Chapter 2
Theoretical Background

2.1 Literature Review

2.1.1 The Meaning of Capital Market

Capital market is a means of financing for companies and other institutions (e.g. government) and means for investment activities.Capital market has two forms, namely primary market and secondary market. Primary market occurs when issuers sell their securities to general investors for the first time. In the primary market, the company will obtain the necessary funds. After the securities of the issuer are sold in the primary market, then the securities of the issuer can then be traded by and among investors in the secondary market. Secondary market is the place of the sale and purchase of shares among investors. Transactions made by investors in the secondary market will not provide additional funds for companies issuing securities (issuers), because transactions only occur between investors, not with the company.Until now the definition of capital market itself still vary from one source to another. Here are some theories regarding capital market:

1. According to Ang (1997), capital market is an economic instrument that has experienced very rapid growth (Ang, 1997). Capital market is an indicator of economic progress of one country and support the economy of the country concerned.

2. Tandelilin (2001) describes capital market as an intermediary institution that has an important role in supporting the economy because the capital market can connect the parties who have excess funds with parties who need funds. In addition, the capital market can also encourage the creation of an efficient allocation of funds, because with the capital market investors can choose the investment alternative that provides the most optimal return. There are several instruments sold in the capital market, such as, stocks, bonds, mutual funds, and derivative instruments.
3. According to Mary et al. (2012), states that the capital market comprises the complex of institution and mechanism through which intermediate term funds and long-term funds are pooled and made available to business, government, and individual. So, in capital market the party that is involve in here can be in the term of individual, group, organization, or even the government.It also asserted that the capital market comprises the process by which securities already outstanding are transferred and it ensures liquidity as it provides market for both new and old securities

2.1.2 Stock

Ang (1997) states that stocks are securities as evidence of inclusion or ownership of individuals or institutions within a company. The meaning of securities is something that has value and certainly can be traded. Value of stocks based on its function can be divided into three types, namely (Ang, 1997):

1. Par Value. The par value of a share is the value listed on the relevant shares that serves for accounting purposes.
2. Base Price. The base price of a new stock is the initial price, so the base value is the result of multiplication between the base price and the number of shares issued.
3. Market price. The market price is the most easily determined price because the market price is the price of a share in the ongoing market, so this is the market price that states the rise and fall of a stock. If the market price is multiplied by the number of shares issued then the market value will be obtained.

The percentage of ownership is determined by the large percentage of total shares to the total shares of the company.A person who owns a company's stock can be said to be the owner of the companyeven if the person has only a few shares.

Shareholders have rights and responsibilities as well as a company owner. They have the right to determine the direction of the company through the General Meeting of Shareholders (GMS). Surely their rights are limited by the

percentage of the number of shares they have due to the enactment of the principle of "one share one vote".

There are two advantages obtained by investors by buying or owning shares, namely dividend yield and capital gains. Dividend yields are part of the corporate profits distributed to shareholders. Capital gain is obtained from the difference between the purchase price and the selling price. In addition to having a profit, the stock also has a risk called capital loss, a condition where investors sell shares lower than the purchase price. There is also a risk of liquidation, a condition in which the company whose shares are owned, is declared bankrupt.

2.1.3 Stock Price Index

Stock prices are heavily influenced by demand and supply in the capital market.Stock price movements can be seen from the stock price index. Stock price index is the main indicator that describes stock price movement (Darmadji and Fakhruddin, 2001). The movement of stock price index numbers becomes an important indicator for investors to determine if they want to sell, hold, or buy one or more shares.

1. S&P500 Index

   The S&P 500 is one of the most widely quoted American indexes because it represents the largest publicly traded corporations in the U.S. The S&P 500 focuses on the U.S. market's large-cap sector and is also a float-weighted index, meaning company market capitalizations are adjusted by the number of shares available for public trading.

2. FTSE100 Index

The FTSE100 index is representative of approximately 80% of the market capitalization of the LSE in its entirety. Larger companies compose a greater portion of the index because it is weighted by market capitalization. The FTSE 100 is managed by the FTSE Group. It is calculated in real time, and when the market is open, it is updated and published every 15 seconds.The FTSE 100 is often considered an indicator of prosperity among qualifying United Kingdom companies and the economy in general.

3. DJ STOXX 600 Index

The STOXX Europe 600, also called STOXX 600, SXXP, is a stock index of European stocks designed by STOXX Ltd.. This index has a fixed number of 600 components representing large, mid and small capitalization companies among 17 European countries, covering approximately 90% of the free-float market capitalization of the European stock market (not limited to the Eurozone). The countries that make up the index are the United Kingdom (comprising around 27% of the index), France, Germany and Switzerland (accounting for around 15% of the index each), as well as Austria, Belgium, Czech Republic, Denmark, Finland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, and Sweden.

4. JKSE Index

The JCI Index an index calculated as the sum of the regular closing price multiplied by number of shares and divided by the base value of 100.

This index was introduced on 1 April 1983 as the indicator of the prices movement of all stocks listed in the IDX, both for the regular and preferred stocks. August 10, 1982 set as the base date with a base index value of 100 (IDX Fact Book, 2017).

5. KLCI Index

KLCI Index or Kuala Lumpur Composite Index is an unweighted price index of 100 stocks quoted on the Kuala Lumpur Stock Exchange. The Kuala Lumpur Stock Exchange (KLSE) is one of the largest markets in Southeast Asia (Morris et al., 1998). The KLSE was a self-regulatory organization, ft not only governed the conduct of its members and member companies in securities dealings and enforced the listing requirements that spelled out the listing and disclosure standards to be maintained by the listed companies, but also was responsible for surveillance of the market place (About KLSE. 1999). Additionally, in order to build investors' confidence, the exchange was set to expand its role in line with changing market requirements, with a view to provide an attractive, secure, and conducive environment.

The Kuala Lumpur Stock Exchange (KLSE) went through several name changes over the years. These names include the Malayan Stock Exchange, which began trading securities to the public in 1960, and the Stock Exchange of Malaysia, which would rename as the Stock Exchange of Malaysia and Singapore.

In 1973, the Stock Exchange of Malaysia and Singapore separated into the Kuala Lumpur Stock Exchange Bhd (KLSEB) and the Stock

Exchange of Singapore. The need for this separation was due to Singapore gaining independence and the ending of the interchangeability of currencies. The name of the KLSEB changed to the Kuala Lumpur Stock Exchange in 1994.

In a move to become more customer focused, the exchange demutualized in 2004. With demutualization, a business which has member ownership converts into one which has shareholders. Also, with this change in ownership structure, the name changed to Bursa Malaysia. The exchange entered into a partnership with the Chicago Mercantile Exchange (CME) to offer derivatives and launched the Islamic banking, the Shari'ah-compliant trading platform in 2009.

Today, the exchange continues to work with others around the globe to promote performance and transparency in global capital markets.

6. SET Index

SET Index is a market capitalization weighted average index calculated from share prices of all common stocks listed on the Stock Exchange of Thailand (SET). The figures were gathered from the SET on-line database. The Stock Exchange of Thailand (SET) is a non-profit organization under the control of the Ministry of Finance (Surmsrisuwan, 1995). It is an auction market without designated specialists. The exchange once assumed the functions of the Bangkok Stock Exchange in 1974 (LePoer, 1989). At that time, it never had been very active, in 1975, the Stock Exchange of Thailand was established officially with only nine

listed stocks (Morris et al., 1998). Nevertheless, in 1998, it listed over 400 companies and about 70 mutal funds.

The SET is a full self-regulatory organization which, with the Securities and Exchange Commission (SEC), ensures that all individuals and institutions abide by the established laws, regulations and standards o f Thailand's capital market (About SET: History. Role and Growth Performance. 1999). The exchange tries to encourage institutional investment, which is more stable than individual investment (Morris et al., 1998). More than that, the exchange continuously strives for expansion and improvement of products and services for investors worldwide.

7. PSE Index

PSE index is a market capitalization weighted average index calculated by comparing the total stock market capitalization for the day with that on the previous day. The Philippine stock market is one o f the oldest stock markets in Asia. The Philippine Stock Exchange (PSE) is a computerized linking of the Manila and Makati Stock Exchanges (Morris et al., 1998). Originally, there used to be two stock exchanges, which were the Manila Stock Exchange (MSE) and the Makati Stock Exchange (MKSE, PSE History. 1999). Even though the two exchanges remained as separate entities, they were basically trading the same listed issues. However, on July 1992, the idea to unite the two exchanges was geared towards the development of a more efficient capital market. To consolidate logistics and to hasten development, the leaders of both exchanges agreed on December 23 of the same year to unify under the Philippine Stock

Exchange, Inc. (PSE). From then on, the Philippine Stock Exchange, Inc. established its true identity as the sole stock exchange o f the Philippines.

Towards a truly unified exchange, the PSE was committed to provide an efficient, orderly, fair, transparent and open market in order to aggressively promote capital formation and provide more investment opportunities (Philippine Stock Exchange. 1999). Additionally, the exchange attempted to promote a sense o f belonging among its members, traders, and personnel. It not only developed internal operating procedures, but it also instilled an organizational culture which supported all these objectives.

2.1.4 Stock Market Cointegration

The studies on stock market cointegration have at least two important economic implications. First, a long-run equilibrium relationship is established if two markets are cointegrated. Further, a higher correlation between the markets provides less diversification benefits. Second, the stock markets that are segmented (no cointegration) provide better diversification benefits to the international investors. However, in latter case, predictability of stock market may also be low. Kasa (1992) identified a single common stochastic trend among the developed markets including USA, UK, Canada, Japan and Germany. Kearney and Lucey (2004) argued that methodological developments have given a new perspective to the integration among the international stock markets. Literature on stock market integration has predominantly focused the developed markets over past decade. Hsiao et al. (2003) in their study examined the linkages among the

stock markets of Pacific-Basin, USA and Asia Pacific. Their findings suggest unidirectional significant link between the markets and the US stock market impacts the other stock markets. While studying the USA and four other developed markets of Europe and Asia over the period of 20 years, Kearney (2001) concluded that the flow of conditional volatility transmission runs from Japan to USA to the other equity markets of Europe. Volatility interdependence among the six Asian markets was examined by Chuang et al. (2007). They documented that Japanese stock market dominates other markets and transmits volatility to the rest of the East Asian markets. Further, they reported strong interdependence among the conditional variances of stock markets. The studies by Mukherjee and Mishra (2010), Beirne et al., (2010), Singh et al. (2010) and Weber and Zhang (2012) applied GARCH framework to measure the conditional volatility spillover between international equity markets. Leong and Felmingham (2003) investigated cointegration between the five Asian stock markets and found the evidence of cointegration among them. While examining the cointegration between the ASEAN stock markets, Click and Plummer (2005) concluded the cointegrating relationship among five ASEAN stock markets. In other studies, Wang et al. (2005) documented significant spillover from developed markets (USA and Japan) to the Southeast Asian emerging stock markets, i.e. Pakistan, India and Sri Lanka. Ozdemir et al. (2009) reported significant unidirectional causality running from the US market to Chinese market. According to Goh et al. (2005), Indian stock market was influenced by the USA, Japan and UK markets both in short and long run. The unidirectional causality was highest from the US market followed by the UK and Japanese stock markets. On the other hand, Nath

and Verma (2003), Yang et al. (2003), Huang et al. (2000) and Hsiao et al. (2003) did not find the cointegration among different stock markets of the world. For example, Nath and Verma (2003) did not find cointegration among Indian, Taiwan and Singapore stock markets. Similarly, Yang et al. (2003) did not find cointegration between the US and Indian stock markets. Huang et al. (2000) and Hsiao et al. (2003) concluded no cointegration between the US and Chinese stock markets.

Batareddy et al. (2012) used a sample period of ten years and reported that the developed markets of USA and Japan are cointegrated with the selected Asian markets. However, only one cointegrating vector was found with four common stochastic trends after the Asian financial crises. Furthermore, they show that the four Asian markets are not isolated from the shocks originating from these developed markets. However, the regional or global influences can have considerable differences. According to Masih and Masih (1999), two factors can be attributed for the price leadership of US stock market. First, the international dominance of the US stock market is due to its role as a producer of information. Second, the influential role of the US market on international investors as compared to the rest of the markets. Hence, Asian markets are influenced by the developed market. According to Eun and Shim (1989), any kind of crisis in the USA affects the European and emerging Asian markets. Cheung and Mak (1992) and Lucey and Voronkova (2004) also emphasized that the developed markets have an influence on the stability and returns of the emerging stock markets.

2.2 Previous Research

There are other research that has been done by other researcher that has similar topic with this research. Research done by Dhanaraj, Sowmya; Gopalaswamy, Arun Kumar; Suresh, Babu M., with the title of Dynamic Interdependence between US and Asian Markets: an Empirical Study, published on the Journal of Financial Economic Policy;Bingley Vol. 5, Iss. 2, (2013) page 220-237, the study has employed Granger causality tests and generalized forecast error variance decomposition (FEVD) analysis to analyze the fluctuations in and the extent of short-term interdependence between the US and Asian economies. VAR model was estimated to run the simulations for FEVD analysis. The empirical results from FEVD analysis revealed the dominance of US stock market on Asian markets; the USA being a large economy of the world, an important trading partner and major supplier of capital to Asian region. Stock markets of Asia are not immune to the shocks originating in the USA although the effects of shocks vary considerably across markets. Further, an important implication is that major crisis events can influence the relationship among stock markets. This is one of the first papers in the Asian context examining the interdependence with the US markets. Hence, even though most of the Asian economies went through liberalization, the macroeconomic and financial circumstances were very different before, after and during the process. This motivated the examination of the interactions between US and other Asian markets. Research done by Batareddy, Murali; Gopalaswamy, Arun Kumar; Chia-Hsing Huang., with the title of The Stability of Long-run Relationships, published in International Journal of Emerging Markets; Bradford Vol. 7, Iss. 1, (2012) page 31-48, aims at adding to

the literature on market integration by investigating the hypothesis that the Asian emerging stock markets are increasingly converging with the US stock market over time. The authors use time varying cointegration tests (rolling and recursive cointegration) which allow for time variation in the underlying data generating process (possible structural breaks in the long-run relationships). Ten year index data from mid 1998 to 2008 of the respective stock markets have been used for this study. Empirical findings support the presence of one long-run relationship (cointegration vector) between emerging and developed stock markets. Both domestic and external forces affect stock market behavior, leading to long-run equilibrium but the individual Asian emerging stock markets tend to display stronger linkages with the USA (developed counterpart) rather than with their neighbors. The degree of convergence among Asian emerging markets has increased over the last few years. This research the first paper to study cointegration among Asian emerging stock markets namely India, China, South Korea, and Taiwan, as well as their cointegration with the developed stock markets of the USA and Japan.

While the research done by Royfaizal, R C; Lee, C; Azali, M, titled The Linkages of Asian and the US Stock Markets, it aims to examine the interrelationship between the Asian stock markets namely, Malaysia, Singapore, the Philippines, Thailand, Indonesia, China, Japan, Korea, and the US stock markets. The data consists of weekly stock indexes. The total samples are separated into three subperiods. First period is pre-crisis period spanning from January 1990 to June 1997. Second period is during-crisis period spanning from July 1997 to June 1998. Third period is post-crisis period spanning from July

1998 to February 2009. The empirical results show that the number of significant cointegrating vector is higher during the crisis periods compared to other periods. Granger-causality based on Vector Error Correction Model (VECM) showed that stock markets of Thailand, Japan and China are exogenous before, during and after the crisis respectively. This paper concludes that the linkages between the Asian and the US stock markets are stronger in the post-crisis period.

Bwo-Nung Huang, Chin-Wei Yang, John Wei-Shan Hu., with the title Causality and cointegration of stock markets among the United States, Japan, and the South China Growth Triangle, published on International Review of Financial Analysis; Greenwich Vol. 9, Iss. 3, (2000) page 281-297, tried to explores the causality and cointegration relationships among the stock markets of the US, Japan and the South China Growth Triangle (SCGT) region. Applying the recently advanced unit root and cointegration techniques that allow for structural breaks over the sample period, it is found that there exists no cointegration among these markets except for that between Shanghai and Shenzhen. By invoking the Granger causality test and considering the non-synchronous trading problem, it is shown that stock price changes in the US have more impact on SCGT markets than do those of Japan. More specifically, price changes in the US can be used to predict those of the Hong Kong and Taiwan markets on next day. Similarly, price changes on the Hong Kong stock market lead the Taiwan market by 1 day. Furthermore, the stock returns of the US and Hong Kong markets are found to be contemporaneous. Finally, there is a significant feedback relationship between the Shanghai and the Shenzen Stock Exchanges.

Other research written by Bhunia, Amalendu; Yaman, Devrim. With the title Is There a Causal Relationship Between Financial Markets in Asia and the US? Published on The Lahore Journal of Economics; Lahore Vol. 22, Iss. 1, (Jan/Jun 2017) page 71-90. This study examines whether there is a causal relationship between selected stock markets in Asia and the US. Based on stock values from a sample of nine Asian stock markets, they find a positive correlation with US stock market prices in most cases, the exception being Vietnam. The results indicate significant long-run and short-run causality in both directions between the Asian and US stock markets. These findings show that, while both sets of markets are integrated, there are still valuable opportunities for international investors to diversify their portfolios in the US and Asia.

Table 2.1

Previous Research Study

Author/Journal	Title	Purpose	Tools Analysis	Findings
Dhanaraj, Sowmya; Gopalaswamy, Arun Kumar; Suresh, Babu M./ Journal of Financial Economic Policy;Bingley Vol. 5, Iss. 2, (2013) page 220-237	Dynamic Interdependence between US and Asian Markets: an Empirical Study	To analyze the fluctuations in and the extent of short-term interdependence between the US and Asian economies.	Granger Causality Forecast Error Variance Decomposition (FEVD)	Empirical results from FEVD analysis revealed the dominance of US stock market on Asian markets; the USA being a large economy of the world, an important trading partner and major supplier of capital to Asian region. Stock markets of Asia are not immune to the shocks originating in the USA although the effects of shocks vary considerably across markets.
Batareddy, Murali; Gopalaswamy, Arun Kumar; Chia-Hsing Huang./ International Journal of Emerging Markets; Bradford Vol. 7, Iss. 1, (2012) page 31-48	The Stability of Long-run Relation-ships	Aims at adding to the literature on market integration by investigating the hypothesis that the Asian emerging stock markets are increasingly converging with the US stock market over time.	Time Varying Cointegration Tests	Empirical findings support the presence of one long-run relationship (cointegration vector) between emerging and developed stock markets. Both domestic and external forces affect stock market behavior, leading to long-run equilibrium but the individual Asian emerging stock markets tend to

				display stronger linkages with the USA (developed counterpart) rather than with their neighbors.
Royfaizal, R C; Lee, C; Azali, M./IUP Journal of Financial Economics; Hyderabad Vol. 7, Iss. 2, (Jun 2009): 74-90	The Linkages of Asian and the US Stock Markets	Aims to examine the interrelationship between the Asian stock markets namely, Malaysia, Singapore, the Philippines, Thailand, Indonesia, China, Japan, Korea, and the US stock markets.	Granger-causality based on Vector Error Correction Model (VECM)	This paper concludes that the linkages between the Asian and the US stock markets are stronger in the post-crisis period.
Bwo-Nung Huang, Chin-Wei Yang, John Wei-Shan Hu./	International Review of Financial Analysis; Greenwich Vol. 9, Iss. 3, (2000) page 281-297	To explores the causality and cointegration relationships among the stock markets of the US, Japan and the South China Growth Triangle (SCGT) region.	Advanced unit root and cointegration techniques Granger Causality Test	Applying the recently advanced unit root and cointegration techniques that allow for structural breaks over the sample period, it is found that there exists no cointegration among these markets except for that between Shanghai and Shenzhen. By invoking the Granger causality test and considering the non-synchronous trading problem, it is shown that stock price changes in the

				US have more impact on SCGT markets than do those of Japan. Finally, there is a significant feedback relationship between the Shanghai and the Shenzen Stock Exchanges.
Bhunia, Amalendu; Yaman, Devrim./ The Lahore Journal of Economics; Lahore Vol. 22, Iss. 1, (Jan/Jun 2017) page 71-90	Is There a Causal Relationship Between Financial Markets in Asia and the US?	This study examines whether there is a causal relationship between selected stock markets in Asia and the US.	Correlation analysis, unit root test and Johansen cointegration analysis. It also generates a vector error correction model (VECM)	Researchers found a positive correlation with US stock market prices in most cases, the exception being Vietnam. The results indicate significant long-run and short-run causality in both directions between the Asian and US stock markets.
Valadkhani, Abbas; Chancharat, Surachai./Journal of Economic Studies; Glasgow Vol. 35, Iss. 5, (2008): 425-441	Dynamic linkages between Thai and international stock markets	To investigate the existence of cointegration and causality between the stock market price indices of Thailand and its major trading partners (Australia, Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Taiwan, the	Engle-Granger two-step procedure and the Gregory and Hansen test	Based on the empirical results obtained from these two residual-based cointegration tests, potential long-run benefits exist from diversifying the investment portfolios internationally to reduce the associated systematic risks across countries. However, in the short-run, three unidirectional Granger causalities run from the stock

		UK and the USA), using monthly data spanning December 1987 to December 2005.		returns of Hong Kong, the Philippines and the UK to those of Thailand, pair-wise. Furthermore, there are two unidirectional causalities running from the stock returns of Thailand to those of Indonesia and the USA. Empirical evidence was also found of bidirectional Granger causality, suggesting that the stock returns of Thailand and three of its neighbouring countries (Malaysia, Singapore and Taiwan) are interrelated.
Kim-Leng, Goh; Yoke-Chen, Wong; Kim-Lian, Kok./Review of Quantitative Finance and Accounting; New York Vol. 24, Iss. 4, (Jun 2005): 359.	Financial Crisis and Intertemporal Linkages Across the ASEAN-5 Stock Markets	This study examines the linkages across the stock markets of five countries in the Association of Southeast Asian Nations (ASEAN), namely, Singapore, Malaysia, Indonesia, Thailand and the Philippines.	augmented Dickey-Fuller test Granger F-test Vector autoregressive (VAR) model	Stock returns of the five markets are found to be positively correlated for all three periods. The extent of co-movements grew stronger during the crisis, reflecting the contagion effect of the financial turmoil.

Thangamuthu Mohanasundaram and Parthasarathy Karthikeyan/ School of Management Studies, Kongu Engineering College(2015) No 4:475-485	Cointegration and Stock Market Interdependence: Evidence From South Africa, India And The USA	The purpose of this study is to explore the nature of the association and the possible existence of a shortrun and long-run relationship between the stock-market indices of South Africa, India and the USA.	Normality Test, Granger Causality Test, Johansen Test and VAR.	The result suggests the absence of a long-run relationship among the three stock market indices. Short-run relationship is investigated with the Vector Autoregression (VAR) model, and the outcome obtained shows that both the USA and the South African stock markets are predicted only by their own past lags. However, the Indian stock market is seen to be a function of its own past lags and the past lags of the South African stock index.

2.3 Hypothesis Development

From the above literature review, therefore, we examine the cointegration between the Southeast Asian stock markets and also of Southeast Asian markets with the developed and European stock markets. We believe that this study will contribute to the existing literature and will provide an insight to the regional and international investors while making investments in these stock markets.

In order to achieve our objective, first hypothesis is developed to test the relationship among the emerging Southeast Asian stock markets. The analysis of relationship between Southeast Asian markets is important for regional diversification.

Valadkhani et al. (2006) concluded that Indonesian, Singaporean and Malaysian stock markets impact Thai stock market. Masih and Masih (1999) studied the relationship among South Asian stock markets and found significant cointegrating vectors among the markets of South Korea, Taiwan, Hong Kong and Taiwan. Goh et al. (2005) also concluded that the dynamic relationship exists among the markets of Singapore, Philippines, Malaysia, Indonesia and Thailand. The regional markets seem to be effected by common shocks, hence, we test the following null hypothesis:

H1: There is a linkage among the Southeast Asian stock markets.

The second hypothesis of this study is related to the relationship between emerging and developed markets. According to Darrat and Benkato (2003), Turkish and developed markets of Europe, USA and Japan are interconnected. However, relationship exists in the long-run with the other markets. Darrat and

Zhong (2000), Lucey and Voronkova (2004), Eun and Shim (1989) and Cheung and Mak (1992) discussed the influential role that developed markets have on the emerging and developing markets. The presence of unidirectional or bidirectional relationship between developed and emerging markets can also be important in devising investment strategies in emerging markets that are sensitive to the developed markets. Therefore, to examine the association between the emerging and developed markets, we test the following hypothesis:

H2: The stock markets of Southeast Asia are interlinked with the developed markets.

Third hypothesis of this research is related to the relationship among developed markets. According to Karolyi and Stulz (1996), significant correlation exists between Japanese and the US markets which reduces the diversification benefits. The Central Eastern European markets are also strongly interlinked with each other (Wang and Moore, 2008). Aktar and Ozturk (2009) suggested that the process of globalization is the main driving force behind the international market integration. Floros (2005) found long-term relationship among the developed markets of USA, Europe and Japan.

Unidirectional causality was observed from UK to USA and from USA to Japan whereas bidirectional causality between UK and Japan stock markets. Hence, the hypothesis is presented as:

H3: The developed stock markets are strongly linked to each other.