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Investigating stock market efficiency: A look at OIC member countries

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ABSTRACT

The tremendous growth of emerging and developing markets bring forth new arenas of research. One such area is the efficiency of stock markets. In light of the Efficient Market Hypothesis (EMH) several studies have been undertaken over the past two decade, with much focus being on developed markets and certain developing countries. However, a dearth in literature is seen for this niche on Organization of Islamic Conference (OIC) member countries. Following the recent global crisis, attention on emerging and developing markets have increased tremendously, questioning whether these countries' market are apt in withstanding influxes of capital without crashing. The OIC despite its global presence and potential has often been criticized about its stock markets, which are marred by underdevelopment and illiquidity. This paper focuses on analysing the weak-form efficiency of OIC member stock markets to determine their efficiency rankings during different business cycles. Our results are indicative of improving efficiency over the past decade.

1. Introduction

The efficient market hypothesis concerns itself with the behaviour of prices in asset markets, and is used mainly (and initially) in reference to the stock market. Analysing the stock market on its efficiency is important to economist and policy makers alike as it helps in the efficient allocation of resources. The ranking of efficiency among stock markets has spurred into an important informational tool for regulators and policy makers, as it is critical in maintaining a well-functioning market, which contributes towards the overall growth and investment in the economy.

Economists are interested in studying the overreaction of individual investors to information in stock markets. This overreaction often leads to excess volatility in stock markets. Investigated primordially by Shiller (1981) it was concluded that dividend variations do not rationally justify aggregate price movements, suggesting overreaction.

Developing and emerging markets alike have taken the step to liberate their capital markets in order to ensure economic growth, by opening up stock markets to foreign ownership. As a result, most emerging markets experience a series of surges in volatility. Recently witnessed during the global crisis, investors in developed markets responded with a flight to quality

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resulting in a contraction of domestic credit supply and output losses. Crises provide a unique opportunity to investigate the dynamic interrelationship between the financial and economic growth of a country, which have vital implications for policymakers when insulating the economy.

Furthermore, it is contended that with liberalization, emerging stock markets became more attractive to foreign investors for portfolio diversification, and are able to increase liquidity and informational transparency leading to higher degrees of efficiency. Since its introduction by Fama (1965), the weak form efficiency hypothesis has been tested for several emerging markets with rather inconclusive results. Some conclude that emerging market returns are not autocorrelated, thus supporting the hypothesis (Füss, 2005; Kim and Singal, 2000). Whereas, rejecting the hypothesis, others have found evidences of non-random stock price behaviour, (Harvey, 1994; Claessens et al., 1995; Poshakwale, 1996 and Khababa, 1998).

The core objective of this research is to test the market efficiency hypothesis specific to stocks in within the OIC rank them accordingly during different business cycle turns. Emerging market, where most of the OIC member countries fall, are often characterized with stock market development, however OIC member country's stock markets are often arguably more underdeveloped. Literature suggest that stock markets in predominantly Muslim countries, both in MENA and Asia, are smaller, more volatile, less liquid and more prone to higher risk premium, higher cost of funds, and poor legal and governance framework (Butler and Malaikah, 1992; Darat and Hakim, 1997; Domowitz et al., 1998; El Erian and Kumar, 1995; Selçuk, 2004).

This research aims to contribute towards existing EMH literature in two specific directions: firstly, to derive the weak-form efficiency ranking of OIC countries' stock markets and secondly to relate the ranking of the stock markets to the different turns in a business cycle. The motivation behind studying OIC member countries is derived from the global interest in developing countries post global crisis and as one of the largest inter-governmental organizations. The OIC boast a growth rate of average real GDP to be at 4.9% in 2012 with significant increases projected in the following years (Alpay, 2012).

Furthermore, the OIC received 10% of the world FDI inflows in 2012 following the global crisis. Within the OIC, the major recipients of FDIs in 2012 were Indonesia, Turkey, Saudi Arabia, Malayisa, UAE and Nigeria among several others. Together these countries account for 61% of the FDI flows to the OIC. With increasing interest in the OIC, there needs to be better infrastructural grounds for the markets to actively accept and process these investments. Hence, there becomes an urgent need to analysis the efficiency of the stock markets of member countries. Lastly, there is a dearth in the current literature on OIC member countries studying the efficiency of stock markets in reference to different business cycle turns. This paper hopes to contribute towards a dearth in literature on OIC member countries

In this empirical analysis, a sample of 12 OIC member countries is selected based on their market capitalization ranking. We employ a new methodology derived from econophysics, the Multifractal De-trended fluctuation analysis (MFDFA) proposed by Peng et al. (1994). The rest of the paper contains the literature review, followed by the data and methodology. Next, we discuss the empirical findings and lastly, the conclusion is presented.

2. Literature review

The EMH has been a major research area for better understanding and promoting the quality of financial markets. Several studies have been conducted to allow for a better understanding and testing of the EMH by factoring in the adjustments of market prices of assets for all available information. A large body of evidence supported that stock returns over different horizons (i.e. days, weeks, months) can be predicted to some degree by means of interest rates, dividend yields and macroeconomic variables representing business cycle variations.

Fontaine and Nguyen (2006) stress the importance to assess the informational efficiency in the market, as when a market is efficient, investors are able to determine the risk and returns for their investments because there would be no undervaluation or overvaluation for their asset. At its core, the EMH follows three basic premises as outlined by Pesaran (2005): Firstly, investor rationality; EMH operates under the assumption that investors are rational, in the sense that they are able to react correctly when faced with new information. Secondly, arbitrage: each individual investment decision and trade decisions are made so that it satisfies the law of arbitrage. Thirdly, collective rationality: The random errors of investors tend to cancel each other out in the market. However, this requires individual errors to be cross-sectionally independent.

Balvers et al. (1990), Breen et al. (1989), Campbell (1987), Fama and French (1989), Pesaran and Timmermann (1994, 1995) are among some who examined the EMH, in particular for the US stock market. Lin et al. (2011) investigated scaling behaviours of the volatility series and its decomposed components to analyze the market efficiency of the Shanghai stock market. Employing MFDFA, it was found that the stock market has become more and more efficient over time.

Emerging markets seek liberalization in the market as it leads to a reduction of risk especially if there is also an improvement in financial market performance. This would lead to a reduction in volatility in the long run. Hence, it becomes important to assess the informational efficiency in the market. Unfortunately, many emerging markets are often categorized as having low-quality information disclosure, weak trading volume and inept accounting regulations, leading to a weak form of EMH (Rejeb and Boughrara, 2013). This has led to several studies testing the weak form of efficiency hypothesis in emerging markets (see Füss, 2005; Kim and Singal, 2000). Yet, others have invalidated the claim empirically (see Dockery and Vergari, 1997; Harrison and Paton, 2005; Rockinger and Urga, 2001).

Kim and Singal (2000) studied the impact of market opening in emerging markets and found that with an inflow of foreign portfolios, the benefits are more likely to outweigh the risks, as these markets seemed to be less autocorrelated post-market openings, making them more efficient. Similarly, Henry (2000) presented evidence that liberating the stock markets in some