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Determinants of Integration of Stock Markets: A Study of Pakistan and its Trading Partners

by

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This work is dedicated to my beloved parents who have encouraged me to achieve this milestone and to my respected supervisor Dr. Arshad Hassan, who has been a constant source of inspiration.



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Abstract

This study examines the presence of integration in stock markets of Pakistan and its trading partners which include top ten import (China, UAE, US, Malaysia, Japan, Indonesia, Germany, UK, France, Hongkong) and top ten export (US, UAE, UK, Germany, China, Hongkong, France, Japan, Malaysia, Indonesia). The Geweke (1982) Measure of Feedback methodology is used to presence of integration among sample countries. Then panel data analysis is done by using panel EGLS to identify and explain the changes in stock market integration. The general findings for the Geweke contemporaneous feedback measures provide supportive evidence of increased stock market integration. Our panel data analysis has shown that countries' bilateral trade, macroeconomic differential and financial development differential explain almost 26% percent of the variation in the contemporaneous Geweke feedback. The results also reported that several variables as significantly associated with the evolution of stock markets integration over time. These statistically significant variables include, GDP differential, Interest rate differential, import from '*i*' to '*j*', '*j*' to '*i*' and export from '*i*' to '*j*', '*j*' to '*i*' and market capitalization. This study also supports the investors in economic decision regarding resource allocation. They can form their portfolios, keeping with the views of diversification opportunity in different markets. This study also facilitate the regulators to be vigilant about the effect of the other markets of the risk, so that necessary risk management measure can be initiated.

Keywords: Inflation, GDP, Interest rate, Stocks market.

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Abbreviations

FDI	Foreign Direct Investment
GCMF	Geweke Contemporaneous Measure of Feedback
GDP	Growth Development Product

Chapter 1

Introduction

1.1 Theoretical Background

During the past two decades, the co-movement in the direction of coordinated stock market landscape has achieved momentum. However, between the developed economies, the financial and economical linkages have become very much stronger. The pattern arises because of so many significant markets, which are emerging and they also have very important driver of the global growth in the last few years. There are other reasons also for this fast rise in the world trade, foreign investments as well as capital movements between the removal of legal controls as well as world economies and technological advances. There are many other factors too which also made contribution to the economies that are interlinked, specifically for those times that are not predictable, e.g. Political instability, financial crises that are explosive. There are some financial crises in 2007 because of develops interest so that the determination of the fundamental factors could be made. It also helps in explaining about how the stock markets are in correlation among themselves. Better understanding is created for the reasons of the sudden as well as the immediate fall of wealth which happens during the periods of crises.

Bracker, soenen and Johnson studies are more focused on the market integration through examining the stock markets co movement. In some studies, it has been examined that why integration of stock market is made. The main aim is to find

the gap of the driving forces as well as unclarifying determinants which are beside the stock market. Both stocks as well as emerging market relationship are of great value for the investors who are struggling for the portfolio diversification choice's as well as policy makers and the regulatory bodies. They know about the type of factors which have an effect on the national stock market.

Great opportunities are provided by the capital market integration by the investors move for the purpose of greater diversification to the greater risk as well as expected return projects as they are in the position of diversifying their overall risk. One of the important subjects for experimental investigation is the international market integration. For the purpose of putting up the optimal risk, the variance and expected return are very much important, the investors, portfolio managers as well as financial market regulators as well as return portfolios scan can also get benefits through the new insight between the international equity markets into the Co movements.

In this study, it is examined that what is the degree of the integration between the equity markets of Pakistan that are with the trading partners. The macroeconomics variables are also examined which are associated with the integration of economics and it also explains the changes which are in the stock market integration. As we know that the economic integration degree varies with the passage of time for the series of countries, This study also expects the equity market to vary systematically to some extent.

1.2 Problem Statement

Stock market integration and its determinants are an important area of the economic debates. Evidence on stock market integration is very consistent. However the factor that contributes in stock market integration are still debatable. Pakistan is an emerging market and its historical trends have been very volatile. As the market has again attracted the attention of global investor and analyst so identification of market integration with trading partner and factors influencing integration on basic intergradients of quality decision making.

1.3 Research Questions

1. Is the Pakistani market integrated with its trading partner?
2. What economic factor influences on stock market integration?
3. Whether the differences in interest rate influence market integration?
4. Whether the differences in inflation influence market integration?
5. Whether the differences in GDP growth rate influence in market integration?
6. What is role of bilateral trade in determining the stock market integration?
7. Is there any role of market size in determining economic market integration?

1.4 Objectives of the Study

1. To provide insight about the integration of the Pakistani equity market with its trading partners.
2. To examine the macroeconomic factor that influences the stock market integration.
3. To explain the role of market condition in explaining the stock market integration.
4. To investigate the role of bilateral trade on economic integration.
5. To explore the behavior of economic integration over time.

1.5 Significance of the Study

Pakistan is an emerging market and interest of investor in this market is high, especially after the inclusion of the Pakistani market in the emerging market index, as indicated by more interested. Now number of studies have been conducted in Pakistani markets that investigate about integration, but there is limited work on

economic determinants of integration. This study adds additional insight in this domain.

The integration is measured in VAR framework or through Granger causality that do not consider Contemporaneous effect. Therefore said aspect is captured through Geweke measure that not only considers lagged effect, but also considers the influence at the same point of time. This methodology may be helpful in exploring the matter in more depth. So these studies of lag effect and Contemporaneous aspect offer better understanding of the phenomena.

This study also supports the investors in economic decision regarding resource allocation. They can form their portfolios, keeping with the views of diversification opportunity in different markets. This study will also facilitate the regulators to be vigilant about the effect of the other markets of the risk, so that necessary risk management measure can be initiated.

1.6 Organization of the Study

The study is organized in five chapters. The study provides the introduction, background of the study, objective and significance of the research study. The following section discusses the extensive review of the previous studies and rebalancing strategies applied in this study in detail. After a description of the data, results are presented. The subsequent sections provide discussions of findings respectively.

The final section summarizes conclusions and recommendations.

Chapter 2

Literature Review

The current state of literature offers various studies that observe the existence of stock market integration, that markets are exhibiting tighter co-movements with one another, and that they are more integrated than ever due to more rapid financial and economic linkages. However, fewer studies have been conducted regarding the determinants of stock market co-movement and economic integration that make it an interesting research topic that explain an important piece of the problem.

Rolls (1988) suggest that the timing and magnitude of decline differ across markets around the world. The study reveals the information that crash originated in Asia followed by Europe, then U.S and finally Japan. Malliaris and Urrutia (1992) provide supportive evidence that in the 1987 market crash may have initiated at the same time in all the national markets. Therefore, the result does not power the evidence of the leading role tentatively played by the Asian equity markets. The Japanese stock market is not fully integrated as compared to other world stock markets recognized by Harvey (1991).

Becket (1990) report that Tokyo stock markets have only a little impact on U.S. security returns. Some studies provide supportive evidence in which markets dictate the other markets. Eun & Shim (1989) highlight influence and power that U.S stock market has on eight stock markets of developed countries. This result indicates that there exist the large amount of interdependence, whereas the U.S

stock market represent the most important world economy that have a leading position when it comes to produce valuable information that affect global stock markets.

The literature on stock markets offers diverse data on the stability of correlation structure. Some earlier studies such as Panton (1976), Watson (1980), and Philipatos (1983) find supportive evidence for stable relationships across national equity markets. In dissimilarity, Makridakis and Wheelwright (1974), Haney and Lloyd (1978), Maldonado and Saunders (1981), Fischer and Palasvirta (1990), Madura and Soenen (1992), and Longin and Solnik (1995) argue that relationships are not fixed. Kaplanis (1988) suggest that correlations are stable, whereas covariances are unstable. Marcus (1991) suggests and analyzes the correlation structure. Meric (1989) find instability for shorter period and stability over a longer period. The gap in results across this literature is most probably attributable to the large range of sample periods and sampling frequencies examined.

This study present supportive evidence that are related to the stock price movements between U.S. and the Asian equity markets as well as the level of integration among the Asian equity markets during the pre and post October 1987 period. These studies have also been report dynamic relationship of stock market changes between the U.S, Japan and five other Asian countries. The purpose of this study is to determine the level of integration and interaction between these equity markets through using methodological procedures that are based on the recent developments in the theory of co-integration and also error-correction analysis developed by Engle and Granger (1987) and Johansen (1988). Co-integration tests have been considered more important for several economic reasons. This study examines why and how different pair of national equity markets shows the level of comovement over time. A greater degree of comovement reflects greater stock market integration. It is theorize that level of stock market integration might be depend upon certain macroeconomic variables that may characterized and influenced the degree of economic integration between two countries. By Using Geweke (1982) measures of feedback, the study indicates that high percentage of period association between the nine equity markets in the American constant the U.S. The most important for

Canada and Mexico are responses of same day inter market, but are also important for Argentina, Brazil, Chile, and Peru. This result suggests a high level of market efficiency and market integration; these markets interact significantly influence on same day. The empirical results indicate that equity markets of the Americas become more integrated over the period of time, especially since 1994. A model of pooled time-series regression across all pairs of equity markets by using Geweke feedback measures is dependent variable and various economic factors are independent variables and shows that a high share of international trade with the U.S. that has a positive and significant effect on stock market comovements. On the other hand, By increasing higher ratio of stock market capitalization and bilateral exchange rate volatility and a relative to U.S contribute have lower comovement.

Beine et al. (2011) investigated the influence of financial and trade liberalization on the stock market on co-movement between developing economies. Through financial and trade networks, he estimates the effect of reforms aimed at opening these countries in the rest of the world using 25 developing countries. By means a sample of panel data context, the approximation of cross-country correlations varying with time endorsed the econometric investigation to be accomplished, consequently rising the excellence of the statistical conclusion. Results showed strong support for the positive influence of financial and trade liberalization reforms on the conduct of financial investors with cross-country stock market linkages.

Karim and Majid (2017) apply the Pooled OLS to analyze the integration driving forces among ten stock markets (Islamic) and find that all variables are trivial to define integration. Results revealed that inflation differential and GDP differential of growth are important in defining the co-movements of stock markets (Islamic countries).

Mobarek (2016) states that size differential of stock markets as well as import dependence is expectant in describing the co-movement between the stock markets' return.

Koch and Bracker (1999) propose that co-movement of the stock market is depending on the level of fiscal integration concerning the two different countries. If economic integration of the two countries is robust then in the stock market, there

is greater co-movement. The finding of the study that stock market co-movement degree is definitely integrated with that of volatility as well as trends in the global market. Moreover, degree of stock market integration takes adverse relation with instability in bilateral exchange, term structure differentials and real interest rate differentials.

Pretorius (2002) examines the dynamic force related to co-movement. Results showed that there is positive relationship between the stock market co-movement as well as bilateral trade. The growth differential of industrial production is also important in defining the stock markets, co-movement of two countries.

Babetskii (2007) studies different aspects to access integrated stock markets. The study explains α - as well as β -convergence for estimating the correlation of Central European and Western European stock markets. Kasch-Haroutounian and Price (2001) uses a bivariate BEKK model, investigate the volatility transference among Central Europe stock markets. Results indicated that the yield is positively correlated in all these stock markets.

Samitas (2011) examine the integration of stock market in different Balkan countries and correlated this with the integration of various well developed markets (UK, US, Germany) in 2000 to 2006. By applying Co integration tests, results recommend that there has to be a lasting association among developed markets in addition to stock markets (Balkon). Moreover, Dadicand Vizek (2006) investigate the integration between nominated CEE equity. Results indicate that there is no existence of a continuing relationship between the German and Croatian stock market.

Lee (1990) document seasonal characteristics, issues of international stock markets by using the stock market returns analysis in Hong Kong, Singapore, Korea, United States and Taiwan during 1980-88. Results reveal that substantial day of the week effects can be distinguished in Hong Kong, Korea and Singapore. The returns show an eloquent amount of autonomy among the various stock markets and offer strong arguments for investor diversification ahead of country boundaries.

Eun (1989) considers the global transference methodology related to stock market specific movements by using a VAR system of the Hong Kong, U.S. and Japan

nine-market. Results show that the U.S. innovations are rapidly transferred to the Japan and Hong Kong stock market, but these two markets cannot explain the U.S. market movements. The study finds that the Hong Kong and Japanese market are independent of one another.

Using multivariate GARCH models, comovements of global stock market between South Eastern Europe (Macedonia, Serbia and Croatia) and Western Europe Central (Poland, Czech Republic and Hungary) for the period 2006-2011 are examined by Havorth (2013). Results on comparison between two groups indicated that for Central Europe the range of comovements was considerably greater. The study estimate that the connection between stock markets of South Eastern Europe with established markets is basically nil. An exception to that trend is Croatia, through its stock market present a larger incorporation level in Western Europe in recent times, however, still characteristic for Central Europe at the start of the international fiscal disaster, stock markets drop intensely as we did not find the crisis that changed the stock market degree of integration among these groups.

Phylaktis (2002) by examining the covariance of surplus takings on nationwide stock marketplaces in the era of 1980–1998 examined the actual and economic links concurrently at the provincial and international level for Pacific-Basin country group. Results reveal that economic integration is due to financial and monetary integration that offers a channel for economic integration. These results have important implication for the practice to segregate various markets from world impacts.

Edison and Levine (2002) employ new data and econometric methods to figure out the global financial integration influence on economic progression. The study also used to get, access of the association dependence upon legal system development, development at the economic level, government corruption, financial development as well as macroeconomic policies. Furthermore, by utilizing a different procedures of global economic integration for around fifty seven countries and statistical methods, it concludes that we cannot discard the null hypotheses that said global economic integration did not increase financial growth when monitoring for specific characteristics of official, financial, strategy and economics.

Johnson and Soenen (2003) studies stock market co-movement and bilateral trade and report that trade is crucially associated with stock market co-movement. For Chile, Argentina, Mexico, Brazil, and Canada, for period 1988 to 1999 and for Peru, Colombia, and Venezuela from 1993 to 1999, they studied to which level these fair marketplaces are linked with the equity market of US and what factor disturb the financial integration level. Among the American particularly eight several equity markets including the stock market of the United States, the study report high ratio of the contemporaneous link. The trade, share with the US has significant influence on co-movements of the stock market. The high volatility of exchange rate and a greater fraction of capitalization of stock market to with the US offer to lesser co-movement.

Loh (2013), thirteen Asia Pacific inventory market returns with that of the US and EU market by using the wavelet coherence technique. The findings show constant comovements among diverse markets of Asia-Pacific regions and that of the USA and Europe. This has a look at additionally unveiled a huge changing in co-movement with the time series of the monetary crises. Dynamics of co0motion in the Asia-Pacific marketplaces with that United States and Europe varies within 2 economic crises. This distinction inside the dynamics should because of the differences in exchange in regime or can be because of monetary disaster.

Marashdeh (2005) examine financial integration within 4 emerging stock markets of North African and Middle East regions. Four markets represented by the countries like the United States, United Kingdom, and Germany. ARDL technique is utilized to co-integration and the findings provide proof of integration in equity market of the MENA region, but no evidence is found between the developed markets and North African and Middle East region's markets. This study provides chances for investors at international level to get long-run gains by using portfolio diversification in that MENA area, but those opportunities are constrained in the long run.

An and Brown in 2010 take a look to examine the weekly and monthly returns co-movements in the regions of America, Russia, Brazil, India, and China for the period 1995 to 13 Oct 2009. As predicted, imply that stock, indicating are not

stationary; however, stock returns are stationary. Their results imply that there's some cointegration among the United States and China, even as there may be no cointegration among the USA and the other emerging markets. So, all the BRIC inventory stock markets, except China are a source of appealing portfolio diversification possibilities for buyers.

Pascual (2003) use cointegration techniques to inspect the long-run comovements in the United Kingdom, German and French equity markets. No evidence of increased co-integrating is observed after solving the power of the cointegration test. An opportunity approach to evaluate growing integration is proposed on the basis of adjustment coefficients rates.

A big range of capital controls throughout nations makes it hard to carry out cross-sectional examination of market segmentation. The study of Korajczyk (1996) establishes a degree of divergence from capital market consolidation that may be constantly implemented throughout the nations. It estimates the divergence of asset returns from a symmetrical model of returns that establish suppose market integration. Making use of stock returns from 24 markets shows that market segmentation is inclined to be wide ranging for emerging markets than in developed markets. The estimation had an inclination to lesser with the time period.

Wang (2008) scrutinizes the volume to which the emerging East European equity markets have integrated with the Eurozone market over the period length from 1994 to 2006 with the aid of "dynamic conditional correlation". The study discovers a higher degree of equity market correlation following the Russian and Asian calamity as well as for during the post entry duration of EU Union. It was determined that market integration appeared to be in large part of self-fueling procedure. It is also based on subsisted degrees of economic sector rise in Hungary and Czech Republic.

Richards (1995) examined his study in reaction to literature that experimented for cointegration linking equity market indexes. It states that evident results of co-integration in different papers might also frequently be because of the asymptotic usage, excepting the small-pattern. Cointegration is not going to be located in green markets suggested by financial theory. However, this analysis provides

evidence for the forecasting of relative returns as well as the presence of winner or loser impact throughout the sixteen equity market. It results that equity market encompasses that common international part and nation wise parts.

Buttner and Hayo (2011) to find out the factors involved in the inventory market integration within EU partner states from 1999 to 2007. The study uses bivariate models (DCC-MGARCH) for dynamic conditional correlations extraction within EU equity markets. Later this model is explained by using interest price spread, trade price risk, and capitalization of the market place as well as business coexistence in OLS model. The study additionally compares the effect of Euro advent and the European unification procedure on inventory market integration, via grouping the international market into European regional countries, old European national partner's states outside the EU region and European new partners' states. The study identifies a great trend in the direction of higher stock market integration. That was stronger by way of the size of respective and fixed marketplace capitalization and influence by forex exchange risk within former partner nations and EU region. Other significant factors like interest rate spreads and commercial enterprise cycle coexistence are impact of equity market integration explanation.

Rangvid (2001) analyzed the concurrence level in 3 main EU inventory markets inside the framework of recursive stochastic tendencies. The consequence factor in the direction of a reducing wide variety of common stochastic trends affecting the inventory markets like the level of concurrence within EU inventory marketplaces has been multiplied for the duration of the recent decades. It is specially suggested that same common stochastic factor driven the countywide stock charges they could be taken into consideration as particularly converged and incorporated in the sense that they're pushed by using the identical shocks.

Bekaert and Harvey (1995) suggest a degree of capital marketplace integration, emerging from a conditional regime switching model. Estimations let into them explain anticipated returns in international markets which are segmented from global capital markets in one part of the pattern and emerge as integrated later. The study discovered that some of emerging markets show varying integration.

Some marketplaces seem highly integrated than one would possibly expect primarily based on a prior understanding of investment regulations. Different markets appear fragmented even though foreigners have exceptionally priceless access to their markets. Even as there might be a belief that international capital markets have grown to be extra integrated specific analysis claimed that this surely isn't the case.

Ewing and (1999) perform co-movement tests of the stock market of North America. They examine on the crash period of post-US stock market period of 1987 to 1997 and cointegration is not present even at the time when the route of NAFTA is considered. Several conclusions are drawn when cointegration was not existent. First, the segmentation of the stock market in North America is completed. Secondly, the NAFTA has not caused higher integration of the mentioned stocks markets. From the stock market crash of U.S. The data do not support the idea of a contagious influence finally.

Levine (2001) pulls together evidence and present, theory to measure whether global financial liberalization speed up the economic development via improving the working of domestic financial market and banks. The analysis suggests it to be 'yes' that happen. First, stock market liquidity is enhanced by liberalizing limitations on worldwide portfolio flows. Sequentially, through productivity growth boosting economic growth gets accelerated first by enhancing stock market liquidity. Second, permitting larger foreign bank existence tends to increase the proficiency of the domestic banking method. Consecutively, better-established banks spur financial growth predominantly by accelerating output growth. Therefore, worldwide financial integration can stimulate economic development through reassuring enhancements in the domestic fiscal system.

Trying to implement the data in the maximum effective way, Christopoulos and Tsionas (2004) investigate the long term relations between economic growth and financial depth through panel cointegration analysis and its unit root tests. Moreover, threshold cointegration tests as well as a panel-based model for correction of vector errors are used for further evaluations. Fully OLS is used for estimating the

long lasting relations. The empirical outcomes modified to provide strong provision for the particular hypothesis that in between financial progression, ancillary variables and depth; there exist an equilibrium relation and that cointegrating relation suggest unidirectional causality from financial depth towards progression for ten different developing countries.

Over the period from 1980 to 1999, Dellas and Hess (2005) observed stock returns of emerging and developed markets of 49 countries in a cross section. The degree of financial progress is considerably found to be related to stock returns. In the local and world return movements, a higher and deeper featured banking system is interconnected with the minor stock return volatility and a higher synchronization generally. Greater global synchronization the stock market more liquid.

Models of international asset pricing proposed that obstructions flow of portfolio as well as obtain ability of market alternatives significantly affect the time variation and degree of international market integration. For eight developing markets, Carrieri (2007) employs GARCH-in-mean to evaluate the market integration evolution in the period from 1977 to 2000. Their findings suggest that although in elaborating time deviation of evolving market returns, local risk is yet considered as a relevant factor, so not any of the countries seem to be entirely segmented. Considerable cross market variances in the integration degree are also concluded. The progress towards much integrated financial market is apparent, though at times reversals are also observed. Furthermore, clear evidence on the impropriety is provided by means of direct correlations with returns of market-wide index as an extent of marketplace integration. To conclude, monetary liberalization policies and financial market advancement play imperative roles in the integration of evolving markets.

Economic integration has well-built implications for economic consultancy. On the one hand, economic integration involving economies helped to progress their capability to bear shocks and further development. On the other hand, strengthened economic relations in a world of growing capital mobility possibly may also harbor the threat of cross-border economic contagion. In Asia, Yu (2010) deliver a review of high-frequency signs to observe the growth of fair market integration.

The outcomes show that afterward slow down between the period of 2002 and 2006, the integration process of equity market picked up once more in 2007–2008. However, the process is not far-reaching and the integration degrees between developing and established equity markets are dissimilar. The divergence might be credited for the difference in the institutional, economic, political features across countries in Asia.

May (2018) explores the special effects of dual characteristics universally related to the developing market in Asia regarding about momentum effectiveness. By utilizing the facts of 776 stocks scheduled on Bursa Malaysia since 2006 to 2014, the learning inspected how ownership focusses exaggerated momentum productivity. The outcomes of this learning shown that the greater the ownership application, the additional profit giving the momentum outlay approach. Concentrated rights led to lesser trade transparency and greater data asymmetry therefore, causing to higher momentum effect. Results also showed that how that rate momentum policies functioned better among stronger liquidity (lesser range) stocks.

Nissanke (2017) investigated how nation measure and geological separation to exchanging accomplices intervened global value-chain (GVC) support and overhauling potential. It built up a list of GVC investment to assess the impacts of the size and remoteness on GVC interest, as estimated by fare execution in a few merchandises creating enterprises that had been critical in the ascent of GVCs (hardware, auto thought processes, and clothing, footwear, and materials). Constantly, geological separation applied a solid effect on GVC support, due to some degree to the expenses of the co-appointment and a decrease in the trading of implicit information emerging from associations among purchasers and vendors; separation could, accordingly, lessened the potential for ‘learning by sending out’. Solid mediations were required to cultivate presentation to high-esteem action center points that represented considerable authority in innovative work and showcasing, with focused expertise.

Beer (2018) evaluated the capability of a European capital markets, union (CMU) to broaden the financing structure of European organizations and cultivate hazard sharing. CMU was intended to enhance corporate financing by advancing a bigger

assorted variety of monetary items of (dis) intermediation. This would enable organizations to all the more likely to cover their different financing needs by taking advantage of proper financing sources. In any case, banks and capital marketed supplement instead of substitute each other in financing corporate speculations. However, CMU did not adequately address the high use of organizations, which made it hard to get subsidizing. The level of macroeconomic hazard sharing cross-wise over the EU Members States was as of now low. It stayed to be perceived how fruitful the CMU measures would be in advancing danger sharing. CMU might likewise make extra dangers and strategy challenges since it was probably going to move credit dangers to other-might be less managed-organizations and on the grounds that cross-fringe ventures might increment.

Yao (2018) explored that by utilizing the frail shape measure, this study inferred a standardized record to examine the effect of China's budgetary progression approaches on its securities exchange reconciliation with whatever is left of the world amid 2000-2015. It uncovered that the Chinese securities exchanges when all was said in done have turned out to be more coordinated with the world markets independent of huge variances. Specifically, it was discovered that QFII, QDII, and RQFII had reliable and beneficial outcomes on market joining yet another arrangement changes acted contrarily. Some by right arrangement changes, for example, the RMB swapping scale advancement, were found to differ impacts relying upon other economic situations.

Chevalier and his colleagues (2018) investigated that money-related advancement and globalization had essentially incorporated securities exchanges the world over. This higher level of relationship and combination hasn't just given firms, higher access to worldwide capital markets with a lower cost of value yet additionally created upward vulnerabilities for neighborhood advertises because of their presentation to worldwide and territorial stuns. They were likewise intrigued by researching the impact of stuns influencing the United States and the Japanese securities exchanges and their transmission to the developing markets. They basically found that: (I) the association of the rising securities exchanges in the ASEAN nations was driven by a higher introduction to the US stuns than to stuns influencing

the created economies of East Asia, and (II) the cross-showcase linkages in the Pacific Basin district had turned out to be more grounded after some time, which may lessen the advantage of provincial enhancement techniques and uncover the nations of the area to expanding infection chance. These outcomes had vital ramifications for open strategies identified with the issue of territorial and worldwide money related incorporation.

Path and Ferretti (2018) recorded the advancement of universal money related incorporation since the worldwide budgetary emergency utilizing a refreshed dataset on outside resources and liabilities, covering 212 economies for the period 1970-2015. It found that the development in cross-out skirt positions in connection to world GDP has stopped. This reflected significantly weaker capital streams to and from cutting-edge economies, with reduced cross-out skirt managing an account action, and an expansion in the heaviness of developing economies in worldwide GDP, as these economies had brought down outside resources and liabilities than cutting-edge economies. Cross-fringe FDI positions had kept on growing, not at all like positions in portfolio instruments and other speculation. This extension reflected fundamentally positions versus budgetary focuses, proposing that the multifaceted nature of the corporate structure of substantial multinational organizations was assuming a critical job. The paper additionally investigated the cross country drivers of outside responsibility for obligation securities, featuring specifically the job of the euro obligation.

2.1 Bilateral Trade and Stock Market Integration

Morgado and Tavares (2007) examine the impact of economic integration and bilateral trade on the correlation of stock return which is a forty emerging market and forty developed markets for the time period 1970-1990. The results show that bilateral trade impact positive correlation, while the asymmetry of output growth, the difference between export structure and real exchange rate instability have

negative impact on return correlations. Lin and Cheng (2008) relate a non linear Multinomial Logit Model in which comovement is divided in three outcomes: (i) positive comovements (ii) negative comovements and (iii) no co-movements. The experimental analysis of economic determinants that affect the stock market relationship between Taiwan and its four major trading partners like (China, Mainland, Japan, US, and Hong Kong) are stock market return instability, the rate of change in interest rate differentials and exchange rate.

Walti (2011) summarize studies that show the connection between stock market return Co movements and monetary integration in the European market. Sampling over 15 advanced economies from 1975-2006, it is found that greater trade linkages, in addition to financial integration supplement greater stock market Co movements.

The markets and stock economies are estimated to be extremely symbiotic when two states had a durable bilateral business relationship, e.g. If a considerable proportion of state A's entire exports were traded to state B, a reduction present in demand from state B reduce imports from. This would hinder stock markets of both countries: Stock market on B due to change in dependency of domestic products, Stock market A decline in demand for exports. The stock markets from two states would share a co-movement because of this bilateral business tie. If this trade ties are extremely critical to both parties, the greater is the co-movement degree in the stock markets. Hence, the relationship of bilateral trade between both countries justifies some of a correlation between the stock markets. Sometimes in spite of the monetary volume or value of the trade, it was the significance of the trade correlation compared to other trade interactions that would affect the relationship concerning their stock markets.

The studies conducted by Frankel and Rose (1998) and Calderon et al. (2007) underline a strong indication that closer trade linkages reached to a rise in the correlations of trade cycles. This influences their stock market as it is inclined to be an indicator of the business cycle, since investors looked for other signs and inclined to leaving the marketplace at or before a financial narrowing and refunded to the market in the course of recovery.

A study is conducted to analyze the influence of economic integration on far off-countries comovements in the stock market, in advanced and emerging markets by Traverse (2009). As the correlation of return increases by the trade, whereas actual interchangeable rate volatility, the unevenness of production growth and dissimilarity are the factors that decrease it. The focus is on part of rate volatility of two-sided real altercation, correlational output growth, export dissimilarity and bilateral trade intensity to find the expected effect by each indicator on comovement of returns. Moreover, the study provided robust proof that development of analogous institutional in economies results in a rise in the comovement of their stock returns.

Numbers of studies are conducted about stock market integration, however, very few bothered to conclude the reasons of stock market integration. Still, it is less significant to study the existence of the stock market, but more significant is to analyze the motivating forces for the relationships of the stock market. By understanding it, would provide a better knowledge about working of the international stock markets and facilitate policy makers and investors to raise more queries like: If bilateral trade increased between two countries, may be because of a new trade agreement, would it cause a change in their stock market interdependence? If the downturn of global economic decreased the development rate of a specific developing market, would it cause drag to the stock market with all further stock markets? So, Pretorius (2002) focuses on the time-series models to figure out the important factors that had an effect on correlation as well as its involvement between rising stock markets.

H1: There exist significant positive relation between bilateral trade and economic integration.

2.2 Macroeconomic and Stock Market Integration

Bodurtha (1989) and Campbell and Hamao (1992) hypothesize that the degree of stock market integration may depend upon macroeconomic factors that influence and differentiate the degree of economic integration across countries. The study identifies macroeconomic factors which are potentially characterized the most appropriate and critical sources of covariation across the stock return of different national equity markets. The study first how co-movement varies over time in daily returns for a given pair of national equity markets, and secondly study, why this interdependence varies over time in intensity.

Walti (2005) follows Forbes and Rigabon (2002) correction model for determining comovements and macroeconomic variables between stock market return for 15 industrialized countries for the time period 1973 to 1997. These results show that financial integration and trade contribute positively synchronization to the stock market, Whereas Co movements increases a fixed exchange rate system.

Harvey (1993) state that emerging markets have high average returns, low coverage to world factors, low overall volatility, and little integration. Higher returns and lower risk can be obtained by incorporating emerging market stocks investors' portfolios. Economic factors as independent variables, shows that the higher import share as well as greater differential in inflation rates, real interest rates, and gross domestic product (GDP) growth rates have negative effects on stock market comovements. The larger differences between the economies of the two countries create variation and thus stock markets are less influenced by each other.

Dickinson (2000) examined that internationally with the development of the stock market the interest in worldwide linkages had been growing. To explore this matter the latest work had used the techniques of up-to-date time structure (causality, cointegration) and mostly had established their better relations in later years between the stock markets with the US affecting other market actions. On the other way, the stock index movements result helps to recognize the basic financial variables. This study has revealed various fundamental macroeconomic variables of

stock market movements as important factors, for example, interest rates, production, inflation. Precisely, it reflected that which connections within the global equity markets were an outcome of equity markets development matters the reveal behavior of the actual economy based on fundamental macroeconomic variables. This study is based on the three Stock markets of Europe (London, Frankfurt, and Paris) and United States (New York).

Kwon and Shin (1999) estimate the reason, whether present financial events in Korea can describe stock market returns by means of a “Granger causality test” and cointegration test. The findings indicate that the stock market of Korea reflects the behavior of macroeconomic variables. The vector error correction model and the cointegration test illustrate that stock price indices are cointegrated with macroeconomic variables set that indicate money supply, exchange rate, the production index, and trade balance which offered a direct long-term relation of equilibrium with all stock price directory. Still, the stock price directories are never a foremost factor for financial variables, which is unpredictable with the former outcomes that equity market prompts.

Maysami (2005) explain the links between macroeconomic variables and sectoral indices of the Singapore stock market and find the Co integration between them. The study concludes the long-lasting Co integrating relations among market index of Singapore, other sectoral indices like property index, hotel index, finance index and designated macroeconomics variables depending on interest and exchange prices as well as industrial growth, financial supply etc.

Leachman (1995) studied the long term interlinking in two structures of equity markets during a post Bretton Woods time. The study states the imperative bank intercession has an impact on the long-run connections is the G-7 and G-5 systems equity markets. The findings demonstrate that worldwide inventory markets are converting in extra integrated. These effects are coherent with critical financial institution intercession influencing countrywide stock markets.

Garcia (1999) test the macroeconomic determinants of equity market improvement exceptionally market financing through the usage of pooled facts from 15 commercial and developing countries from 1980 to 1995. Results discover that

actual earnings, saving price, monetary intercessor growth and inventory market exchange ability are vital determinants of equity market subsidization.

Between the stock market, and exchange rate the time-series relations are investigated by Gay (2016) for Russia, China, Brazil and India by employing models of Box-Jenkins. Relation between the stock market and corresponding exchange rate is observed. The general inferences suggest weak market efficiency in the mentioned countries.

Nikkinen investigated the integration of international stock market with macroeconomic news declarations of U.S. Depending upon foreign ownerships, size of market, international trade, and economic as well as industrial structures, U.S and other foreign investors expect varying news releases based on different economic regions. Asian countries are found to be much closely integrated in regard to macroeconomics news of U.S. The results strongly support previous outcomes of Harvey and Bekaert (1995) as well as Urga and Rockinger (2001) related to time-varying integration of world market of stocks that also confirmed the higher market integration in main stock markets with segmentation of certain developing markets.

H2: There exist significant negative relationship between macroeconomic differential and market integration.

2.3 Financial Development and Stock Market Integration

Shaw (1973) and McKinnon (1973), find the significant evidence that financial development, promote economic growth, mostly through a raise in the level of saving and investment. The ‘financial liberalization’ theory argues that government restrictions on the financial system control the quality and quantity of investment.

Filer, Hanousek and Campos, (1999) argue for using liquidity rates and market capitalization, especially turnover (value of trades in the stock exchange over market capitalization) as the primary measures of development, purging the spurious

causal effect because higher prices in expectation of greater growth would affect both the numerator and the denominator of the ratio. The positive influence of the development of a country's financial sector on the level and the rate of economic growth is observed. The argument is that financial sector provides such as efficient capital allocation, lower transaction costs and easier access to world capital markets for firms and individual investors have a supportive influence on the rate of economic growth.

Forbes & Rigobon (2002) study that traditional tests for inactivity based on cross market coefficient correlation that are challenging due to bias and introduced by changing instability in market returns, i.e. heteroskedasticity. During a crisis period when the instability of stock market increases, the bias of cross market correlation will be upward.

Huyghbaert and Wing (2010) examine causality and interdependence of the Stock exchange of East Asia, formerly, during and afterwards from 1997 to 1998 when financial crises occurred in Asia. The time varying relation is found among different stock markets of East Asia on daily based stock market data. Stock market interaction is concluded to be limited before the financial crises in Asia, while Singapore and Hong Kong considerably responded to shocks in Shenzhen and Shanghai and other markets of East Asia mostly during crises. Other stock markets of East Asia except Mainland China are greatly affected by the Singapore and Hong Kong after crises. In whole time period, USA represent a strong influence in East Asia stock returns excluding Mainland China.

Shahbaz and Ali (2008) conduct a study to figure out the dynamic connection linking financial development as well as progress of stock market specifically in Pakistan by using yearly findings of 1971 to 2006. Ng-Perron and DF-GLS tests that are employed to investigate the integrating order for variables used in this analysis. For the potency of long-run bond, two more techniques are used, including Johansen Cointegration and Autoregressive Distributed Lag bond testing. Moreover Engle-Granger causality is used to study the causal linkages in the long-run, whereas ARDL Granger-Causality tests are used for short-run dynamic. The results suggest a long-run connection linking stock market growth and economic

development in Pakistan. The findings indicate the importance of stock market development for economic growth. Bi-directional causation in economic development and stock market growth in Pakistan are observed by Engle-Granger-Causality whereas the causality runs only one way for short-run.

Using semi-parametric methodology, Panchenko and Wu (2009) explore that up to how much extent the joint conduct of bond and stock returns get affected by developing integration of stock markets. A robust and explicit linkage is found among decoupling of bond-stock return and stock market integration using 18 emerging market samples. As modeled by De Roon and De Jong (2005), expected stock returns and market integration of varying time lead greater stocks demand and lesser for bonds.

Stock markets have a vital role in providing to capital sector that ignite economic development. Various countries, specifically developing countries are paving financial limitations; loans by banks are restricted to specific companies and different investors. Its drawback could be stretched out into affecting credit markets (Mirakhor & Villanueva, 1990).

Numerous research cognizances at the banking area reforms as there has been a surge in interest approximately inventory market and its link with economic development. According to Levine (1997) and Bencivenga (1991), extra liquid markets could form long term investment and in the end result, monetary growth through decrease transaction fee. Zervos and Levine (1998) state that inventory markets liquidity definitely anticipate mixture financial boom. Zingales and Rajan (1998) declare that inventory market length is interlinked to increase financial firms.

Adjasi and Biekpe (2005) observe a significant impact of inventory market improvement on economic increase in countries labelled as top center-income economies.

H3: There exist significant positive relationship between financial development and stock market Integration.

2.4 Trend and Stock Market Integration

Bracker & Koch (1999) suggests that higher economic integration should lead to greater co-movement in their respective capital markets. The study addresses questions whether, how and why, the correlation structure changes over the period of time. The stability of the correlation matrix over different periods and modeling potential economic determinants of the correlation structure for 10 national stock index during 1972 to 1993. The study provide supportive evidence of the theatrical evolution in the correlation matrix over both short time horizon and long time horizon. These results indicate that the degree of international integration is associated positively with world market trend and instability, whereas it is negatively related to real interest rate differentials, exchange rate instability, term structure differential, and the return of a world market index. It is also concluded that further study of potential economic determinants of the correlation structure is needed to full recognize the market move in tandem.

Sonlink (1995) observe that correlation for seven most important European countries is higher during 1960 to 1990 demonstrating that not only the international covariance and correlation matrices become unbalanced over time, but correlation increases in periods when conditional volatility of the markets is large.

Stulz (1996) explores the co-movements between the Japanese and U.S stock markets from 1988-1992 and shows that correlation and covariance are high when markets move rapidly. It indicates the shortcomings of global diversification in times of high instability when it is more needed. Solnik (1995), states that there is a variety of studies that deal with emerging stock markets, which have lower Co integration, therefore have lower levels of integration that suggest greater opportunities for risk diversification across countries.

Kenneth Kasa (1992) studies the authentication for the various common debatable trends in the U.S, Canada, England, Japan and Germany markets. Morgan Stanley's Capital International dated from Jan 1974 to Aug 1990, are utilized for the Johansen test computation for usual trends. The results associate the existence of a one typical trend that is driving mentioned regions stock markets. Findings

also suggested that this factor has great value in the Japan market and less in the Canada market. To explain this, the study documented that cointegration and root unit of stock prices should reflect these factors of their payments under weak conditions.

Corhay (1993) look at the rate indices of various EU equity markets that display a not unusual long-run trending behavior. By the use of co-integration evaluation, it delivers empirical proof of usual debatable trends amongst 5 vital EU inventory markets over the duration 1975 to 1991. Chan (1997) studies the linkage between stock prices in 18 country wide inventory markets by means of using cointegration methods and unit root for the length 1961 to 1992. These markets have been analyzed separately and linked in regions to check for market performance. Knif (1999) look at the impact of the sector's on the returns of the small Nordic markets, including Finland, Denmark, Sweden and Norway, and Sweden). The array and level of handling both 'nearby' and 'worldwide' information are susceptible as indicated by a combination of co-integration evaluation and structural Vector autoregression modeling employed on daily returns.

Dickinson (2000) demonstrates the difficulty of index behavior by combining the findings of each those methods. Particularly, it considers the quantity to which interlinking among global stock markets are a result of globalization of financial growth markets and whether or not they follow the increasingly progressively unified behavior of the actual economy, by using comovements among key macroeconomic variants. New York and 3 EU inventory markets (London, Paris, and Frankfurt).

Yang (2003) demonstrates the long term connections and short run dynamic relationships with some of the United States, Japan, and 10 Asian expands inventory markets, with specific interest to 1997–1998. Extending empirical research, comparative analysis of pre-crisis, disaster, and publish-disaster durations are carried out to thoroughly analyze how inventory market integration is influenced by monetary crises.

Wang (2003) studies long run connections and short-run dynamic causal relationships within five biggest rising African equity markets, and America market, for

the period 1997 to 1998 worldwide rising market crisis. There's proof that both long term connections and quick-run causal linkages between these markets were significantly debilitate after the crises.

Voronkova (2004) figure out the presence of long run connections between rising important EU equity markets and the developed equity markets of the United States and Europe. Taking into account instability in these lengthy runs connections. The study provides evidence which is more potent than has previously reported. The study shows that EU markets have unveiled symmetrical connections with its old and developed peer markets, which prevail even after staring for structural adjustments.

B. M. (2004) on the other hand, report out why and how extraordinary pairs of countrywide equity markets display differing tiers of co-movement over the years. The study exhibit an extra degree of co-movement to mirror greater equity market integration. It theorizes that equity market integration might also rely on macroeconomic variables that signify and affect the extent of monetary integration among nations. As the extent of economic integration changes over the years for a given pair of nations, it may additionally count on the quantity of fairness market integration to differ systematically.

Kim (2005) test the impact on of the EU financial Union of the dynamic technique of equity market integration over the period 1989 to 2003 by using a Bivariate EGARCH model with time differing correlations. The European Monetary Union has integration as unidirectional causation is found. Linear regression analysis suggests that the boom in regional and international stock market integration over this era was notably driven in component, through macroeconomic convergence related to the creation of the European Monetary Union as well as financial improvement stages. Fraser and Oyefeso (2005) examine the long-run confluence among United Kingdom, United States, and 7 EU equity markets. The study demonstrates that whilst actual short-run diversification achievement may arise, in standard they tend to be short run lived. The study also locates that US and UK. Stock markets are tremendously much less certain to a usual place trend, which would suggest that expanded equity market merger behaviors, and any

change, transition to the EU not unusual foreign money via the UK, may additionally cause quite huge inventory market adjustments as markets adapt to these institutional modifications.

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Kim (2006) discovers the dynamic connection among daily equity and bond returns of international market over the past decade to deduce the development of inter-financial market integration. The study further inspects the effect of the EU economic Union on time versions in inter-stock–bond market integration dynamics. The study discovers that actual real economic integration, and the discount in exchange risk has normally had the favored impact on financial integration, but monetary coverage integration may additionally have created investor sentiment on the economic destiny of the European Monetary Union thereby simulating a flight to the best place.

Chelley-steeley (2005) explain the degree at which equity markets of Russia, Poland, Hungary, and the Czech Republic have turned out to be less fragmented. The study provides that there has been a consistent rise within the co-movement of some eastern and European market and developed markets. Use of the variance decomposes of returns shows that for Hungary and Poland, international factors have an increasing impact that suggest increased equity market integration. This study shows a system of bivariate equity market interlinkage establish how speedily the East European regions are drifting far from market fragmentation. The study discovered that Hungary is turning into an integrated country most rapidly.

H4: There stock market integration has increased over time.

Chapter 3

Research Methodology

3.1 Data Description

The sample covers a seventeen year period from 2000-2016. The countries are selected on the basis of trading relationship which include top ten trading partner with reference to export and import. The panel data analysis employs yearly data. Top ten import and export countries are as follows:

Top Ten Imports	Top Ten Exports
China	US
UAE	UAE
US	UK
Malaysia	Germany
Japan	China
Indonesia	Hongkong
Germany	France
UK	Japan
France	Malaysia
Hongkong	Indonesia

3.2 Methodology

3.2.1 Measuring Integration of Stock Market

The measure of feedback proposed by Geweke has been selected to identify the integration among markets because it has certain advantages over of Vector auto regression model (VAR) or Granger Causality that are employed for exploring the association between stock markets. It not only recognizes the existence of significant information flow between two markets, but also the degree of the feedback. Furthermore, it exposes how integration and lead-lag relationship changes over time.

Geweke's feedback measures of stock market integration reports daily returns movements in two contexts:

1. Move in two markets on the same day.
2. Move in the two markets with lead-lag relationship.

It indicates how a second stock leads first market across days and how first market leads the second across days. These considerations lead us to specify and test the following three hypotheses.

H1: There is no contemporaneous relationship between r_{it} and r_{jt} on same day.

H2: The variables r_{jt} does not lead r_{it} across days.

H3: The variable r_{it} does not lead r_{jt} across days.

3.2.2 Model Specification

The Geweke measures of feedback provide a more suitable framework than the vector autoregression (VAR) model. In first stage model specification basically considers a dynamic relationship between the daily stock market return in two countries that is theoretically depend upon:

1. Lagged returns of the other market.

2. Lagged return of the own market.
3. Noise.

The second phase of the analysis covers various factors the contribute in economic integration between two countries. So panel data analysis by using panel EGLS. The problem of hetero-skedasticity has been addressed by using white cross-section standard errors and covariance have been estimated with model $GCMF_{ij,t}$ for markets ‘ i ’ and ‘ j ’ at time t these acts as dependent variables. Basically the panel data analysis model representing the determinant of equity that takes the following form:

$$GCMF_{ij,t} = \alpha_0 + \sum_{a=1}^A \beta_a \text{Bilateral Trade}_t^a + \sum_{b=1}^B \delta_b \text{Macro}_t^b + \sum_{c=1}^C \gamma_c \text{Development}_t^c + \varepsilon_t \quad (3.1)$$

Finally, the study explains how two markets interact with each other on the same day. This same day relationship appears in the extent of correlation period. The intuition behind the Geweke (1982) technique can be more easily seen for a system of two random variables which can be estimated using the standard VAR methodology.

$$Y_t = a_1 + \sum_{i=1}^m \beta_{1,i} Y_{t-1} + \sum_{i=1}^m \gamma_{1,i} X_{t-1} + \varepsilon_{1,t} \quad (3.2)$$

$$\sigma_{1,1} = \frac{\sum_i^{t=1} \varepsilon_{1,i}}{N - m} \quad (3.3)$$

$$Y_t = a_2 + \sum_{i=1}^m \beta_{2,i} Y_{t-1} + \sum_{i=1}^m \gamma_{2,i} X_{t-1} + \varepsilon_{2,t} \quad (3.4)$$

$$\sigma_{2,2} = \frac{\sum_i^{t=1} \varepsilon_{2,i}}{N - m} \quad (3.5)$$

If X does not Granger-cause Y , then (3.2) and (3.4) can be rewritten as:

$$Y_t = a_3 + \sum_{i=1}^m \gamma_{3,i} X_{t-1} + \varepsilon_{3,t} \quad (3.6)$$

$$\sigma_1 = \frac{\sum_{i=1}^{t-1} \varepsilon_{3,i}}{N - m} \quad (3.7)$$

$$Y_t = a_4 + \sum_{i=1}^m \gamma_{4,i} X_{t-1} + \varepsilon_{4,t} \quad (3.8)$$

$$\sigma_2 = \frac{\sum_{i=1}^{t-1} \varepsilon_{4,i}}{N - m} \quad (3.9)$$

Comparing Eqs. (3.2) and (3.6) then gives the estimate of impact of X on Y .

$$Y_t = a_5 + \sum_{i=1}^m \beta_{5,i} Y_{t-1} + \sum_{i=1}^m \gamma_{5,i} X_{t-1} + \varepsilon_{5,t} \quad (3.10)$$

$$\sigma_{\varepsilon,1} = \frac{\sum_{i=1}^{t-1} \varepsilon_{5,i}}{N - m} \quad (3.11)$$

$$Y_t = a_6 + \sum_{i=1}^m \beta_{6,i} Y_{t-1} + \sum_{i=1}^m \gamma_{6,i} X_{t-1} + \varepsilon_{6,t} \quad (3.12)$$

$$\sigma_{\varepsilon,2} = \frac{\sum_{i=1}^{t-1} \varepsilon_{6,i}}{N - m} \quad (3.13)$$

Geweke proposed the following as a measure of linear feedback:

$$F_{Y \rightarrow X} = (n - m) \ln \left(\frac{\sigma_1}{\sigma_{1,1}} \right) X_m^2 \quad (3.14)$$

$$F_{X \rightarrow Y} = (n - m) \ln \left(\frac{\sigma_2}{\sigma_{2,2}} \right) X_m^2 \quad (3.15)$$

The measure of instantaneous feedback:

$$F_{Y.X} = (n - m) \ln \left(\frac{\sigma_{1,1}}{\sigma_{\varepsilon,1}} \right) X_1^2 \quad (3.16)$$

$$F_{X.Y} = (n - m) \ln \left(\frac{\sigma_{2,2}}{\sigma_{\varepsilon,2}} \right) X_1^2 \quad (3.17)$$

Finally the measure of total correlation between X and Y is:

$$F_{Y.X} = (n - m) \ln \left(\frac{\sigma_1}{\sigma_{\varepsilon,1}} \right) X_{2m+1}^2 \quad (3.18)$$

$$F_{X.Y} = (n - m) \ln \left(\frac{\sigma_2}{\sigma_{\varepsilon,2}} \right) X_{2m+1}^2 \quad (3.19)$$

3.3 Measurements of Variables

3.3.1 GCMF_{ij,t} (Geweke Contemporaneous Measure of Feedback)

Geweke Contemporaneous Measure of Feedback is used as the dependent variable in a panel data model to estimate the influence of macroeconomic determinants on evolution in stock market integration. The study analyzes the economic basis for the comovement between emerging market i.e. If a country 'i' sell a greater share of its total export to country 'j' the stock market of country 'i' should be more sensitive to country 'j's stock market movements.

3.3.2 Bilateral Trade

Bilateral Trade helps to decrease trade deficits through of free trade agreement with new countries, improving existing trade agreements, also promoting economic development.

$$\text{Bilateral Trade} = X_{ij} = M_{ji}$$

So

X_{ij} = Exports from country i to country j

M_{ji} = Exports from country j to country i

In terms of bilateral trade relationships the total export from a country i to j should be equal to total imports of company j from me.

$X_i = (X_{ij}/X_i)_t$

$X_j = (X_{ji}/X_j)_t$

$M_{ij} = (M_{ij}/M_i)_t$

$M_{ji} = (M_{ji}/M_j)_t$

These four variables have diverse impact on the integration of two markets. From the export point of view both countries seem to be positively related to integration of two stock market.

3.3.3 Macroeconomic Factor

There are variable for the analysis in macroeconomic context. Three main variables include GDP, real interest rate and inflation differential.

$I = (\pi_i - \pi_j)_t$ inflation differential between market i and j

$RI = (r_i - r_j)_t$ real interest rate differential between market i and j

$Gr = (g_i - g_j)_t$ GDP annual growth rate differential between market i and j

3.3.4 Financial Development

The third set of variables indicates to the level of market development, such as size of stock market, differential size or relative size. Specially, market capitalization of a country might be an indicator of costs of trading and ease or difficulty in terms of liquidity. Although large differences in the size of market for a pair of countries may define a lesser amount of integration between their respective stock markets,

the relative size of the two markets in the pair of countries may have opposite effects.

$$MV = (MV_j/MV_i)_t$$

Chapter 4

Results and Discussion

4.1 Integration of Linear Feedback from Pakistan Stock Market with its Trading Partners

Table 4.1 reports the integration of the Pakistani market with its trading partners. The integration is captured through measure of linear feedback from Pakistan to its trading partners.

TABLE 4.1: Linear Feedback From Pakistan to its Trading Partners.

Country	Calculated	Tabulated	Result
Indonesia	0.865370246	3.841458821	Insignificant
China	0.095158257	3.841458821	Insignificant
Germany	0.057096746	3.841458821	Insignificant
France	0.204685097	3.841458821	Insignificant
Japan	3.004293772	3.841458821	Insignificant
Hongkong	0.268501942	3.841458821	Insignificant
Malaysia	20.66289372	3.841458821	Significant

Country	Calculated	Tabulated	Result
UK	2.094111688	3.841458821	Insignificant
USA	5.015731434	3.841458821	Significant
UAE	1.548403343	3.841458821	Insignificant

The significant integration is observed between Pakistani and Malaysia and USA. No significant evidence of linear feedback integration is found between Pakistan and its other trading partners Indonesia, China, Germany, France, Japan, Hongkong, UK, USA, and UAE. The result reported above captured the flow of information from Pakistan to its trading partners. It is noted that the above information is average for sample period.

4.2 Integration of Linear Feedback from Trading Partner's Stock Market with Pakistan

Table 4.2 reports the integration of the trading partner's stock market with Pakistan. The integration is captured through measure of linear feedback from trading partners to Pakistan.

TABLE 4.2: Linear Feedback From Trading Partners To Pakistan.

Country	Calculated	Tabulated	Result
Indonesia	3.040658501	3.841458821	Insignificant
China	0.101476018	3.841458821	Insignificant
Germany	9.321428773	3.841458821	Significant
France	6.858492382	3.841458821	Significant
Japan	10.15227808	3.841458821	Significant
Hongkong	4.290963661	3.841458821	Significant

Country	Calculated	Tabulated	Result
Malaysia	1.75605499	3.841458821	Insignificant
UK	11.67476173	3.841458821	Significant
USA	10.54525298	3.841458821	Significant
UAE	1.949350631	3.841458821	Insignificant

The significant integration is observed between trading partners Germany, France, Japan, Hongkong, UK, USA and Pakistan. No evidence of linear feedback integration is found between trading partners Indonesia, china, Malaysia, UAE and Pakistan. The results reported above captured the flow of information from trading partners to Pakistan. It is noted that the above information is average for sample period.

4.3 Integration of Instantaneous Feedback from Pakistan Stock Market to its Trading Partners

Table 4.3 reports the integration of instantaneous trading partner's stock market with Pakistan. The integration is captured through measure of instantaneous feedback from Pakistan to its Trading partners. The significant integration is observed between Pakistan and Germany, France, Japan, and Hongkong. No evidence of instantaneous feedback is found between Pakistan and Indonesia, China, Malaysia, UK, USA, UAE and Pakistan. The results reported above captured the flow of information from Pakistan to its trading partners. It is noted that the above information is average for sample period.

TABLE 4.3: Instantaneous Feedback from Pakistan to its Trading Partners.

Country	Calculated	Tabulated	Result
Indonesia	3.47444	3.84146	Insignificant
China	0.98166	3.84146	Insignificant
Germany	11.1708	3.84146	Significant
France	13.0717	3.84146	Significant
Japan	4.11904	3.84146	Significant
Hongkong	7.13727	3.84146	Significant
Malaysia	-20.624	3.84146	Insignificant
UK	-2.0941	3.84146	Insignificant
USA	-4.1233	3.84146	Insignificant
UAE	-1.5396	3.84146	Insignificant

4.4 Integration of Instantaneous Feedback from Trading Partners to Pakistan Stock Market

Table 4.4 reports the integration through instantaneous feedback from trading partner to Pakistan. The integration is captured through measure of instantaneous feedback from trading partners to Pakistan. The significant integration is observed between Pakistan and France, and Hongkong. No evidence of instantaneous feedback is found between Pakistan and its trading partners Indonesia, China, Germany, Japan, Malaysia, UK, USA, UAE. The results reported above captured the flow of information from Pakistan to its trading partners. It is noted that the above information is average for sample period.

TABLE 4.4: Instantaneous Feedback From Trading Partners to Pakistan.

Country	Calculated	Tabulated	Result
Indonesia	1.01804	3.84146	Insignificant
China	1.01055	3.84146	Insignificant
Germany	2.5657	3.84146	Insignificant
France	6.89824	3.84146	Significant
Japan	-3.4587	3.84146	Insignificant
Hongkong	4.1592	3.84146	Significant
Malaysia	-1.3789	3.84146	Insignificant
UK	-11.618	3.84146	Insignificant
USA	-9.7437	3.84146	Insignificant
UAE	-1.85	3.84146	Insignificant

4.5 Total Correlation Between Pakistan Stock Market with Stock Market of its Trading Partners

Table 4.5 reports the integration of total correlation feedback between Pakistan stock market with its trading partners. The integration is captured through measure of total correlation feedback between Pakistan and its trading partners. The significant integration is observed between Pakistan and Germany, Hongkong and France. No evidence of total correlation feedback is found between Pakistan and its trading partners Indonesia, China, Japan, Malaysia, UK, USA, UAE. The results reported above captured the flow of total correlation between Pakistan to its trading partners. It is noted that the above information is average for sample period. The year on year presence of integration between Pakistan and its trading partners has also been integrated. The result for GCFM from year 2000 to 2016 are reported below as Table 4.6.

TABLE 4.5: Total Correlation Feedback Between Pakistan And its Trading Partners.

Country	Calculated	Tabulated	Result
Indonesia	4.058695	7.814728	Insignificant
China	1.112021	7.814728	Insignificant
Germany	11.88713	7.814728	Significant
France	13.75674	7.814728	Significant
Japan	6.693596	7.814728	Insignificant
Hongkong	8.450168	7.814728	Significant
Malaysia	0.377174	7.814728	Insignificant
UK	4.74E-05	7.814728	Insignificant
USA	0.89245	7.814728	Insignificant
UAE	0.09934	7.814728	Insignificant

4.6 Integration of Pakistan with its Trading Partners Years on Years Analysis

Table 4.6 report that the significant GCFM is observed with Indonesia in year 2007 and 2012. The significant GCFM is observed with china in year 2004 and 2016. The significant GCFM is observed with France in year 2003 and 2011. The significant GCFM is observed with Germany in year 2003 and 2011. The significant GCFM is observed with Japan in year 2007 and 2011. The significant GCFM is observed with HongKong in year 2010 and 2016. The significant GCFM is observed with Malaysia in year 2004 and 2013. The significant GCFM is observed with UK in year 2012 and 2016. The significant GCFM is observed with US in year 2012 and 2014. The significant GCFM is observed with US in year 2008 and 2014. However the significant results are observed in result of years. No clear pattern is found in above case. Some occurred, evidence are observed so we do not identify any systematic change over the period of time.

TABLE 4.6: GCFM Integration of Pakistan with its Trading Partners Year on Year Analysis.

Year	Indonesia	China	France	Germany	Japan	Hong Kong	Malaysia	U.K	US	UAE
2000	0.323	2.414	0.053	1.45	3.324	1.591	0.129	0.006	0.367	1.159
2001	1.094	0.504	1.301	2.02	3.475	0.286	1.445	0.545	0.455	0.539
2002	0.002	0.822	0.363	0.03	3.841	0.152	6.914	0.028	0.273	0.245
2003	2.74	0.241	8.183	7.77	1.488	0.052	0.53	2.163	1.109	0.516
2004	0.906	5.073	0.346	0.23	1.786	0.303	12.03	1.16	0.212	0.132
2005	0.007	5.74	1.498	2.04	3.15	0.333	0.051	0.573	2.447	0.047
2006	0.561	6.875	2.277	3.24	2.307	1.004	3.526	0.287	0.195	0.252
2007	7.009	0.03	2.338	1.43	5.237	2.789	0.865	0.595	2.846	2.169
2008	3.286	0.57	1.934	3.38	0.587	0.361	4.813	2.265	3.76	14.13
2009	0.539	3.21	5.974	2.18	0.011	0.109	0.039	0.088	0.022	0.228
2010	1.386	1.123	2.661	4.76	4.407	6.257	0	0.017	0.499	2.016
2011	0.135	5.024	6.382	11.1	15.18	1.887	0.548	0.301	0.012	1.185
2012	4.422	0.765	0.717	1.5	0.377	1.119	2.067	6.788	2.882	0.079
2013	0.403	0.029	0.138	0.47	0.296	1.237	12.09	0.007	3.506	1.499
2014	0.063	0.004	6E-04	0.38	0.714	0.103	0.011	0.182	3.623	8.104
2015	0.025	0.317	3.548	1.78	5.096	0.917	1.444	0.014	0.386	0.739
2016	0.364	1.566	1.698	0.23	0.456	3.222	1.685	6.47	0.194	2.638

4.7 Feedback from Pakistan to its Trading Partners Year on Year Bases

Pakistan to its trading partners for year 2000 to 2016 are reported as Table 4.7. Table 4.7 reports that the significant integration from Pakistan is observed with Indonesia in year 2011 and 2013. The significant integration from Pakistan to china is observed in the year 2011 and 2012. The significant integration from Pakistan to France is observed in the year 2012 and 2013. The significant integration from Pakistan to Germany is observed in the year 2000 and 2013. The significant integration from Pakistan to Japan is observed in the year 2002 and 2011. The significant integration from Pakistan to Hongkong is observed in the year 2013 and 2015. The significant integration from Pakistan to Malaysia is observed in the year 2008 and 2012. The significant integration from Pakistan to UK is observed in the year 2006 and 2010. The significant integration from Pakistan to US is observed in the year 2006 and 2010. The significant integration from Pakistan to US is observed in the year 2006 and 2015. In 2011, 2012 and 2013; large numbers of evidence about integration are found, but then disappeared in subsequent years. The integration does not appear constant over time.

TABLE 4.7: From Pakistan to its Trading Partners Years on Years Analysis.

Year	Indonesia	China	France	Germany	Japan	Hong Kong	Malaysia	U.K	U.S	UAE
2000	1.016	0.01	0.726	9.973	0.284	1.5	1.123	0.474	1.359	0.004
2001	0.149	3.98	0.001	0.062	0.825	1.517	0.003	0.545	0.675	0.018
2002	0.102	0.64	0.126	0.005	2.513	1.016	2.727	0.538	0.153	0.243
2003	1.86	0.93	0.1	0.4	0.632	0.16	0.564	0.133	0.02	7.384
2004	0.171	0.01	4.469	0.741	1.441	0.303	1.886	0.921	0.037	3.079
2005	1.62	0.62	2.001	1.928	0.307	0.695	0.058	3.089	3.475	0.126
2006	0.494	0	0.822	0.644	0.004	0.009	1.628	5.581	6.912	8.311
2007	2.98	0.2	0.048	0.024	0.041	0.353	10.87	4.193	1.468	4.741
2008	0.179	0.19	2.514	5.594	2.073	1.527	4.156	2.635	2.525	19.7
2009	0.541	0.55	2.15	1.986	0.304	1.48	0.342	2.512	3.362	0.468
2010	2.494	0.32	0.045	0.348	0.009	3.313	2.304	4.358	8.355	-0.02
2011	11.01	7.58	4.062	4.532	2.622	7.134	1.963	1.447	0.446	1.826
2012	0.075	4.68	5.515	1.061	0.301	0.064	4.905	2.2	2.754	0.167
2013	3.587	1.36	7.951	5.793	1.406	7.928	1.442	2.663	2.092	0.211
2014	0.252	1.06	0.813	1.539	0.561	4.106	0.182	0.001	5.478	0.237
2015	0.053	4.54	0.024	0.007	7E-04	15.57	0.06	1.675	3.011	4.026
2016	1.532	2.58	3E-04	2.857	0.056	2.265	0.172	0.359	5.288	0.002

4.8 Feedback from Trading Partner to Pakistan Year on Year Basis

Table 4.8 reports the linear feedback from trading to Pakistan for the year 2000 to 2016. The results provide evidence of integration in specific years. The details of each year on year analysis are processed below. Table 4.8 reports that the significant integration from Indonesia to Pakistan is observed in the year 2007 and 2012. The significant integration from china in Pakistan is observed in the year 2002 and 2008. The significant integration from France to Pakistan is observed in the year 2000 and 2016. The significant integration from Germany to Pakistan is observed in the year 2003 and 2012. The significant integration from Japan to Pakistan is observed in the year 2000 and 2013. The significant integration from Hongkong to Pakistan is observed in the year 2008 and 2014. The significant integration from Malaysia to Pakistan is observed in the year 2005 and 2016. The significant integration from UK to Pakistan is observed in the year 2006 and 2008. The significant integration from US to Pakistan is observed in the year 2004 and 2008. The significant integration from UAE to Pakistan is observed in the year 2011 and 2013. The results can be summarized that the market has evidence of integration.

Graphically represented (Figs. 4.1-4.3) as GCFM integration of Pakistan with its trading partners, integration from Pakistan to its trading partners and integration from trading partners to Pakistan on year on year analysis. The graph for France, Japan, UK, US, Inonesia and Malaysia also indicate the presence of integration in 2011-2013 when contemporaneous effect is accounted for.

TABLE 4.8: From Pakistan to its Trading Partners Years on Years Analysis.

Year	Indonesia	China	France	Germany	Japan	Hong Kong	Malaysia	U.K	U.S	UAE
2000	3.733	0.139	4.92	2.063	5.51	3.248	1.129	0.021	1.413	1.61
2001	0.012	1.431	0.10	0.364	0.18	0.384	1.107	0.197	0.058	0.19
2002	0.63	2.869	0.02	0.089	0.01	0.131	1.381	0.017	0.037	1.16
2003	0.747	0.184	0.76	2.745	0	0.321	0.003	0.007	0.18	1.71
2004	3.16	0.143	1.92	0.557	0.14	0.008	0.013	1.361	6.181	2.74
2005	0.662	0.409	0.38	1.442	0.79	0	3.608	0.006	0.521	0.00
2006	0.749	0.375	2.24	0.958	1.32	0.478	3.27	5.605	0.553	2.12
2007	5.075	0.012	0.55	0.635	0.39	0.405	0.087	0.228	0.021	1.55
2008	2.46	2.653	0.41	1.301	4.46	5.165	10.87	3.168	6.733	0.27
2009	0.047	0.13	0.04	0.037	0.22	0.141	0.428	1.277	0.055	0.11
2010	0.388	0.003	0.17	0.572	0.15	0.137	1.177	1.233	0.885	0.30
2011	1.544	0.061	0.05	0.773	0.39	0.06	0.04	0.068	0.181	4.53
2012	4.929	0.668	8.30	7.285	2.21	3.235	0.389	0.118	1.044	0.01
2013	1.342	2.505	0.06	0.163	5.82	0.013	0.573	0.004	0.459	4.74
2014	0.889	0.516	0.02	0.097	1.1	6.577	0.746	2.482	1.012	0.36
2015	0.376	1.989	0.02	0.306	1.16	2.683	1.048	0.034	0.003	0.13
2016	3.396	2.504	0.00	0.787	0.72	1.302	0.025	0.978	1.708	0.80

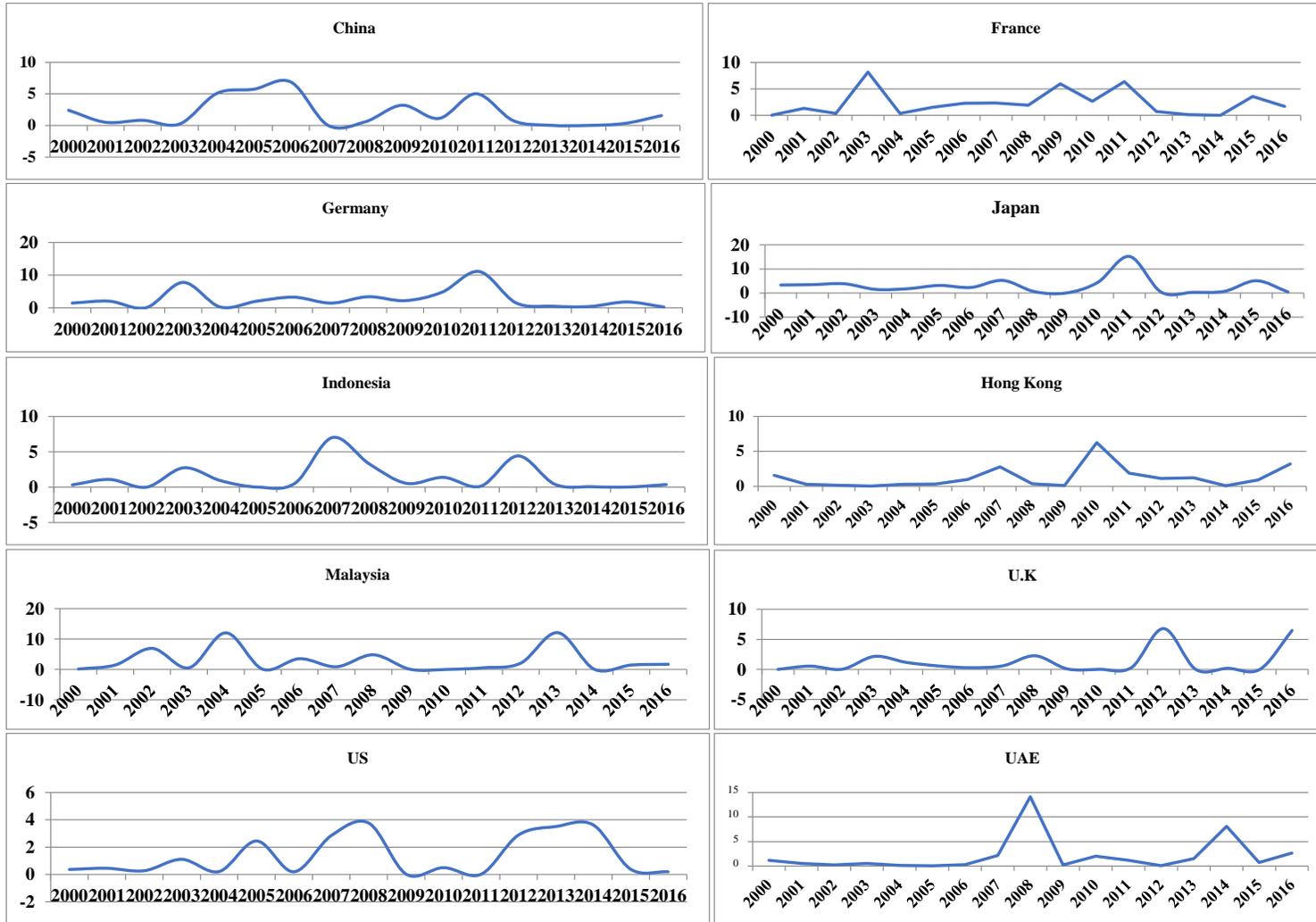


FIGURE 4.1: Geweke Contemporaneous Measure of Feedback.

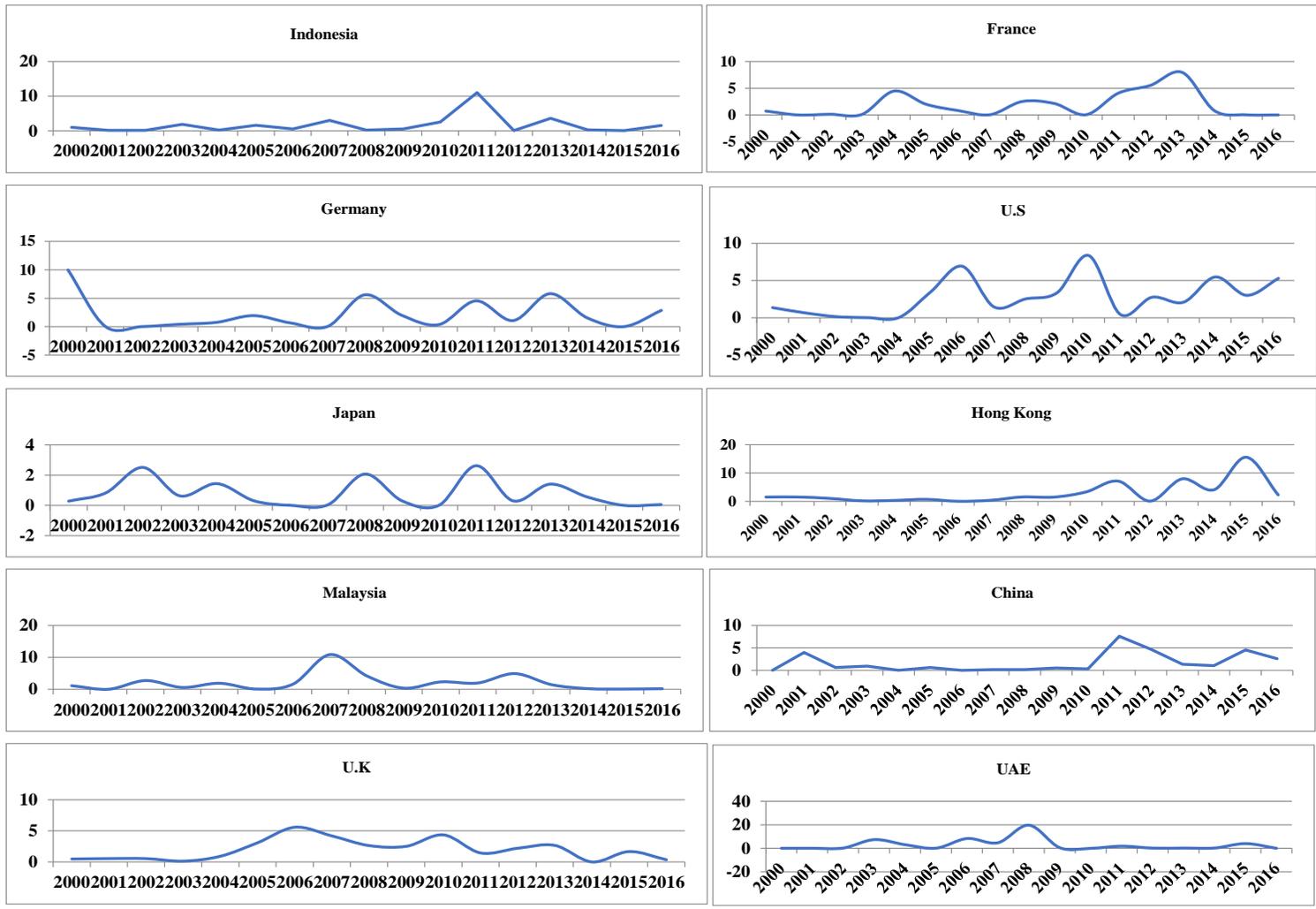


FIGURE 4.2: Unidirectional Measure of Feedback from Pakistan to its Trading Partners.

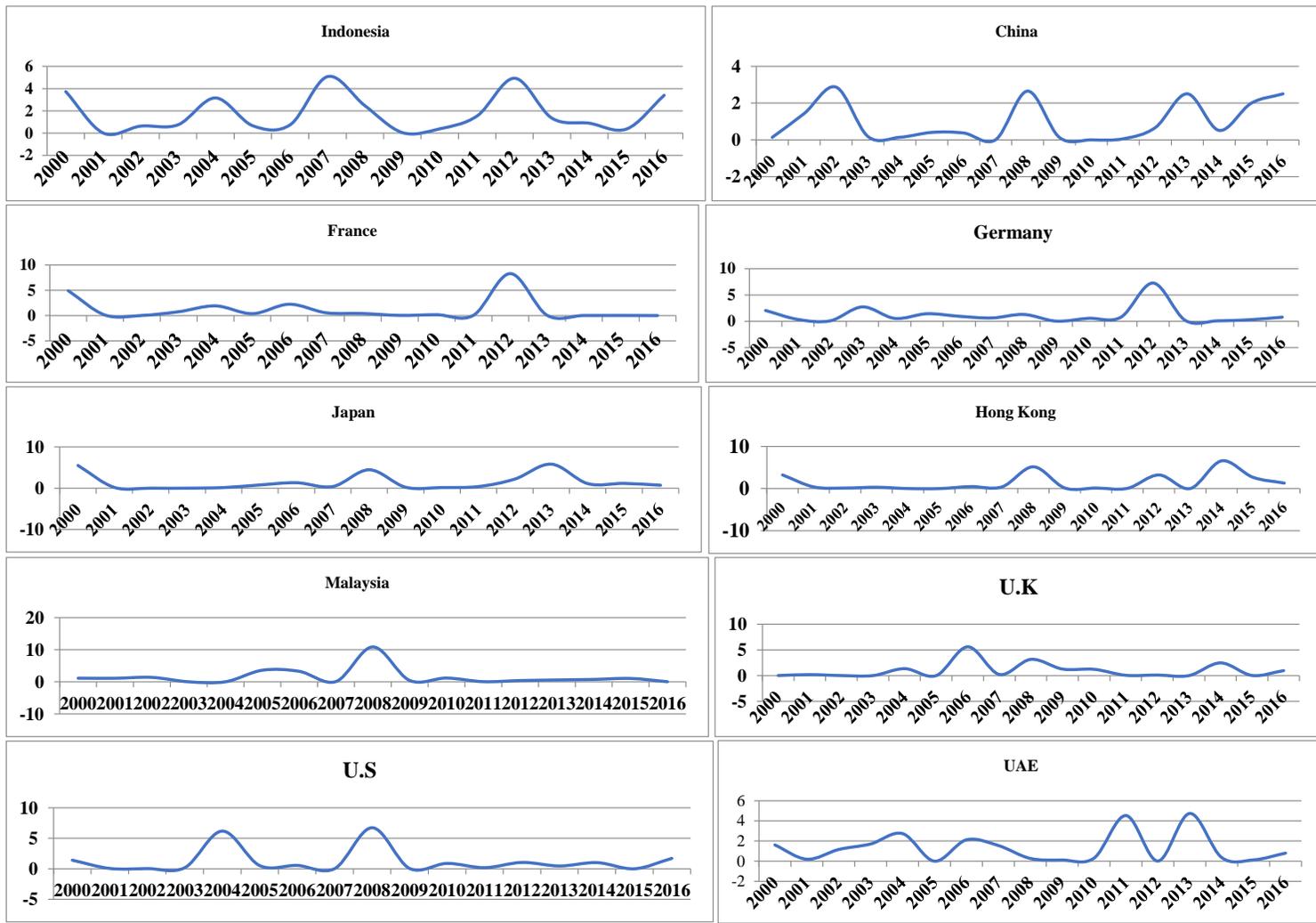


FIGURE 4.3: Unidirectional Measure of Feedback from Trading Partners to Pakistan.

4.9 Descriptive Statistics

The following result reports that descriptive statistics for various variables used in this study. The country wise inflation is presented below.

The descriptive statistics for contemporaneous feedback measures are summarized in Table 4.9 which include mean, median, standard deviation, kurtosis, skewness, minimum and maximum are given. First contemporaneous measure Japan, Malaysia, Germany and France represented highest average country pairs with each other exceeding 2, where UK falls in the lowest average as 1.264. Other countries range in 1.27-2.1. The trend towards a global stock market landscape that takes into account information flows from other markets has clearly gained momentum in the past year. The values of kurtosis indicate absence of normality in the data set in almost all countries.

In unidirectional measures of feedback from Pakistan to its trading partners, the average results are opposite to contemporaneous measures because average decreases for Japan, France, and Germany while it increases in Hong Kong, UK, UAE, and USA.

Unidirectional measures of feedback from trading countries to Pakistan are low as compared to both measures.

TABLE 4.9: Descriptive Statistics.

Contemporaneous Measure of Feedback										
	China	France	Germany	Hongkong	Indonesia	Japan	Malaysia	U.K	U.A.E	USA
Mean	2.0181	2.3184	2.58678	1.2777	1.36848	3.0431	2.83418	1.26408	2.0983	1.34057
Median	0.8219	1.6981	1.77928	0.9169	0.53885	2.3067	1.44445	0.30074	0.7389	0.45528
Std. Dev.	2.2886	2.4198	2.92916	1.5957	1.93831	3.5852	3.95486	2.13789	3.6434	1.44854
Kurtosis	0.3373	0.9982	3.94776	5.4064	3.67156	8.5015	1.98339	3.69063	7.8843	-1.3597
Skewness	1.0526	1.3197	1.96921	2.1689	1.96199	2.6006	1.71513	2.14518	2.7842	0.72831
Min.	0.0043	0.0006	0.03361	0.0516	0.00213	0.011	0	0.00581	0.0469	0.01176
Max.	6.8748	8.1833	11.0991	6.2568	7.0094	15.18	12.0891	6.78839	14.126	3.76034
Unidirectional Measure of Feedback From Pakistan to its Trading Partners										
Mean	1.7201	1.8452	2.20547	2.8791	1.65404	0.787	2.02249	1.96031	2.9719	2.7888
Median	0.6441	0.8127	1.06056	1.5001	0.54053	0.307	1.44249	1.67494	0.2432	2.52483
Std. Dev.	2.1975	2.3595	2.76956	4.0246	2.65612	0.8933	2.6988	1.65519	5.0833	2.48482
Kurtosis	1.7855	1.3966	2.67817	5.8081	10.478	-0.049	7.14307	-0.2755	7.274	0.07514
Skewness	1.5481	1.4137	1.6806	2.3107	3.03121	1.1171	2.45418	0.72902	2.5325	0.8765
Min.	0.0012	0.0003	0.00531	0.0093	0.05321	0.0007	0.00288	0.00127	-0.021	0.01991
Max.	7.5833	7.9508	9.97303	15.574	11.0115	2.6224	10.8667	5.5814	19.699	8.35487

Unidirectional Measure of Feedback From Trading Partners to Pakistan										
Mean	0.9758	1.1741	1.18683	1.4287	1.7729	1.4458	1.52301	0.98842	1.315	1.23799
Median	0.4091	0.1727	0.6354	0.3836	0.88915	0.7158	0.74592	0.1969	0.8027	0.5206
Std. Dev.	1.0824	2.231	1.7346	2.0286	1.68354	1.9251	2.62794	1.52224	1.4978	2.03348
Kurtosis	1.1752	6.606	10.3937	1.4523	-0.5304	1.2707	11.0113	4.64256	1.118	4.4532
Skewness	0.8047	2.5648	3.04037	1.5307	0.89748	1.6007	3.15909	2.09389	1.3595	2.31246
Min.	0.0026	6.0151	0.03743	0	0.01234	0.0012	0.00329	0.00432	0.0007	0.00296
Max.	2.8688	8.2991	7.28514	6.5767	5.07517	5.8221	10.8675	5.60531	4.7421	6.73287

Table 4.10 report that inflation in Pakistan is higher in comparison to the rest of the countries. The difference between Pakistan and China is 5%. The difference between Pakistan and France is 6%. The difference between Pakistan and Germany is 6%. The difference between Pakistan and Hongkong is 6%. The difference between Pakistan and Indonesia is 8%. The difference between Pakistan and Japan is 8%. The difference between Pakistan and Malaysia is 5%. The difference between Pakistan and U.K is 6%. The difference between Pakistan and U.A.E is 4%. The difference between Pakistan and U.S. is 5%. The data are generally positive skewed. Kurtosis is also less than 3%. Maximum volatility is observed in Indonesia.

Real interest differential in Pakistan is less in comparison to the rest of the countries. Maximum volatility is observed in Hongkong and Malaysia. The data are generally negatively skewed.

GDP differential in Pakistan is less in comparison to the rest of the countries. Maximum volatility is observed in Germany and U.A.E. The data are generally negatively skewed.

Market capitalization to the world has been calculated. The size of the Chinese market to world is 5%, France is 4%, Germany is 3%, Hongkong is 3%, Indonesia is 4%, Japan is 8%, Malaysia is 6%, U.K. is 1%, U.A.E. is 1%. The market share of U.S is higher in comparison to the rest of the countries. The data is generally positive skewed. Maximum volatility is observed in China.

TABLE 4.10: Inflation in Pakistan.

Inflation Differential										
	China	France	Germany	Hongkong	Indonesia	Japan	Malaysia	U.K	U.A.E	USA
Mean	5.8956	6.579	6.593	6.588	0.846	8.007	5.789	6.0336	4.0162	5.842
Median	5.1264	6.237	6.185	5.872	0.797	7.453	5.571	5.5876	2.5667	4.767
Std. Dev.	4.154	4.623	4.599	4.105	5.762	4.791	4.325	3.9461	5.1396	4.722
Kurtosis	0.4109	0.483	0.645	0.703	-0.72	0.115	-0.189	2.107	-0.868	0.304
Skewness	1.0535	0.889	1.016	0.651	0.053	0.887	0.842	1.3321	0.3847	0.978
Real Interest Differential										
	China	France	Germany	Hongkong	Indonesia	Japan	Malaysia	U.K	U.A.E	USA
Mean	-2.1231	-2.74	-2.134	-6.15	-5.46	-2.859	-2.79	-3.122	-2.74	-3.385
Median	0.5626	-2.46	-2.456	-5.43	-2.77	-3.156	-0.254	-2.589	-2.737	-2.004
Std. Dev.	6.3672	6.969	6.567	8.882	6.855	6.812	7.499	7.3383	6.4746	6.772
Kurtosis	-1.0331	-1.45	-1.403	-1.28	0.459	-1.456	-0.872	-1.294	-1.372	-1.189
Skewness	-0.704	-0.03	0.017	-0.26	-0.9	0.061	-0.652	-0.076	0.0055	-0.279

GDP Growth Rate Differential										
	China	France	Germany	Hongkong	Indonesia	Japan	Malaysia	U.K	U.A.E	USA
Mean	-5.2452	2.934	2.908	0.368	-1.05	3.325	-0.832	2.3769	-0.346	2.289
Median	-5.5477	3.664	2.988	1.295	-1.16	3.179	-0.942	2.1739	-0.029	2.04
Std. Dev.	2.4748	1.941	2.814	2.587	1.952	2.289	2.721	1.9292	3.3588	1.617
Kurtosis	-0.9798	-0.86	-0.003	0.219	-0.25	2.659	0.44	0.7544	1.4668	0.139
Skewness	-0.0829	-0.27	0.14	-0.34	-0.18	-0.419	0.303	0.7913	0.5512	0.105

Market Capitalization										
	China	France	Germany	Hongkong	Indonesia	Japan	Malaysia	U.K	U.A.E	USA
Mean	0.0555	0.041	0.032	0.039	0.004	0.084	0.006	0.00	0.00	0.408
Median	0.0689	0.043	0.03	0.044	0.004	0.079	0.006	0.00	0.00	0.405
Std. Dev.	0.0426	0.005	0.004	0.014	0.003	0.013	0.002	0.02	0.00	0.058
Kurtosis	-1.1074	-1.42	0.171	-1.76	-1.31	-0.528	-0.719	17.00	0.14	-0.723
Skewness	0.0295	-0.27	0.902	-0.39	0.301	0.644	0.593	4.12	0.14	0.402

Table 4.11 reports the impact of bilateral trade, macroeconomic differential and financial development, differential on market integration captured through GCFM.

TABLE 4.11: Impact of Bilateral Trade, Macroeconomic Differential and Financial Development Differential of Integration.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.46367	0.38332	9.0359	0
GDP Differential	-0.0724	0.02585	-2.7996	0.0058
Import from 'i' to 'j'	1.08993	2.78414	0.39148	0.696
Import From 'j' to 'i'	-87.461	83.3327	-1.0495	0.2956
Market Capitalization	0.01353	2.26985	0.00596	0.9953
Inflation	0.06331	0.01271	4.97997	0
Real Interest	0.04342	0.01463	2.96772	0.0035
Export From 'i' to 'j'	-11.701	4.95011	-2.3639	0.0194
Export From 'j' to 'i'	-351.25	152.146	-2.3086	0.0223
Adjusted R ²	0.20101	Durbin-Watson stat	2.23019	
F-statistic	3.50097	Prob (F-statistic)	1.6E-05	

Geweke Contemporaneous Feedback Measure is the dependent variable which is regressed over, differential of GDP, real interest rate, inflation rate, market capitalization where 'i' and 'j' represent the two markets. Multivariate regressions analysis is done and results are reported in above table. GDP, inflation, real interest rate, export from 'i' to 'j' and export from 'j' to 'i' differential are significant. R-squared value is 20% which is indicate that variable captured 20% variation in GCFM. The results indicate that GDP, inflation, real interest rate, export from 'i' to 'j' and export from 'j' to 'i' contribute a significant portion of stock market co-movments. The GDP differential is significant and negative. It result indicates as GDP differential increases the integration of market decreases. The inflation and interest rate differential are positive and significant. The export from 'i' to

'*j*' and export from '*j*' to '*i*' leads to significant and negative in integration. The explanatory power of model is 26%.

Table 4.12 reports the impact of bilateral trade, macroeconomic differential and financial development differential on market integration captured from Pakistan to its trading partners.

TABLE 4.12: Impact of Bilateral Trade, Macroeconomic Differential and Financial Development Differential of Integration of Market from Pakistan to its Trading Partners with Pakistani Market.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.193757	0.51768	8.101061	0
GDP Differential	-0.113431	0.039109	-2.90036	0.0043
Import from ' <i>i</i> ' to ' <i>j</i> '	-1.619846	1.956371	-0.82799	0.409
Import From ' <i>j</i> ' to ' <i>i</i> '	-128.544	92.08092	-1.39599	0.1648
Market Capitalization	-6.416648	3.909587	-1.64126	0.1028
Inflation	0.056909	0.019954	2.851972	0.0049
Real Interest	0.02699	0.015022	1.796703	0.0744
Export From ' <i>i</i> ' to ' <i>j</i> '	9.556091	5.697066	1.677371	0.0955
Export From ' <i>j</i> ' to ' <i>i</i> '	-948.1098	129.4478	-7.32427	0
Adjusted R ²	0.295485	Durbin-Watson stat	2.039184	
F-statistic	5.169497	Prob (F-statistic)	0	

Feedback from Pakistan to its trading partners is dependent variable which is regressed over GDP, real interest rate, inflation rate, market capitalization. Table 4.12 reports that the impact of bilateral trade, financial development and macroeconomic differential on market integration between Pakistan to its trading partners. The integration is measured from flow of information transmission from Pakistan to its trading partners Pakistan. The result indicated that Inflation, real interest rate, export from country '*j*' to '*i*' has significant positive impact and

GDP has significant negative impact on integration. As GDP differential increases, integration of market decreases. The explanatory power of model is 29.5%.

Table 4.13 reports that the impact of trade and financial development and macroeconomic differential on market integration between trading partners to Pakistan.

TABLE 4.13: Impact of C, Trade and Macroeconomic Differential of Integration of Market from Trading Partners to Pakistan with Pakistani Market.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.013533	0.339484	2.985514	0.0033
GDP Differential	-0.044931	0.032693	-1.37435	0.1714
Import from 'i' to 'j'	-3.363296	1.926501	-1.74581	0.0829
Import From 'j' to 'i'	130.3848	63.59681	2.050178	0.0421
Market Capatilization	-2.63148	4.042102	-0.65102	0.516
Inflation	0.046734	0.021718	2.151853	0.033
Real Interest	0.031373	0.019579	1.602373	0.1111
Export From 'i' to 'j'	3.95464	3.18316	1.242363	0.216
Export From 'j' to 'i'	-91.89363	94.47441	-0.97268	0.3323
Adjusted R ²	0.05717	Durbin-Watson stat	2.144389	
F-statistic	1.602802	Prob (F-statistic)	0.069674	

The integration is measured from flow of information transmitted from trading partners to Pakistan. The result indicated that import of country from 'j' to 'i' inflation and export of country from 'j' to 'i' has significant positive impact on integration. So inflation differential, import of country from 'j' to 'i' and export of country from 'j' to 'i' influence integration. The explanatory power of model is 5% relatively low as compared to other two models.

Chapter 5

Conclusion and Recommendations

5.1 Conclusion

This study explain the integration between Pakistan and its trading partners. The study is divided into two section. First we identify the presence of integration between the market. The integration is estimated by Geweke measures. Three different measures are used information flowing (i) from pakistan to its trading partners, (ii) trading partners to Pakistan and (iii) total correlation between Pakistan and its trading partners. The second section covers identify the macroeconomics determinants of integration. (i) inflation differential between market ' i ' and ' j ' (ii) real interest rate differential between market ' i ' and ' j ' (iii) GDP annual growth rate differential between markets ' i ' and ' j ' are major macroeconomic variables. The bilateral trade is captured through relative export and relative import parameter. The market capitalization differential is used as measured of financial development. This study examines the degree of cross country returns comovement between the stock markets of ten import partners (US, UAE, UK, Germany, China, Hongkong, France, Japan, Malaysia, Indonesia) and top ten export partners (US, UAE, UK, China, Hongkong, France, Japan, Germany) countries. The Geweke measure of Feedback methodology along with a set of panel data regression

model is used to recognize and elucidate the variations in stock market integration. The general findings for the Geweke contemporaneous feedback measures provide evidence of presence stock market integration. The result of Geweke contemporaneous feedback measures is the highest average in Japan, Malaysia, Germany and France whereas UK fall in low average as compared to other countries. The tendency towards a global stock market landscape that considers information flows from other markets has clearly gained momentum. The result of the unidirectional feedback measure from Pakistan to its trading partners is that lower average in Japan, France and Germany while it increases in Hongkong, UK, UAE and USA. The results of unidirectional feedback measure from trading partners to Pakistan are low as compared to other measures. However, this study indicate that the geweke contemporaneous feedback measures are larger on average, and higher significance levels are observed for unidirectional measures of feedback from Pakistan to its trading partners. It suggests that cross market adjustment persist over time more often. The panel data regression analysis has shown that several variables are significantly associated with the evolution of stock markets integration. The variables that are statistically significant include, export, import dependence, inflation, interest rate and difference in annual GDP growth rate. The result can be generalized as GDP differential, inflation differential has a consistent influence on each of integration measures. The result can be summarized as under.

The results indicate that Pakistan market has limited evidence of integration with its trading partners. So there are possibilities of portfolio diversification.

1. Financial development differential reduces integration.
2. Inflation differential increases integration.
3. Interest rate differential increases integration.
4. Export differential reduces integration.

5.2 Recommendation and Policy Implication

1. An investor can diversify the portfolio by investing in these markets.

2. The directions of integration are influenced by differential of financial development and macroeconomics fundamental. This should be considered while making decision.

5.3 Direction of Future Research

The study may be expanded by considering the cross border investment and geographic proximity. The other measures of integration may also be explored.

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