

# NONLINEARITY AND MARKET EFFICIENCY IN GCC STOCK MARKETS

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Significant prediction of asset prices is of a great importance in financial economics. When studying economic and financial phenomena, it is essential to correctly specify the model. If the true dynamics are nonlinear, using linear methods will probably be irrelevant in doing empirical analysis. Existence of nonlinearity in financial markets has been argued by numerous studies. The main objective of this dissertation is to examine this issue in the six states of the Gulf Cooperation Council (GCC): Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE), using three robust and highly regarded nonlinearity tests. In addition, the Efficient Market Hypothesis (EMH) was tested in this dissertation for the GCC stock markets using both the standard linear approach and the more sophisticated nonlinearity tests. Since most of the empirical work was devoted to the advanced, well-organized stock markets, this study is a contribution to the limited literature on emerging markets in general and on the GCC markets in particular. Moreover, the findings of this study would contribute to future research on GCC stock markets by adding further insight into the dynamics underlying stock returns in these markets.

This dissertation consists of four chapters. Chapter one presents a general background on the economy and stock markets in the GCC region with more focus on the recent economic development and performance. The second chapter is concerned with the literature on the EMH in financial markets including historical background, implications, and criticism of this hypothesis. In addition, this chapter provides literature review of nonlinear dynamics in the economy and financial markets. The third chapter deals with the methodology of the study and the analysis of the data. First, it starts with description of the data sample and preliminary analysis including descriptive statistics and unit root tests. Second, it presents a brief description of the three standards linear independence tests: Autocorrelation Function (ACF) test, Ljung-Perirce test, and the runs test. The theoretical aspects of the three nonlinearity tests are then discussed in details in this chapter. The last part of this chapter provides discussion and summary of the results obtained by linear and nonlinear serial dependence tests. Concluding remarks and findings of the study is provided in the last chapter.

Nonlinearity was tested in daily stock returns and the results indicate a strong evidence of nonlinearity in all of the six GCC markets. Using the nonlinearity tests, as well as the typical linear independence tests, the EMH was strongly rejected for the GCC stock markets. The study findings suggest using nonlinear paradigms instead of the simple linear methods to model financial relations. By doing so, the prediction of future stock prices would probably improve, benefiting both market practitioners and academic researchers.