua New Guinea and Vietnam. Papua New Guinea does not have adequate data on market index and market capitalization value and thus we are not including Papua New Guinea in the study. Vietnam has been categorized by FTSE and MSCI as frontier market and, therefore, it is also not included in our study. In addition, as we obtained no market index value fromDataStream before 28th January 1998 for Russia, the analysis on integration level will, thus, start from 28th January 1998 for Russia.

Subsequently we will present our judgments on whether integration has been progressing in each individual country and how this progress has been supported by what we understood from reality review at Chapter 2 for respective countries.

4.1 Country Indices

Figure 24 presents the annual index values for the nine markets in our sample. We noticed some effects caused by the Mexican peso crisis in 1994 were still affecting some markets such as Mexico and Chile. However, Mexico showed its recovery from the crisis and remarkable growth up to 1997. Chile had not been impacted seriously by the Mexican peso crisis in 1994. It was partly due to the strong dependence on copper export. During the mid 1990s high copper prices have provided Chilean economy strong liquidity to face the Mexican crisis.
Also, we noticed that a sharp decline happened from 1997 to 1998, which was brought by Asian financial crisis in 1997. Asian financial crisis had negatively brought serious impacts to worldwide economy. It was started by Thailand due to its financial decision of floating Baht, removing its peg to USD and also the government spending to support the real estate sector during the financial difficulties. Thailand had acquired huge amount of foreign debts which led the country into bankruptcy. During the crisis, most Asian countries inevitably suffered a deep loss. They had to devalue the stock market and it caused a tremendous increase in private debt. Indonesia, South Korea and Thailand were influenced the most by the crisis. Hong Kong, Malaysia, Laos and Philippines also had the moderate negative impacts. However, China, India, Taiwan, Singapore, Brunei and Vietnam were able to overcome the crisis even though they suffered from a deep loss in market demand and confidence loss throughout the region. Asian financial crisis in 1997 was the reason to explain the sharp decline from 1997 to 1998 presented in Figure 24.

In addition, the September 11 attacks in United States resulted the collapse of World Trade Centre in New York was also a reason for a global economic slowdown in 2001 which had also impacted most of the emerging markets in the region. A rise in terrorism fear increased the inspection cost (which can be regarded as a tariff) which slowed down the growth of world trade. Many of the emerging countries such as Malaysia, Indonesia, Thailand and Mexico export goods and services to the United States, which is regarded as the world leading importer, were suffered badly.

All the sampling countries generated remarkable market results from 2003 onwards. Particularly, Mexico, which highly relies on the export to the United States, had an amazing growth rate of 3.8% in the first and second quarter of 2004 after the United States came out from its economic downturn caused by terrorists attack in 2001.

However, the world crisis in 2007 has dragged down the world economy. The world stock markets have plunged and many large financial institutions from the West have announced their bankruptcies. Governments tried to introduce several rescue plans to protect their financial systems. The global crisis has also seriously affected individual life since we are all living in an inter-connected world. Asian markets were still performing better than the Western economy during this global crisis period. It was due to the rapid growth and wealth creation since 2000s that Asian markets have become attractive investments in western countries. The foreign direct investments are generally provided from the West. Therefore, APEC emerging countries were exposed to the crisis’s effect in the West. The sampling emerging countries presented in figure 24 showed a deep loss in stock markets. Particularly, China, whose export business relies heavily on the demand from the West, has suffered a sharp decline in the growth performance.
This section presents the results generated by Akdogan and extended Barari’s approach on the integration degree of emerging countries within APEC. The major inputs for Akdogan and extended Barari’s approach are the return of the market index and Beta. To initiate the measurement, we first obtained the return by calculating the logarithmic differences of respective daily stock price indices.

Table 7 represents the descriptive results of sample market indices’ daily returns which tell the risks and returns information of nine emerging countries, regional and global market respectively. Overall, it seems like majority of sample countries provided positive return during the sample period, except Philippines and Thailand. Russia (0.00093), China (0.00026), Peru (0.00026), Mexico (0.00027) and Indonesia (0.00022), outperformed Chile (0.00005), Malaysia (0.00001), Philippines (-0.00006) and Thailand (-0.00033) in term of the mean daily return for the whole research period. Thailand didn’t perform well during the sampling period partly due to the fact that it displayed intensive negative returns during the sampling period triggered by Asian Financial Crisis 1997 and its unstable political environment since 2007. The political situation was unstable which brought economic instability and adverse effect on financial development as well as integration progress.

CAPM stated that high return associates with high volatility. In term of riskiness, results show that Russia, which provided highest returns among the sampling countries, was also the riskiest market among the all respective market, followed by Thailand, China, Indonesia, Mexico, Malaysia and Philippines. In term of performances between regional and global markets, we realized that global market offered better returns for investors and, inevitably, investors suffered higher risk compared to regional investments. World market was more volatile compared to regional market. However, it promised really high returns to attract investors.
4.2 Regional and Global Beta

The second major input for our quantitative approach is the market beta ($\beta$). Beta tells us the degree of correlation between the sample countries and regional and global benchmark respectively. Beta value of zero indicated no correlation with the market. Positive beta represents positive correlation, and vice versa. We generated regional and global beta from each country.

<table>
<thead>
<tr>
<th>Markets</th>
<th>Regional Benchmark</th>
<th>Global Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>0.03669</td>
<td>0.08230</td>
</tr>
<tr>
<td>China</td>
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</tr>
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<td>Philippines</td>
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<td>0.18409</td>
</tr>
<tr>
<td>Russia</td>
<td>0.00028</td>
<td>0.17951</td>
</tr>
<tr>
<td>Thailand</td>
<td>0.26546</td>
<td>0.14699</td>
</tr>
</tbody>
</table>

Table 8 Correlations between individual stock market return and regional and global benchmark respectively. (Shaded numbers indicate minor changes between two sub periods.)

Source: Authors

Table 8 represents the correlation of individual equity market returns with regional and global benchmarks respectively. In order to monitor the changes of correlation coefficients, we divided the period into two sub periods which are 1995-2001 and 2002-2008. In term of regional integration with Asia Pacific, we realised that the sampling countries are getting more regionally integrated with the exception of Malaysia, Mexico and Thailand. We found little movement towards global integration with MSCI AC World Price Index among all the sampling countries. Mentioned by Reserve Bank of India (2007), regional integration is importance and acting stronger among developing countries. The interdependence between each others will increase its competitiveness in order to compete internationally. With the data above involves developing countries, we can figure out that the markets are more moving towards regional integration compared to global integration. The results align with the findings from Reserve Bank of India

$$\frac{\text{Var} \left( R_i \right)}{\text{Var} \left( R_i \right)} = \frac{\beta_{i}\text{Var} \left( U \right)}{\text{Var}R_i} + \frac{\beta_{i}\text{Var} \left( \varepsilon_i \right)}{\text{Var}R_i} + \frac{\text{Var} \left( \varepsilon_i \right)}{\text{Var}R_i}$$

$$1 = A + B + C$$

With the available data from market return and betas, we computed A and B scores. As Bavari’s quantitative suggested the above formula, we take A as regional integration indicator, B as global integration indicator and C as unsystematic risk indicator. To monitor whether equity markets are getting more integrated or segmented, we observe each of them over the yearly windows from 1995 to 2008. A positive sign means integration, and negative sign means no integration.
4.3 Regional Integration versus Global Integration (Unadjusted A and B scores)

Figure 25 Regional versus global integration of nine emerging countries (Unadjusted)
Source: Authors

Figure 25 presents the integration scores of nine emerging countries before adjusted by the proportion of each market capitalization over regional and global market capitalization. The graph suggested that the sample countries are more regionally integrated during 1995 to 1998. However, the degree of integration level towards regional and global were at the similar pace from mid of 1999 to mid of 2005. Later on, the regional integration became more aggressive than global integration. At the end of the sampling period, we noticed a high regional integration level among the emerging countries. From above graph we can say that emerging market within APEC are more regionally integrated and less globally integrated through time.

4.4 Unsystematic Risk (Unadjusted C score)

Figure 26 Unsystematic risks of nine emerging sampling countries
Source: Authors
Augustin, C (1927) and Alfred, M (1930) used the Law of One Price to measure financial market integration and mentioned that there is no arbitrage opportunity when markets are equilibrium. Chen and Knez (1995, p.287) mentioned there is no market integration if the opportunities of arbitrage across markets still exist. Black Scholes stated that there will be no existence of market arbitrage opportunity when stock, bond and options are fully integrated. As we understand that unsystematic risk is one of the components that determine the returns of the markets and it can lead to price diverse which triggers opportunities for arbitrage. If the markets are more regionally integrated or globally integrated, the unsystematic risks will then be smaller. Figure 27 presents unsystematic risks of nine emerging sampling countries in this study. As the result shown, from 1995 to 1998, there was a decline in unsystematic risk which indicated that a strong regional and global integration movement at that time. From 2006 to 2008, unsystematic risk had a deeper decline compared to those previous years. The existence of unsystematic risk shown in figure 27 indicates that the markets are yet fully integrated. But, we can clearly see that the markets are gradually getting more regional or global integrated. A strong on-going integration movement can be seen among the emerging countries within APEC region.

4.5 Regional Integration versus Global Integration (Adjusted A and B scores) and Unsystematic Risk (Adjusted C score)

Adjusted integration score brings market capitalization into account for both regional and global integration measurement. The market capitalization values are obtained from World Federation of Exchanges. Particularly, Shanghai Stock Exchange has just started giving market information to the said organisation since 2002. Therefore, in this section, the analysis of China will start from 2002.

Figure 27 represents adjusted regional and global integration of nine emerging sampling countries during the sample period and Figure 28 presents adjusted unsystematic risk of nine emerging sampling countries. The outcome from figure 27 shows slightly different result compared to figure 25. It indicates that the emerging sampling markets are more regionally integrated from 1995 to 1999 and 2006 to 2008 respectively. In addition, emerging sampling markets are more globally integrated during tranquil period, particularly from 1999-2006. Also, according to both figures 27 and 28, we can clearly see that the regional integration scores during financial crisis period in both 1997 and 2007 have increased tremendously. We can say, based on our sampling test, the integration movements among emerging countries within APEC are getting stronger, especially during financial crisis period. We can extrapolate this and say that financial crisis accelerates regional equity market integration. The findings align with many studies mentioned at chapter 2 (Kim & Lee, 2008; Ratanapakon & Sharma, 2002; Jeon et al, 2006; Fung, L, et al, 2008; Danareksa Research Institute, 2004).
We presented the below hypotheses before the sampling test.

**Hypothesis 1:** Emerging Markets within APEC region are regionally integrated but far beyond integrated with world market.

**Hypothesis 2:** Emerging Markets within APEC are regionally segmented but globally integrated.
Based on the result generated, we found strong evidences from the adjusted integration scores that indicate strong regional integration movement with S&P Asia Pacific during crisis period but strong global integration with MSCI AC Price Index during tranquil period. Both hypotheses are true depends on the global economic scenario. Therefore we cannot significantly reject Hypothesis 1 and 2. Also, the results support mild market segmentation within APEC emerging countries. The results above show the market are neither segmented nor integrated in both regional and global market.

Integration is a process but not an end in itself. Cooper (1974), Erruza and Losq (1985), Bekaert and Harvey (1997) and Carrier el at (2006) supported that the degree of integration is time varying. Our results align with both studies that no optimal integrated area. Throughout the result we generated above, we didn’t find perfectly regional or global integrated markets. Countries are making effort to transform from market segmentation to market integration in order to be more regionally or globally integrated through times. Also, the results align with the studies done by Asplund and Friberg (2001, p. 12) who rejected the holding of LOOP and concluded no perfect integration.

From the results we generated from each emerging country, we agree with the findings contributed by Bekaert and Harvey (1995). The degrees of financial integration of emerging countries are not consistent with each others as contributed by the differences in intensity and also the efficiency of reform implementation.

At the latter part of this section, we will look into each emerging sampling country individually on its degree of regional integration and global integration by observing the changes of its both adjusted regional and global integration scores and conclude whether the country is regionally or globally integrated. Subsequently we will present in depth judgments on whether integration has been progressing in each individual country and how this progress has been supported by what we understood from reality review at Chapter 2 for respective countries. Additionally, we present challenges ahead and future efforts needed by individual countries to promote integration.
4.6 APEC Emerging Equity Markets

4.6.1 Chile (Santiago Stock Exchange)

![Chart showing regional and global integration scores for Chile from 1995 to 2008.](image-url)

**Figure 29** Chile regional and global integration, 1995-2008  
*Source: Authors*

<table>
<thead>
<tr>
<th>Year</th>
<th>Chile Regional Integration</th>
<th>Chile Global Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>0.51933</td>
<td>0.09695</td>
</tr>
<tr>
<td>1996</td>
<td>0.20826</td>
<td>0.84559</td>
</tr>
<tr>
<td>1997</td>
<td>2.86604</td>
<td>0.00165</td>
</tr>
<tr>
<td>1998</td>
<td>1.97945</td>
<td>0.64065</td>
</tr>
<tr>
<td>1999</td>
<td>0.25345</td>
<td>0.02863</td>
</tr>
<tr>
<td>2000</td>
<td>0.16266</td>
<td>0.10419</td>
</tr>
<tr>
<td>2001</td>
<td>0.03071</td>
<td>0.49882</td>
</tr>
<tr>
<td>2002</td>
<td>0.00140</td>
<td>0.16051</td>
</tr>
<tr>
<td>2003</td>
<td>0.00175</td>
<td>1.07210</td>
</tr>
<tr>
<td>2004</td>
<td>0.00312</td>
<td>0.00600</td>
</tr>
<tr>
<td>2005</td>
<td>0.09950</td>
<td>1.84555</td>
</tr>
<tr>
<td>2006</td>
<td>1.22807</td>
<td>0.04335</td>
</tr>
<tr>
<td>2007</td>
<td>0.85370</td>
<td>0.01300</td>
</tr>
<tr>
<td>2008</td>
<td>2.79658</td>
<td>0.55647</td>
</tr>
</tbody>
</table>

**Table 9** Adjusted Chile regional and global integration scores  
*Source: Authors*

Table 9 and Figure 29 represent regional and global integration process in Chile from 1995 to 2008. It can be observed that regional and global integration reacted dynamically during the whole sample period and dominated the market at different period. From 1995 to 2000, regional integration dominated the market. However, particularly at year 1996, global integration reacted strongly. The high degree of regional integration was contributed by several crises such as Asian crisis in 1997 and Brazilian and Russian crises in 1998. Crises accelerated regional integration. However when the world economy became stable during the period of 2000-2005, global integration dominated the market. The recent credit crunch in
2007/2008 increased the regional integration progress. We expect regional integration will still dominate the market in the coming 2-3 years due to the post effect of credit crunch in 2007 and Chile has been seeking high market integration with the neighbour countries such as Peru and Colombia.

Challenges ahead and future effort needed

The efforts that Chile contributed in strengthening institutions and reforming policies the last 30 years have integrated Chile with region and world economy. Even though the integration progress was impressive, the country had paid considerable price to promote integration. As the way ahead, there are many challenges ahead that Chile should always aware of when promoting integration especially when we are all struggling with the post effect of global crisis. For instance, liquidity level is still considered low and it can be a big obstacle to face financial turbulence. Also continuing strengthen major institution is required in order to well regulate and supervise the market. Timely policy response and well implementation of policy can help avoid costly post effect of crisis. Without well coordination on the institution and policies, the negative effect from global crisis can easily penetrate in Chilean economy and harmfully affect its financial stability.

4.6.2 China (Shanghai Stock Exchange)

![Graph showing China regional and global integration, 1995-2008](image)

Figure 30 China regional and global integration, 1995-2008

Source: Authors

<table>
<thead>
<tr>
<th>Year</th>
<th>China Regional Integration</th>
<th>China Global Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>0.00781</td>
<td>0.05109</td>
</tr>
<tr>
<td>2003</td>
<td>0.00179</td>
<td>0.00705</td>
</tr>
<tr>
<td>2004</td>
<td>0.00030</td>
<td>0.00065</td>
</tr>
<tr>
<td>2005</td>
<td>0.00002</td>
<td>0.14772</td>
</tr>
<tr>
<td>2006</td>
<td>0.00583</td>
<td>0.00934</td>
</tr>
<tr>
<td>2007</td>
<td>0.51633</td>
<td>0.02625</td>
</tr>
<tr>
<td>2008</td>
<td>1.11069</td>
<td>0.05790</td>
</tr>
</tbody>
</table>

Average 0.23468 0.04286

Table 10 Adjusted China regional and global integration scores

Source: Authors

75
China’s global and regional integration can be clearly seen in the market openness in trade business. However, our research is done based on the correlation of market index between China and regional and global market respectively. Figure 30 and table 10 represent the regional and global integration progress in China from year 2002 to 2008. One of our limitations in this study was the data collection. Particularly for China, we obtained only reliable data from year 2002 onwards. The analysis can only provide the integration result after China’s accession to WTO in 2001. We noticed that global integration was dominating the Chinese market from 2002 to 2006 and it was mainly due to the commitment on liberalization policies after the accession to WTO. Thereafter, from 2007 onwards regional integration aggressively progress especially during the global crisis period. It can be observed that global integration has been dominating Chinese market from the integration scores which show global integration greater than regional integration 5 times out of 7 years. However, the global crisis accelerated the regional integration progress which result high regional integration score in 2008 (1.11) and has completely transformed China’s global integration to regional integration.

Financial integration helps transform the country to global or region financial centre. The efforts that China has contributed have made China one of the successful examples. Shanghai, particularly, is moving towards to the goal of becoming international financial centre by 2020.

**Challenges ahead and future effort needed**

China has been gradually liberalising its market after the imposition of open door policy in 1970 and the accession to WTO in 2001 which both trigger rapid growth in both economy and financial aspect. Also, China will increase its central role in promoting Asia integration and might become more important than Japan.

However, some restrictions and difficulties are still remaining in the market and require urgent resolution to favour both domestic and foreign investors. For instance, China is still imposing formal and hidden restrictions on foreign investment in media and telecommunication industry. The government still prefer having capital from ethnic Chinese sources. Also, the language barriers, complex accounting regulation and lack of market efficiency and transparency have made the market access more challenging for foreign investors. Investors are still looking forward to see more effort to be done by Chinese government.
4.6.3 Indonesia (Indonesian Stock Exchange)

Figure 31 Indonesia regional and global integration, 1995-2008.
*Source: Authors*

<table>
<thead>
<tr>
<th>Year</th>
<th>Indonesia Regional Integration</th>
<th>Indonesia Global Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>0.62274</td>
<td>0.06944</td>
</tr>
<tr>
<td>1996</td>
<td>1.16617</td>
<td>0.16772</td>
</tr>
<tr>
<td>1997</td>
<td>6.79231</td>
<td>4.99266</td>
</tr>
<tr>
<td>1998</td>
<td>11.33418</td>
<td>10.58252</td>
</tr>
<tr>
<td>1999</td>
<td>0.03711</td>
<td>1.88143</td>
</tr>
<tr>
<td>2000</td>
<td>0.33699</td>
<td>0.04818</td>
</tr>
<tr>
<td>2001</td>
<td>1.41111</td>
<td>2.33462</td>
</tr>
<tr>
<td>2002</td>
<td>0.04572</td>
<td>0.17001</td>
</tr>
<tr>
<td>2003</td>
<td>0.18702</td>
<td>0.06308</td>
</tr>
<tr>
<td>2004</td>
<td>0.51347</td>
<td>0.44608</td>
</tr>
<tr>
<td>2005</td>
<td>0.25317</td>
<td>2.15956</td>
</tr>
<tr>
<td>2006</td>
<td>0.43458</td>
<td>0.79210</td>
</tr>
<tr>
<td>2007</td>
<td>6.47410</td>
<td>1.13352</td>
</tr>
<tr>
<td>2008</td>
<td>8.77712</td>
<td>0.25412</td>
</tr>
</tbody>
</table>

Table 11 Adjusted Indonesia regional and global integration scores
*Source: Authors*

Figure 31 and Table 11 present Indonesia regional and global integration progress and its integration scores respectively. Our result showed different outcome with empirical studies which stated Indonesia as an isolated market. Despite of the regional or global integration, the integration progress in Indonesia showed strong response. During the Asian financial crisis, Indonesia was integrated with both regional and global market. From 2000 to 2005, global integration was dominating the market. And from 2006 onwards, regional integration show aggressive progress especially during the world crisis period. The result aligns with the conclusion conducted by UNDP (Chhibber. A et al, 2009, p.15) on Asia pacific region. Indonesia was pointed out having high financial integration with both regional and global market but coupled with fragility financial system.
During the whole sample period, as shown in table 11, we can clearly see that the regional integration is still more aggressive than the global movement as it is greater than global integration 9 times out of 14 years. Since Indonesia has been actively involving in ASEAN development, we expect to see regional integration dominate the market in the coming days.

**Challenges ahead and future effort needed**

Indonesia market have been seriously damaged by the economic and financial crisis and coupled with internal political problem have caused difficulties for the implementation of market liberalization policies. We notice the effort the country contributed to restructure the country and the market. However, uncertain period of restructuring can be a disturbance to restore investor’s confidence. Effective enforcement is needed to implement liberalization policies which can enhance integration level.

Indonesia market is relatively smaller and less liquid compared to other sampling emerging countries. Also, in term of transaction cost, the transaction cost is still considered expensive. With such background, the competitiveness of Indonesia is still needed to be strengthened.

**4.6.4 Malaysia (Bursa Malaysia)**

![Figure 32 Malaysia regional and global integration, 1995-2008](image)

*Source: Authors*
Figure 32 and Table 12 present the Malaysia integration movement from 1995 to 2008. Several points are notable from the above results. We can clearly see that the regional integration is more aggressive than the global movement as it is greater than global integration 11 times out of 14 years. During the period of 1996-1998 when Malaysia rejected financial aids from IMF and imposed capital control and pegged exchange rate to USD after it was seriously affected by Asian crisis, Malaysia experienced strong regional integration compared to 2000s. Regionally, the imposition of capital control measurement after crisis did not cause the equity market to be segmented but resulted in high integration level. In July 2005, when Malaysia unpegged the exchange rate, the result does not show any impact to integration level. The result aligns with the conclusions made by Mansor (2006, p.437) and Yeoh et al (2009, p.8). From 2000 to 2004, it was the global market integration dominating Malaysian equity market. From the result shown, Malaysian equity market transformed from being significantly vulnerable into insignificantly affected in responding to world market movement. In addition, during the global crisis in 2007/2008, Malaysia was less impacted. Therefore it doesn’t show significant impact on integration level during that period.

Lean and Ghosh (2009, p.10) discovered that Malaysia was well integrated with Japan but now is also well integrated with China and India. They didn’t find significant relationship between Malaysia and US. This trend aligned with the government policies which aim at reducing economic dependency on US.

Supported by the literature review which indicates Malaysia is a regional integration focused country and with the result generated, we can conclude that Malaysia is more regionally integrated and yet less globally integrated. Furthermore, we believe that regional market development will still significantly dominate Malaysian equity market in the coming days. The result align with the research by Mansor (2006, p.439)

**Challenges ahead and future efforts needed**

Asian crisis which was more region oriented reduced the correlation between Malaysia and global market. But the influences of global markets may become significant as time goes by. Our result suggests that the equity market of Malaysia is regionally integrated. To some
extent, there is room for Malaysia to strive for globally integration. Furthermore, the current Prime Minister, Mr. Najib Tun Razak, announced several liberalization proposals in 2009 that has attracted many important international players setting operation plants in Malaysia. Malaysia will soon increase its global presence. That is the goal for the country. Therefore, policy makers should also bring global financial fluctuation into account when they design policies.

As the strategic geographical presence it has, Malaysia is surrounded by many competitive markets such as China, India and Korea. The growth in those markets has been tremendous these years and it has brought significant impact on their weighting in global equity benchmark indices. Therefore, Malaysia government has to continuously design profitable and attractive investment portfolio in order to increase its competitiveness and attract investment flows to increase its market capitalization. (Ranjit, A. A, 2009)

The liquidity level and trading velocity level in equity market remain relatively low and have become a threat to market integration. Therefore, Bursa Malaysia should critically increase effort in order to attract new entrants.

**4.6.5 Mexico (Mexican Stock Exchange)**

![Graph of Mexico regional and global integration, 1995-2008](image)

Figure 33 Mexico regional and global integration, 1995-2008
Source: Authors
Table 13 Adjusted Mexico regional and global integration scores

<table>
<thead>
<tr>
<th>Year</th>
<th>Mexico Regional Integration</th>
<th>Mexico Global Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>0.16683</td>
<td>0.00120</td>
</tr>
<tr>
<td>1996</td>
<td>0.50544</td>
<td>0.07171</td>
</tr>
<tr>
<td>1997</td>
<td>1.16065</td>
<td>0.06750</td>
</tr>
<tr>
<td>1998</td>
<td>2.52640</td>
<td>0.84495</td>
</tr>
<tr>
<td>1999</td>
<td>0.01152</td>
<td>0.34251</td>
</tr>
<tr>
<td>2000</td>
<td>0.00000</td>
<td>0.03167</td>
</tr>
<tr>
<td>2001</td>
<td>0.00001</td>
<td>0.08189</td>
</tr>
<tr>
<td>2002</td>
<td>0.03469</td>
<td>0.26433</td>
</tr>
<tr>
<td>2003</td>
<td>0.00846</td>
<td>0.23514</td>
</tr>
<tr>
<td>2004</td>
<td>0.04317</td>
<td>0.02282</td>
</tr>
<tr>
<td>2005</td>
<td>0.20290</td>
<td>0.70666</td>
</tr>
<tr>
<td>2006</td>
<td>0.11173</td>
<td>0.05486</td>
</tr>
<tr>
<td>2007</td>
<td>0.22252</td>
<td>0.05698</td>
</tr>
<tr>
<td>2008</td>
<td>1.23389</td>
<td>0.35980</td>
</tr>
</tbody>
</table>

The figure 33 and table 13 present the financial integration of Mexico from 1995 to 2008. According to the result shown which aligns with Adler and Qi (2003), the financial integration of Mexico in both region and global term was very low in the early 1995 due to the financial crisis, often called “tequila” crisis, and peso devaluation. However, the level of financial integration for the period showed a rapid increase in both regional and global term from late 1995 to the early 1998. In the context of that period of time, Mexico proactively participated in various programs initiated by other countries from around the world to recover from negative shocks such as Bilateral Programs of Business Meetings: “Mexico – European Union Business Meetings Programme. 1995-1998”; ECIP Programme, AL-INVEST Programme, Support for Mexican exports to the European Union (1995-1999). The country also actively tightened its diplomatic ties with United States that belongs to APEC region in order to rebound its growth. During the discussed period of time, the regional financial integration showed a stronger trend than global financial integration. The pace of financial integration slowed down after 1998 due to the prudent policy. Mexico designed a prudent policy in order to cope with external shocks in the view of the possibility of the U.S economy slowdown.

In the context of a favourable external environment within 2002-2007, thanks to different supporting factors such as improved economy, institutional reforms, the liberal commercial and financial policies and investment barrier removal, the degree of integration had been increased and financial openness had been gradually improved. All these factors mentioned above facilitate an increasing degree of financial market integration of Mexico into the world capital market as well as regional markets.

Although the level of financial integration during recent years was low, the country has been slowly more financially opened. Surprisingly, while other emerging markets tended to have a lower financial integration level from 2007, Mexico financial integration started to rise up higher during the current global crisis. The country, absolutely, was impacted by the global turmoil. However, good economic management withdrawn from lessons during some periods
of economy recession, the country has room to offset the impact of the economic downturn. Although the level of financial integration in Mexico during the last ten years has not been able to reach as high as it used to be, the country is believed to be financially integrated.

**Challenges ahead and future efforts needed**

As other Latin American countries, Mexico has various strengths besides some weaknesses. The country posted good economic results during the last 10 years after the country’s tequila crisis. Due to some financial crises that Mexico experienced, the country currently still follows a prudent policy on economic expansion in order to avoid any external shocks. Therefore, Mexico has a good macroeconomic management and a sound financial system that contribute much to the process of financial integration. However, Mexico’s economy is known to have close links to the U.S economy so it is easily impacted by the U.S economy. Apparently, being less dependent on another country’s economy is good for Mexico. We also mentioned the degree of financial integration of the country in the view of global and region, it is clear that the country has experienced different levels of financial integration during time. Thanks to the process of financial integration, the country has enjoyed benefits to access the world capital markets and to enrich its own market as well as local investors. At the same time, it has brought the country some challenges. The country is recommended to prepare itself to cope with the global and regional challenges. It should strengthen its macroeconomic fundamentals and improve its legal and regulatory framework. Moreover, Mexico should be more active with the global community and regional cooperation so that it can enhance international financial architecture.

**4.6.6 Philippines (Philippines Stock Exchange)**

![Figure 34 Philippines regional and global integration, 1995-2008](source: Authors)
Figure 34 and table 14 represent the regional and global integration progress in Philippines from year 2002 to 2008. The chart above indicates that regional financial integration has frequently recorded a positive trend of financial integration process in Philippines. Before 2000, there was almost no global financial integration because the country had so many restrictions on international investments that prevented the investment interest from foreign investors. The global financial integration trend finally reached highest point during 2004-2005 when the country economy was more opened to the international markets. However, this was not sustained in the year after as the country could not maintain a very good investment environment. Meanwhile, regionally financial integration dominated for such a long time although it was down during 1999 and not was better until 2006. It is said that the country has benefited from APEC membership in three areas: trade and investment liberalization, economic and technical cooperation, and various areas for cooperation (Medalla and Balboa, 2007, p.3). The strong cooperation of Philippine and member countries is a supportive reason to explain why the country experienced a high regional integration time over time. However, comparing to other countries in our sample, Philippine is not an active country that records a good financial integration process because the country is known not to be actively participated in the negotiation among member countries in implementing progressive liberalization. In order to comment on the financial integration of the country, we can say the country experienced strong regional integration rather than global integration from 1995 to 2008.

**Challenges ahead and future effort needed**

Although Philippine initiated financial service integration since 1960s in two phases, in which the second phase began in 1908s with the introduction of financial liberalization and then reinforced by further financial sector deregulation and advance information and technology in 1990s, the country still lags behind other emerging APEC member countries. There has been increasing participation of international investors but still limited due to some investment and trade barriers that have not been removed. Besides that, the inconsistency between the standard regulations and supervision over financial sector has been another problem recently.

<table>
<thead>
<tr>
<th>Philippines Regional Integration</th>
<th>Philippines Global Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995 1.61125</td>
<td>0.04501</td>
</tr>
<tr>
<td>1996 1.61883</td>
<td>0.01681</td>
</tr>
<tr>
<td>1997 3.65459</td>
<td>0.01530</td>
</tr>
<tr>
<td>1998 7.86902</td>
<td>0.01189</td>
</tr>
<tr>
<td>1999 0.02354</td>
<td>0.03308</td>
</tr>
<tr>
<td>2000 0.05460</td>
<td>0.00200</td>
</tr>
<tr>
<td>2001 0.04873</td>
<td>1.20992</td>
</tr>
<tr>
<td>2002 0.44088</td>
<td>0.16257</td>
</tr>
<tr>
<td>2003 0.41240</td>
<td>0.01553</td>
</tr>
<tr>
<td>2004 0.78692</td>
<td>0.57142</td>
</tr>
<tr>
<td>2005 0.89240</td>
<td>5.34142</td>
</tr>
<tr>
<td>2006 0.33965</td>
<td>0.21123</td>
</tr>
<tr>
<td>2007 12.71474</td>
<td>0.02957</td>
</tr>
<tr>
<td>2008 22.50348</td>
<td>0.01265</td>
</tr>
</tbody>
</table>

Table 14 Adjusted Philippines regional and global integration scores
Source: Authors
Therefore, in our opinion, if Philippines can focus more on enhancing risk management, promoting a stronger and more stable financial system, removing unnecessary barriers that prevent international investments, providing easier access to local and foreign investors, it will be easier for them to achieve more benefits from financial integration and avoiding spill over effects.

**4.6.7 Peru (Lima Stock Exchange)**

![Graph](image)

Figure 35 Peru regional and global integration, 1995-2008

Source: Authors

<table>
<thead>
<tr>
<th>Year</th>
<th>Peru Regional Integration</th>
<th>Peru Global Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>0.40735</td>
<td>9.34172</td>
</tr>
<tr>
<td>1996</td>
<td>12.53409</td>
<td>0.02184</td>
</tr>
<tr>
<td>1997</td>
<td>3.88649</td>
<td>0.05978</td>
</tr>
<tr>
<td>1998</td>
<td>5.38933</td>
<td>5.71989</td>
</tr>
<tr>
<td>1999</td>
<td>0.09452</td>
<td>0.11842</td>
</tr>
<tr>
<td>2000</td>
<td>1.77525</td>
<td>3.70817</td>
</tr>
<tr>
<td>2001</td>
<td>0.00728</td>
<td>0.76812</td>
</tr>
<tr>
<td>2002</td>
<td>0.62969</td>
<td>2.82074</td>
</tr>
<tr>
<td>2003</td>
<td>0.48272</td>
<td>2.21592</td>
</tr>
<tr>
<td>2004</td>
<td>1.88481</td>
<td>0.00063</td>
</tr>
<tr>
<td>2005</td>
<td>0.02348</td>
<td>3.08510</td>
</tr>
<tr>
<td>2006</td>
<td>0.01061</td>
<td>3.87444</td>
</tr>
<tr>
<td>2007</td>
<td>6.51292</td>
<td>0.62494</td>
</tr>
<tr>
<td>2008</td>
<td>14.54620</td>
<td>1.23865</td>
</tr>
</tbody>
</table>

Table 15 Adjusted China regional and global integration scores

Source: Authors

Figure 35 and table 15 indicate the financial integration trend in Peru from 1995 to 2008. The country, can be said, has experienced stronger financial integration level than other countries in the same region in term of global and region. The global and regional financial integration
intertwined during years. The country enjoyed a very high global financial integration in 1995 thanks to favourable business climate and a huge flow of foreign capital to the market in the early 1990s, this trend dramatically fell down in the next year 1996 because of the first wave of capital outflow. The globally financial integration downswing could not increase until 1998 after the successful implementation of various policies and measures in order to confront with the capital outflows happen during the previous year. Peru has been believed to have a strong growth at a rate about 7 percent annually added low inflation rates, a legal framework that encourages foreign investment and strong cooperation with other countries in region. Since the country’s income partly relies on the demand of China and most of Asian countries within APEC, the results appeared more reasonable in 2008 when regional integration showed a stronger movement. Peru has enjoyed good financial integration that can be mainly explained by the increase in foreign direct investment and long-term debt, the strong diplomatic ties with other countries around the world.

Challenges ahead and future efforts needed

Peru now boasts one of APEC’s most dynamic economies when the country continues grow at a rate of 7 percent annually. The country also has strong diplomatic ties with economic partnership around the world. United States is currently Peru’s biggest export and investment partner besides China that also forms a valuable relationship to the country’s economy. The country has received a lot of positive feedback on the country’s economy growth prospect and to be in a significantly better economic standing than other emerging markets. However, this behaviour should be tightened through the macroeconomic stability management that is responsible for stable inflows of long term capital. In order to enhance resilience in the face of shocks, Peru should seek to maintain adequate foreign exchange reserve and improve the monetary policy so that the country can avoid the dollarized economy. The political uncertainty is another issue should be mentioned because it will also influence the financial integration results. The country is strongly recommended to maintain strong ties with economic partnership so that the country can enhance the financial integration level.

4.6.8 Russia (RTS Stock Exchange)

Figure 36 Russian regional and global integration, 1995-2008

Source: Authors
Figure 36 indicates that the global integration has dominated Russia before 2005. However, the integration trend changed to regional integration in 2005. Before that foreign investors enjoyed a very smooth investment environment with not many barriers and with the thought of a stable political situation in Russia. As we mentioned above, the crisis of 1998 had considerably affected on the international investors in Russian that make the global integration plummeted dramatically in 2000. The figures of foreign capital inflow went down from USD19.5 billion in 1998, USD10 billion in 1999 and USD11 billion in 2000. It led to the decreasing level of global integration during the last few years. Instead, the regional integration has been stronger from 2005 while it was very low before 2005. Although the country had become a member of APEC since 1998, it did not benefit much the regional economic cooperation. However, since 2005, the country has strengthened its role with APEC countries by participating different programs and it begun to accumulate rich experience of cooperation with its APEC partners. Therefore, the regional integration has been stronger. In conclusion, the general trend for the country during the examined period can be said that it was tended to global financial integration rather than regional financial integration.

**Challenges ahead and future efforts needed**

Russian has been commented as a relative successful economy during the first decade of its modern history. Although the country was known to gain huge growth in total capitalization, rapid increase in the number of stocks, trading volume and the ease to access the capital markets for international investors, weaknesses in financial structure still remains. The country economic growth heavily relies on energy prices that easily lead to volatility. The current global crisis hit the country’s economy very hard. Moreover, the stock market, during the last years, turned out to be very sensitive to political events. In short term, there is highly uncertain prospect for the economy growth although a return to growth seems achievable in the medium run. Some can be listed below:

1. Financial risks.
2. The vulnerability of economic growth
3. The heavy reliance on energy prices which easily affect the stock prices.
4. Unstable political situation.

Therefore, the country should consider the models that are currently implemented so that it
can be properly adjusted as soon as possible. In addition, strengthening the cooperation with member countries in APEC region should be tightened. The country also is highly recommended to be flexible avoid the heavy reliance on the shock prices coming from oil, gas and metal.

4.6.9 Thailand (Thailand Stock Exchange)

![Figure 37 Thailand regional and global integration, 1995-2008](image)

Source: Authors

<table>
<thead>
<tr>
<th>Year</th>
<th>Thailand Regional Integration</th>
<th>Thailand Global Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>1.57308</td>
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</tr>
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<td>1997</td>
<td>0.45703</td>
<td>4.74410</td>
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<tr>
<td>1998</td>
<td>17.29466</td>
<td>2.31334</td>
</tr>
<tr>
<td>1999</td>
<td>0.97600</td>
<td>0.95145</td>
</tr>
<tr>
<td>2000</td>
<td>0.00263</td>
<td>2.28200</td>
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<tr>
<td>2001</td>
<td>0.93010</td>
<td>0.00566</td>
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<tr>
<td>2002</td>
<td>0.00548</td>
<td>0.58798</td>
</tr>
<tr>
<td>2003</td>
<td>0.00077</td>
<td>0.37613</td>
</tr>
<tr>
<td>2004</td>
<td>0.24085</td>
<td>0.50739</td>
</tr>
<tr>
<td>2005</td>
<td>0.01823</td>
<td>0.00003</td>
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<tr>
<td>2006</td>
<td>0.01150</td>
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</tr>
<tr>
<td>2007</td>
<td>1.85747</td>
<td>0.00879</td>
</tr>
<tr>
<td>2008</td>
<td>8.92823</td>
<td>0.80162</td>
</tr>
</tbody>
</table>

Table 17 Adjusted Thailand regional and global integration scores
Source: Authors

According to figure 37 and table 17, regional integration dominated the integration trend of Thailand during 1997 to 1999 but this trend had maintained a modest level before 1997. The most notable, perhaps was the year 1997 regional financial integration peaked the highest
point. After 1999, the trend of integration was globally stronger than regional integration but both of them were at low level. We can say the progress of regional financial integration increased at a slow pace but the progress of the global basis developed stronger than regional integration. After 2006, global integration increased very fast while regional integration was more pronounced after 2005 onwards. However, after 2006, the regional integration level decreased dramatically and up-swung in 2007 slightly. The country, although still had some direct access barriers for international investors, the foreigners had a long participation history in the Thai stock market. In addition, the country recently opened the financial markets to attract more investment through Thai trading funds worldwide that helped foreign investors access the market easier. All of the factors increased the possibility for Thailand to move on with the process of financial integration. Therefore, we can say Thailand has been an integral part of global economy, while the country still maintains a moderate degree with other countries in the region.

Challenges ahead and future effort needed:

Thirteen years ago, Thailand was known as a ground zero from the crisis that began with the collapse of its own currency. Thanks to significant development in risk management and regulatory framework after 1997 crisis, the country now has a healthy financial sector that has been more attractive to investors around the world. Unfortunately, the current global crisis do place the country in a not much tough situation but still has brought some challenges that can prevent the country from the financial integration process. An outstanding issue to financial integration should be mentioned is the country’s political uncertainty. Looking backward and forward, this factor has led to the weak investors’ confidence and unfavourable investment climate. Therefore, the government should take more action in order to remove the cloudy environment and to get back the confidence from investors around the world. During this period of uncertainties, the monetary policy became more complicated in order to be in line with some problems the country has been facing such as the unstable bath movement which would largely depend on external developments. Other issues should be indicated here are the methods the country used on managing risks and challenges cited by globalization. Although the country overcame the difficulties caused by financial crisis in 1997, the needs of setting up a package that can help the financial system regain and strengthen quickly to any negative shocks should be recommended. Financial sector is another issue should be highlighted as one of the challenges that Thailand has to cope with in order to promote financial integration level. As Thai financial sector does not have strong financial intermediaries as well as the market players do not get used to with different views and risk appetites that can make the financial sector easily weak if there is any strong external competition. Last but not least, the degree of financial openness in Thailand is an important issue that prevents movement of financial integration gets stronger. As we mentioned above, in order to increase the financial openness, capital control measure should be discussed in details in order to utilize its positive tool in reducing the financial misalignment with economic fundamental

4.7 Promising countries for investment priority

Additionally, as we understood that the higher the adjusted score is, the higher the market integration therefore lowers diversification opportunities. However, weak integration does not necessarily imply the existence of diversification opportunities if the markets are thinly traded. In other words, the lower the contribution to systemic risk relative to compared market capitalization, the higher will be the diversification benefits. Therefore, based on the
result generated from 1995 to 2008, we ranked the countries by looking at the adjusted score, regionally and globally.

The most promising countries in terms of diversification benefit and investors can seek for investment priority for the region markets are:

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Countries</th>
<th>Regional adjusted Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RUSSIA</td>
<td>0.12970</td>
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<tr>
<td>2</td>
<td>CHINA</td>
<td>0.23468</td>
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<tr>
<td>3</td>
<td>MEXICO</td>
<td>0.44487</td>
</tr>
<tr>
<td>4</td>
<td>CHILE</td>
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</tr>
<tr>
<td>5</td>
<td>MALAYSIA</td>
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<td>THAILAND</td>
<td>2.40836</td>
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<tr>
<td>7</td>
<td>INDONESIA</td>
<td>2.74184</td>
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<tr>
<td>8</td>
<td>PERU</td>
<td>3.44177</td>
</tr>
<tr>
<td>9</td>
<td>PHILIPPINES</td>
<td>3.78365</td>
</tr>
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</table>

Table 18 Investment priorities for region markets
Source: Authors

The most promising countries in terms of diversification benefit and investors can seek for investment priority for the world markets are:

<table>
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<th>Countries</th>
<th>Global Adjusted Integration</th>
</tr>
</thead>
<tbody>
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</tr>
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<td>MALAYSIA</td>
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<tr>
<td>3</td>
<td>MEXICO</td>
<td>0.22443</td>
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<tr>
<td>4</td>
<td>RUSSIA</td>
<td>0.28744</td>
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<td>CHILE</td>
<td>0.42239</td>
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<td>THAILAND</td>
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<td>INDONESIA</td>
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<tr>
<td>9</td>
<td>PERU</td>
<td>2.39988</td>
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</table>

Table 19 Investment priorities for world markets
Source: Authors

From the results presented at figure 28, we realised that financial crisis accelerates regional equity market integration. Therefore, the above regional and integration scores can be served as recommendations to provide the investors the investment priorities when they make investment decision during crisis and tranquil period. The investors can seek for global investment during crisis period. They can, however, invest in regional investment during tranquil period.
Chapter 5- Limitation & Conclusion

This chapter consists of limitations, further research suggestion on integration direction and the conclusions drawn from our study.

5.1 Limitation

There are some limitations that can affect our result generated. We faced difficulties during data collection as some of the important data are not available. As we employed quantitative approach in our study, every single data is very crucial to decide whether or not we monitor the development on a timely manner. We wanted to use S&P/IFCG for each country but the data we need has been deactivated for some periods.

Secondly, we found no market index for Papua New Guinea market and also abandoned Vietnam in this study as Vietnam is not categorized as emerging market but a frontier market. We could only retrieve market index of Russia from end of January 1998 onwards. Therefore we missed the data to examine both regional and global integration level before 1998.

Thirdly, we required market capitalization of each market to calculate adjusted integration scores. We found no market capitalization value of China from 1995-2001. Therefore we missed to access adjusted regional and global integration scores of China during that period.

5.2 Further Research Suggestion

We see a strong tendency of regional integration on emerging markets within APEC. There is also saying that strong possibility for implementing a common market and common currency, like Euro zone, in APEC. For further research, we suggest that the researchers can discover the possibility level for practicing a common market/currency within APEC region and the pros and cons for employing it. The research will benefit the governments to understand the constraints and finding a way out to improve integration level.

5.3 Conclusion

The objective of this thesis is to investigate the integration levels of equity markets of APEC emerging countries with the exceptions of Papua New Guinea and Vietnam. Using Barari extended approach from Akdogan approach which allows us to examine the regional and global integration simultaneously, we managed to access the degree of both regional and global integration levels and generate below results.

With our research question ‘are emerging markets in APEC regionally or globally integrated?’, we generated two hypotheses:

*Hypothesis 1: Emerging Markets within APEC region are regionally integrated but far beyond integrated with world market.*
*Hypothesis 2: Emerging Markets within APEC are regionally segmented but globally integrated.*
Table 20 represents the differences between regional and global adjusted integration scores of respective countries during the sampling period. In summary, all emerging countries, that were studied, have a varying but significant degree of financial integration in terms of regional and global integration. We therefore cannot reject two hypotheses. Our findings produce different outcomes compared to Chou et al (2002) suggested that Asian emerging markets have become more integrated with world market after 1991. In order to answer our research question, countries such as Chile, Indonesia, Malaysia, Mexico, Philippines, Russia and Thailand are shown to be more regionally integrated but require more efforts to be globally integrated. However, China and Peru are both regionally segmented but globally integrated.

Also, we noticed in our study that crises have the tendency to drive regional integration which can be clearly shown from two respective periods, 1997-1998 and 2007-2008. However, we think that the current integrations of each emerging countries, that were studied, are still limited and there is more room to improve their current integration with region and global markets. Furthermore, we expect to see regional integration will continue dominating the markets in the coming years due to the post effect of global crisis 2007/2008.
References


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Edda, C and Brian, L (2009), Equity Market Integration in the Asia Pacific Region: Evidence from Discount Factors. Melbourne Institute of Applied Economic and Social Research, pp 1-34


Hakkarainen, P, 2006, China’s integration into the world financial system , 41st Workshop on Monetary Questions in Würzburg at Akademie Frankenwarte 5 May 2006, Bank of Finland, p6.


Appendix 1: Domestic Market Capitalization of Sampling countries

<table>
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<td>40,022</td>
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<td>66,454</td>
<td>90,857</td>
<td>29,050</td>
<td>22,078</td>
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<td>26,813</td>
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</table>

(Main & Parallel Markets)
(at US$ millions)
### Appendix 2: Unadjusted Global Integration Scores

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<th>CHINA</th>
<th>INDONESIA</th>
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<th>MEXICO</th>
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## Appendix 3 Unadjusted Regional Integration Scores

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<th>MALAYSIA</th>
<th>MEXICO</th>
<th>PERU</th>
<th>PHILIPPINES</th>
<th>RUSSIA</th>
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