

Executive Summary

The Tohoku earthquake is known to be the biggest ever earthquake in the history of Japan. It occurred on March 11th, 2011 and triggered an enormous tsunami, which inflicted serious damages to the nuclear power plants Fukushima Daiichi and Fukushima Daini. This led to large-scale environmental releases of radioactivity. The accident has been rated as a "major accident" of level 7, the highest possible level according to the International Nuclear Event Scale (INES), thereby ranking the Fukushima accident at the same level as the Chernobyl disaster in April 1986. The fact that this time the nuclear disaster happened in an advanced economy, which uses the latest nuclear reactor technology, and not in a totalitarian state with substandard technology and a low level of security for absorbing the radioactivity, makes the Fukushima accident even the most serious ever for the credibility issues of the nuclear power plants and their rights to existence.

The Fukushima nuclear accident led to a lot of public and scientific debates. Since March 2011 a great number of articles and papers were written concerning the effects of the Fukushima disaster on the environment, health and policy issues regarding safety standards for the nuclear power plants.

Taking into account the scale of the Fukushima accident and the consequences it could have for the nuclear power plants and the whole energy supply and generation industry, it is not surprising that it has also affected the international utility stock markets. In consistence with recent studies the current paper investigates the impact of the Fukushima Daiichi catastrophe on the stock prices of utility companies. The study is to test the following three hypotheses: The Fukushima incident had a negative impact on the share prices of the companies largely involved in the nuclear power generation, however, positively affected the asset value of the conventional and alternative utilities.

The novelty of this bachelor thesis is to conduct an event study in order to assess the impact of the Fukushima nuclear accident on the stock prices of the utilities worldwide. Hereby, it is distinguished between nuclear power companies, conventional energy firms (using oil, gas and coal as energy source) and alternative energy companies. Every sample, in oppose to previous studies, includes stocks not only from developed, but also from emerging countries. Moreover, the current event study combines three different methodological models: OLS market model, CAPM market model and Fama-French Three Factor model.

Assuming the efficiency of capital markets the current event study is based on the concept of abnormal returns. They are inconsistent with the Efficient Market Hypothesis and therefore considered as unexpected changes in price associated with a specific event. In order to calculate abnormal returns, the expected returns are estimated using three above mentioned different models as benchmarks. On the basis of computed abnormal returns the four test statistics, based on the average abnormal returns, cumulative abnormal returns as well as scaled abnormal returns and standardized cumulative abnormal returns, are calculated for the further testing procedure on statistical significance.

The study records significantly negative abnormal returns in the event window for the nuclear utilities for all three estimation models. The alternative and conventional power utilities reveal significantly positive abnormal returns. The strong reaction of every sample is observed on the second trading day after the Fukushima accident, implying some initial uncertainty among market participators regarding the gravity of the catastrophe and its consequences. The use of cross-sectional weighted abnormal returns for test statistic provides more evidence for significant abnormal returns for each sample due to accounting for the differences in variance of the sample's stocks. The use of cumulative abnormal returns as basis for the test statistic reveals statistically significant negative and statistically significant positive abnormal returns for the nuclear power companies and alternative energy stocks respectively, while using the OLS market model for estimation. Standardized cumulative abnormal returns as the basis for test statistic provide no evidence against null hypothesis.