COMPARATIVE EFFICIENCY, ASYMMETRIC INTEGRATION AND INTERNATIONAL DIVERSIFICATION BENEFITS: INSIGHTS FROM ISLAMIC AND CONVENTIONAL STOCK MARKETS

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DOCTOR OF PHILOSOPHY
UNIVERSITI MALAYSIA TERENGGANU

2017

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Thesis Submitted in Fulfillment of the Requirements for the Degree of
Doctor of Philosophy in the School of Maritime Business and Management
Universiti Malaysia Terengganu

May 2017

DEDICATION

This work is dedicated to Almighty Allah for His mercies and wisdom given to me to accomplish this task, to the Holy Prophet Muhammad (P.B.U.H), to my respectful teachers and to my dearest family and friends who have encouraged me towards the successful completion of this study and for being the inspiration of hope, prayer and strength for me always.

Abstract of the thesis presented to the Senate of Universiti Malaysia Terengganu
in the fulfillment of the requirement for degree of
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ABSTRACT

The demand for the Islamic stock indices has increased as a result of their spectacular growth and less risky characteristics which makes them one of the major innovations in the financial community. Moreover, the Islamic stock indices are gaining the attention of all the investor classes such as Muslims and non-Muslims because the Islamic stock portfolios exhibit different performance than the conventional stock portfolios. However, the comparative efficiency, asymmetric integration and portfolio diversification benefits of the Islamic and conventional counterparts have remained unexplored.

Therefore, the objectives of the current thesis are to investigate and compare the efficiency of 12 Islamic and conventional stock markets by employing *MultiFractal Detrended Fluctuation Analysis* (MF-DFA) on daily stock returns data from January 1, 2003 to

December 31, 2014. Further, it uses asymmetric cointegration tests on weekly stock prices to examine the asymmetric long and short term association between the Islamic and conventional stock markets. Finally, various risk and downside risk measures are used to assess the potential reduction in the risk of conventional stock-only portfolio by adding Islamic stock to it.

Overall, the results indicate that the Islamic stock markets are more efficient than their conventional counterparts. This implies that although Islamic stock markets are new but, they still have comparatively good governance and disclosure mechanism. Further, their adjustment to the speculative activity is also higher as compared to their conventional counterparts.

Stock market integration analysis tends to indicate that the adjustment process is asymmetric when the prices of sample stock indices adjust to achieve the long term equilibrium. Overall, findings show that the level of long term integration between the Islamic and conventional counterparts is neither high nor low. Therefore, in the long term, the Islamic and conventional counterparts from the sample countries offer moderate diversification benefits. Next, the results of an Asymmetric Error Correction Model (AECM) indicate faster adjustment of the Islamic stock prices to positive and negative deviations as compared to their conventional counterparts. This shows that the adjustment of the Islamic stock markets to the speculative activity is higher. Thus, they are less risky and more efficient as compared to their conventional counterparts. Additionally, the estimates of Granger causality test confirm bidirectional causality between all the Islamic

and conventional counterparts except Pakistan, Turkey and Japan. Therefore, the Islamic and conventional stock markets of Pakistan, Turkey and Japan would be an interesting insight from an investment and portfolio diversification perspective because they would offer more diversification benefits in the short term.

Finally, the risk and downside risk measures indicate that the Islamic stocks of Brazil, Japan and India have the least variances, respectively which give significant credence to these stocks to be included in the suggested benchmark portfolio. Overall, findings suggest that the conventional stock-only portfolios would exhibit the greatest risk and the expected maximum loss compared to the Islamic-conventional stock portfolios. Hence, this thesis bestows that the development of Islamic stock indices provides alternative opportunities to diversify portfolios globally. The results are reasonably robust to alternative model specifications, choices of model refits and distributional assumptions. These findings provide useful insights to the investors, fund managers, policy makers and risk management practitioner.

Abstrak tesis yang dikemukakan kepada Senat Universiti Malaysia Terengganu sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

PERBANDINGAN KECEKAPAN, INTEGRASI ASIMETRI, DAN FAEDAH DIVERSIFIKASI ANTARABANGSA: PANDANGAN DARIPADA PASARAN SAHAM ISLAMIK DAN KONVENSIONAL

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ABSTRAK

Permintaan terhadap indeks saham Islamik telah meningkat kerana perkembangan yang memberangsangkan serta cirinya yang kurang berisiko justeru menjadikannya salah satu inovasi terbesar dalam komuniti kewangan. Selain itu, indeks saham Islamik mendapat perhatian semua kelas pelabur seperti Muslim dan bukan Muslim kerana portfolio saham Islamik mempamerkan prestasi yang berbeza daripada portfolio saham konvensional. Walaubagaimanapun, perbandingan kecekapan, integrasi asimetri, dan faedah diversifikasi portfolio saham Islamik dan konvensional masih belum dikaji.

Oleh itu, objektif tesis ini adalah mengkaji dan membandingkan kecekapan 12 pasaran saham Islamik dan konvensional, dengan menggunakan *Multifractal Detrended Fluctuation Analysis* (MF-DFA) ke atas data harian pulangan saham daripada 1 Januari 2003 hingga 31 Disember 2014. Seterusnya, ia menggunakan ujian ko-integrasi asimetri ke atas harga

mingguan saham untuk mengkaji perkaitan asimetri jangka pendek dan jangka panjang di antara pasaran saham Islamik dan konvensional. Akhirnya, pelbagai ukuran risiko ke bawah digunakan untuk menilai potensi penurunan risiko dalam portfolio saham konvensional sahaja, dengan menambah saham Islamik kepada portfolio itu.

Secara keseluruhan, keputusan menunjukkan bahawa pasaran saham Islamik lebih cekap daripada pasaran saham konvensional. Secara implikasinya, walaupun pasaran saham Islamik masih baharu, tetapi jika dibandingkan, pasaran ini mempunyai governan dan mekanisme pendedahan yang bagus. Seterusnya, perubahan pasaran saham Islamik kepada aktiviti spekulasi juga lebih tinggi jika dibandingkan dengan pasaran konvensional.

Analisis integrasi pasaran saham juga menunjukkan bahawa proses penyesuaian adalah asimetri apabila harga sampel indeks saham berubah untuk mencapai keseimbangan jangka panjang. Keseluruhannya, keputusan menunjukkan bahawa tahap integrasi jangka panjang di antara pasaran saham Islamik dan konvensional tidaklah tinggi mahupun rendah. Oleh itu, pada masa akan datang, pasaran saham Islamik dan konvensional daripada 3 buah negara sampel menawarkan faedah diversifikasi yang sederhana.

Seterusnya, keputusan *Asymmetric Error Correction Model* (AECM) menunjukkan bahawa harga saham Islamik berubah dengan lebih cepat kepada sisihan positif dan negatif jika dibandingkan dengan saham konvensional. Ini menunjukkan bahawa perubahan pasaran saham Islamik kepada aktiviti spekulasi adalah lebih tinggi. Oleh yang

demikian, saham Islamik adalah kurang berisiko dan lebih cekap jika dibandingkan dengan saham konvensional. Di samping itu, anggaran ujian hubungkait Granger mengesahkan bahawa terdapat hubungkait dua hala di antara saham Islamik dan konvensional kecuali untuk pasaran di negara Pakistan, Turki, dan Jepun. Oleh itu, dari segi pelaburan dan kepelbagaian portfolio, pasaran saham Islamik dan konvensional di Pakistan, Turki, dan Jepun akan menarik pandangan kerana pasaran-pasaran ini menawarkan lebih faedah kepelbagaian dalam masa jangka pendek.

Akhirnya, ukuran risiko kebawah menunjukkan bahawa saham Islamik Brazil, Jepun, dan India mempunyai variasi yang paling rendah, dimana masing masing mempercayai bahawa saham saham ini boleh dimasukkan dalam penanda aras portfolio yang dicadangkan. Keseluruhannya, dapatan kajian mencadangkan bahawa portfolio konvensional sahaja mempamerkan risiko yang paling tinggi dan jangkaan kerugian yang maksima jika dibandingkan dengan portfolio yang mempunyai kombinasi saham konvensional dan Islamik. Begitupun, tesis ini menunjukkan bahawa indeks saham Islamik menawarkan peluang alternatif untuk mempelbagaikan portfolio secara global. Keputusan kajian ini adalah kukuh kepada spesifikasi model alternative, pilihan model sesuai dan andaian pembahagian. Hasil kajian ini memberikan pandangan yang berguna kepada para pelabur, pengurus dana, pembuat keputusan polisi, dan pengamal pengurusan risiko.