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# Are GCC stock markets predictable?

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### ABSTRACT

Weak-form efficiency in the stock markets of the Gulf Cooperation Council is examined using daily, weekly, and monthly index data for the 10-year period 2000–2009. Various variance ratio test specifications with specific homo- and heteroscedasticity assumptions found evidence of nonlinear dependence for the daily data, supporting the evidence in favor of a rejection of the random walk. A correction procedure for thin and nonsynchronous trading was applied but failed to produce significantly different results. Following an ARCH based model building procedure, conditional heteroscedasticity models are applied to the log return series. Significant differences in forecasting performance cannot be detected. The random walk hypothesis is generally rejected for daily but differences appear across markets using weekly and monthly data. The increased involvement of foreign institutional investors may play a role in the increased serial correlation in stock returns in the most recent period.

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## 1. Introduction

GCC<sup>1</sup> countries produce about 20% of all world oil, control 36% of world oil exports and possess 47% of all known oil reserves. Economic growth rates have been averaging almost 16% over the last 10 years, making the Gulf region one of the hottest emerging economies.<sup>2</sup> In recent years countries in the Gulf Cooperation Council (GCC) region have dramatically grown their cross-border financial asset holdings from just under 10% of GCC Gross Domestic Product in 1980 to over 100% in 2007. The capitalization of its stock markets has increased almost tenfold, from \$102bn in 2000 to \$1.07tr in 2007 before contracting significantly in the wake of the global financial crisis.<sup>3</sup> In spite of its growing importance, stock markets in the Middle East

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<sup>1</sup> The GCC was established in 1981 by Bahrain, Kuwait, Oman, Qatar, the Kingdom of Saudi Arabia, and the United Arab Emirates.

<sup>2</sup> Average nominal GDP growth rates range from 9.7% for Saudi Arabia to 24.4% for Qatar, according to IMF International Financial Statistics, Feb. 2011.

<sup>3</sup> Standard & Poor's Global Stock Markets Factbook, 2009.

have been widely ignored by international investors until very recently, due to imposed restrictions on foreign stock ownership, the lack of common accounting standards and corporate transparency, or dismissed simply on the basis of economic and political uncertainty. As a consequence, and due to the difficulty of obtaining sufficient and reliable market data, researchers did not focus on the regional financial markets.<sup>4</sup>

Only recently has a set of research papers emerged that focus on various aspects of GCC stock market behavior, mainly its reaction to oil price shocks, the status of integration, and the level of efficiency. Given the economic importance of the region's energy sector, several authors analyzed the linkage between oil and stock prices. [Arouri et al. \(2011\)](#) find stock market sensitivity to changes in oil prices to differ across GCC countries, while [Bashar \(2006\)](#) determines the predictive power of oil prices on stock prices to be the highest for Saudi Arabia and Oman. The time varying nature of the relationship is emphasized by [Fayyad and Daly \(2011\)](#), who conclude that overall stock market sensitivity to oil price shocks has increased since the beginning of the global financial crisis. To the mean variance optimizing international investor, GCC stock markets are a welcome portfolio addition, given the low correlation with the US market ([Bley and Chen, 2006](#)). The authors, however, found an increase in the number of co-integrating vectors within the GCC stock markets region as an indication of ongoing attempts to harmonize market economies in preparation for an economic union and eventually the introduction of a single currency. Still, most of the GCC region's volatility persistence is domestic in nature ([Rao, 2008](#)). While signs of an economic decoupling of the GCC economies from the US economy exist ([Genc et al., 2010](#)) regional stock markets seem to become more synchronized with US stock markets as a result of the growing influx of non-GCC capital. In fact, [Bley and Saad \(2010\)](#) discover strong evidence of tax-selling induced spillover effects in regional stock market segments with high foreign ownership, a surprising finding in a tax-free environment.

The region's stock markets are predominantly segmented and overly sensitive to regional political events ([Arouri and Rault, 2010](#)). And while economies differ in degree of energy dependency and efforts to diversify ([Arouri and Lahiani, 2010](#)), recently imposed capital requirements to fund budget deficits and boost economic activity in the wake of the global financial crisis have driven the Gulf country governments to embark on capital market liberalization, privatization, and broad-ranging structural reforms, allowing foreign investors greater access to their stock markets ([Arouri and Nguyen, 2010](#)). However, the stock markets of the Gulf Cooperation Council (GCC) differ in degree of openness to foreign ownership and are still dominated by local retail investors. Compared to developed markets, emerging stock markets, like those in the Gulf region, often experience thin trading and are easier manipulated by few large traders. Relatively weaker accounting standards and publication rules add to the hindrance of efficient information transmission through these markets. Whether the consequence is a higher level of return predictability has yet to be answered conclusively.<sup>5</sup> [Butler and Malaikah \(1992\)](#) study MENA market efficiency and find serial autocorrelation in Kuwait and reject the RWH for Saudi Arabia. The authors offer low trading volume as a possible explanation. [El-Erian and Kumar \(1995\)](#) find the Jordanian and the Turkish stock market to be inefficient, [Buguk and Brorsen \(2003\)](#), however, dispute these findings. Focusing on the GCC markets, [Abraham et al. \(2002\)](#) find evidence of a random walk (RW) in Bahrain, and Saudi Arabia but not in Kuwait. [Al-Khazali et al. \(2007\)](#) reject the RWH for eight MENA markets (Bahrain, Egypt, Jordan, Kuwait, Morocco, Oman, Saudi Arabia, and Tunisia) based on variance ratio tests on raw data, supporting similar findings by [Rao and Shankaraiah \(2003\)](#), [Sharma \(2005\)](#) and [Elango and Husseini \(2008\)](#). Corrected for thin trading,

<sup>4</sup> The scarce research on Middle East financial markets was conducted on either individual stock markets (for example [ErbErb et al., 1996](#)) or on a set of markets of the Middle East and North African (MENA) region. [Abraham et al. \(2001\)](#), [Darrat et al. \(2000\)](#), and [Omran and Gunduz \(2001\)](#) analyze various MENA market subsets but could not find any significant cross-linkages despite market proximity. [Harvey \(1995a and 1995b\)](#) discovers risk/return behavior and volatility clustering of selected MENA markets that differs from emerging market characteristics, i.e., low correlation with Western market returns or high volatility, commonly found in Asia, Latin America or Eastern Europe. [Hammoudeh and Aleisa \(2004\)](#) found two equilibrium relationships with varying predictive power among Gulf Cooperation Council (GCC) stock markets. The authors identified Saudi Arabia as being most influential on the return behavior of the other GCC markets.

<sup>5</sup> While the random walk hypothesis (RWH) cannot be rejected for the stock markets of Malaysia ([Barnes, 1986](#)), Greece ([Panas, 1990](#)), Korean ([Ayadi and Pyun, 1994](#)), and several Latin American ([Ojah and Karemera, 1999](#)), the opposite is concluded for the emerging markets of Argentina, Brazil, Chile, and Mexico ([Urrutia 1995](#)), China ([Darrat and Zhong, 2000](#)), Taiwan ([Chang and Ting, 2000](#)), Ireland ([Hamill et al., 2000](#)), India ([Poshakwale, 2002 and Dicle et al., 2010](#)), several Central European markets ([Gilmore and McManus \(2003\)](#) and [Kvedaras and Basdevant \(2004\)](#), and the markets of the Pacific Basin ([Jarrett, 2010](#)).

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