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Original Research Article

Linkages and co-movement between international stock market returns: Case of Dow Jones Islamic Dubai Financial Market index



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ABSTRACT

Using wavelet techniques (discrete and continuous), this paper is the first attempt to investigate the co-movement dynamics at different time scales or horizons of Islamic Dubai Financial Market (DFM-UAE) index returns with their counterpart regional Islamic indices returns such as GCC index, ASEAN index, Developing Countries index, Emerging Countries Index, and the Global Sukuk. Finally, we examine the impact of the LIBOR on the Islamic DFM-UAE return. Our first finding is that the two markets DFM.UAE, and (GCC and Saudi) are converging, in the long run, to the same level of risk and volatility with the Global Sukuk index. The wavelet analysis based on betas indicates a strong non-homogeneous correlation across scales and for different periods of time. Closer markets tend to suggest a contagion effect showing higher correlation and higher interdependence with a certain time delay. Evidence shows a flight to quality to the less risky Sukuk market mostly during the last financial crisis. The lead–lag analysis tends to indicate that the GCC leads DFM-UAE which leads Sukuk. Finally, this study sheds further light on the important leading impact of the overnight LIBOR on the returns of Islamic stock indices especially during the big changes or under shocks indicating policy implications for portfolio diversification for the international investors. The results are plausible and intuitive and have strong policy implications.

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1. Introduction

One of the major effects of the recent financial crises was an increase in contagion and correlations between assets resulting in reduced opportunities for the international investors to reap the benefits from diversification. The global investors, therefore, started looking for alternative assets to diversify their portfolio. One of the alternative assets, among others, which has been growing very fast over the recent period, is the Islamic financial sector that has been growing at an average rate of 15–20% per annum over the past decade (IIFM, 2010). The risk–return profile of Islamic products, such as Islamic stocks, is expected to be different from that of conventional stocks. This is mainly due to some unique characteristics of Islamic stocks (compared to those of conventional stocks), such as lower financial leverage, smaller size of firms, under-diversified market, on top of some constraints imposed on investing in non-compliant activities. Therefore, the performance of these two kinds of stocks (ie conventional and Islamic) is not theoretically expected to be similar, that requires an empirical investigation.

Moreover, the financial markets are composed of heterogeneous investors with different time horizons for their investment. Hence, the risk–return profile leading to diversification benefits is also likely to be different depending on the investment horizons or time scales of the traders and investors. A stock market, for example, is composed of traders and investors with heterogeneous investment horizons (daily, weekly, monthly, quarterly, annual, etc) for their investment decision-making. The dynamics of the relationship between stock return and risk factors is theoretically expected to be different depending on the time scale or time horizons of the investors. The impact of time scales or time horizons on the investors' decision-making for diversification, therefore, calls for a rigorous empirical scrutiny and our study is mainly focused on the heterogeneity in investment horizons or time scales.

This paper is the first attempt to investigate the co-movement dynamics at different time scales or horizons of Islamic Dubai Financial Market (DFM-UAE) index returns with their counterpart regional Islamic indices returns, such as GCC index, ASEAN index, Developing Countries Index, Emerging Countries Index, and the Global Sukuk. We would also examine the impact of the LIBOR on the Islamic DFM-UAE return between 2006 and 2011 to examine the multi-horizon nature of the interconnection during the period encompassing the last global financial crisis. Our investigation is primarily designed to unveil the portfolio diversification opportunities for the Islamic international investors having heterogeneous investment horizons or time scales. For a case study, we use the Islamic Dubai Financial Market (DFM-UAE) as one of the major markets in the GCC region.

The wavelet methodology adopted in our study is one of the latest techniques recently imported from engineering science to finance. As one of the latest state-of-the-art techniques in finance, the wavelet methodology used in our study is the first attempt to perform multi-timescale analysis applied to these regional Islamic indices. This technique can decompose any observed variable on a scale-by-scale basis to capture both time domain and frequency domain simultaneously, without losing any information and including non-stationary and non-linear variables. This may provide an ability to distinguish between short-run frequencies (speculative behavior, market sentiment, flight to quality, liquidity preference, cross-border asset trading, etc.) and long-run frequencies (economic fundamentals).

We made an initial attempt to analyse the regional Islamic equity markets to examine the multi-horizon nature of co-movement. Both discrete and continuous wavelet transforms including wavelet power spectrum, cross-wavelet coherency, and wavelet phase difference, are applied to decompose the daily returns and analyse the evaluation of variance, co-movement, and lead–lag relationship in time–frequency space. The second part of our study examines the co-movement between DFM-UAE Islamic stock index and other Islamic region-indices, as well as the correlation with the Global Sukuk index and LIBOR.

We look at the interconnection between the DFM-UAE Islamic stock index and Sukuk, to see whether there is a flight-to-quality from Islamic stock to Global Sukuks. This is to know whether the Islamic investors have the opportunity to move into less risky Sukuk asset during the crisis. Theoretically flight to quality should portray negative co-movement. In case we find positive co-movement, this may indicate illiquidity of Sukuk, thus will eliminate efficient allocation in Islamic portfolio.

Based on time scale decompositions of wavelet analysis, the study focuses on the following aims hitherto unexplored. First, we investigate the potential strategy that the investors should take between investing in the DFM-UAE stock market and other stock markets. We also investigate whether there is an evidence of flight to quality from DFM-UAE to less risky market (Sukuk). Our study proceeds to investigate the effect of LIBOR on the DFM-UAE stock index. Secondly, our study focuses on measuring the lead/lag relationship between the DFM-UAE and the (GCC and Saudi), as well as between the DFM-UAE, Sukuk and LIBOR via their respective phase difference. Lastly, we further explore the evidence of contagion as this may reduce diversification benefit during the financial turmoil.

In summary, the findings to the above investigations are as follows. First, we find that the investors should move from the DFM-UAE to the ASEAN Islamic Stock market during the bearish periods. Secondly, according to DWT, the dynamics of β coefficients-based multi-horizon in the DFM-UAE stock market tend to show that the investors may fly from the equity market to the Sukuk market seeking better quality during the scale d3 (when the time horizon of the investors is 8 days). This information has been confirmed by the CWT and enriched by the happening date which is during the second phase of the global financial crisis (the day 315 – 1 April 2009). Thirdly, we find that at the scale d5 and also during the long term (day 32 and more), there is a negative correlation showing that an increase in the LIBOR would result in a positive return in the GCC market. As to the lead/lag relationships, we show that the DFM-UAE is positively correlated with the (GCC and Saudi). The latter is leading the former and the angle representing the de-phasing (phase shift) is equal to 45. Since, we are using daily data that means that the DFM-UAE is following the (GCC and Saudi) by about 3 h. We also find that the DFM-UAE

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