

Ham Petrol Fiyatlarında Belirsizlik ve Büyüme Üzerinde Asimetrik Etkileri: VARMA-GARCH ve Asimetrik BEKK Modelleri / Oil Price Uncertainty and Its Asymmetric Effects on Output Growth: VARMA-GARCH and Asymmetric BEKK Models

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A B S T R A C T

Questions about the relationship between the price of oil and economic activity are main empirical subjects in macroeconomics. Although there are wide studies related to the effects of oil price on real economy, there exist few studies that investigate the effects of uncertainty about oil prices. Time-varying relationships and uncertainty are two methodological challenges that are particular to the field of time series. The necessity of being positive definite of variance matrix (H_t) in VEC notation is not possible without limitations on coefficients. In order to overcome this difficulty, BEKK (Baba-Engle-Kraft-Kroner) model might be preferably used. In this paper, we investigate the relationship between oil price uncertainty and level of economic activity, using monthly data over the period from 1994:01 to 2013:05 that includes the increased volatility in oil prices in the aftermath of the financial crisis and global recession. We, first, interested in analyzing the asymmetry of the volatility response to the news using by Engle and Ng (1993) tests for sign bias, negative size bias and positive size bias. Then, we investigate the effects of oil price uncertainty and its asymmetry on real economic activity in the Turkey. In doing so, we use a bivariate GARCH-in-Mean, asymmetric BEKK model, as detailed in Engle and Kroner (1995). The model allows us the possibilities of spillovers and asymmetries in the variance-covariance structure for real output growth and the change in the real price of oil.

KEYWORDS Oil Price; Output Growth; Uncertainty; VARMA-GARCH; BEKK Model

JEL C01, Q43