



UNIVERSIDADE CATÓLICA PORTUGUESA

The Effects of War on ESG Strategies and Market Performance:

An event study on the Russia-Ukraine War

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An event study on the Russia-Ukraine War

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Resumo

Os princípios de investimento ESG tornaram-se uma parte imprescindível das complexidades que caracterizam os mercados de capitais e as políticas de cobertura de risco das empresas.

Este estudo incide sobre o conflito entre a Rússia e a Ucrânia, e procura esclarecer sobre até que ponto os princípios e estratégias ESG são resilientes em tempos de guerra e se as empresas confiarão numa política ESG fortalecida, desligando-se de quaisquer ligações aos mercados agressores ou correrão o risco de continuar a trilhar as águas turvas de conflitos geopolíticos, mantendo as suas operações intactas nos mercados agressores. Para tal, foram obtidos os dados de 239 empresas que anunciaram publicamente a sua decisão de permanecerem ou de se retirarem parcial ou totalmente dos mercados russos para o ano de 2021.

Os resultados obtidos mostram que a pontuação ESG, de facto, tem um papel significativo na decisão que as empresas tomam de permanecer ou abandonar os mercados agressores, uma vez que as empresas com pontuações ESG mais elevadas tenderão a abandonar os mercados agressores, e também que as empresas de maior dimensão são mais prováveis de permanecer nestes mercados.

Os resultados obtidos revelam ainda que o prémio de risco geopolítico tem um efeito significativo no curto prazo que pode ser reduzido por uma política ESG robusta, e que a decisão de sair ou manter-se nos mercados agressores não tem influência nos retornos anormais registados, devido ao provável, ainda que não testado, prémio que os investidores estão dispostos a pagar por empresas que privilegiem normas ESG. Finalmente, a pontuação ESG também não apresenta uma relação significativa com os retornos anormais das empresas.

Palavras-chave: ESG, Guerra, Geopolítica, Rússia, Mercados Financeiros

Abstract

The principles of ESG investing have become a staple of the intricacies that surround the capital markets and firms' risk-hedging policies.

This event study focuses on the Russia-Ukraine conflict and aims to shed some light on to what extent are ESG principles and strategies resilient in times of uncertainty and whether firms will rely on a strengthened ESG policy detaching themselves from any links to aggressor markets or will risk continuing to tread the muddy waters of geopolitical conflicts, by maintaining their operations in aggressor markets untouched. To do so, the data of 239 firms that publicly announced their decision regarding the maintenance or withdrawal from Russian markets was collected for the year 2021.

Our results show that the ESG score has a significant role in the decision that firms make to either remain or abandon aggressor markets, as firms with higher ESG scores will tend to abandon aggressor markets. Furthermore, our results show that bigger firms are more likely to remain.

Our results also show that the geopolitical risk premium has a significant effect in the short run, which can be mitigated by a robust ESG policy, and that the decision of leaving or remaining in aggressor markets bears no influence on the abnormal returns registered, possibly due to the premium that investors are willing to pay for companies' sustainable finance decisions. Lastly, the ESG score also did not present a significant relation to companies' abnormal returns.

Keywords: ESG, War, Geopolitics, Russia, Financial Markets

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Introduction

The acronym ESG is often thrown around loosely without much thought, but what does it actually mean? ESG stands for Environmental, Social, and Governance and is a comprehensive framework around these three criteria.

The Environmental criteria revolve around firms' willingness to consider environmental factors and spillovers that occur during their day-to-day operations and their effort to incorporate policies that have a positive impact on the environment. The social criteria are mostly linked with the relationships established within the company, including all its employees and its relationship with its stakeholders upstream and downstream. Finally, the governance criteria are reflected in the organizational structure of the company, hierarchy, and decision-making.

In recent years, ESG has emerged as an indispensable tool to measure the sustainability and ethical impact of companies' decisions. However, for quite some time there was this belief that a company could either opt for trying to achieve a good financial performance or a good ESG performance when finance literature must come to a consensus that there are no signs that firms' social and financial performance present a negative and causal relation, but a simultaneous and positive one, as reported by Preston and O'Bannon (1997).

The ESG framework also arose as an opportunity for firms to expand their broad spectrum of appeal to new types of investors, namely green and socially responsible investors, who are known for placing a great deal of importance on a firm to comply with the ESG framework at the different Environmental, Social and Governance levels and as such are willing to pay a premium for the spillovers that result from firm's compliance with ESG norms(Bolognesi &

Burchi, 2022), this premium being proportional to the ESG rating attributed to each company

This event study aims to answer the questions regarding the impact of war on two separate dimensions:

- The effects of war on ESG strategies, more specifically firms' positioning on the Russia-Ukraine war and their decisions to maintain themselves operating in aggressor markets or pull back
- The impacts of the decisions made by companies regarding their ESG strategies on firms' market performance, more specifically the abnormal returns

There is an attempt to understand if the theoretical approach of ESG is robust enough to lead firms into choosing to make sustainable finance choices in times of uncertainty, namely wars even if it means that they will certainly lose cash flow from axing an entire geographic market segment.

To do so, the research is based on a dataset of traded companies from the United States of America, the United Kingdom, and China who publicly announced their decisions on whether they had decided to remain or detach themselves from aggressor markets, considering the invasion of Ukraine by Russia.

The possible decisions were the following:

- Remain operating business as usual, meaning that firms would continue their operations completely unchanged;
- Hold off new investments, which would temporarily pause any ideas of new ventures in Russia for the time being;
- Scale back, in other words reducing the volume of operations in aggressor markets;
- Suspend Activity, essentially shutting down all operations for an undefined period;

- Withdraw, which would see firms completely cease operations and abandon Russia for good.

It will also be verified if there is a link between both dimensions and to what extent they may impact each other, serving as a complementary analysis of the research conducted by Tosun & Eshraghi (2022) and Basnet et al. (2022).

This thesis is structured in five different chapters. The first chapter focuses on the literature review on the ESG framework and its use as a tool to accrue financial value and hedge risks, as well as how firms with different ESG scores react to geopolitical conflicts when they are inserted in aggressor markets. Furthermore, it also entails the impacts of war on the financial markets, namely the geopolitical risk premium and how the decision to stay or leave can impact companies' market performance. The second chapter details the methodology of this event study, while the third chapter entails the data, namely the selection and description of the variables, and the processing of data regarding the selection of firms to include in the sample. In the fourth chapter, there is a presentation and discussion of the results while comparing them to the prior financial literature, and lastly in chapter five proceeding to the conclusions, while also pointing out the limitations of this thesis and some recommendations for further research on the topic.

Chapter 1

Literature Review

1.1 ESG Framework

As time goes by, there has been an increase in pressure for corporate accountability. As such, investors nowadays focus not only on firms' financial performance but also on how they meet corporate social responsibility (Jarjir et al., 2022). The investment decisions from shareholders underwent some changes that caused a shift in investors' interests from wealth maximization to a sustainable value creation framework, where all spillovers regarding social, corporate, and environmental pillars are considered (Fatemi & Fooladi, 2013).

The framing of ESG in investment decisions reveals itself as a causal relationship between impacts and investment that relates to an understanding of the market as a self-regulating entity that if given certain inputs, can be expected to yield certain outputs and look at them from an ethical perspective. In moral markets, there is a belief that with the right quantification and datafication, the market will be able to generate the most efficient outcome not only from an economic perspective but from a social and environmental perspective (Archer, 2022).

The biggest challenge that ESG policies and sustainable finance have faced, while trying to insert themselves as a regular concern and as a way to hedge certain risks, related to social and environmental events that may arise, is the fact that analysts and investors still struggle to quantify the impact of this type of investments because they do not fit conventional financial models and as such their value is underestimated. The easiest way to incorporate sustainability in investment decisions is to treat them like a risk that needs to be addressed and mitigated (Archer, 2022).

In a world where the disposition of investments is changing towards sustainable finance and where ESG is becoming more relied on by investors as a hedging tool, there is still a fundamental gap that needs to be solved, related to the quality of ESG information. Kotsantonis & Serafeim (2021) found that there were more than 20 different ways companies reported ESG data and how these discrepancies in transparency regarding ESG disclosure led to very different results in grading companies' peer groups. There are many contradictory results in the grading of different companies' ESG policies as well as the fact that there isn't a single data set that can provide a reliable and global metric for companies worldwide (Kotsantonis & Serafeim, 2021). Instead, investors and analysts must try to ascertain which ESG index is the most reliable. This makes it so much easier to manipulate this type of information and makes it difficult to approximate ESG ratings to the reliability of financial metrics, making it crystal clear that there is a strong limitation in the sustainable finance literature and that there is a need to create a single and uniform measure of rating firms' ESG compliance in a way that may convince investors the financial value that this data can accrue to their portfolios.

1.2 What is Geopolitical Risk Premium?

In times of war and conflicts, there is a particular type of risk that focuses on the social pillar of ESG investing and that as such it needs to be hedged to protect investors from significant downturns in the financial markets. The geopolitical risk is detrimental not only to the equity markets but also to the stability of the financial system in aggregate (Phan et al., 2021), and according to Caldara & Iacoviello (2022), can be defined as the risk associated with wars, terrorism, and tensions among states that affect the normal course of international relations. Quantifying the effect of geopolitical tensions on markets helps us to assess the risks to the economy and financial stability across countries (Chițu et al., 2022).

However, there has been difficulty in measuring the true extent of geopolitical risks and their effects since it is difficult to isolate this type of risk from other factors (Eichengreen et al., 2017 and 2020). The current solution to this problem revolves around identifying the distance between the capitals of the countries involved or affected by geopolitical conflicts, serving as a proxy for each country's exposure to said conflicts (Federle et al., 2022). Previous financial literature divides itself on how geopolitical risk is priced by the markets, where Brietz (1988) and Barro (2006) argue that the geopolitical risk premium is already always intrinsically priced in the markets, assuming that disaster events are already reflected in the geopolitical risk premium, while Gabaix (2012) points out that the geopolitical risk premium associated with disaster events such as wars, fluctuates over time. A study performed by the European Central Bank somewhat led to the same possible conclusions as those previously pointed out by Gabaix, in the sense that the study focused on the aftermath of the invasion and the consequences observed in the equity markets related to the geopolitical risk, in which the proximity effect to the war during the initial days resulted in worse stock returns. However, this negative impact derived from the geopolitical risk premium seemed to fade away after two weeks.

The geopolitical risk is one of many risks that firms are exposed to despite being exogenous to them. The ESG framework as mentioned before revolves around a perspective that looks at the Social, Environmental, and Governance pillars of a company as risks that need to be hedged. As such, ESG plays a big role in a company's way of taking charge of the foreseeable and unforeseeable risks that may arise related to geopolitical conflicts, by creating guidelines for firms to detach themselves from aggressor markets, and as a result prevent them from taking market penalizations, due to investors' negative sentiment towards geopolitical conflicts (Tosun & Eshraghi, 2022).

1.3 Impacts of War on ESG Strategies and Financial Markets

Geopolitical conflicts, namely wars make a significant dent in the normal functioning of the financial markets and firms' ability to make decisions amid these times of uncertainty and due to the presence of a geopolitical risk premium that typically generates market downturns in the initial phases of these types of macroeconomic events.

Finance literature reveals that the overall impact of international conflicts typically has negative implications in financial markets in the short term, going back to World War 2, when a large number of events coincided with dips in the Dow Jones Index (Choudhury, 2010).

Liadze et al. (2022) have found a negative relationship between the performance of the financial markets and the geopolitical conflict between Russia and Ukraine, on the 24th of February, the day of the invasion, with a bigger accentuation over the Russian Market. The war increased volatility spillovers to an extent that exceeded the volatility recorded during the time of the COVID-19 pandemic, by 50 percentual points (Fang & Shao et al., 2022).

In the face of the following events, companies must make choices regarding their ESG strategies and their involvement in Russian markets. In other words, firms must take a stand on whether they will maintain operations as usual and deal with the risk suffering from consumers and investors' backlash, however significant or insignificant they may be for each one individually, or pull out from Russian markets within the different points of action possible. Bearing in mind that it is difficult to make decisions in such a volatile time and with no idea of how long the conflict will last, firms are forced to make a decision that will entail consequences regarding their ability to generate revenue within, not the only aggressor markets but also the global markets. This choice will instigate a ripple

effect in other markets that, depending on the decision, may aggravate the spillovers of war or offset the market downturns.

The decision that firms make depends highly on their positioning concerning social policies and stakeholder orientation. Basnet et al. (2022) find that firms that have a low ESG score or social reputation to maintain tend to not be that phased by all the negative spillovers that arise from war conflicts and so mostly they will maintain their operations in aggressor markets. However, companies with a good ESG score and that aim to comply with its norms, are more likely to choose to rupture ties to operations in aggressor markets, since they have the most to lose if they decide to remain. Furthermore, the results show that a total exit is better than a partial exit for companies reporting a higher ESG score, which concerns achieving less negative stock market reactions.

Companies that publicly announced that they would remain operating in Russia, shortly after suffered a spike in trading volume and selling pressure (Tosun & Eshraghi, 2022), making it difficult to make any effective decisions during the conflict and pointing out that the market is efficient in correcting decisions that steer away from its expectations regarding ESG compliance. Bearing in mind that this effect can be offset or upscaled depending on the companies' rating in ESG datasets and the global exposure of the brand. Companies that report lower ESG scores are less likely to be majorly affected by the decision to stay in aggressor markets (Basnet et al., 2022), while companies that have a higher ESG score, especially in the social scope that relates to human rights, tend to be heavily penalized by the market at the time of the announcements if the decision doesn't meet the market's expectation. In the short run, there is a clear sell pressure from investors, an effect that tends to fade away in the long run, as the negative impact of the geopolitical risk premium also dissipates with time.

In the meantime, companies that exit Russian markets or retract their investments, avoid the market pressure suffered from investors who privilege sustainable finance as well as the rising consumer boycotts and the financial sanctions imposed by the European Union. Firms who decide to leave aggressor markets trade off the loss of cash flow from shutting down a geographical market and in return, hope to recover some of it due to their strengthened ESG policy that perpetuates an increase of the company's market valuation (Servaes & Tamayo, 2013), due to the efficiency of the markets that reward those who act in favor of a more sustainable finance outlook. This perspective is consistent with the findings of Bolognesi & Burchi (2022), regarding the positive relationship between ESG disclosure scores and potential upsides of US firms during the entire period, meaning that sell-side analysts reward the firms committed to transparency as they recognize a premium to firms who are more engaged in ESG transparency.

Tosun & Eshraghi (2022) find that Remainers experience an average decline in market returns of 1.3% on the day following major news announcements about the list of Remainers versus Leavers, which is consistent with prior literature relating to geopolitical conflicts and boycotts. This market reaction is concentrated on the day following the news announcement and does not persist over subsequent days. There is sufficient evidence to conclude that there is a significant market penalty imposed by investors on Remainers, which is attributed to the negative sentiment related to the firms who keep operating in aggressor markets.

Regarding the disclosure of news for the different levels of ESG scores, there is some ambiguity in the prior literature. While Krüger (2015) believes that firms with low ESG scores disclosing positive ESG news result in better stock reactions, Capelle-Blanchard & Petit (2019) report that companies with higher ESG scores releasing negative ESG news expect a better reaction from the markets.

The firms that remain operating in Russia, business as usual, commonly denominated, the Remainers tend to face a loss of cash flow due to the blowback regarding the release of news that firms will not stop operating in Russia, resulting in a reduction of market performance (Tosun & Eshraghi, 2022), and possibly facing a decrease as well in revenues due to consumer boycotts (Heilman, 2016). All this is on top of the embargos already put in place by the European Union, such as the prohibition of exports to Russia of certain types of goods like cutting-edge technology for tech services or oil refining and the banning of imports from Russia like crude oil, coal, and gold.

The embargos imposed meant that a lot of companies that had branches in Russia or operated in Russian markets were penalized, suffering an increased difficulty in resorting to financial institutions for debt to leverage themselves. Also, firms that operate in certain sectors like high-tech, machinery, transportation, and energy are some of the examples that were heavily targeted by the sanctions and as such were impaired from being able to resume their operations in a profitable manner in aggressor markets.

Market pressure in the form of social media outbursts and consumer boycotts was found to have a significant financial impact on the exports from the boycotted country to the boycotter (Heilmann, 2016). The action of consumer boycotts and the threat of them have similar results (Koku et al., 1997). According to Innes (2006), larger firms are more likely to give in to boycott demands more quickly as their global exposure is significantly higher, and as such, they become a larger target of large transitory boycotts. Small firms, however, tend to be a target for smaller and more persistent boycotts, despite not caving into demands as quickly as larger firms.

Chapter 2

Methodology

To properly grasp the relationship between the impact of war on ESG strategies and market performance, two equations were formed to establish the correlation between the dependent and independent variables of each equation, based on the prior research of Basnet et al., (2022) and Tosun & Eshraghi (2022).

In the first model, there is a focus primarily on trying to find a pattern between the decisions of companies to leave or stay in Russia and their size, expressed in the form how the amount of revenue retained, and the number of people employed by the firms. Furthermore, the Industry of the firms and their ESG score are also correlated to the decision to account for any possible significant relation. This model accounts for the internal dimension of the effects of war on companies. The main variable of interest in this regression is the ESG score as the focus relies on researching how big of an impact the ESG score had on the decision for firms to leave mainly due to the expectations of its investors, as firms with higher scores are expected to make the most sustainable decisions regarding their social, governance and environmental surroundings.

The econometric model used to run this regression was the Logit Binary based on two different scenarios, where companies decide, to continue operating in Russia as nothing has happened or change their exposure to the Russian markets, whether it's to suspend new investments, scale back in operations or to completely sever ties with this geographic market segment. The decision to remain business as usual comprises the value of 0 and any other action takes up the value of 1 in this binary model. The dummy variables account for each company's country of origin, in this case, the United States of America and the United Kingdom, since it is important to differentiate due to the fact companies

based in different countries have different styles of management in terms of the degree of financial leverage used and the compensation of shareholders. The dummy variable that accounts for companies originating in China is dropped to avoid the dummy trap variable.

Model (1):

$$BIDEC_{it} = \beta_0 + \beta_1 (REV)_{it} + \beta_2 (EMP)_{it} + \beta_3 (ESG)_{it} + \beta_4 (IND)_{it} \\ + \beta_5 (DUS)_t + \beta_6 (DUK)_t + \varepsilon_{it}$$

The second model serves the purpose of measuring the effects that the conflict involving Ukraine and Russia had on financial markets, regarding the abnormal returns of traded companies that maintained or retracted their investments from Russia experienced in the short and long run, exploring the effects of war on the external dimension of firms. This model keeps the control variables that comprise the first equation and adds some financial metrics that might serve to identify a more recognizable relationship between the performance of companies, after the events that led to the war conflict and their respective decision to stay or abandon Russian markets. These effects will be studied through different time variations in the short term, namely 15 and 30 days after the full-on invasion of Ukraine, and then in the long term, more specifically 6 months and 1 year after the events occurred, splitting the second econometric model into 4 different regression models. The study of the effects companies feel through different time frames will help shed some light on previous literature that states that the geopolitical risk is only felt in a very short time and that as time goes by, it eventually dissipates. The financial variables used in this regression all concern the last year before the incidents occurred, namely 2021.

The abnormal returns were calculated in relative terms, by computing the rate of change of each stock price and subtracting that value from the rate of change of the respective Index price, in which each stock is listed, to account for companies' superior or inferior in comparison to the market benchmarks. The added dummy variable was used to account for each company's possible 2 decisions to stay operating in Russia business as usual, taking up the value of 0, or to change that directive on account of the war conflicts that emerged on the 24th of February 2022, taking up the value of 1. The dummy variables that account for the country of origin of companies remain the same as in the previous model. The econometric model used was the OLS (Ordinary Least Squares) since the equation translates to a Multiple Linear Regression.

Model (2):

$$\begin{aligned}
 AR_{it+1} = & \beta_0 + \beta_1 (REV)_{it} + \beta_2 (EMP)_{it} + \beta_3 (ESG)_{it} + \beta_4 (IND)_{it} + \beta_5 (ROA)_{it} \\
 & + \beta_6 (FL)_{it} + \beta_7 (EBIM)_{it} + \beta_8 (BIDEC)_t + \beta_9 (DUS)_t \\
 & + \beta_{10} (DUK)_t + \varepsilon_{it}
 \end{aligned}$$

Chapter 3

Data

3.1 Sample selection

The data collected concerning the decision regarding the market presence following the war in Ukraine was retrieved from the Yale CELI (Chief Executive Leadership Institute) database, which showed firms' involvement in the Russian market and their respective announcement decisions regarding the war on Ukraine and if these companies chose to either: 1) Remain operating business as usual, 2) Hold off new investments, 3) Scale back on operations, 4) Suspend activity or 5) Completely Withdrawal from aggressor markets. For simplicity reasons and to be able to zone in in more detail on the intricacies related to the decisions performed by companies and their connection to ESG strategies and market performance, the decisions of firms were summarized in either remaining operating in Russia completely unchanged or reassessing one's exposure to aggressor markets, the last one encompassing all the decisions from holding off new investments to complete withdrawal.

The starting dataset obtained from the Yale database was shortened due to some difficulties in the data processing of the variables used in the Regressions conducted. At first, 1390 companies had announced their decision regarding their exposure to aggressor markets and pursuit of different ESG strategies. The fact that many companies were based in peripheral countries, and some of those were private companies, made it impossible to retrieve financial data from and then compare it to a market benchmark. Consequently, only companies from the United States of America, the United Kingdom, and China that were publicly traded were significant to use as part of the data sample. Furthermore, some firms met the previous criteria that had to be excluded from the final dataset to

run the Regressions, namely companies that presented an invalid ESG score and therefore could not establish a meaningful and trustworthy relationship with the decision of that company. Furthermore, companies that had a capital structure composed of 100% equity and as such did not have any debt had to also be eliminated since the control variables used were the financial leverage that tracked any possible correlation to the embargos imposed by the European Union. In Appendix A, there is a comprehensive list that details the exclusion of the companies that did not fit the financial metrics to be part of the final sample. All the sample companies' financial metrics were retrieved from the Datastream database, for the year 2021.

This data was then cross-referenced with the firms that were a part of the Market Indexes FTSE 350, Standard & Poor's 1500, and the SSE Composite Index to account for the public firms whose market performance was clear to interpret from the data retrieved. The final sample consisted of 239 observations.

3.2 Description of Variables

The methodology of this event study uses the explanatory variables considered by Tosun & Eshraghi (2022) and Basnet et al. (2022), based on the similarity of the event studies and the research questions explored.

3.2.1 Binomial Decision (BIDEC)

The binomial decision is the dummy variable that served as the dependent variable for the first regression, in which, its focus is to list the companies' decisions in two separate options. The second regression serves the purpose of a control variable to estimate the relation between a company's abnormal returns and its decision to either stay operating in Russia or change its exposure to

aggressor markets. The variable takes up the value of 0 if a company decides to remain operating business as usual and the value of 1 for any decision firms make to deescalate its commitment to aggressor markets.

Decision	Rel. frequency	Binomial Decision	Rel. frequency
0	9%	0	20%
1	11%		
2	16%	1	80%
3	36%		
4	28%		

Table 1- Distribution of the sample companies' decisions regarding exposure to Russian markets. Source: YALE Chief Executive Leadership Institute (2022).

3.2.2 Revenue (REV) and Employees (EMP)

These control variables are useful in measuring the possibility of a dilution effect that the exit from Russian markets may have caused and also to try and establish a correlation between the size of the companies and their decision to rupture ties with aggressor markets, as bigger companies have more exposure to bad ESG news and as such and according to Tosun & Eshraghi (2022) companies that operate globally are more likely to give in to consumer boycotts than smaller companies. It is then expected that the size of a company comprised by the revenue and number of employees will register a negative relationship to remaining operating in Russia business as usual, and by consequence will be positively correlated with an exit from Russia.

3.2.3 ESG Score (ESG)

The ESG scores control for the likeliness of the companies considered in this sample to leave or remain, as firms with higher ESG scores will more likely choose to leave as the geopolitical conflict incited by Russia, goes against ESG norms and standards, more specifically towards the human rights that are a part of the Social pillar of ESG. According to Prakash et al. (2017) and Werther & Chandler (2005), more stakeholder-oriented firms will most probably continue with the same behavior toward ESG practices while companies that register lower scores for ESG are more likely to remain indifferent to other concerns that surpass their internal environment, resulting in remaining in Russia. In addition, firms that report a higher ESG score tend to react better to negative releases of ESG news than companies with lower ESG scores that disclose positive ESG news, according to Capelle-Blanchard & Petit (2019) and Basnet et al. (2022). In what concerns the type of decision made by companies related to their ESG scores, it is expected that firms with a higher degree of ESG practices will only receive a positive market reaction if their exit from Russia is total and definitive, making it so that any decision to partially leave Russia will receive a negative reaction from the financial markets (Basnet et al., 2022). As such it is expected that the ESG score will negatively correlate to the decision of firms to remain in Russia.

3.2.4 Industry (IND)

Used as a control variable to monitor the correlation not only between ESG policies associated with each industry but also the possible effect that the embargos imposed by the EU on specific industries may have led them to leave or stay operating in Russian markets. Tosun & Eshraghi (2022) mention that it is important to consider the type of industries in the division from Remainers and

Leavers to try and draw some conclusions as to whether there is a clustering of specific industries towards one of the decisions, based on the 12 Fama-French industry classification. However, Tosun & Eshraghi (2022) themselves concluded that despite the sectors of Services, Electronics, and Manufacturing making up about 50% of the Remainers list, there was no clear evidence of an already drawn pathway for each industry. As such it is not expected that the industry will demonstrate a significant relationship with the decisions to remain in Russia or leave.

3.2.5 Return on Assets (ROA)

The return on Assets is a financial performance variable that alludes to profitability as it establishes a relation of how profitable a company is in comparison to its total assets and how efficiently companies use their assets to generate a profit and is calculated by the following expression:

$$\text{Return on Assets (ROA)} = \frac{\text{Net Income}}{\text{Total Assets}}$$

The goal of including this variable is to control the different profitability results in the sample since there are a plethora of different industries that, as expected, have different profitability targets within each sector. Prior literature points to the fact that the Return on Assets will be negatively related to the decision of a company to remain in Russia, maintaining their operations unchanged (Basnet et al., 2022).

3.2.6 Financial Leverage (FL)

Basnet et al. (2022) state that financial leverage is a control variable that is used as standard practice, being that it allows one to observe how much of the Total Debt is scaled by the Total Assets, as shown in the following formula:

$$\text{Financial Leverage (FL)} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

The financial leverage used by firms may also have an imminent effect on the consideration for firms to leave aggressor markets, due to once again the embargos imposed by the EU on Russia that crippled the ability of firms operating in this market to obtain credit and as such leverage their position seeking higher returns in the future. Firms that possess a capital structure that is characterized by a big amount of Debt versus Equity, may see their operations hindered or need to change their capital structure to maintain operations to an expected level by shareholders and stakeholders.

3.2.7 EBITDA Margin (EBIM)

The EBITDA margin measures a company's ability to generate cash flow and be profitable at an operational level, as follows:

$$\text{EBITDA Margin (EBIM)} = \frac{\text{EBITDA}}{\text{Total Revenue}}$$

It is used as a control variable due to the imposed embargos that may contribute to an increase in the cost of goods sold and therefore a decrease in the EBITDA margin, despite not being a traditional control variable in the financial literature. Therefore, there is an attempt to clarify if companies with a lower

EBITDA margin, may be forced to leave the Russian markets to attempt to try to flee from this increase in raw material and disruption of their supply chain.

3.2.8 Abnormal Returns (AR)

The abnormal returns assume the role of the dependent variable for the second model and are measured through the difference between the variation in prices during the periods analyzed and the variation in the prices of the corresponding Indexes in which each firm is encompassed. In other words, the firms that are from the United Kingdom see their returns compared to the market benchmark, nominally the FTSE 350, the firms from the United States are matched up in returns with the S&P 1500, and the firms from China are compared to the Shanghai Stock Exchange Composite Index to determine each company's abnormal returns following their respective decision.

$$\begin{aligned} & \textit{Abnormal returns (AR)} \\ & = \frac{\textit{Price}(+x) - \textit{Price}(-15)}{\textit{Price}(-15)} - \frac{\textit{Index}(+x) - \textit{Index}(-15)}{\textit{Index}(-15)} \end{aligned}$$

Chapter 4

Results

4.1 Decision on ESG Strategies

Table 2 presents the regression results for model 1. The dependent variable is the decision dummy variable that accounts for the decisions of continuing to operate in Russia normally or changing the outlook on a company's operations, returning a value of 0 if the decision is to continue operating business as usual and returning the value of 1 if they change their exposure to Russian markets. The main variable of interest in the regression is the ESG score, which reports each of the sample companies' scores on the Environmental, Social, and Governance pillars holistically. The Revenue and Employees variables control for the size of the companies gathered in the sample, while Industry relates to control for the industries in which every company is inserted. The Dummy US variable corresponds to the variable that controls companies that are based in the United States of America, taking up the value of one as such, and if they are based in either the United Kingdom or China, it will take up the value of zero. The Dummy UK variable has the same effect but controls for companies that are from the UK, taking up the value of 1 if true and returning the value of 0 if not. The regression was estimated using the Logit Binary model, with a sample of 239 companies retrieved from the YALE Chief Executive Leadership Institute (YALE CELI, 2022).

Model 1

<i>BIDEC</i>	Coefficient	
<i>constant</i>	2,522	(2,428)
<i>REV</i>	-0,025	(0,017)
<i>EMP</i>	-0,002	(0,018)
<i>ESG</i>	0,040**	(0,019)
<i>IND</i>	0,121	(0,110)
<i>DUS</i>	1,935***	(0,689)
<i>R2</i>	0,479	
<i>N</i>	239	

Table 2- Results for regression 1. Note: *** illustrates for a significance level of 5%; ** for a significance level of 10%; and * for a significance level of 15%.

When looking at model 1 results, there are some discrepancies as to what would be expected according to Heilman (2016), as despite having no statistical significance the control variables revenue and employees present a negative coefficient relating to the decision to leave or stay in Ukraine, postulating that firms of bigger size tend to remain in Russia operating as usual and do not seem to be as vulnerable to consumer boycotts.

The main variable of interest, ESG Score, has a significant and positive relation to the binomial decision to reduce exposure or maintain ties to Russian markets, which means that the higher the ESG score of a company the more likeliness that said company will tend to try and adopt a new strategy regarding their position in Russia. This is consistent with the findings of Basnet et al., (2022).

Furthermore, as expected, the industry portrays no statistical significance in this model, alluding to the fact that the decisions made by companies regarding

their ESG strategies can't be attributed to an industry clustering, where companies that belong in the same sector would follow a decision pattern (Tosun & Eshraghi, 2022).

However, the same cannot be said regarding the location of companies' headquarters, since the regression points to a connection between the country of origin of each company and its willingness to change its operations overseas, as companies that originate from the USA show signs that they are more inclined to flee Russian markets, than remain in them, as well as companies that originate from the UK, which all decided to change their exposure to Russia. The R2 value shows that these factors explain roughly 50% of the variance of the binomial decision of firms regarding their exposure to aggressor markets.

4.2 Abnormal returns

Tables 3 and 4 present the estimated results for the four remaining regressions based on the second econometric model, for the short and long run, respectively. The dependent variable switches to the abnormal returns in this regression models to measure the effects and correlation of the control variables during different periods in time, while also adding some financial control variables, on top of the ones existent in the first model. Furthermore, the main variables of interest for these regressions are not only the ESG score but also the binomial decision to remain in aggressor markets as usual or to change their operations.

As such, four similar regressions were estimated with 4 different periods. The difference within the four regression models consists of the dependent variable, the abnormal returns, that is set for the periods of 15 days, 30 days, 6 months, and 1 year after the date of the full-on invasion of Ukraine, respectively. These abnormal returns register the relative difference between a stock's performance in comparison to the Index of which it is comprised.

	<i>Model 2</i>		<i>Model 3</i>	
	<i>AR15D</i>		<i>AR30D</i>	
	Coefficient		Coefficient	
<i>constant</i>	5,005	(5,195)	8,141	(5,578)
<i>REV</i>	-0,044	(0,031)	-0,048	(0,033)
<i>EMP</i>	0,089***	(0,033)	0,077**	(0,035)
<i>ESG</i>	-0,002	(0,052)	0,079	(0,056)
<i>IND</i>	0,027	(0,265)	0,768***	(0,284)
<i>ROA</i>	0,085	(0,081)	0,076	(0,087)
<i>FL</i>	-0,034*	(0,020)	-0,005	(0,022)
<i>EBIM</i>	0,088*	(0,051)	0,054	(0,054)
<i>BIDEC</i>	-0,834	(4,005)	5,706	(4,300)
<i>DUS</i>	9,816**	(4,568)	-7,637	(4,904)
<i>DUK</i>	7,993	(5,045)	-10,950**	(5,417)
<i>R-Squared</i>	0,089		0,079	
<i>N</i>	239		239	

Table 3- Results for regressions 2 and 3. Note: *** illustrates for a significance level of 5%; ** for a significance level of 10%; and * for a significance level of 15%.

Models 2 to 5 establish the relation between the main variables of interest, the ESG score, and the binomial decision for a company to either change its current ventures in Russia or to remain operating as usual and the impacts of these decisions on the financial markets, through different periods. Despite the similarity between the four models, the results point to the fact the different effects are felt in the short and long run.

Looking more closely at model 2, that concerns the abnormal returns of companies experienced two weeks after the official invasion of Ukraine, on the

24th of February 2022, in comparison to two weeks before the conflict. The results show that in the period between two weeks before and two weeks after the invasion, the two main variables of interest in the model, either the ESG score and the Binomial Decision to remain or change operations, had no significance in the abnormal returns from the dataset of companies. However, variables like the number of employees and the EBITDA margin show a statistically significant and positive relation with the abnormal returns, as it would be expected that larger firms and firms with higher margins can capture higher returns.

Equally, the dummy for companies from the USA, also recorded a positive relation with the abnormal returns, possibly stating that during this period companies from the USA took advantage of spillovers caused by the war, causing them to record higher returns for the period in question, as it also registered the highest coefficient in the model.

The financial leverage recorded, however, significant, and negative relation to the abnormal returns registered by the companies presented in the data sample, which reflects how the embargos targeted more directly the capacity for firms to resort to external financing from financial institutions, causing them to lose market capitalization and subsequently underperform the market benchmark.

However, when looking at the same effect but for the period of 30 days after the invasion the variables that are shown to have a significant effect on the dependent variable, seem to change drastically. In this sense, although the number of employees maintains a positive and significant relationship with the abnormal returns registered, the differences lie in the inclusion of the industry of each company and the Dummy that controls for companies that are headquartered in the United Kingdom, with positive and negative implications on the dependent variable, respectively.

This partially coincides with the literature regarding the pricing of the geopolitical risk premium, since only in the regression that tracks abnormal returns for a period of 30 days after the invasion, do the dummies that control for the origin of the companies reveal negative coefficients, underlining that the coefficient for UK companies presents a larger negative effect than the coefficient of US companies. This is consistent with the geopolitical risk premium effect theory, where countries that are closer to war will experience a market downturn than firms that are more distant to the conflict zone countries (Chițu et al., 2022), being that the regression shows that this effect only manifests itself for 30 days, unlike the 2 weeks reported by the study conducted by the European Central Bank.

The R2 value for these two regressions of 0,089 and 0,079 proves that in the short run after the invasion of Ukraine, there are many other explanatory factors and that in this time of uncertainty, it is difficult for firms to perform a thought-out and definitive decision.

	<i>Model 4</i>		<i>Model 5</i>	
	<i>AR6M</i>		<i>AR1Y</i>	
	Coefficient		Coefficient	
<i>constant</i>	-13,157	(8,170)	10,198	(9,007)
<i>REV</i>	0,033	(0,049)	0,1237**	(0,054)
<i>EMP</i>	0,126**	(0,052)	-0,001	(0,057)
<i>ESG</i>	-0,101	(0,082)	-0,154*	(0,090)
<i>IND</i>	0,772*	(0,417)	-0,349	(0,460)
<i>ROA</i>	0,194	(0,128)	-0,115	(0,141)
<i>FL</i>	0,006	(0,032)	0,071**	(0,035)
<i>EBIM</i>	0,036	(0,080)	-0,010	(0,088)
<i>DBI</i>	-4,404	(6,299)	-0,322	(6,944)
<i>DUS</i>	29,782***	(7,183)	19,195**	(7,919)
<i>DUK</i>	35,427***	(7,934)	20,281**	(8,7471)
<i>R2</i>	0,265		0,243	
<i>N</i>	239		239	

*Table 4- Results for regressions 4 and 5. Note: *** illustrates for a significance level of 5%; ** for a significance level of 10%; and * for a significance level of 15%.*

Models 4 and 5 estimate the relationships between the same variable but in a long-run perspective, so it is possible to differentiate between the different models the variables that have a bigger impact in a short time and a bigger one.

Interestingly, in the long run, the results show that the variables continue to show an unstable, although mostly predictable relation with the dependent variable, the abnormal returns for 6 months and 1 year, after the invasion of Ukraine and subsequent announcement of companies' decisions regarding their position in aggressor markets. The data revealed that the industry of companies played a significant role in obtaining higher returns than the market benchmark,

which is mostly expected when accounting for the fact that companies within specific industries like technology usually outperform the market, within the 6-month time frame. However, when looking at the results from model 5, the industry stops being a significant explanatory variable for the abnormal returns. In this model, both the financial leverage and the ESG score present a significant relation with the dependent variable, despite the first being a positive relation while the second one displays a negative one. It is expected that firms that present a higher financial leverage may obtain higher returns due to an increase in liquidity and the possibility to invest in new projects to yield better returns.

However, the fact that the ESG score demonstrates a negative coefficient towards abnormal returns implies that firms with higher ESG scores, in the long run, tend to underperform the market, which may indicate the narrative that investors are willing to pay a premium for firms who comply to who have good ESG performance and disclosure may only be temporary and that will tend to fade away in the future.

Also, both models show, despite being reflected by two different components that the size of a company, once again, contributes positively to higher abnormal returns, so the bigger the company the higher it is expected for it to outperform the market, in this case, more specifically the Index fund that serves as a proxy for the market returns. Furthermore, the dummies that account for the companies originating from the US, as well as the UK, showed, in the same sense, a positive and significant relation with companies' abnormal returns. It should also be highlighted that both the dummies present in both the long run models, the highest coefficients revealing that their impact on the abnormal returns is of massive proportions.

These findings can be interpreted as the fact that geoproximity may have an important role when considering the consequences of geopolitical conflicts and the effect of the geopolitical risk premium in the financial markets and the

financial performance of firms that are caught between the line of fire, in other words, that hold a stake interest in or have ventures in aggressor markets.

To sum up, the ESG score has a significant role in the decision for companies to stay operating as usual in Russia, or to deescalate their operations, despite not being able to ascertain to a confident degree that it bears any significant weight in what entails the gain of abnormal returns by firms when looking at different periods in time.

The binomial decision to leave or change also could not be held responsible for justifying the abnormal returns made from the period after the invasion of Ukraine, whether in the short or the long run. As so neither the main variables of interest could explain the financial upside or downside realized by the set of firms included in the sample.

However, the data shows that the variables that comprise the control for the size of firms, revenue, and number of employees, are important factors in explaining not only the effects of companies' ESG strategies and their financial performance in the capital markets.

Lastly, the dummy variables that control the origin of companies in the dataset, were also extremely important in capturing the effects of companies' willingness to leave aggressor markets and how these companies were affected in their financial market's performance.

Chapter 5

Conclusions and Limitations

5.1 Conclusions

The topics surrounding the presence and evolution of the ESG framework in the corporate world and the capital markets have taken over the recent financial literature. However, the incorporation of ESG in situations where there is a geopolitical conflict has very scarce information, most of them only very recent studies and papers published, and as such it triggers some limitations in the depth of which this topic can be intricately dissected. Most of the papers that comprise the literature review focusing on merging the concepts of ESG and Geopolitics, use the same dataset of companies, retrieved from the YALE Chief Executive Leadership Institute, 2022.

The analysis performed allowed us to comprehend the difficulty in measuring the real impact that ESG holds within the capital markets and how it remains a problem that there is no way universal way of attributing ESG scores universally. If this trend stands it will be difficult for companies and investors to approximate the theoretical approach of ESG and turn it into a financial tool that can be as easily quantifiable as any other financial metric, that can shed some light about a company's performance.

The Environmental, Social, and Governance pillars are viewed as a hedging tool for companies to be prepared to deal with macroeconomic and geopolitical events that may increase volatility in the financial markets. Therefore, the aim is to perceive if a company that complies with ESG norms can protect itself from adverse market conditions caused by the invasion of Ukraine and if so, there is a premium that investors are willing to pay for companies to pursue ESG strategies.

On the other hand, it seemed important to also test the commitment of companies to their ESG strategies, since the war on Ukraine applied a lot of pressure on companies that operated in Russian markets, making them scarce of resources when trying to leverage themselves or obtain liquidity from the banking sector added on top of the embargos already imposed by the European Union.

Firms had to reassess their ESG strategies at a time when making the wrong decision could prove very costly, as the market backlash could take a serious toll on firms' market performance. The options for firms were clear, they could disregard the current events and remain operating as usual as they were not considering losing the amount of revenue generated from Russia, and risk their chances with the consequent market reaction, considering their previous ESG policies' compliance. The remaining option consisted of reshaping their view on operating in aggressor markets and retracting their investments, causing them to cut their revenues coming from that geographic segment and expect to regain some of the lost cash flow in the financial markets and prevent boycotts in other geographic segments, due to the improvement of investors' confidence, and as such generating a dilution effect that mellows out the decrease in the ability of the firm to generate sales.

The results show that the ESG score of companies has a significant impact on their decision to remain or retract from aggressor markets, which is corroborated by prior literature of Basnet et al. (2022) and met expectations on the behavior of firms regarding their ESG strategies. As such, firms that presented a higher ESG score will always lean into reshaping their exposure to Russian markets, while companies that notoriously displayed weaker ESG scores will most likely opt to maintain their ties to Russia unchanged.

Regarding the effects of the geopolitical risk premium on the financial markets, it provided evidence that they effectively influence the performance of

firms, proxied by the abnormal returns, the closer a country is near to the conflict zone and that it only has an effect on a short time, despite the findings pointing to a longer time frame for this time of risk premium to reveal itself in full effect, than the 15 days described by (Chițu et al., 2022). The recorded time for this effect was 30 days to manifest itself, fading away in the future, to the point where the analysis for six months after the beginning of war doesn't record any negative influence of the proximity to the war zone either for firms in the UK and the US and, in fact, measuring a positive coefficient and significant relation to positive abnormal returns.

Furthermore, neither the ESG score of firms nor the decision regarding the effects of war on ESG strategies seems to have a significant relation to either positive or negative abnormal returns registered for the different periods in question, which contradicts the theory presented by Tosun & Eshraghi (2022), where they postulated that firms that remained underperformed the leavers and the market benchmark. The possible explanation for this might have to do with the fact that ESG is already the norm to follow in financial markets, and as such there are no abnormal returns to be gained at the time of writing.

However, there is an exception for the abnormal returns for the 30-day period, where the geopolitical risk premium effect was in full display and where the ESG score recorded a positive and significant relationship to outperforming the market. This effect points to the fact that companies that present higher ESG scores are more shielded from market downturns and high volatility caused by the geopolitical risk premium, and as previously mentioned in the literature, the ESG framework adds value to companies by serving as a risk that needs to be hedged.

Lastly, the fact that the ESG score and decision of firms to remain or change strategies do not seem to influence companies' abnormal returns, except for when the geopolitical risk premium has an effect is consistent with our

estimations and previous findings. If a company decides to leave Russian markets then it is expected that it will lose revenues and consequently worsen its market performance, but despite that, the market considers it to be a good practice to guarantee and conserve the remaining revenue accrued from other geographical and market segments, investors are willing to pay a premium for companies' sustainable finance decisions, justifying the fact that the abnormal returns remain unchanged in a significant manner.

5.2 Limitations and Future Research

As it is a subject that is still massively under-researched due to it being very recent, the control variable pool for similar studies was extremely limited and as such it difficulted the canvass for the most optimal and tested variables that could serve as the standard for the event study. The sample of companies used also presented some limitations, since the companies that could be selected to match the criteria for selection only represented 3 countries, which makes it difficult to ascertain the effects of the geopolitical risk premium meaningfully and truthfully as well as the fact that it was not possible to include a plausible measure of exposure to Russian markets as a control variable due to lack of information from the database provided. As a matter of fact, the dataset was a bit shallow and as a result, all the companies from the United Kingdom that complied with the parameters to be included in the data sample had decided to either partially retract or fully withdraw from Russia, which makes it difficult to achieve better depth in the results.

Furthermore, as there was not a single measure capable of determining the size of companies reliably, there was the need to use two separate variables as control for the size, namely, revenue and number of employees. As a result, there were some collinearity issues between these two variables that were slightly

overlooked due to the fact it does not impact the goodness of fit of the model (See Appendix B). Despite this, the results majorly supported the financial literature's prior findings.

Since there was no possibility of obtaining the percentage of revenue from each company that derived from their presence in Russia, it is something that could in further research help to better explain the decision of companies to either remain or retract from Russian markets and to what extent the premium paid by investors can cover a significant loss of cashflow, due to the abandonment of that geographic market. Finally, it would also be worth noticing to perhaps look into the reason that larger-sized firms decided to continue operating in Russia, despite the higher magnitude of backlash that they are subject to globally.

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Appendix

Appendix A: Companies eliminated from the dataset

<i>Reason for elimination</i>	<i>Company</i>
<i>Invalid ESG Score</i>	Ametek
	Aviva
	Citrix
	Colgate-Palm
	Delta Air Lines
	Domino's Pizza
	Expedia Group
	Fleetcoor Technologies
	Kontoor Brands
	McDonald's
	Meggitt
	Oracle
	Twitter
	Victoria's Secret
	Minmetals Development
<i>No Debt Capital Structure</i>	Align Technology
	Columbia Sportswear
	Deckers Outdoor
	Garmin
	Heidrick & Struggles
	Shutterstock
	Sonos
Take Two Interactive	

Appendix B: Correlation matrix of independent variables

	REV	EMP	EBIM	ROA	FL	ESG	BIDEC	IND	DUS	DUK
REV	1,0000	0,9302	0,3357	-0,0844	0,7090	-0,2639	-0,4193	-0,0414	-0,3087	0,0034
EMP		1,0000	0,2790	-0,1289	0,6485	-0,2763	-0,4328	-0,0624	-0,3486	0,0346
EBIM			1,0000	-0,0736	0,2721	-0,0701	-0,0013	0,0041	0,0197	0,0152
ROA				1,0000	-0,0635	0,0749	0,0986	0,0438	0,1867	-0,1438
FL					1,0000	-0,2374	-0,2500	-0,0524	-0,1560	-0,0585
ESG						1,0000	0,2644	0,0814	0,0301	0,2007
BIDEC							1,0000	0,0813	0,4319	0,1160
IND								1,0000	-0,0721	0,1202
DUS									1,0000	-0,7462
DUK										1,0000