Ulrich Oberndorfer, Dirk Ulbricht and Janina Ketterer

LOST IN TRANSMISSION? STOCK MARKET IMPACTS OF THE 2006 EUROPEAN GAS CRISIS

Centre for European Economic Research (ZEW), P.O. Box 103443, 68034 Mannheim, Germany,
Tel. +49/621/1235-337, Fax +49/621/1235-226, e-mail: oberndorfer@zew.de

Overview

Recently, energy security in Western Europe seems to be at risk. Around the turn of the year 2005/2006, the Russian freezing of natural gas exports to the Ukraine led to a European gas crisis. This triggered off intensive debates about energy security all over Europe. Seldom discussed in academic contributions, however, is the question whether energy security has an impact on single sectors or companies that depend on a stable and secure resource supply. In this paper, we investigate how energy-related companies are affected by changes in the environment of energy security. Doing this, we focus on stock market impacts of the gas crisis on utilities as well as oil and gas companies. For these groups, effects are not yet theoretically explored and empirically analyzed. As the natural resource is the foundation of energy-related companies' business, one would suggest that supply crises should have a major impact on their business prospects.

Methods

Using an event-study approach, we first want to investigate whether the Russian suspension of gas deliveries, the announcement of this suspension as well as its withdrawal had an effect on *unsystematic volatility* of European energy stocks. Second, we want to measure event effects on *stock returns*, taking volatility and especially possible event-induced volatility into account. In order to analyze event-induced abnormal unsystematic volatility in the stock returns, we employ an approach based on a GARCH(1,1) (market) model that tests if the event day volatility significantly exceeds the one implied by the model dynamics. In order to assess whether the gas crisis had an impact on stock returns, i.e. if abnormal returns occurred due to this event, we apply a very robust method that addresses both conditionally heteroskedastic behaviour of volatility as well as possible event induced variance increases. Furthermore, the approach does not require this volatility effect being the same across firms analysed. The test is based on a GARCH(1,1) framework as well. In the existing event studies in energy and environmental economics, to our knowledge, there is no event study available that takes conditional heteroskedasticity into account. This analysis aims at starting to fill this gap.

Results

For the full sample, the test for event-induced *abnormal unsystematic volatility* in the stock returns shows a (highly) significant event impact on one day inside of our event window: On January 3, 2006, abnormal unsystematic volatility differs by 73 per cent from its no-event level. If we distinguish utilities from oil and gas stocks, we can show that abnormal unsystematic volatility is quite homogenous over the two groups of stocks. When *abnormal returns* of the full sample are analyzed, highly significant positive event impacts can be observed for December 28, 2005. The effect is robust when the two sectors are analyzed separately. For the full sample, (daily) abnormal returns of 0.35 percentage points can be measured. For January 4, 2006, positive abnormal returns are found for the full sample as well, although smaller and significant only at the 10%-level. Furthermore, specifically for the oil and gas sector, we receive a significant (5%-level) negative event effect for

December, 27. However, besides that, only significant positive abnormal returns occur in our analysis.

Conclusion

Summarizing, the definite announcement of the crisis (December 28) and therefore a rise of Western Europe's energy risk tended to increase market expectations with respect to energy-related firms – both utilities as well as oil and gas companies – , while the renewal of gas deliveries (January 3) increased market uncertainty for firms of the whole sample. The reasons for this remain at least partly for future research. One factor producing these counterintuitive findings could be windfall profits of energy-related companies due to increasing resource and electricity prices. Another point may be the expectation of the energy-related industry that future energy policy, e.g. via competition policy, could emphasize on their interests due to its ostensible dependence or even instability. However, our results suggest that energy policy does not have to bear in mind negative effects for energy-related firms in situations when security of energy supply is in danger. The small positive effect for January 4 can be explained with the legally binding ending of the conflict. From a methodological point of view, the existence of *event induced volatility* at a between-firm level confirms our choice of a very flexible methodology in order to test for *abnormal returns.*

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