THE IMPACT OF OIL PRICES ON STOCK MARKETS: THE BRAZILIAN CASE

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Overview

The decades that followed World War II are characterized by the increase of industrialization of economies. Oil, which began to assert itself in the late nineteenth century as a raw material of excellence, was one of the catalysts of this change. A closer look at the history of the contemporary world confirms the proximity of oil to major political and economic events. Hamilton (1983) states that the increases in crude oil barrel prices are closely related to seven of the eight post-war US recessions. If so, it is to be expected that fluctuations in oil prices are related with variations of the indices in stock markets.

This hypothesis is the guiding principle of this work that aims to identify the impact of oil prices on the equity markets, particularly in the Brazilian Ibovespa index. Literature on the subject is relatively low, taking into account its specificity. Stand out names like Huang et al (1995), Maghyereh (2004) or Odusami (2006), who found no robust results to validate the positive hypothesis correlation between the behaviour of stock markets and the changes in oil prices.

Methods

The aim of this study was to prove the correlation between variations in the price of the WTI benchmark and the Brazilian benchmark index, the Ibovespa. To do this, we used the vector autoregressive methodology, VAR. The time series were subjected to unit root tests - to confirm the stationarity of the data - and later a causality test was carried out on Granger. The conclusions we have drawn from these results reveal the existence of unilateral causality between WTI, the Ibovespa index, GDP and the exchange rate BRL-USD. A bilateral causal relationship is only detected between the S&P500 and the spot price of WTI.

Results

The most objective way of interpreting the results of a VAR model is to analyze the variance decomposition or the estimation of the impulse response functions. The interpretation of the impulse response results shows that an increase of 1% in WTI prices in the first month reflects in the Ibovespa index with a 2.8% appreciation. The value, over the months will decrease, which can indicate that this effect is only noticeable in the short term and is reduced over the months. In the long term, the effect is very limited. The reaction of the Ibovespa to WTI rises confirms the importance of the state oil company Petrobras in the Brazilian index and reflects the unilateral relationship between the two variables calculated through the Granger test.

Conclusions

The results obtained with the VAR method are significantly statistical - and a rapid assessment to R-squared confirms this. The analysis by the impulse response function showed that fluctuations in oil prices have an impact in the short-term trading on the Ibovespa index but this reaction is diluted in the long term. The main transmission channel of changes in WTI is the Petrobras Company, which has a very significant importance on the Ibovespa index.

This study conflicts with many others such as Maghyereh (2004), as in the case of the Ibovespa index and WTI there seems to exist a causal relationship justified by the dependency ratio of the index with companies in the E & P sector. Even partially, the conclusion of this study corroborates the findings of Jones and Kaul (1992) who analyzed the relationship between oil prices and the S&P500.

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