



TRANSMISSION OF CONTEMPORANEOUS SHOCKS FROM THE WORLD TO EMERGING ISLAMIC EQUITY MARKETS: AN APPLICATION OF GEWEKE MEASURE

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ABSTRACT

The aim of this study is to examine the transmission of contemporaneous spillover effects from the world Islamic equity market to emerging Islamic equity markets. Geweke (1982) measure as an extension of Granger causality test (1969) has been used using daily index data from 1st September 2010 to 30th September 2017. The results confirm transmission of contemporaneous spillover effects from MSCI World Islamic Equity Market to all the selected ten Emerging Islamic Equity Markets during the period of study.

Keywords: Instantaneous Feedback, Contemporaneous Spillover Effects, Volatility Spillover, Geweke

JEL Codes: E44, G15, G32

I. INTRODUCTION

Investment decisions are usually based on expected returns and degree of associated risks involved pertaining to a prospective investment. Investment in a stock is considered a security in financial terms as it represents the right of ownership. A stock is considered risky if there are frequent fluctuations in the price on which it is traded in the market. It is generally held that higher the risk higher is the return, and investors often look for investment options where there are higher risks but at the same time, there are solutions available to counter or mitigate the associated risks. That makes the investment option attractive. There are generally three vistas for making investments in corporations namely stocks i.e., buying shares of a company, bonds i.e., making a loan to a company or government, and cash equivalents - short-term investments which can be converted back into cash quickly. Investing in stocks provides an investor with an opportunity to gain higher returns but then the risk is also higher. Spillover effect refers to the shocks transmitted from one market to another in the sense that both markets have a connection and there is an impulse-response phenomenon present between them. Transmission of spillover from market A to market B indicates dependence of securities traded in market B over market A which in terms signifies a risk. Spillover effects are studied in the context of stock markets i.e., shocks transmitted from one equity market to another.

Investors diversify investments to hedge against the risks and it is important to also understand that hedging generally lowers the probability of return from an investment. There are different degrees of connectivity or dependence. A strong connection implies that shocks in one market influence prices in the dependent market. These are seen as a concern as diversification is employed by investors to shield from risks but when two markets are connected the principle of diversification is violated. There can be weak forms of dependency where shocks from one market do not affect the prices in the other market. A stronger connection exists when shocks in one market affect the prices in another market. However, the world economic crisis of 2007 which made American people realize how the Wall Street was connected to the main street also dazzled foreign investors who witnessed how their markets were connected to US stock market as their fortunes disappear in thin air. Even though well before the economic crisis it was warned that the derivatives market was a time bomb since the synthetic securities artificially inflated the volume of global economy to unsustainable levels and significantly there was a tendency of linking derivative markets with the conventional markets.

Researchers and financial experts were not only unable to predict the timings of the crisis but also could not devise proactive strategies to cope with the impending threats. The only explanation of the crisis was greed and

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complacency of institutions which were supposed to protect the investors. After the crisis, as a natural impetus, the investors started looking for securities and investment avenues which they considered as safer for investment. The researchers showed more interest post global financial crisis in the phenomenon of integration of markets and started devising methodologies to study different aspects of connectivity between markets. People started investing in gold as an alternate to the stock market and diverted their investments to regional markets which they thought were not connected to the global stock markets. There was a renewed interest in Islamic equity indices as an aftermath to global financial crisis to invest in the stocks of firms which demonstrated the Islamic principles of financing such as reliance on low leverage and having asset-backed securities. New Islamic indices were created to study if they were consistent and stable compared to conventional stock indices. More regulations were introduced in the financial sector and the banks were expected to maintain liquidity with capital adequacy, loss provisioning and also satisfy minimum capital requirements. Islamic stock market is seen in the purview of 'modaraba', a concept that permits a special form of partnership under the auspices of which one partner gives money to another to invest in a commercial venture.

The benchmark Islamic equity indices are devised based on stringent criteria for inclusion of companies in terms of nature of business and the capital structure (MSCI, 2017). There are two aspects of concern according to Islamic principles i.e., low leverage and asset-backing principle and nature of business. As per Shariah screening criteria, companies directly realizing revenues from products or services that are prohibited as per Islamic law are not included in the index. These products or services include utilization of alcohol, tobacco, pork, weapons, gambling and adult entertainment etc. Furthermore, businesses deriving significant amount of revenues while relying on excessive leverage are also not included in the index. Conceptually, it can be assumed that since the Shariah compliant markets avoid leverage and strictly adhere to the asset-backing rule, so chances of having volatility spillover from a market which relies heavily on leverage are remote, but this needs to be substantiated with the help of strong empirical evidence. It is important to study if the Islamic equity indices remain stable and consistent during the times of crisis or not. If they also become volatile during turbulent period then they cannot be considered safe for investment. The aim of this study is to examine if there is an empirical evidence of intraday volatility spillover from world into selected emerging Islamic equity markets. In order to do so, Morgan Stanley Capital International's (MSCI) Islamic equity index for world and emerging markets i.e., for the entire emerging Islamic equity market spectrum and a sample of selected countries including Islamic stock market indices representing Bahrain, Bangladesh, Egypt, Indonesia, Malaysia, Pakistan, Qatar, Saudi Arabia, Turkey and UAE are explored to carry-out the empirical study in a comprehensive manner.

II. LITERATURE REVIEW

The market crash of October 1989 revealed interesting phenomena that nearly all the market indices dipped simultaneously despite of having different contextual settings and stages of maturity. This prompted King and Wadhvani (1990) to construct a model showing how 'contagion' between markets takes place as a result of market agents relating information pertaining to one market with another. Afterwards, different studies have been carried out by researchers to investigate integration of stock markets based on mean return and volatility spillovers particularly in terms of a volatility shock in one market examined as a cause for a crash in another market. Just before the crash of October 1989, Eun and Shim (1989) studied international transmission of stock market movements as an impulse response function and found out that US market transmits impulses to other international markets and these markets transmit shocks onwards to other international stock markets.

Testing heat wave and meteor shower effects, Ito et al., (1990) examined the intra-daily volatility of yen-dollar exchange parity during three separate policy regimes finding heat wave in first regime in Tokyo market and meteor shower affects in the remaining two regimes based on variance decompositions. Presenting an interesting way of investigation, Theodossiou and Lee (1993) showed the effect of 'imported' volatility spillovers when market own volatility spillover was insignificant. Engle and Susmel (1993) analyzed 10-year data of 18 major European, Far Eastern and North American stock markets by using ARCH tests and multivariate ARCH tests and reported similar time varying volatilities in some international stock markets. Based on ARCH framework, Susmel and Engle (1994) discovered that evidence of volatility spillover between New York and London stock markets was minimal and had a short duration measured in an hour or so. In another study conducted by Ramchand and Susmel (1998) it was observed that when the US market was in high variance state, the correlation between US and other world markets were about 2 to 3.5 times higher than low variance state.

Christofi and Pericil (1999) used VAR model to investigate 5 major Latin American stock markets from 1992 to 1997 and indicated stronger volatility spillovers than mean spillovers in comparison to other regions of the world. Possibility of a contagion in emerging markets as a result of Wall Street panic was explored by Calvo (1999). Ng (2000) examined the extent and dynamic nature of volatility spillovers from Japanese and US stock markets to six

markets in Pacific-Basin and discovered the spillover from Japan and US across markets in Pacific-Basin. Large, positive and heterogeneous mean & own volatility spillovers were reported in emerging markets by Worthington and Higgs (2004). They scrutinized the developed and emerging markets for the period of 12 years from 1988 to 2000 using multivariate GARCH model. Chow and Lawler (2003) compared the Shanghai and New York Stock Exchange indices to study their returns and volatilities and their co-movement from 1992 to 2002. The volatility measures of two markets were surprisingly negatively correlated during this period.

Miykoshi (2003) explored the stock markets of Hong Kong, Indonesia, Korea, Malaysia, Singapore, Taiwan and Thailand along with US and Japan from 1998 to 2000 using bivariate EGARCH model and observed that the returns of Asian markets were influenced from US market and not from Japanese market. It was also concluded that Japanese market has inverse effect on volatility of Asian markets in comparison to US market. MENA stock markets of Bahrain, Oman, Saudi Arabia, Jordan, Egypt, Morocco, and Turkey were investigated from 1999 to 2005 by using VEC model, the EGARCH models, multivariate AR-GARCH models, BEKK model and BHHH algorithm to conclude the presence of large and predominantly positive volatility spillovers and volatility persistence in conditional volatility among MENA and global stock markets. To carry-out financial analysis, VEC models enable researchers to investigate co-integration of nonstationary data series, EGARCH is used to identify asymmetry in data, AR-GARCH model is used to model the return series in order to further examine volatility of returns, BEKK provides for multivariate extension of GARCH whereas BHHH algorithm is used to assess numerical optimization. Moreover, Yu and Hassan (2008) found that own volatility spillovers were usually higher than cross-volatility spillovers for all the markets.

Chuang et. al., (2007) investigated stock market indices of Japan, Hong Kong, Singapore, South Korea, Taiwan and Thailand from 1992 to 2006 using Error Correction Model (ECM), VAR analysis and the impulse response functions. The results highlighted the volatility cluster effects. The Japanese market was most influential in transferring volatility to other East Asian markets. Returns and volatility spillovers between emerging equity markets across different economic regions were investigated by Gebka and Serwa (2007) who discovered that integration between emerging markets existed not only due to their dependence on world markets but also because of common factors in intra-regional inter-dependencies. Based on empirical data of five Latin American countries, Martinez and Ramirez (2011) discovered that dynamic multivariate models are more relevant to study volatilities of asset returns compared to constant conditional correlation models.

Zheng and Huo (2013) recommended the Markov switching causality method to examine the volatility spillover relationships over stable or volatile periods using data from selected developed markets. Commodity and stock market are found to be the main drivers of volatility spillovers to other markets by Duncan and Kabundi (2013) based on an extension of vector autoregressive model proposed by Pesaran and Shin (1998). Talla and Imad (2014) studied the volatility spillover among Kuwaiti, Bahraini and Saudi Arabian stock markets. The results revealed that Kuwaiti market played the major role and it was the most influential among the others in transmitting volatility spillovers. Golosnoy et. al., (2015) studied US, German, and Japanese stock markets from the period of 1996 to 2009 during the subprime crisis. It was observed that significant spillovers from one market to the other market were found but they were short lived and intensified during the crisis.

Majdoub and Sassi (2016) investigated the volatility spillover from Chinese to selected emerging Asian stock markets using VERMA-BEKK-AGARCH model, which is used to overcome the problem of dimensionality associated with VEC model, and found out significant spillover effect from Chinese stock market to selected emerging equity markets. Similarly, Chulia, Guillen and Uribe (2017) using VAR quantile analysis, discovered weaker integration between Latin American equity markets and US stock market compared to US and other developed markets. Shahzad et al., (2017) examined the downside and upside risk of spillovers and dependence structure between five Islamic equity markets which are of equal importance for a Muslim and an oil market investor. The study depicted supportive evidence of asymmetric down and upside risk of spillovers from oil to Islamic stock markets. Furthermore, intensity of spillover increased over the global financial crisis.

III. CAPTURING THE CONTEMPORANEOUS EFFECTS

Geweke (1982) proposed a measure of instantaneous feedback as an extension of Granger (1969) casualty measurement methodology. Casualty refers to examining the dependence of one variable over another variable. In order to do so the general method used is to test if the lagged values of one variable can be used to predict current values of another variable. However, if the data is infrequent then the causality measurement methodology misses contemporaneous correlation effects. Taking the residuals of Granger casualty tests, Geweke proposed a methodology to measure contemporaneous effects. It is important to note that the type of popularity Granger achieved keeping in mind that casualty is mostly measured using his approach, Geweke's measure could not get

the same type of acceptance due to the simple fact that most of standard statistical software used in the world includes Granger causality testing solutions however Geweke measure is not an inbuilt function and add-ins are to be used from un-reliable sources and hence it is better to make calculations manually to avoid estimation errors. Chong and Calderon (2000) applied Granger and instantaneous causality to investigate direction of causality and found out that the economic growth is highly dependent on institutional excellence if the country has meager resources with the condition of slow economic growth.

Calderon and Liu (2003) applied Geweke decomposition test on a pool of data pertaining to 109 developing and industrial countries and suggested that financial development generally facilitate economic growth. Joshua and Ilan (2006) while employing Geweke measure on multiple time series data categorized as developing and industrialized countries suggested that there was interdependence between Foreign Direct Investment (FDI) and trade. Using structural time-series modelling, Al-Deehani and Moosa (2006) investigated contemporaneous spillover effects in Bahraini, Kuwaiti and Saudi stock markets and concluded that although volatility in one market and its effects in another market cannot be fully explained but the Kuwaiti market seemed the most influential compared to Bahraini and Saudi equity markets. Dicle and Levendis (2013) developed a computer algorithm which can be used to estimate Geweke measure of instantaneous feedback. This program can be used as an add-in with Stata software in order to apply Geweke technique of measuring contemporaneous effects in a user-friendly manner. This lends credibility to the analysis otherwise the manual methodology is tedious and increases chances of human error in estimation. Despite of this development there are only few studies that use Geweke methodology which is a surprising factor as it is meaningful to analyze instantaneous feedback particularly in the context of stock markets. Based on Geweke causality analysis, Tan, Nguyen and Ye (2015) assessed the economic growth models of Malaysia and Singapore and suggested corrective policy measures for both the countries.

Giap et al., (2016) analyzed using Geweke measure and concluded that there was a positive effect of Malaysian government's increased expenditure on tourism and allied infrastructure development in terms of growth in tourism industry. Using high frequency data approach of Rigobon (2003), Finta, Frijns and Tourani-Rad (2017) captured the contemporaneous volatility spillover effects from US stock market to UK stock market. The results show that stock market volatility in US stock market is followed by stock market volatility in UK stock market during the overlapping hours of stock trade. It is further revealed that Structural Vector Autoregression (SVAR) is more reliable than traditional VAR. Barunik and Krehlik (2017), being inspired by Geweke, proposed a framework for measuring interdependence between variables based on spectral representation of variance decomposition. In a recent development, Solvang and Subbey (2019) recommended an integrated approach for measuring causality combining the methodologies of Granger (1969), Geweke (1982) and Akaike (1974). Based on data simulation, the algorithms developed show accurate results. In a nutshell, different studies have been carried out to study the phenomena of mean and volatility spillover between money, commodity and equity markets. There are also a plenty of studies (Jawadi et al., 2014; Nagayev et al., 2016; Shahzad et al., 2017; Shahzad et al., 2017; Khan & Khan, 2018; Rajeb & Arfoui, 2019; Sulehri and Ali, 2020; Alim et al., 2021; Alim et al., 2021; Ali et al., 2021; Audi et al., 2021) on the connectivity of conventional and Islamic equity markets but there are only a few studies on the integration between global and emerging Islamic equity markets with narrow focus and regional coverage.

IV. STUDIES ON ISLAMIC STOCK MARKETS

Karim et al., (2012) applied the cointegration and Granger causality tests and impulse-response function to examine the implications of subprime mortgage crisis on the Islamic financing and Islamic equity market in Malaysia and found that although both Islamic financing and Islamic stocks were cointegrated with macro-economic variables but there was no influence of macroeconomic variables on Islamic deposits before and during the subprime mortgage crisis. Jawadi et al., (2014) studied the financial performance of Islamic and conventional stock indices in Europe, USA and World and revealed that the impact of global financial crisis on the Islamic stock markets was lower compared to conventional counterparts. Ho et al., (2014) investigated the performance of Islamic and conventional indices and found that Islamic indices perform better compared to conventional counterparts during bearish periods although their results remained inconclusive for non-crisis periods. They attributed conservative outlook of Shariah compliant investments as a main reason for this adding that it is better to invest in Islamic stocks during the time of crisis. Nagayev et al., (2016) found that the relationship between Islamic equity and commodities markets is time varying and continues during the global financial crisis although Islamic equity market offers the benefit of diversification. Dania and Malhotra (2013) confirmed spillover effects from conventional markets to the Islamic equity markets using a VAR methodology by taking into account North American, European Union, Far Eastern and Pacific Islamic as well as their counterpart conventional stock indices. Al-Khazali et al., (2014) used stochastic dominance technique to investigate performance of Islamic equity indices in comparison to conventional equity indices and found out that except for Europe where Islamic stock indices outperform their conventional

counterpart equity indices during global financial crisis of 2007, the conventional indices outperform the Islamic indices in Asia Pacific, Canada, Developed Countries, Emerging Markets, Global, Japanese, UK, and US markets.

Ajmi et al., (2014) used heteroscedasticity-robust linear Granger causality and nonlinear Granger causality tests to investigate the relationship between the Islamic equity and global equity markets, during several global financial and economic shocks and found out causality from Islamic equity markets to the conventional equity markets. They attributed this as an evidence against the decoupling hypothesis. Majdoub and Mansour (2014) examined the relationship between the US equity markets and five emerging Islamic equity markets including Indonesia, Malaysia, Pakistan, Qatar and Turkey using multivariate GARCH-BEKK, CCC and DCC techniques and found weak correlation that is time varying between these markets having no spillover from the US market to the selected emerging equity markets. Golosnoy et al., (2015) studied US, German, and Japanese stock markets from the period of 1996 to 2009 during the subprime crisis. It was observed that significant spillovers from one market to the other market were found but they were short lived and intensified during the crisis. Using the generalized VAR framework developed by Yilmaz and Diebold (2012), Shahzad et al., (2017) identified a strong interaction in return and volatility between US, UK and Japanese conventional stock markets and global Islamic stock markets along with selected risk factors rejecting the decoupling hypothesis of Islamic stock market from its conventional counterparts. Khan and Khan (2018) investigated the cointegration of Islamic and conventional stock indices in the Asia Pacific region and found that Dow Jones Islamic Market Asia Pacific index was integrated with Indian, Taiwanese, Pakistani and New Zealand benchmark stock indices. Employing state space model combining GARCH (1,1) standard specification, Rejeb and Arfaoui (2019) discovered that Islamic indices were more volatile compared to conventional counterparts during the global financial crisis. Further, Islamic indices were also more information efficient in comparison to conventional indices.

V. METHODOLOGY

Daily MCSI Islamic World and Emerging Markets index data from 1st September 2010 to 30th September 2017 are used in the study. Bloomberg's datastream is the main source of information. It is ensured that data series have matching dates for valid comparison. For capturing instantaneous feedback from World to Emerging Islamic equity market, Geweke (1982) methodology has been used. To the best knowledge of the authors, Geweke measure has not been used in the similar context before mainly due to the reason that the option of applying this technique is not available in popularly used econometric software packages and although it becomes a tedious job to carry out this test, as there are many steps involved, but since it is an extension of Granger casualty test which is mostly used, hence the use of this technique should be preferred. According to Geweke (1982), while applying the standard VAR methodology, the following are measures of linear feedback based on two random variables:

$$x_t = \sum_{s=1}^p E_{1s}x_{t-s} + u_{1t} \quad \text{Var}(u_{1t}) = \sum_1 \quad (1)$$

$$y_t = \sum_{s=1}^p G_{1s}y_{t-s} + v_{1t} \quad \text{Var}(v_{1t}) = T_1 \quad (2)$$

$$x_t = \sum_{s=1}^p E_{2s}x_{t-s} + \sum_{s=1}^p G_{1s}y_{t-s} + u_{2t} \quad \text{Var}(u_{2t}) = \sum_2 \quad (3)$$

$$y_t = \sum_{s=1}^p G_{2s}y_{t-s} + \sum_{s=1}^p H_{2s}x_{t-s} + v_{2t} \quad \text{Var}(v_{2t}) = T_2 \quad (4)$$

$$x_t = \sum_{s=1}^p E_{3s}x_{t-s} + \sum_{s=0}^p F_{3s}y_{t-s} + u_{3t} \quad \text{Var}(u_{3t}) = \sum_3 \quad (5)$$

$$y_t = \sum_{s=1}^p G_{3s}y_{t-s} + \sum_{s=0}^p H_{3s}x_{t-s} + v_{3t} \quad \text{Var}(v_{3t}) = T_3 \quad (6)$$

If x does not Granger-cause y , then (4) can be rewritten as (2). Comparing (2) and (4) then gives us an estimate of the impact of x on y . Similarly, If y does not Granger-cause x , then (3) can be rewritten as (1). Comparing (1) and (3) then gives us an estimate of the impact of y on x .

Then

$$n \times F_{X \rightarrow Y} = n \times \ln(T_1/T_2) \quad \sim X^2_p$$

$$n \times F_{Y \rightarrow X} = n \times \ln(\sum_1/\sum_2) \quad \sim X^2_p$$

$$n \times F_{X \times Y} = n \times \ln(T_2/\sum_2/|Y|) \\ = n \times \ln(\sum_2/\sum_3) \\ = n \times \ln(T_2/T_3) \quad \sim X^2_1$$

$$n \times F_{X,Y} = n \times \ln(\sum_1 \times T_1/|Y|) \quad \sim X^2_{(2p+1)}$$

Where

$|Y|$ and $C = \text{Cov}(u_{2t}, v_{2t}) \cdot F_{X \rightarrow Y}$ and $F_{Y \rightarrow X}$ Granger-cause F statistics

n is the number of observations for unrestricted estimations

$F_{X \rightarrow Y}$ is the measure of instantaneous feedback

$F_{X,Y}$ is the measure of total feedback between x and y

$F_{X,Y}$ is equal to $F_{X \rightarrow Y} + F_{Y \rightarrow X} + F_{X \times Y}$

Interdependence can be measured both ways but in this paper dependence of emerging Islamic equity markets on world equity market has been studied so the measure of instantaneous feedback is $F_{X \rightarrow Y}$ as indicated above.

VI. RESULTS AND DISCUSSION

Before carrying on with tests and analysis, it is imperative to study the characteristics of data. Therefore, Islamic equity market indices and their corresponding return series are presented in figure-1 given in appendix:

In all the cases the time series depict a trend and the return series have smaller shocks followed by smaller shocks and bigger shocks followed by bigger shocks and clearly there are no outliers. For all the indices, statistics depicting their daily mean return, standard deviation of returns from their mean, maximum and minimum daily returns, kurtosis and skewness of the return distributions are reported in table-1, given in appendix:

The above table shows that the mean returns of Emerging and Egyptian equity markets are negative whereas for the rest of indices the mean returns are positive. Egypt has the highest standard deviation of 0.019848, which indicates that Egyptian stock market is comparatively volatile. Least volatile are the Islamic World and Malaysian stock markets. Except for the Malaysian and Qatari market return distributions, rest of the distributions are negatively skewed indicating large negative returns. The values of kurtosis in all cases are greater than 3 indicating that the distributions of returns are leptokurtic in orientation. Our results indicate contemporaneous effects in all the emerging Islamic stock markets as depicted in Table-2 given in appendix:

Based on the above results and previous literature, we can conclude that there are intra-day spillover effects from the world Islamic equity market to emerging Islamic equity markets. Previously, many studies have revealed the contagion between Islamic stock markets and their conventional counterparts from developed to emerging countries (Majdoub & Mansour, 2014; Majdoub & Sassi, 2017; Shahzad et al., 2017; Khan & Khan, 2018). Similarly, causality from global conventional stock markets to regional conventional stock markets and emerging Islamic stock markets has been identified with the help of empirical evidence during the times of economic and financial crisis and shocks (Golosnoy et al., 2015; Ajmi et al., 2017). Studies also reveal that conventional stock indices outperform Islamic indices during global financial crisis though Islamic stock markets provide alternate for diversification (Al-Khazali et al., 2014); Nagayev et al., 2016).

VII. CONCLUSION

The aim of this study was to investigate transmission of instantaneous feedback from World Islamic equity market to emerging Islamic equity markets. The results confirm contemporaneous spillover from World Islamic equity market and the Emerging Islamic equity markets during the period of study. As evident from the results of this study and different other studies the Islamic equity markets are still prone to risks and there are also questions regarding stability of Islamic indices during the times of crisis. Hence it is imperative to revise the criteria on which these indices are constructed. It would not be possible to consider Islamic indices safer for investment if they exhibit the same characteristics that of conventional indices both during stable and volatile periods. The Shariah screening mechanisms need to be tighten across the globe and there should be more transparency and uniformity in this regard. It is important to realize that Islamic indices are going through infancy stage and it would take time for them to take a mature shape. Another factor is the intent of the management as mostly stocks included in Islamic indices belong to companies where there is no deliberate attempt to follow Islamic principles in operations. Only the companies which declare their resolve to follow Islamic principles in day to day affairs need to be included in the Islamic indices. Moreover, Islamic governments and their regulatory bodies may apply a holistic international approach towards developing national regulations and standards to make Islamic equity markets depict the true spirit of Islamic finance. There are different regulatory frameworks for implementation of Islamic finance and banking in different countries. Notably, the systems and practices in Malaysia, Indonesia, Qatar and Egypt are comparatively at advanced stage. Interpretations of Islamic Shariah and financial systems differ in many countries hence there is a need for collecting primary data. In this regard, a pragmatic research paradigm would reveal more insights particularly if findings from secondary data are substantiated and supported by using primary data. There is a need to develop a scale for measurement. The spillover effects can also be examined through copulas, wavelets and other modern econometric tools.

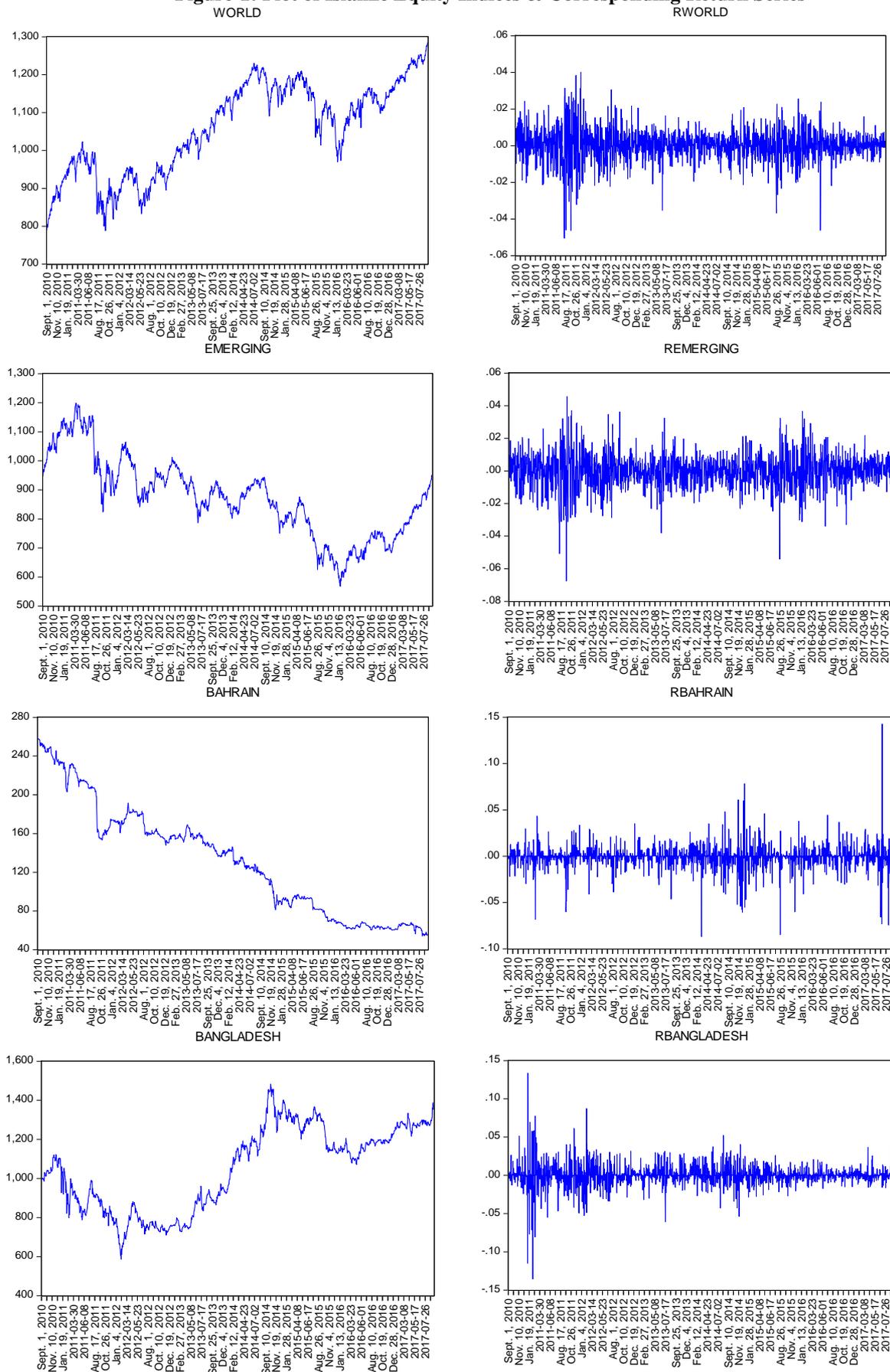
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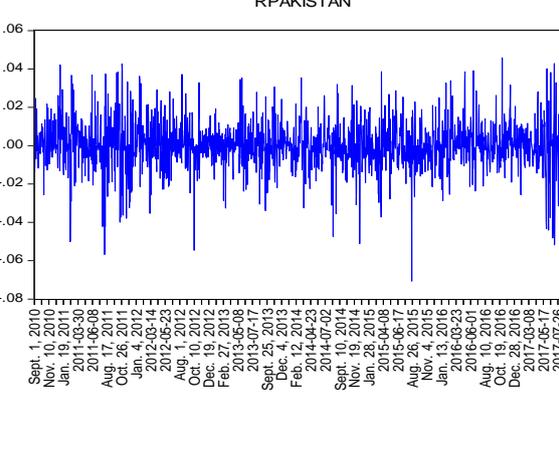
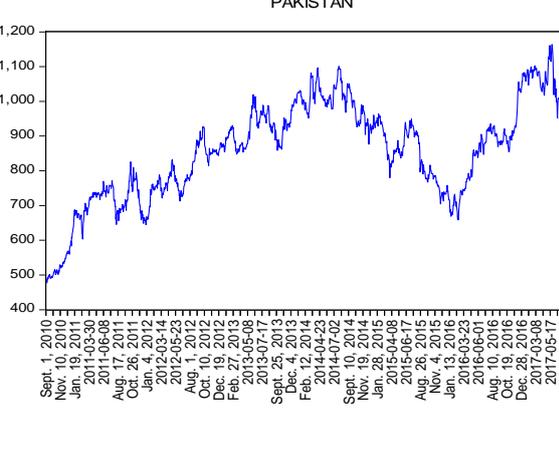
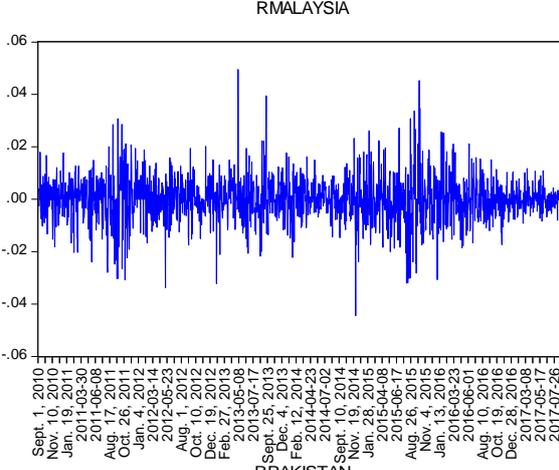
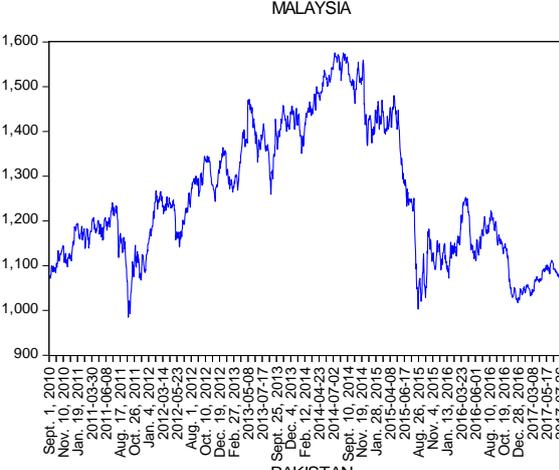
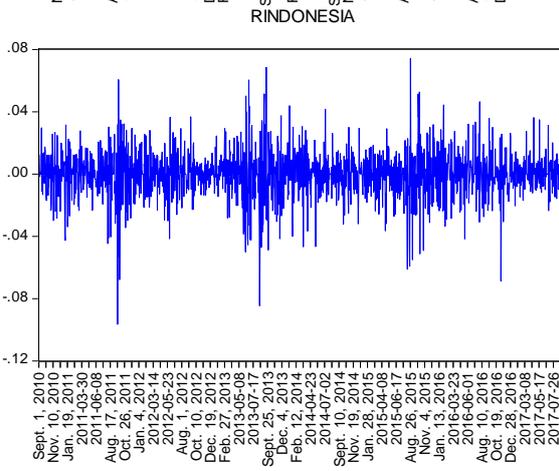
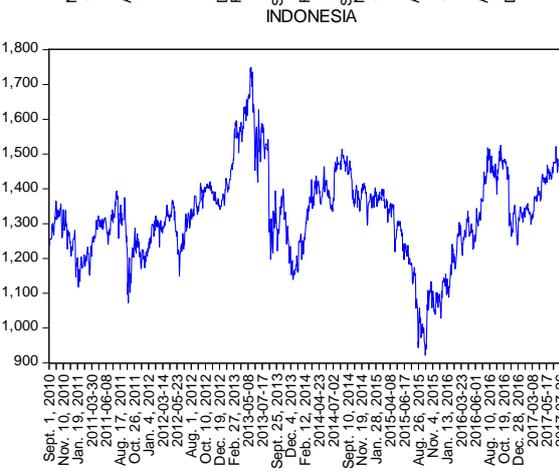
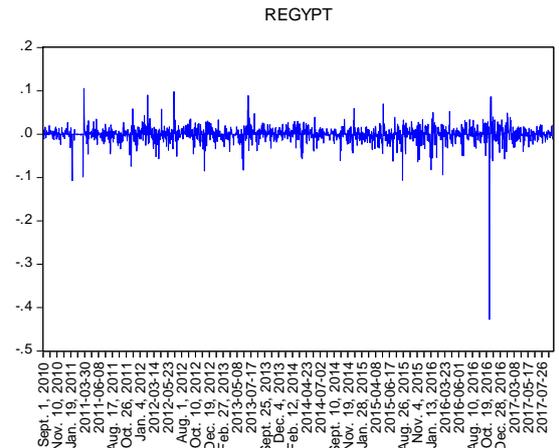
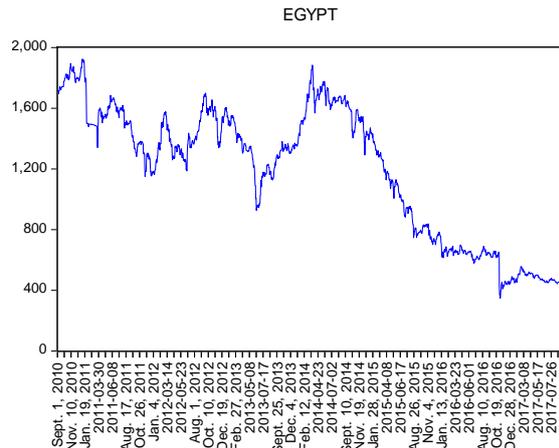
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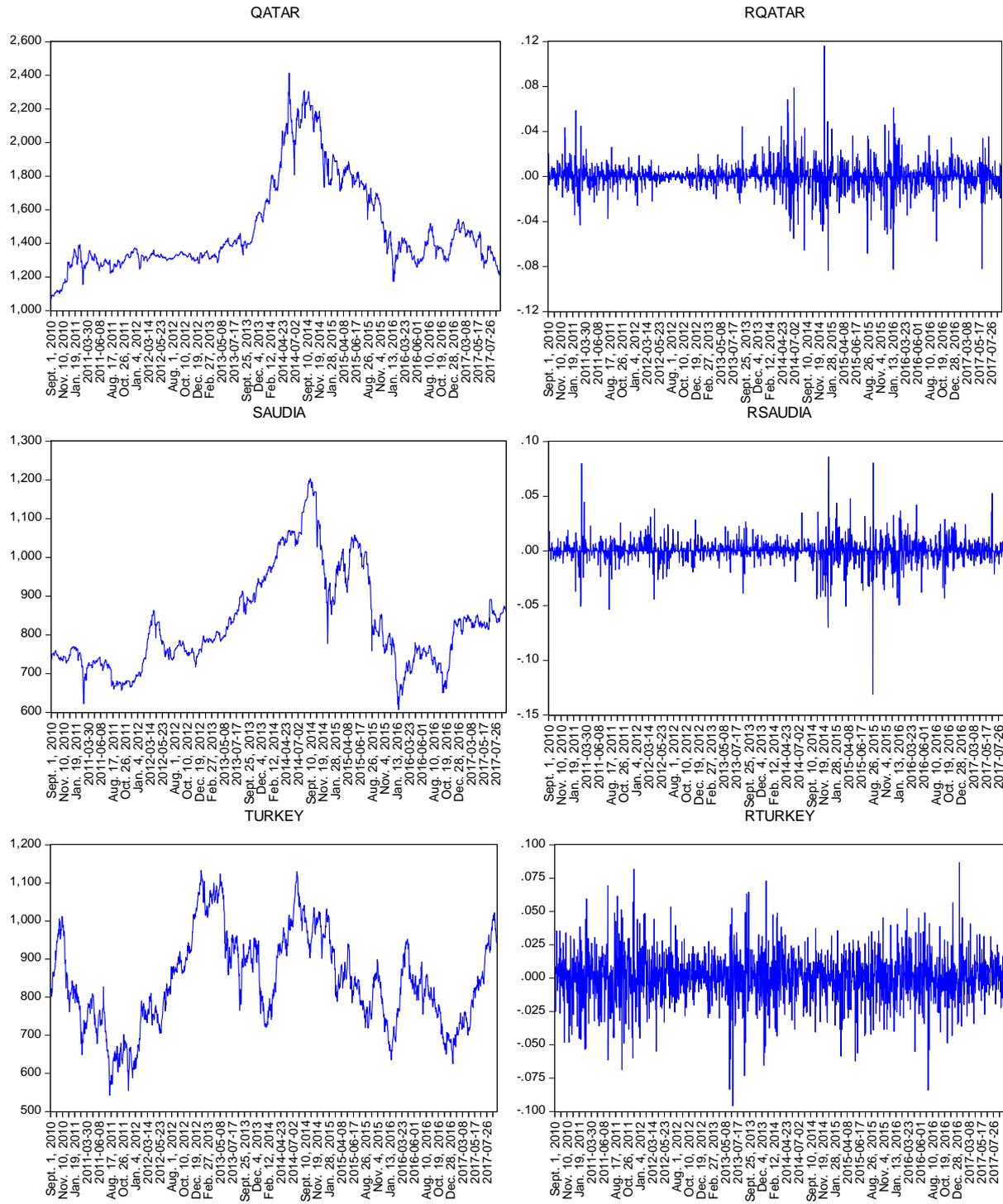
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Figure-1: Plot of Islamic Equity Indices & Corresponding Return Series







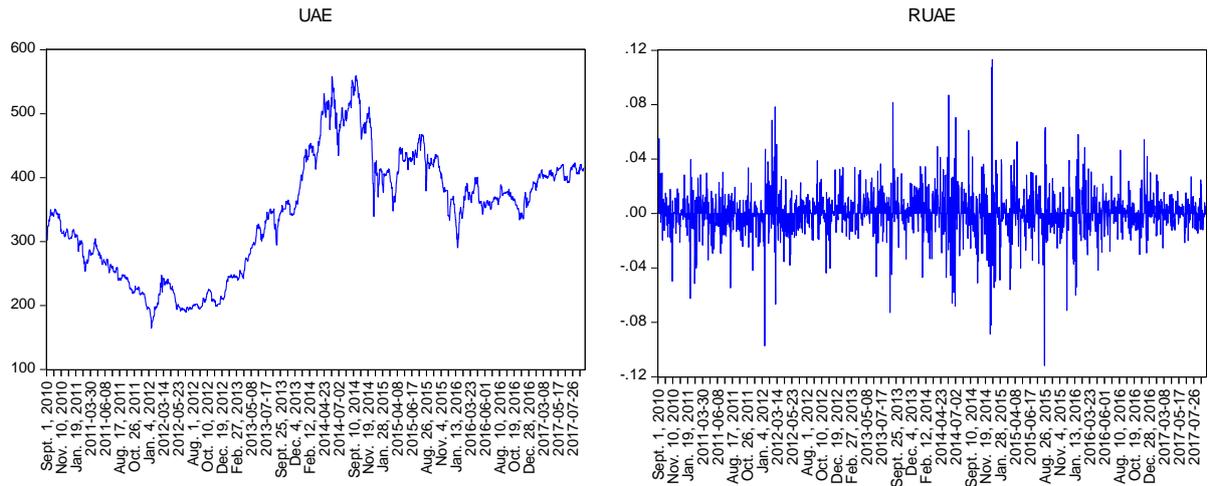


Table-1: Descriptive Statistics – 2010 to 2017

Description	Mean	St. Dev	Kurtosis	Skewness	Min	Max
World	0.000265	0.008313	7.481463	-0.515019	-0.050465	0.040220
Emerging	-4.89E-06	0.009838	6.160623	-0.338878	-0.067478	0.045670
Bahrain	-0.000833	0.011985	23.73983	-0.068017	-0.086853	0.142781
Bangladesh	0.000165	0.013734	20.67253	-0.186333	-0.135503	0.133825
Egypt	-0.000710	0.019848	123.4617	-5.875652	-0.427743	0.105743
Indonesia	0.000103	0.014773	6.853458	-0.405949	-0.096472	0.074087
Malaysia	1.71E-05	0.008449	6.086948	0.039463	-0.044394	0.049517
Pakistan	0.000281	0.012343	5.797997	-0.238825	-0.070683	0.045802
Qatar	7.76E-05	0.012083	16.65797	0.006547	-0.083467	0.116056
Saudi	8.46E-05	0.011011	23.57703	-0.893447	-0.131000	0.085967
Turkey	7.75E-0.5	0.018102	5.470625	-0.204836	-0.095758	0.086670
UAE	0.000173	0.016300	10.98159	-0.096976	-0.111817	0.113208

Table-2: Instantaneous Feedback from World to Emerging Islamic equity markets

From World to	Chi Square*	p-value**	Conclusion
Emerging	1144.72	0.00001	Significant
Bahrain	3.7441	0.05312	Significant
Bangladesh	-0.0601	0.00001	Significant
Egypt	-12.0678	0.00001	Significant
Indonesia	-42.9668	0.00001	Significant
Malaysia	-48.5152	0.00001	Significant
Pakistan	-30.1346	0.00001	Significant
Qatar	-24.6875	0.00001	Significant
Saudi Arabia	18.7914	0.00001	Significant
Turkey	295.7366	0.00001	Significant
UAE	-16.2321	0.0001	Significant

* degree of freedom = 1 & ** $p < .05$