***Patrycja Chodnicka-Jaworska and Piotr Jaworski***

**ENVIROMENTAL, SOCIAL AND GOVERNANCE MEASURES AS FACTORS OF THE ABNORMAL RATES OF RETURN ON THE ENERGY SECTOR’S STOCK PRICES DURING CRISIS**

Patrycja Chodnicka-Jaworska, University of Warsaw, Faculty of Management, Szturmowa 1/3, 02-678 Warsaw, pchodnicka@wz.uw.edu.pl

Piotr Jaworski, University of Warsaw, Faculty of Management, Szturmowa 1/3, 02-678 Warsaw, pjaworski@wz.uw.edu.pl

**Overview**

The aim of the study is to analyse the impact of the moment of the beginning of the Ukrainian War and the implementation of the European Union sanctions connected with this military conflict on the abnormal rates of return on stock prices of companies from the energy sector, that are listed on the stock exchanges. It has been put the hypothesis that seems as follows: the implementation of the European Union sanctions connected with the Ukrainian War causes the varied abnormal rates return on the stock prices of companies listed on the stock exchanges, by taking into consideration the type of the sector, the geographical location of the military conflict and the ESG measures.

In the literature we can find some studies about the impact of the ESG on the stock prices, but they are not connected with the energy sector. Some of them suggests that not taken into consideration the ESG risks, create lower rates of returns, destroy the company value for stakeholders (Glossner, 2020). Shareholders invest in long period in a company with higher ESG measures (Starks, et al., 2017). The reaction of the stock market is stronger for one year period than for shorter or longer time of investment (Giese, et al. 2018). Investors take into consideration the ESG policies when companies with negative rates of return are sold. The increase of the ESG measures gives higher effects in the group of companies with lower primary value of ESG index (Giese & Nagy, 2018). The rates of return are overreacted on the ESG information (Cui & Docherty, 2020). In other studies, it could not be found positive or negative relationship between social responsible investments (SRI) and the rates of return (Revelli & Viviani, 2015; Friede et al., 2015; Sargis & Wang, 2020). The ESG factors are not also taken by the financial institutions to assess the potential company’s value, even if they have got the potential impact (Gutsche et al., 2017; Lins et al, 2017). The impact of the ESG measures is varied geographically (Friede et al., 2015). The impact of ESG measures during wars are not tested but the mentioned analysis has been presented during crisis. In some studies, they are threatened as a waste of money (Demers et al. 2020; Takahashi & Yamada, 2020), in other ESG investments hedging against stock drop, because of the reputation capital (Lins et al., 2017, Ding et. al., 2021). Investing in SRI funds during crisis in some opinions brings higher profits than traditional ones (Bouslha et al., 2018), in other lowers (Leite & Corteza, 2015).

**Methods**

To the analysis were used panel data event studies prepared on the daily rates of return on the stock prices of all companies listed on the stock exchanges from 1 November 2021 to the 28 February 2023. Data has been collected from the Refinitiv Eikon database. The energy sector has been divided on the four subsectors: oil and gas, coal, uranium, and the renewable energy. Next, the sample has been divided on two groups, countries which are dependent on the oil and gas import from Russia and these that are free of the mentioned problem. To the analysis was also used the classification according to the ESG indexes. Events relate to the implementation of sanctions by EU. The analysis has been made for the event window, that is the moment of publication of sanctions plus one day after. The research has not been prepared for the pre-event window and post-event window because of the high frequency of the events. To the presented model have been used logarithmized daily rates of return on the stock prices. As a basic model was used the market model.

**Results**

The received findings by using the panel data event study methodology confirms the presented hypothesis. At first the significant impact on the mentioned phenomenon is division according to the type of the subsector. Each of the subsector react varied on the beginning of the Ukrainian War. The analysis in the whole sample has not present the significant abnormal rates of return. Sector that generates abnormal rates of return is uranium. The financial market reacts on the previous information presented in press before the starting the war. The Russian and Ukrainian oil and gas companies generated negative abnormal rates of return before the war. It shows that the investors were sensitive on this risk. The positive abnormal rates of return in the case of the European companies have been noticed after the event, where companies from countries on the direct neighborhood reacted before, during and after the starting the war. In the case of the renewable energy the abnormal rates of return are noticed in the group of European companies after the moment of conflict. The coal sector reacts negatively during the event and positive after the war beginning in the group of companies from Russia and Ukraine neighborhood. The strong impact has got the ESG measures, especially for coal subsector. The received findings suggest few phenomena. At first the particular subsector reacts varies. The significant impact has got the neighborhood Russia and Ukraine. Next the influence has got the value of the ESG measures. If company has got ESG index, it can generate higher abnormal rates of return than benchmark, that confirms the importance of the ESG polices. The war can be threatened as a chance for the companies from the coal sector form countries in the Russia neighborhood. The coal sector has not been sensitive on the ESG measures before the Ukrainian War. Now, companies with ESG index are in the field of investors’ interests.

Results, show that subsectors react varied. The significant impact has got the neighborhood Russia and Ukraine. If company has got ESG index, it can generate higher abnormal rates of return than benchmark, that confirms the importance of the ESG polices. The war can be threatened as a chance for the companies from the coal sector form countries in the Russia neighborhood. The coal sector has not been sensitive on the ESG measures before the Ukrainian War. At the beginning of the military conflict companies with ESG index are in the field of investors’ interests.

**Conclusions**

The significance and strength of the reaction of the stock prices is strictly connected with the direct neighbourhood of the described military conflict. Something that was interesting is that the companies from Russia and Ukraine do not react on European sanctions, except the oils and gas subsector during the beginning of war and the publication of the information about the second package of sanctions. It can be connected with few reasons. At first the presented study has been prepared on the market model with taking into consideration the relationship to benchmark. As a result, the stock prices of the mentioned companies do not react different than index. Next, the long-term contracts and finding a new market to selling the natural sources. The Russian stock exchange was partially closed, that has got the impact on the received findings. Mostly, the lower rates of return on the stock prices than local benchmark are noticed in the case of the companies that are in the direct neighbourhood of the military conflict. The mentioned situations suggest that sanctions can be significant for countries that impose them. On the significance of sanctions have got influence also news published in press, the type of information presented by local governments, the frequency of meetings by the heads of states and representatives of the main organizations. Not without of the significance is the impact of situation in Russia and Ukraine, which example is the attack and fire in the Zaporozhe power plant or taking the exclusion zone and power plant in Chernobyl.

The received findings can be useful for regulatory and governments because they show which of the subsector are the most sensitive on presented group of sanctions. They also present the effect of sanctions on the countries which imposed them. This study can be also used by the investors, because it given answer on the question which type of the energy subsector and when generate the higher abnormal rates of return on the stock prices than local benchmark. It is useful for building the portfolio. They can show which companies can generate abnormal rates of return as an effect of closing sanctions.

**References**

Bouslah, B., Gharbi, A., & Pellerin, R. (2018). Joint production, quality and maintenance control of a two-machine line subject to operation-dependent and quality-dependent failures. *International Journal of Production Economics* 195, 210-226.

Demers, E., Hendrikse, J., Joos, P., & Lev, B. (2020). ESG Stocks Against the COVID-19 Market Crash.

Ding, W., Levine, R., Lin, C., & Wensi, X. (2021). Corporate Immunity to the COVID-19 Pandemic. *Journal of Financial Economics,* 141(2), 802-830.

Friede, G., Busch, T., & Bassen, A. (2015) ESG and Financial Performance: Aggregated Evidence from More than 2000 Empirical Studies. *J. Sustain. Financ. Invest*., 5, 210–233.

Giese, G., & Nagy, Z. (2018). How Markets price Esg? Have Changes in ESG Scores Affected Stock Prices? *MSCI,* 1–25.

Glossner, S. (2020). The Price of Ignoring ESG Risks. Available online: https://ssrn.com/abstract=3004689.
Leite, M.C., & Corteza, P. (2015). Performance of European Socially Responsible Funds during Market Crises: Evidence from France. *International Review of Financial Analysis,* 40, 132-141.

Lins, K. V., Servaes, H., & Tamayo, A. (2017). Social Capital, Trust, and Firm Performance: The Value of Corporate Social Responsibility during the Financial Crisis. *The Journal of Finance*, 72(4), 1785-1824.

Revelli, C., & Viviani, J. L. (2015). Financial performance of socially responsible investing (SRI): what have we learned? A meta‐analysis. *Business Ethics: A European Review,* 24(2), 158-185.
Sargis, M., & Wang, P. (2020). How Does Investing in ESG Companies Affect Returns? *Morningstar,* https://www.morningstar.com/insights/2020/02/19/esg- companies

Starks, L.T., Venkat, P., Zhu,Q. (2017). Corporate ESG Profiles and Investor Horizons.