TESTING THE CONTAGION BETWEEN CONVENTIONAL AND SHARI'AH-COMPLIANT STOCK INDEXES:

A MULTI COUNTRY STUDY USING WAVELET ANALYSIS

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Recently there has been heightened concern over 'contagion' in the conventional financial markets. This study is motivated by the desire to test empirically whether the contagion seen in conventional stock indexes are also present amongst Shari'ah-compliant stock indexes. A key issue in testing for both Islamic and conventional financial market contagion is to draw a distinction between "excessive" and normal co-movements across financial markets. A distinction between contagion and interdependence during periods of high volatility in financial markets has important implications for the asset allocation strategy of risk managers and for policymakers' optimal policy response to a crisis.

Based on the above issue, we have formulated four our research objectives:

- The main objective of this study is to test whether there is a 'contagion' effect of the recent crisis on the conventional and Shari'ah-compliant MSCI stock indexes of Islamic and non-Islamic countries. A key issue in testing for contagion is to draw a distinction between "excessive" and normal co-movements across financial markets.

- To investigate the extent of comovement between US conventional MSCI stock index and the conventional as opposed to Shari'ah-compliant MSCI stock indexes in order to examine whether they are all theoretically related or not.

- To examine the lead-lag relationship between the US conventional MSCI stock index and conventional and Shari'ah-compliant MSCI stock indexes of the Far East and selected Islamic countries in the specific time intervals in order to examine the direction of their causality.

- To find out whether Shari'ah-compliant stock indexes can help with diversification benefits for US-based investors.

Therefore, this study is the pioneer attempt at testing whether there has been any contagion among the Shari'ah-compliant stock indexes during the most recent international financial crisis - the US subprime crisis of 2007-2009. The study uses a technique known as the 'wavelet approach' which has been very recently imported to finance from engineering sciences with severl other econometric techniques such as cointegration, Multivariate-GARCH analysis, etc. Daily return data covering the period from June 2005 to December 2011 for 18 MSCI conventional and Islamic stock indexes of Islamic (Malaysia, Indonesia, Turkey, GCC) and non-Islamic countries (Japan, China, Korea, Taiwan and Hong Kong) are analyzed. We examine the following empirical questions: (i) Do the conventional and Shari'ah-compliant stock indexes move together with the US stock index in the long run? (ii) If there is a comovement, is there any evidence of a lead-lag relationship in the exact short and long-run and how has the lead-lag relationship evolved over time? (iii) If they move together, are the co-movements normal (interdependent) or excessive (contagious) (iv) If there is contagion, do the Shari'ah-compliant stock indexes help in getting diversification benefits as far as the US-based investor is concerned?

Our findings suggest that (i) Both the MSCI conventional and Islamic stock indexes move together with the US MSCI stock index in the long run as evidenced in the cointegration tests (ii) Application of the wavelet-cross-correlation analysis indicates that the lead/lag relationship between the conventional and Shari'ah-compliant MSCI stock indexes and the US conventional MSCI index becomes more pronounced as the time scale increases. Furthermore, the tests suggest that regardless of the period considered, the US market is a leader at the exact time intervals. (iii) In order to detect the contagion scale-by-scale, maximal overlap discrete wavelet correlation coefficient in the crisis and non-crisis periods is applied. Additionally, to study the interaction between two time series, a bivariate continuous wavelet framework called wavelet coherence is applied. There were no contagion effects among all the MSCI conventional stock indexes during the outbreak of the U.S. mortgage bubble; however, during the collapse of Lehman Brothers, conventional stock indexes of the Far East countries displayed contagion effects while the rest of the MSCI stock indexes including Islamic stock indexes did not show any contagion effects. iv) Finally, application of the Dynamic Multivariate GARCH approach indicates that the Shari'ah-compliant stock indexes do not provide more diversification benefits relative to their conventional indexes as far as US-based investors are concerned. However, there are regional diversification benefits; both the conventional and Islamic MSCI indexes of Japan, GCC ex-Saudi, Indonesia, Malaysia and Taiwan provide better diversification benefits compared to those of Korea, Hong Kong, China and Turkey with a strong policy implication for international investors for their portfolio diversification as a hedge against unforeseen risks.

*****Notes:***
**The core chapters of this PhD thesis have been published in the following journals:

1. Saiti, B., Bacha, O. I., & Masih, M. (2014). The diversification benefits from Islamic investment during the financial turmoil: The case for the US-based equity investors. Borsa Istanbul Review, 14(4), 196-211.
2. Saiti, B., Bacha, O. I., & Masih, M. (2016). Testing the conventional and Islamic financial market contagion: evidence from wavelet analysis. Emerging Markets Finance and Trade, 52(8), 1832-1849.