Volatility between Conventional and Islamic Stock Market

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ABSTRACT

Purpose: This study investigates the degree and extent of volatility interdependence between the Islamic and conventional stock markets represented by using the Dow Jones indices for the period spanning from Dec 1, 2008, to Dec 31, 2016. Over the last two decades, the stock market has developed rapidly as a new investment instrument and these investments haven't solely extended within the money market and conventional market but also in the developing Islamic markets.

Design/Methodology/Approach: GARCH(1,1) conditional volatility series are generated and then further used the Quantile regression approach on volatility series to check the financial markets’ interdependence.

Findings: The results show that stock markets are interdependent on all three quantile levels. Accordingly, the structure of interdependence is asymmetric for both Islamic and conventional stock markets.

Implications/Originality/Value: Investors, government regulators, and academics can all learn from the findings of this study. The potential for spillover of volatility from conventional stock markets to Islamic stock markets can be effectively countered by investors who develop and implement their unique strategies.

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Introduction

Over the last two decades, the stock market has developed rapidly as a new investment instrument and these investments haven't solely extended to the money market and conventional market but also the developing Islamic markets. The introduction of Islamic indices has been witnessed by the global capital market over the past decade. Islamic finance is presently

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Introduction

Over the last two decades, the stock market has developed rapidly as a new investment instrument and these investments haven't solely extended to the money market and conventional market but also the developing Islamic markets. The introduction of Islamic indices has been witnessed by the global capital market over the past decade. Islamic finance is presently
suffering growth crossways the planet and become a lot of challenges to the traditional financial set-up. Countries that were affected by crises provide new funding streams to improve their economies and provoke the awareness of a wide range of investors. Indeed, once the oil crises of the 70s, Muslim monetary merchandise was created to soak up the huge provide of capital returning from a loaded investor which the holders of petrodollars were.

It's a three-way race between Dubai, London, and Kuala Lumpur to become the most important Islamic financial hub. As one of the fastest-growing emerging markets, Turkey's deputy prime minister for financial and economic affairs emphasized the significance of Sukuk financing the country's current account deficit.

The conventional market and the Islamic market are distinct in many respects. Value and small-cap equities are more popular in the traditional market, while growth and mid-cap companies are more popular in the Islamic stock market. The Islamic financial system, which is by Sharia law, is another distinction between the Islamic market and the conventional market. Stocks in companies that engage in Haram (prohibited) activities like lending, gambling, tobacco or alcohol manufacture, traditional financial services, entertainment, or weaponry should be permissible investments according to Islamic sharia. Companies with significant interest-bearing loans, trading debt for more than their face value, or receiving interest or other impure revenue are also prohibited investments under sharia law (Rehman, 2010).

According to sharia law, it is forbidden to put money into any derivative financial product that does not have an underlying tranche, such as a forward option, futures, interest rates, or government debt. Because of this, there can be no financial protection measures within the Islamic financial system that serves to mitigate risk. The Islamic financial system can act as a buffer against the risk and instability in the financial markets, according to the findings of another study. The Islamic stock market is distinct from the traditional market both in normal times and after the global financial crisis of 2008. (Nazlioglu, 2015).

Global index providers show and model these new indices differently, taking into account the expectations of regulators in the Islamic and conventional markets, demonstrating that Islamic investors are very selective in their investments in Islamic indices. Shariah-compliant investment strategies and indexes have received a lot of attention because of the equitable distribution of profits they ensure. The international financial sector reports that Islamic investments are expanding rapidly because they provide lucrative returns while also adhering to ethical principles that are highly valued by investors in Islamic countries.

**Literature Review**

In recent years, financial markets have become a clear vulnerability for widespread business sector crises that have triggered economic slump. Thus, the related financial project indicated the development of the Islamic backbone industry, which is essentially the view of Shari’a’s standards, as another elective speculation capable of weathering the financial crisis more efficiently than the traditional partners and providing a response to global financial specialists attempting to secure their businesses against financial notions.

Finances in the Muslim community are not as incomprehensible as those used to maintain socially reliable indices. Due to the absence of sugar coatings, Muslims will be able to accept precious archives that they view as harmful in addition to their regular companions (Albaity and Ahmad, 2008). Moreover, media companies who accompany these registrations by adopting financial channel standards and linking additional cash could be additional productive partners to normalcy (Atta 2000).
The scope of Muslim finance has broadened to include not only banking but also the money market, fund management, and portfolio management as well. The major Muslim index, "Muslim index with a social conscience," was introduced in 1998. Since then, the range of Muslim indexes has broadened, prompting Islamic index investors to offer a suite of jurisprudence indices in recent years.

Despite massive growth in Muslim financial institutions due to several circumstances, most notably the influx of petrodollars and, hence, the surpluses in the Gulf countries. To determine whether Muslims or other indices were less profitable than the usual rates, a sizable body of financial research was interested in examining the Muslims' performance.

Standard deviations in risk and risk characteristics stem mostly from Muslims' political and religious activity (Hayat and Kraussl, 2011, Abdullah et al. 2007).

Hassan et al. (2005) assess the Associate's moral portfolio in Nursing Muslims relative to a benchmark portfolio. According to the data, the nurse's investment has not been negatively affected by the use of Muslim moral filters.

Money returns and investing strategies for 265 widely used Muslim stock funds across 20 countries were examined by Hoepner et al. (2011). The writers are aware that growth companies do provide some backing for Muslim fashion investment funds, but that funds from most Muslim economies have a distinct bias toward modest capitalizations.

Muslim indices are focused on growth and capitalization, while conventional indices are compared with added value and concentrated capital, as discovered by Girard and Kabir (2008), who conducted an interactive study of Muslim and non-Islamic indices.

Forte and Beste (2007) consider whether faith-based investments (i.e. FTSE Muslims) and other types of Islamic investment funds will be included in the category of socially responsible investment funds, or whether they would be better off organized in a very separate family investment. When compared to conventional indices and SRIs, the data demonstrate that Muslim investment features portfolios with a different political economy character. Islamic banking has been given some attention in the literature, especially in light of the recent global financial crisis.

In light of the recent global monetary crisis, Dridi and Hasan (2010) analyze and compare the effects of the crisis on the earnings, credit, external growth, and ratings of conventional and Islamic banks. These authors are aware that the crisis has differing effects on the two business types. As a result of the prohibition on Riba's observation, Dewi and Ferdian (2010) say, Muslim finance will emerge as a solution to the current economic crisis.

The global financial crisis, according to Ahmed (2009), has exposed flaws in risk management across organizational, structural, and product dimensions. The author argues that the current financial crisis could have been avoided if businesses, nonprofits, and consumer goods had instead adhered to the tenets of Muslim finance.

In 2013, Arouri et al. embarked on a novel strategy. Examining the dispersed portfolios in which it trades Islamic values complements the conventional markets while considering the influence of the monetary and standard Islamic currency markets in three global areas and the quest for fewer detrimental effects in the first and second. They prove that increasing one's portfolio over time reduces overall risk and creates additional advantages of diversity.
When Hussein Omran (2005) compares the performance of Dow Jones Muslims to that of their normal peers over the period 1996-2003, he finds that the indices show Muslims, statistically and economically, an abnormal positive vitality arrived at the total and for which the sub-period from January 1996 to March 2000 shows statistically insignificant negative results from Gregorian calendar month 2000 to July 2003. Hussein (2004) uses CAPM to determine that, during the period 1996–2003, the FTSE World Muslim Index outperforms the FTSE World Standard Index. The FTSE World Muslim Index, on the other hand, shows statistically aberrant returns within the securities industry sample (July 1996 to March 2000) and lags behind the FTSE World Standard Index within the sample size.

Neither the Wilshire 5000 nor the 3-month Treasury bill correlate with the Islamic index. Together, they demonstrate that shifts in the Moslem index cannot be attributed to movements in the Wilshire 5000 or the 3-month Treasury bill. According to the findings of Hakim and Rashidian, the Moslem index is affected by variables independent of the general economy and interest rates.

From 1990 to 1995, Annuar et al. (1997) analyze the performance of 31 Malaysian common funds that are primarily Moslem, finding empirical evidence that these Malaysian assets outperform the KLCI benchmark.

Both co-integration tests are used by Hakim and Rashidian (2004) to investigate the correlations between the Islamic value list and the Wilshire 5000 record and the three-month Treasury bill in the United States. Their findings show that the Islamic record is uncorrelated with and unaccountable for by the Wilshire 5000 or the three-month Treasury bill yield in the United States.

Using the autoregressive distributed lag (ARDL) method, this article examines the long-term relationship between the Islamic markets in Malaysia and key macroeconomic characteristics (i.e., cash supply, exchange rates, financing costs, the mechanical generation record, and the Federal assets rate). Their findings show that the KLSI is largely affected by changes in exchange rates, cash availability, lending costs, and the Federal assets rate, making these variables plausible targets for government attention as it seeks to normalize the Islamic securities exchange and encourage greater capital inflows. Together, Abdul Majid and Yusof The DCC-MGARCH demonstration modifies the consistent conditional connection (CCC) MGARCH demonstration by allowing the contingent covariance framework of the needed factors to adopt a dynamic representation and the contingent intention to adopt a vector autoregressive (VAR) representation. By eliminating the assumption of constant contingent connection, the model can capture the widely observed phenomenon of instability grouping. This phenomenon states that periods of large swings will arbitrarily follow periods of small swings and vice versa. As a result, the model enables the calculation of instability relationships that evolve. Since the VAR model fits a multivariate time-arrangement relapse of every needed variable on slacks of itself and slacks of the numerous ward components, it also allows for an estimation of mean overflows.

Following are the hypothesis of this study:

H1: The financial interdependence exists among Conventional and Islamic stock markets.
H2: The financial interdependence exists between the Islamic and Conventional stock markets.

Data and Methodology
The DJIM Index, as well as its conventional counterpart, the Emerging Markets Index, the
Kuwait Index, the Gulf Cooperation Council (GCC), the United States Index, the United Kingdom Index, the DJ Europe Index, the Turkey Indices, and the Pakistan KSE are all included in the analysis of global Islamic indices. The GARCH model is used to compare the daily volatility of all Islamic stock markets to that of all conventional stock markets from December 1, 2011, through December 31, 2021.

This method has been used in a few studies during the past few decades to disentangle some econometric levels. Some examples of uses in the business world are salary structure studies (Buchinsky & Leslie, 2010), profit flexibility studies (Eide & Showalter, 1999; Buchinsky & Hunt, 2001), and evaluations of educational outcomes (Buchinsky & Leslie, 2010). Financial analysts employ this strategy for a variety of purposes, including resolving issues with Value at Risk and alternative evaluation (Engle and Manganelli, 2004; Morillo, 2000), demonstrating the importance of financial factors, and reflecting on their foundation and degree of reliance, among other things.

The following equation is used for quantile regression:

\[ Q_y(\tau \mid x) = \inf \{ b \mid F_y(b \mid x) \geq \tau \} = \sum k \omega_k (\tau) x_k = x \omega(\tau) \]

The conditional distribution function of \( y \) given \( x \) is denoted as \( f_y(b \mid x) \), where \( y \) is a dependent variable presumed to be linearly dependent on the \( x \) vector. All conditional volatility series generated by the AR(1)-GARCH (1,1) model make up the \( x \) vector. The coefficient in the QR equation \( \square(\tau) \) characterizes the strength of the association between the vector and the conditional quantile of \( y \). Total dependence on \( y \) is established by the value of \( \square(\tau) \).

**Results & Discussion**

The study then applies a variety of statistical methods to the collected data in the next chapter. There are two parts to it. Descriptive statistics, GARCH, and Quantile regression analysis are presented in the first section. This subject is included in the second section. Tables 1(A), 1(B) show the GARCH model's variance equation: At the 10%, 5%, and 1% (*, **, *** ) levels of significance, the coefficients are significant. The 1% confidence level indicates that the market coefficient is significant across all markets. Additionally, the \((g + \lambda)\) varies from 0.9 to 1 in terms of the risk premier. Long-term volatility is persistent, and the results indicate a sizable volatility spillover.

**Table 1(A) GARCH (1,1) of conventional stock markets**

|       | REU       | RGCC      | RKSE      | RKU       |
|-------|-----------|-----------|-----------|-----------|
| \( \Omega \) | 9.39E-07  | 2.95E-07  | 2.61E-06  | 3.89E-07  |
|       | (0.000)***| (0.000)***| (0.000)***| (0.000)***|
| \( G \)  | 0.046931  | 0.051719  | 0.071881  | 0.039136  |
|       | (0.000)***| (0.000)***| (0.000)***| (0.000)***|
| \( \Lambda \) | 0.945802  | 0.946324  | 0.891921  | 0.95517   |
|       | (0.000)***| (0.000)***| (0.000)***| (0.000)***|
| \((g + \lambda)\) | 0.99273   | 0.99804   | 0.9638    | 0.99431   |

**Table 2 (B) GARCH (1,1) of conventional stock markets**

|       | RTUR      | RUK       | RUS       | RW        |
|-------|-----------|-----------|-----------|-----------|
| \( \Omega \) | 4.65E-13  | 9.32E-07  | 0.001562  | 5.57E-07  |
Table 3 displays the results of using GARCH (1,1) to analyze the interdependence of stock markets. Given the existence of the ARCH consequence in the returns series, the GARCH(1,1) model is the most appropriate for volatility forecasting. Significant coefficients are seen at the 10%, 5%, and 1% (*) levels, respectively. Positive and statistically significant (at the 1% level) conditional variance equation parameters are observed, and a risk premiers of \((g + \lambda)\) between 0.90 and 1 is obtained. Long-term volatility is persistent, and the results indicate a sizable volatility spillover.

| Variable | Coefficient | Prob. | Coefficient | Prob. | Coefficient | Prob. |
|----------|-------------|-------|-------------|-------|-------------|-------|
| \(\Omega\) | 6.33E-07 | (0.000)*** | 2.60E-07 | (0.000)*** | 1.62E-06 | (0.000)*** |
| \(G\) | 0.039273 | (0.000)*** | 0.065436 | (0.000)*** | 0.174501 | (0.000)*** |
| \(\Lambda\) | 0.954806 | (0.000)*** | 0.938298 | (0.000)*** | 0.862224 | (0.000)*** |
| \((g + \lambda)\) | 0.99408 | (0.000)*** | 1.00373 | (0.000)*** | 1.03673 | (0.000)*** |

Quantile Regression Analysis from Conventional To Islamic Stock Markets

Table 4 presents quantile regression estimation for conventional and Islamic markets according to the model, where the dependent variable is \(A_1\) and the independent variables are all Islamic countries.

| Variable | Coefficient | Prob. | Coefficient | Prob. | Coefficient | Prob. |
|----------|-------------|-------|-------------|-------|-------------|-------|
| \(C\) | -9.32E-07 | 0.7901 | -5.27E-06 | 0.0000 | -1.02E-05 | 0.0001 |
| \(B1\) | 0.8926*** | 0.0000 | 0.9585*** | 0.0000 | 0.8069*** | 0.0000 |
| \(B2\) | 0.0151*** | 0.0000 | 0.0187*** | 0.0003 | -0.0028 | 0.5542 |
| \(B3\) | -0.0045 | 0.7739 | 0.0016*** | 0.0000 | 0.0001 | 0.7420 |
| \(B4\) | -0.0511*** | 0.0000 | -0.0083 | 0.3474 | -0.0463*** | 0.0000 |
| \(B5\) | 0.0118*** | 0.0949 | 0.0275*** | 0.0001 | 0.0887*** | 0.0024 |
| \(B6\) | 0.0993 | 0.1432 | 0.1661*** | 0.0000 | 0.5561*** | 0.0000 |
| \(B7\) | 0.0250 | 0.4060 | 0.0014 | 0.8163 | 0.0714 | 0.3736 |
| \(B8\) | -0.0904*** | 0.0748 | -0.0224*** | 0.0022 | -0.0633*** | 0.0000 |
Quantile regression studies for both the Islamic and conventional stock markets are shown in the table below. The quantile regression model's estimation outcome is displayed. It's safe to presume the model can accurately identify and assess the dependency of volatility series. When stock market A1 is regarded as dependent and stock markets B1, B2, B3, B4, B5, B6, B7, and B8 are considered independent. There is statistical significance for the coefficient at the 10%, 5%, and 1% levels, respectively, according to Staricks' *, **, and ***. Table 1 shows that the stock market coefficients for B1, B5, and B8 are statistically significant at low (0.05), mean (0.5), and high volatility (0.95) levels. Coefficient B2 is significant at both low (0.05) and medium (0.5) levels of volatility, whereas coefficient B3 is significant at medium (0.5) levels of volatility. At both the smallest (0.05) and largest (0.95), the B4 coefficients are statistically significant. At both the moderate (0.5) and the high (0.95) levels of volatility, the B6 coefficient becomes statistically significant.

Quantile Regression Analysis from Islamic to Conventional Stock Markets:
Quantile regression estimate methodology for determining the interdependence of the Islamic stock market and the conventional stock market is presented in Table 5 (where B1 is the dependent variable and the conventional stock market is the independent variable).

### Table 5 Dependent Variable: B1

| Variable | Coefficient | Prob. | Coefficient | Prob. | Coefficient | Prob. |
|----------|-------------|-------|-------------|-------|-------------|-------|
| C        | 1.55E-06    | 0.1131| 3.68E-06    | 0.0000| 1.40E-06    | 0.3223|
| A1       | 0.5009***   | 0.0000| 0.8208***   | 0.0000| 0.9305***   | 0.0000|
| A2       | -0.0788***  | 0.0000| -0.0252***  | 0.0000| -0.0562***  | 0.0000|
| A3       | 0.0035      | 0.8448| -0.0307***  | 0.0000| 0.0038      | 0.5492|
| A4       | 0.1000***   | 0.0000| -0.0060     | 0.2370| 0.0568***   | 0.0003|
| A5       | 0.0114***   | 0.0000| 0.0070***   | 0.0005| 0.0118      | 0.0679|
| A6       | 0.0639***   | 0.0003| -0.0255     | 0.0936| -0.1851***  | 0.0000|
| A7       | 0.0000      | 0.8929| 0.0000***   | 0.0045| 0.0000***   | 0.0005|
| A8       | 0.2152***   | 0.0000| 0.1305***   | 0.0000| 0.3160***   | 0.0000|
| R²       | 0.6898      | 0.8327| 0.9203      | 0.0000|             |       |

The findings reveal a robust interdependence between Islamic stock B1 and three conventional stock markets, with the coefficients of A1, A2, and A8 stock markets being significant at low (0.05), mean (0.5), and high (0.95) volatility levels, respectively. At the threshold of mean volatility (0.5), however, the A3 coefficient becomes statistically significant. The importance of the low volatility (0.05) and high volatility (0.95) levels are depicted by the coefficients A4 and A6, respectively. At both the intermediate (0.5) and the extreme (0.95) levels of movement, the A5 and A7 coefficients become statistically significant. Quantile regression studies of Islamic and traditional stock markets are estimated and reported in Table 4.14.

Discussion
Estimates of stock market volatility series are made using the GARCH (1,1) model in this investigation. Many analysts believe that the GARCH model is the most accurate way to predict stock market volatility when the ARCH impact is present.

Through the use of the Quantile approach, study financial markets interdependencies regarding volatility, consequences of past studies which utilized distinctive systems keeping in mind the
end goal to judge the presence of unidirectional and once in a while bidirectional unpredictability overflows between markets (Luchtenberg and Vu, 2015 and Forbes and Rigobon, 2001).

It is essential that by reference to the financial literature identified with the use of the quantile regression strategy, continued by figure seven quantile, from (0.05) to (0.95). Be that as it may, we simply announced in tables the consequences of major quantiles 0.05, 0.5 and 0.95 which narrate, most of the time, the greatest of data. In reality, these quantiles permit us to consider extraordinary circumstances in financial markets, individually low volatility, mean volatility, and high volatility.

According to Buchinsky (1995), the standard error is obtained using the pairs boot stepping procedure. This allows for determining the nature of co-movement. The study confirms the previous findings that there is financial interdependence between these markets. Aymen Ben Rejeb (2016) concluded that conventional markets and Islamic markets have strong interdependence and great impact regarding volatility spillover. This approach is used for interdependence in terms of volatility, it confirms the result of previous studies where that used distinctive methodology to check the volatility spillover between financial markets, Gilenko and Fedorova, (2014).

**Conclusion**

Conventional and Islamic instruments could benefit the investment in Global capital markets. Investing in various indices most efficiently and easily to improve return, findings of most the investor suggest that because investing in Islamic stock has low risk. There is uncertainty on Islamic indices to perform better than or equal to the conventional asset market because of the low potential of diversification, the smaller size of investment alternatives as compared to the conventional market, and the higher cost of Islamic yielding portfolio range which recommend that these investments underperform as compared to conventional one.

Due to the rapid growth of investment in Islamic finance the transmission of volatilities is also present in Dow Jones Index and emerging Islamic index and Islamic countries. Our study examined this transmission of volatilities among Dow Jones conventional and Islamic indexes including Europe, Gulf Corporation Council (GCC), Pakistan (KSE) , Kuwait (KU), Turkey (TUR), United Kingdom (UK), United States (USA) and World emerging markets (W) by using standard GARCH model with Quartile regression analysis to know about the significance of trends among Islamic and conventional stock market and interdependence among these markets. The data has been taken from December 2008 till December 2016.

The heteroscedasticity test is significant so the GARCH model can be applied to these data series. The results show significant interdependence among both stock markets and there is a long-run determination of volatility among stock markets.

*, **, *** indicates that the coefficients were significant at 10%, 5%, and 1% confidence levels. By using quartile regression three trends low volatility, mean volatility, and high volatility trends significance were checked.

The result shows that there is interdependence present among conventional and Islamic stock markets. European conventional stock markets have significant volatility spillover towards Islamic stock markets of Europe, Turkey, and world emerging markets because the volatility spillover is at an absolute level (all three quartiles are significant) towards these three Islamic stock markets. Secondly, the Golf corporation council’s conventional stock market has
significant volatility spillover towards Islamic stock markets of Gulf Corporation Council, Turkey, and the USA at an absolute level. Third, Pakistan’s conventional stock market has significant volatility spillover towards Islamic stock markets of Pakistan and Koyat at high volatility and mean volatility levels.

Koyat conventional stock market has significant volatility spillover towards Islamic stock markets of Gulf Corporation Council, Pakistan, Turkey at an absolute level. Turkey’s conventional stock market has significant volatility spillover towards Islamic stock markets of Europe, Gulf Corporation Council, Koyat, UK, and the USA at an absolute level. UK conventional stock market has significant volatility spillover towards Islamic stock markets of Gulf Corporation Council, Koyat, Turkey, UK, USA and World Emerging market at an absolute level. USA conventional stock market has significant volatility spillover towards Islamic stock markets of the USA at mean and low level and in Pakistan Islamic stock market its volatility is significant at low volatility level only. In the last World emerging conventional stock markets has significant volatility towards Islamic stock markets of Pakistan, Kuwait, and the World emerging market at an absolute level.

Results are also significant for the volatility spillover from Islamic to conventional stock markets. European Islamic stock market has significant volatility spillover towards the conventional market of Europe, Gulf Corporation Council, and World Emerging market at an absolute level. Second, the Gulf Corporation Council Islamic stock market has significant volatility spillover towards the conventional market of Gulf Corporation Council, Pakistan, and the USA at an absolute level. Third, the Pakistani Islamic stock market has significant volatility spillover towards the conventional market of World Emerging markets at an absolute level. Fourth, the Koyat Islamic stock market has significant volatility spillover towards the conventional market of Europe, Gulf Corporation Council, and World Emerging market at an absolute level. Turkey’s Islamic stock market has significant volatility spillover towards the conventional market of Koyat and Turkey at mean volatility level only and at UK and USA conventional market means volatility and low volatility level. The volatility spillover from Turkey’s Islamic stock market is not much strong as in other Islamic markets. UK Islamic stock market has strong and significant volatility spillover towards the conventional market of Europe, Gulf Corporation Council, Koyat, and the UK at an absolute level. USA Islamic stock market has significant volatility spillover towards the conventional market of Gulf Corporation Council, UK and World Emerging market at an absolute level. In the last World Emerging Islamic stock market has significant volatility spillover towards the conventional market of only its World Emerging market at an absolute level.

Recommendations of Study
This study is helpful for investors, economic policymakers, and academia. Investors can formulate effective approaches against volatilities spillover of conventional and Islamic stock markets. Investors would be able to manage effective portfolios in the selected countries of our study to enhance their investment stock returns. For economic policymakers, they help to understand about the information of returns and volatility spillover of Islamic and conventional stock markets so that they may make policies easily to avoid contagious spillover. So that new Policies may be formulated and implemented to manage the volatilities of stock markets. For academic purposes, this study is also helpful to the researchers to have insight into the volatility spillover in Islamic stock market indices and extend the literature in the field of this research domain.

Limitation of Study
This study is limited to Eight Dow Jones Conventional and Islamic stock markets (Europe, Gulf
cooperation council, Pakistan, Koyat, Turkey, UK, USA, and world emerging market only. Moreover, Other countries have not been included and the period from 2008 to 2016 (only 8 years) due to shortage of time. The different financial crisis periods are ignored. In the future, a large number of countries from other European and Asian regions may be included and also check the crises period impact on volatility spillover among Islamic and conventional stock markets.

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