
Volatility analysis between exchange rate and stock price index in emerging markets by using Garch Model: Case of 22 emerging countries' market

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Keywords

Exchange Rates, Stock Price Indexes, Emerging Markets, GARCH Model

Abstract

The main aim behind this research is to find out if there is any significant relationship between the exchange rates and stock indexes of 22 emerging countries. The study is based on the monthly stock index and foreign exchange rate in relation the USD of the related 22 countries' data between January 2000 and December 2016. Both fixed effect model and random effect model are used. The fixed effect model assumes that stocks are correlated with country specific exchange rates while the random effect model assumes residuals are uncorrelated with the country specific exchange rates. Furthermore, country specific variance on stock index return was tested using the Preusch and Pagan LR test, and it was found that there is no country specific volatility, which means that their variance is zero. In addition, the random error model fit the relation between the stock index return and USD exchange rates. This means that there aren't any country specific effects in the model, which can be interpreted to mean that there are no medium or long-term arbitrage possibilities with international transactions. Finally, it was observed that exchange rate increments had a negative impact on stock index returns. The previous month's stock market movement or random term did not have any impact on the current market returns according to ARMA terms, which were statistically insignificant. However, the squared previous month shock ARCH term and previous long term volatility GARCH term (variance) had a significant effect on volatility. Moreover, international foreign exchange market and stock market cooperate consistently, uncausing any arbitrage possibility on monthly basis. Daily models might detect short term arbitrage failures in international transactions. Furthermore, there are asymmetric GARCH models to test the gain and loss of volatility on transactions.
