

Study of Volatility Dynamics between Emerging Stock Market Index and US Oil Price Index : MGARCH Modelling Approach

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Abstract

This study proposed a new model “Multivariate Generalized Autoregressive Conditional Heteroscedasticity”(MGARCH) with time varying correlation for emerging countries. The three multivariate model i.e. “constant conditional correlation, diagonal, and dynamic conditional correlation” has been used to understand the volatility dynamics and conditional correlation between US oil price index and stock market index of six emerging countries. The results indicates that the US oil returns are considered as the benchmark for the study, we conclude that out of 6 emerging countries, 4 are having the positive relationship and 2 ‘emerging countries’ i.e. Taiwan and Spain are showing the negative relationship with US oil returns. ‘France, Singapore, Japan and Malaysia’ stock returns are statistically significant and have long term persistence with respect to US oil prices however Spain and Taiwan stock returns are not having the long term persistence.

JEL Code : C32; C51; C52; G11

Keywords : Dynamic conditional correlation; Conditional correlation; MGARCH model; volatility; India

I. Introduction

OVER THE LAST period, the costs related with the manufacture of oil have reduced due to the high-tech development. The researchers and experts always have some consent that oil and stock markets index are often entangled with the worldwide financial activity. Therefore, researchers are always interested to understand the effect of oil price on stock return of the market or vice versa.

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Further, investors can use the best model that we estimated by our study to develop the "hedge ratios and the optimal portfolio weights" as making the investments across the emerging countries returns.

The major limitation of the study is to study the hedge ratio and optimal portfolio weights for US oil returns with respect to all emerging countries returns.

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