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INTRODUCTION

On May 16, 2022, following the full-scale Russian invasion of Ukraine, an American multinational fast food chain McDonald's announced its exit from the Russian market: "…we have a commitment to our global community and must remain steadfast in our values. And our commitment to our values means that we can no longer keep the Arches shining there" [39]. In 1990, the restaurant's opening in the Soviet Union was perceived symbolic [47], marking the end of the Cold War and the beginning of an era of free trade capitalism. In the subsequent decades, however, the world has shifted from liberal optimism back into the world of geopolitical conflict [26], propelling businesses to adapt to political uncertainties by engaging in corporate political activity. The impact of these activities on company performance, especially in the current geopolitical climate, is yet uncertain.

Topic relevance. Corporate political activity (CPA) in the context of the Russo-Ukrainian war is a novel and actively growing research field. Understanding the origins and outcomes of self-sanctions as a type of corporate political activity may help business leaders make better strategic decisions, manage risks and improve competitiveness, while cooperating with a wide range of domestic and international stakeholders.

Research object: firm performance outcomes of corporate political activity.

Research subject: the impact of corporate political activity in the form of voluntary divestment from Russia (self-sanctions) on stock returns and net income.

Methodology. To better capture the broad concept of "company performance" and measure outcomes of corporate political activity in response to the Russo-Ukrainian war, two methodological approaches are developed: an event study of stock returns and a difference-in-differences model of annual net incomes.

Research goal: to capture how the corporate political activity of voluntary exit from Russia in response to Russian war escalation in Ukraine affected financial performance of companies in terms of stock returns and net incomes.

Research tasks are reflected in the **structure** of the thesis:

1.1. Review the theoretical origins of CPA;
1.2. Review the studies of company performance outcomes of CPA, including those in response to the Russian full-scale invasion of Ukraine;
2.1. Select the data needed for analysis;
2.2. Develop the event study methodology to calculate abnormal stock returns after announcements of exit from Russia of American, Japanese, and Finnish firms across multiple industries, over up to two years since announcement;
2.3. Develop the difference-in-differences (DiD) model methodology to calculate the difference of annual net income attributed to the decision to exit Russia, taking into account firms' region, industry, number of local subsidiaries in Russia;
3.1. Execute the event study and check the results for robustness;
3.2. Execute the DiD model and check the results for robustness;
3.3. Synthesize the results and make conclusions about the CPA impact on company performance in the context of the Russo-Ukrainian war.

Novelty: analysis of multiple and longer time periods, multiple countries and industries; performance impact discussed though synthesis of stock returns and net income.

The results of this work suggest that CPA tends to be negatively perceived by the market initially. Over time, CPA impacts firms differently, depending on country and industry of operation, in some cases significantly improving market performance. In times of crisis, CPA can help firms partially alleviate financial losses in terms of net income.

Keywords: corporate political activity (CPA), company performance, firm performance, self-sanctions, Russo-Ukrainian war, corporate geopolitical responsibility

CHAPTER 1
CORPORATE POLITICAL ACTIVITY: LITERATURE REVIEW

1.1 Theoretical Discussion of Corporate Political Activity

Corporate political activity (CPA) is a non-market corporate strategy that, at its core, involves corporate attempts to influence government policy [30]. However, the realm of CPA has been expanding with an increasing number of tools and stakeholders, as firms have used CPA to boost competitiveness, tackle environmental, social, governance (ESG) concerns [4], and, in the recent years, to deal with increased geopolitical uncertainty [2].

CPA is often mentioned in relation to, or synonymously with, related non-market strategies, such as corporate social responsibility (CSR), corporate social advocacy, corporate activism, political CSR, corporate diplomacy and corporate geopolitical responsibility. CSR is known for the integration of social and environmental concerns in business operations and stakeholder relations [49]. Corporate activism and corporate social advocacy extend beyond CSR, with corporate activism involving declarations of controversial political, either progressive or conservative, stances [6]. CPA is seen as a more radical extension of CSR, defying consensus in order to drive social change [6], emphasize the foremost commitment of the company to their corporate values [38], or, according to a more pragmatic and often-cited definition, to develop the firm's political capital in order to "control the firm's external environment in a way that is favorable to the firm and to reduce uncertainties" [52, p. 3359].

CPA and CSR are not mutually exclusive and can be related in different ways: conducted separately and independent of each another, reenforce each another, substitute each another and so on, depending on the firm's institutional context (i.e., the extent to which

the firm is dependent on government for resources and legitimacy, and the number of institutions the firm is responsible to) [52]. As CSR and CPA become more complex and intertwined, Sun et al. propose a broader concept to combine the two and encompass firm interactions with both its social and political stakeholders – corporate socio-political engagement (CSPE) [46].

In the context of multinational corporations, which have to constantly interact with a variety of international stakeholders, arises the concept of corporate diplomacy, defined by Ertem-Eray and Ki as "public relations efforts in the host country, aiming to enhance their business prospects, foster relationships with foreign publics, and support their home countries' national interests" [15]. This definition acknowledges that corporate diplomacy involves the pursuit of strategic business goals as corporations become political agents. In the recent decades, propelled by increased geopolitical risks, CPA has been transcending national borders, becoming a multi-level, transnational activity [9]. Thus, recent scholarship traces the emergence of a further evolution of CPA – corporate geopolitical responsibility [38], which fully recognizes corporations as actors on the international political arena.

The concept of CPA has been explored through various theories, most notably: resource dependency theory and the resource-based view (focusing on firms' resources and development of competitive advantage through CPA), institutional theory (studying the influence of institutional environments on CPA), stakeholder theory (influence of stakeholder interactions) and collective action theory (impact of collective action problems on CPA) [33]. The concept of social capital has been widely used to explain the function of CPA [43]: companies employ political strategies to build their informal network, gain political connections, thus securing access to much needed resources, most of all – "risk reduction and superior competitive advantage" [43, p. 278]. In developing economies with weaker market-supporting institutions CPA (especially in terms of political connectedness) seems to be more effective, stressing the decisive role of the institutional environment in corporate political strategies and outcomes [43]. Following this logic, by employing CPA

companies take a proactive approach to fill in institutional gaps. Identifying the "institutional voids" and proactively responding to them by developing appropriate CPA seems to be essential for businesses in emerging economies [31].

CPA can involve various strategies, resources, and actors. Rajwani and Liedong distinguish three types of CPA strategies: financial, relational, and informational [43]. Financial strategies are contributions from the company to political entities (parties, politicians); relational strategies involve establishing formal and informal connections with politicians; and informational strategies encompass lobbying, petitions and other types of communication directed at government agencies to shape their decisions [43]. One aspect of CPA that is not considered in the study by Rajwani and Liedong [43] but can be viewed under the umbrella of informational strategies is corporate activism, which is explored by Blanco et al. [6]. Corporate activism is therein understood as companies aiming to change attitudes and behaviors in the wider society in regards to social, political, economic issues [6]. The review by Gorostidi-Martinez and Zhao can contribute to this typology by including such corporate political strategies as grassroots mobilization, advocacy advertising, political education programs [27]. They also find that corporate political strategies can be short-term (transactional) and long-term (focused on building lasting relationships, i.e. social capital); political strategies can be undertaken individually by the firm or collectively with other firms; a company can pursue a political strategy in different roles: as a free rider, a follower, a leader [27].

CPA has been gaining prominence as tensions escalated among countries around the world – the so-called "return of geopolitical risk" [26]. Besides the growing global security risk, an ongoing resurgence of populism worldwide poses challenges for businesses, as they struggle to develop long-term plans while dealing with the rise of protectionism, global logistical disruptions, populist fiscal and monetary policies [44]. Global instability disrupts the free trade system, as governments turn to geoeconomic tools (e.g., sanctions and other trade barriers) [14]. In this volatile environment enterprises move from "business as usual"

to CSR and increasingly towards corporate geopolitical responsibility in order to proactively adapt to the contemporary geopolitical risks.

The shift towards more widespread and far-reaching CPA in the recent decade is illustrated by the contrast between the weak reaction of the business community to the Russian invasion of Ukraine in 2014 and the corporate condemnation of Russia in 2022 [38]. The geopolitical distance of trade has been shrinking since 2017 [24], and the voluntary exit of Western corporations from Russia can be seen as part of that trade reconfiguration, a "friend-shoring of supply chains to a large number of trusted countries" [3], where business community is called to action on par with governments and international organizations to manage the ever-increasing geopolitical risks. The emerging trend of corporate geopolitical responsibility is explored in the context of the Russo-Ukrainian war by Mavretić and Vangeli, who find that companies in 2022 exited from Russia not just to reduce uncertainty and abide by international sanctions, but moved far beyond the requirements of sanctions, as if imposing "self-sanctions" on themselves [38; 11]. Businesses today may need to affirm themselves as responsible geopolitical actors in order to legitimize their operations [38]. As best illustrated by the drastically different responses of American and Chinese corporations to the 2022 attack on Ukraine, corporate political statements and actions largely depend on the company's geographical location, suggesting that corporations declare their alignment with their country's political position – potentially, to safeguard access to resources and ensure favorable regulation [15].

At the micro level CPA is not necessarily driven by political convictions of corporate decision-makers. Stakeholder pressure seems to play a key part in shaping a firm's (geo)political stance. Most of the responses of the Global Fortune 500 companies to the Russian invasion were soft, avoiding a specific condemnation of Russia, emphasized humanitarian concerns, and addressed a variety of key stakeholders [50]. In German corporations, pressure from external and internal stakeholders, especially the employees, played a key role in shaping the responses to the Russo-Ukrainian war escalation [8].

Findings of Deumic and Palmqvist confirm the decisive role of stakeholder influence following the full-scale invasion of Ukraine in indirectly impacted companies; yet, in directly impacted companies the external factors seem to diminish stakeholder influence [12]. However, stakeholders' pressure may be slightly more pronounced in companies that are most severely directly impacted by the war [12]. Yet, companies with stronger ties to the Russian market (more employees, taxes paid, revenues earned, assets based in Russia etc.) were more likely to divest from Russia later, suggesting that self-interest (specifically, aversion to the prospect of considerable financial loss resulting from divestment) prevailed over ethical considerations in firm strategic decision making [42].

In short, CPA is a non-market strategy concerned with the political environment within a firm operates. It has been long used to secure access to resources, build competitive advantage, and reduce risk, especially in uncertain regulatory environments. In the recent years, CPA has been becoming more international, in response to new geopolitical risks.

1.2 Corporate Political Activity and Firm Performance

CPA can result in a wide range of financial and non-financial outcomes, directly or indirectly affecting the company's short-term and long-term value. Rajwani and Liedong examine stock market performance, operating performance, policy performance and find five types of firm performance outcomes resulting from CPA in literature: access to finance (e.g., firm's interest rates), trade expansion (sales), operating performance (ROA, ROE, other financial indicators from annual financial reports), stock performance (cumulative abnormal returns, cost of equity), policy and quasi policy performance (government contracts, bailouts, subsidy decisions etc.) [43].

CPA is known to reduce risk. Based on the portfolio of US stocks listed on New York Stock Exchange, Blanco et al. compare the companies who, from 2014 to June 2022,

engaged in corporate activism to those companies that did not, finding that the activist companies are associated with lower market risk [6].

CPA has been recognized for securing competitive advantage of firms. Dean and Brown, based on a sample of US manufacturing firms, suggest that manufacturing firms may benefit from promoting environmental regulation to increase the amount of capital required for initial investment, thus preventing market entry of new competitors [10]. Adomako et al. find that CPA promotes competitiveness in African and Asian firms, possibly thanks to better access to information, which plays a crucial role in emerging markets [1]. Frynas and Mellahi investigate the Nigerian oil industry and find that firms dealing with political risks can secure competitive advantage by dealing with high political risk and actively engaging with their wide network of stakeholders in order to manage this risk [21]. However, the competitive benefits of CPA seem to be most useful to vulnerable firms, whereas for stable firms it is not as effective [34].

CPA has been found to encourage innovation. Li et al., based on a sample of Chinese listed companies, find that CPA positively affects innovation performance – possibly thanks to more secure access to resources [35]. Notably, they also find that a stronger CSR engagement weakens the positive innovation impact of CPA, potentially due to these strategies following different logics and pulling resources from one another [35]. CPA has shown to stimulate radical innovation in the pharmaceutical industry [36].

A recurring theme in the study of CPA outcomes is that they are highly dependent on specific context. Werner [51] and Minefee et al. [40] utilize the event study methodology to measure the abnormal stock returns in reaction to the reveal of covert CPA in terms of financial contributions to political organizations. The earlier study found that the market reacted positively to the information revealing firms' contributions to a certain right-wing organization [51], whereas the later study replicating and extending it found that, in case of contributions to a different right-wing political organization, the market reacted negatively [40]. Minefee et al. tie this discrepancy to the different reputations of the two political

organizations: the market reacts positively to firm affiliations with reputable political causes, viewing it as adding valuable social capital, and affiliations with less reputable causes are seen as additional risk [40]. They also find that the market reaction to CPA is more negative if it is inconsistent with the political views of the employees, highlighting the role of internal stakeholders, and that companies with more previous CSR activities incur less negative impact [40].

In a systematic review of the relationship between corporate political strategies and firm performance in international contexts, Rajwani and Liedong found that CPA, in general, affects performance of companies positively, although with notable exceptions mostly in developed economies, where CPA has been found to affect firm performance negatively or have no impact [43].

Many studies point to negative outcomes of CPA. A meta-analysis by Hadani et al. review 93 US studies on the impact of CPA, focusing on explaining the mixed and negative firm outcomes [29]. Their analysis points to mostly weak impact of CPA on firm financial performance, although they recognize that the results are context-dependent, and in certain contexts CPA can be beneficial [29]. They suggest that adverse effects of CPA on firm performance are associated with high influence uncertainty (high uncertainty regarding the likelihood of achieving the preferred public policy as the result of CPA) and high public policy impact uncertainty (incorrect prediction of the effect of such policy on the firm) [29]. Therefore, firms should carefully assess the uncertainty in political environment, specifically regarding achieving desired policy outcomes and their impact on the company, before executing corporate political strategies.

In light of the current global geopolitical crisis and, specifically, the Russo-Ukrainian war, the phenomenon of self-sanctions has emerged and attracted attention of financial researchers. The act of “self-sanctioning” (i.e., voluntarily exiting the Russian market) is a particularly interesting instance of CPA, since it seems to go against the logic of profit maximization, making its impact on company performance a pertinent research question. A

study investigating the stock price reaction to announcements of divestment from Russia employed the event study methodology and found that such CPA was mostly followed by a negative market reaction, especially for companies that decided to fully withdraw from Russia and for those that made their divestment announcements earlier; yet, in the following two weeks, the companies tend to recover their losses [25].

Patel and Richter, based on a sample of 206 US firms and their financial data from September-October 2023, find no significant effect of Russia divestment on firm profitability, risk, cost of capital, and liquidity [42], which may indicate financial resilience of ethical firms or the existence of unexplored, possibly more long-term, effects on such firms.

Ganesan and Mallapragada investigate the consumer reaction to divestment from Russia based on a sample of US public companies and find that companies that announced exit from Russia received higher levels of net brand buzz (the proportion of positive discussion about the brand on social media), brand consideration (the likelihood of consumers choosing the brand), and purchase intent (the likelihood of consumers completing the purchase) during the eight-week period after the divestment announcement than during the previous eight-week period [22]. The positive consumer mindset effect was especially pronounced for companies with a strong ESG reputation, which aligns with the findings of Minefee, who found that prior engagement in CSR activities alleviates the negative market reaction to CPA [40]. They also uncovered that the companies that made their exit decisions following other companies received higher levels of net buzz than the early decision makers [22], suggesting that being a follower rather than a leader in corporate political activity might reduce risks and lead to better firm outcomes, which is consistent with earlier findings [25].

Overall, CPA seems to yield best results for companies in crisis or in an uncertain environment. CPA can help companies alleviate risk, become more competitive and innovative. However, highly sensitive to specific political contexts, CPA can also lead to financial losses. As a currently evolving phenomenon with global economic implications,

CPA in the form of self-sanctions warrants further exploration, which is attempted in the next chapters of this work. Unlike the previous studies on the topic, the next sections of this thesis will empirically explore the impact of CPA in terms of stock returns and net income over a longer timespan, taking into account country and industry variations.

CHAPTER 2
CORPORATE POLITICAL ACTIVITY: METHODS AND MATERIALS

2.1 Self-Sanctions Dataset Overview

As mentioned in the previous chapter, the impact of corporate political activity on company performance in this thesis will be investigated through the phenomenon of corporate self-sanctions, which gained global prominence since the full-scale invasion of Ukraine in 2022. Divestment from Russia in this context is as an instance of CPA.

The dataset of companies for further study is sourced from the KSE Institute "SelfSanctions / LeaveRussia" database, updated as of January 19, 2025 [32]. The database tracks the status of foreign companies' divestment from (or continuing involvement in) Russia since the 2022 full-scale invasion of Ukraine, compiling information from multiple relevant sources, as well as providing more information on the companies' operations in Russia (number of staff, revenue, assets etc.), making it the most comprehensive publicly available database on the topic. The dataset is mostly focused on multinational companies operating in Russia with at least around $100 million in global revenue, of which at least around 1% coming from Russia [45]. Among other information, the dataset contains the date of initial status update ("announcement date"), country of headquarters, number of local companies identified in Russia, and industry, which will be used for analysis.

The KSE database follows a four-category system to classify the extent of companies' involvement in Russia, ranging from "business as usual" to complete exit from the country: staying, waiting, leaving, and exited. The full database, as of January 19, 2025, contains a total of 4103 companies from 108 countries, with 467 (11%) of the firms exited, 1360 (33%) are leaving, 2235 are staying (54%), and 41 (1%) unidentified.

Further analysis in this thesis consists of two methodological components: an event study and a difference-in-differences (DiD) regression model, for which two different subsets of data were prepared based on company selection by the KSE database status. Stock market data and financial statement information of the selected companies was extracted with the help of Financial Modeling Prep API (FMP API) software, from the US SEC EDGAR website, and some data was sourced through a Web search (see Table 2.1).

Table 2.1 – Overview of data selection

	Event study	**Difference-in-Differences (DiD)**
Sourced data	From the KSE database: • Companies with KSE status "exited", "leave" and "wait" • Initial status update dates ("announcement dates"); Industry From FMP API: • Daily adjusted close prices From Web search: • Historical close prices of S&P500 Index [37], Nikkei225 [18], OMX Helsinki Benchmark CAP_GI (OMXHBCAPGI) [19]	From the KSE database: • Companies with KSE status "exited" and "leave" vs. companies with KSE status "stay" • Country of headquarters; Industry; Number of local subsidiaries From FMP API or, if unavailable, from the US SEC EDGAR [48]: • Net income, Assets, Goodwill
Limitations	Only public companies listed on stock exchanges in the United States (S&P 500), Japan, and Finland, with financial data accessible	Only public companies listed on stock exchange, with financial data accessible

Table 2.1 continued

Period	2022-2024 (90 days before and 750 after initial status update of each company)	2019-2024
Number of observations	75 535 daily observations in total, from 132 companies	1206 annual observations in total, from 201 companies, unbalanced (contains missing entries)

Source: summarized by the author

The logic underlying the data selection will be explained further in the methodological sections of this work.

2.2 Event Study Data and Methodology

Event study methodology is aimed to capture the impact of specific events on share prices and is often used in studies exploring the implications of corporate political activity [51; 40]. This methodology has also been used for investigating corporate exit from Russia since the Russian invasion of Ukraine [25], proving the method's relevance. In this thesis it is attempted to build upon the existing event studies of self-sanctions by incorporating a longer observation window, multiple countries and industries into analysis. The calculations and visualizations for the event study will be performed in RStudio (R version 4.2.1).

The following event study is focused on "activist" companies, meaning the firms that announced their exit from Russia. Those companies are selected by eliminating those with "digging in"/"remain in RF" status by KSE from the dataset. A total of 132 "activist" companies (96 from the US, 22 from Japan, and 14 from Finland) were selected for further analysis. The goal is to measure how the announcement of divestment from Russia affected

the stock market performance of companies. Country and industry comparison, and market performance will be incorporated into analysis (see Table 2.2).

Table 2.2 – Event study variables overview

Variable	Description
ticker	Company identifier (stock symbol)
adjClose	Adjusted close price
date	Date
ad	Announcement date (date of "activist" companies announcing exit from Russia)
n	Number of days since announcement date (from 90 days before to 750 after initial status update of each company)
return	Return of close price
market_r	Market return – close price return of market indexes (S&P500, Nikkei225, or OMXHBCAPGI)
non_act_r	Non-activist return – close price returns of "non-activist" companies within S&P500 (i.e., S&P500 companies not on the "activist" list)
country	Country of company listing: US (United States), J (Japan), or F (Finland)
ind0	Industry of a company
ind	Industry group – specific industries in ind0 clustered into larger groups: Tech (technology & IT), CG (consumer goods & retail), Tr (transport & automotive), Prof (professional services), Indust (industrial & manufacturing), Util (utilities), Entmt (entertainment & media), Hspt (real estate, hospitality & tourism), H (healthcare & pharma), Agr (agriculture).

Source: summarized by the author

Companies from three geographically distant countries were selected. Adjusted close price, rather than simple close price, was chosen as the basis for further analysis, since

adjustment takes into account various corporate actions affecting the stock price (e.g., dividends, stock splits etc.), eliminating irrelevant price distortion and making the data more appropriate for historical analysis [23]. Dates are selected to correspond to 90 days before and 750 days after the announcement date of each company. The longer the event window, the more new information is absorbed by the market, so, naturally, all price movements of a stock over time are not solely attributed to the CPA announcement. Here it is assumed that at least a degree of influence of the decision to exit Russia on a firm's stock price may persist long-term, reflecting the firm's market position, strategic direction, operational or other characteristics that have led to the decision to engage in CPA. Most companies in the sample (69%) announced their exit from Russia on March 31, 2022. Returns are calculated simply by subtracting the previous price from the current price and dividing the difference by the previous price. The returns are concentrated around zero, with noticeable outliers among US-based companies (see Figure 2.1).

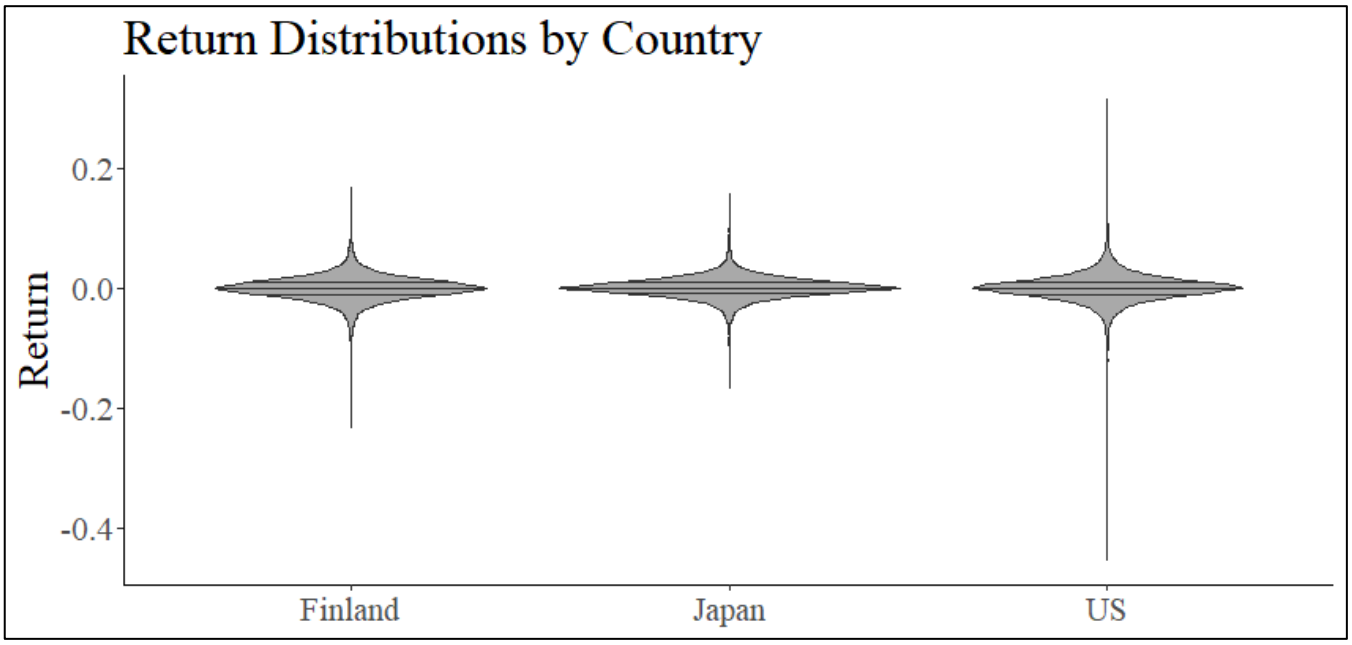

Figure 2.1 – Stock return distributions of "activist" firms by country

Source: created by the author

Larger industry groups ("ind" from "ind0") were created to limit the number of categorical variables, facilitating computation. Industry composition of the prepared sample by country is illustrated in Figure 2.2:

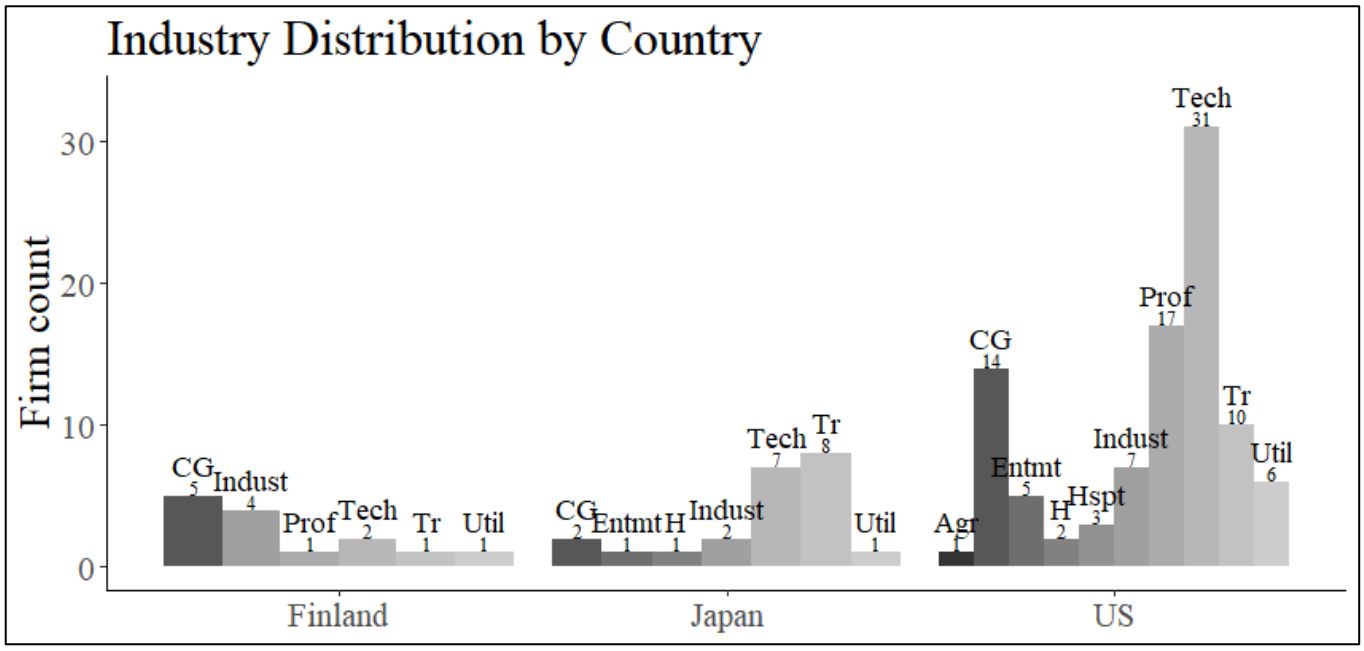

Figure 2.2 – Distribution of "activist" firms by industry & country

Source: created by the author

For the S&P500 (US) stocks, the S&P500 index return is the market return. Nikkei225 returns are taken as the market returns for the Japanese stocks, and OMX Helsinki Benchmark CAP_GI returns are the market returns for the Finnish stocks.

The general underlying trend of sampled returns over time can be captured via a generalized additive model (GAM) with a penalized cubic regression spline [16]. GAM plotting average returns of "activist" S&P500 companies against the average return of "non-activists" reveals a slight underperformance of "activist" firms in the beginning of 2022 turning into slight overperformance compared to the "non-activists" later on (see Figure 2.3).

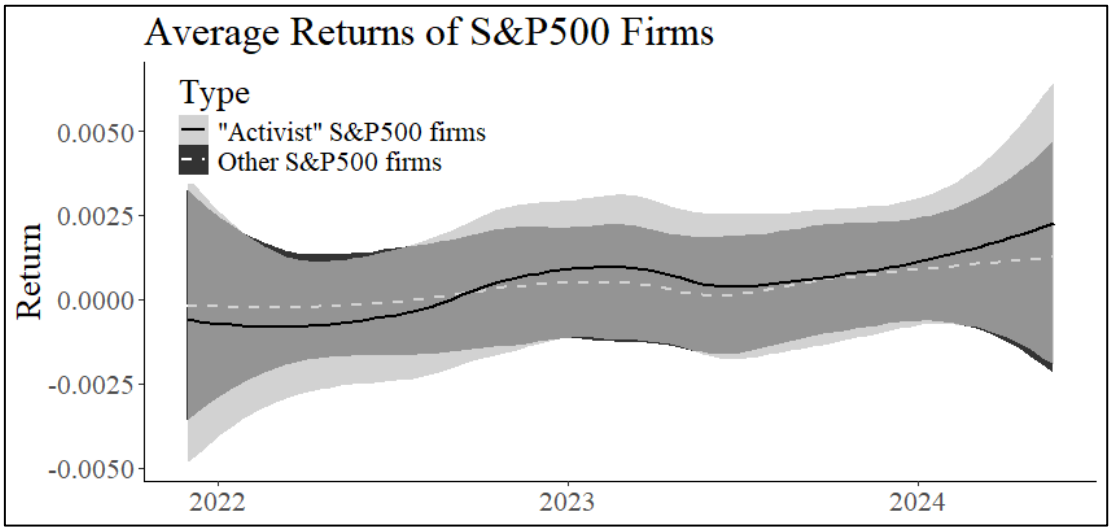

Figure 2.3 – Stock return trends (generalized additive model) of "activist" vs "non-activist" companies in S&P500 over time

Source: created by the author

This visualization hints that companies might indeed have used CPA to tackle their increased vulnerabilities in that period, resulting in later performance improvement. However, the preliminary evidence is far from definitive, calling for further investigation through the event study.

At the core of the event study attempted in this work is the hypothesis that the announcement of exit from Russia, as an expression of CPA, had an effect on stock performance of "activist" companies. To measure that effect, stock prices before the event (during the estimation window) are examined, and expected future returns (during the event/observation window) are calculated based on that past data. There are multiple approaches to calculating the expected return within the event study methodology. In this thesis, the widely used market model [41] is chosen (see Equation 2.1):

$$ER_{i,n} = \alpha_i + \beta_i \cdot Rm_n + \varepsilon_{i,n}\,, \qquad (2.1)$$

where $ER_{i,n}$ is the expected return of ticker *i* at *n* days since announcement;

α_i is the intercept, reflecting the average stock return not associated with the market;

β_i is the coefficient capturing the stock's sensitivity to the market movements;

Rm_n is the market return at *n* days since announcement;

$\varepsilon_{i,n}$ is the residual term.

Estimation window of n ∈ [-90; -5] is selected. Multiple observation windows are explored, from n ∈ [0;1] and to up to n ∈ [0; 750]. The estimation window is significantly smaller compared to the observation window. A narrower observation window was chosen due to limited predictive capacity of past returns in the fast-changing market environment at the beginning of the Russian invasion of Ukraine in 2022.

Following the market model presented above, the return of a stock is expected to be largely in line with the market. The difference between the expected return based on past data (predicted by the market model in Equation 2.1) and the actual return after the announcement (*return*) is the abnormal return (*AR = return – ER*), and it is assumed to be resulting, at least in part, from the announcement. Since the abnormal returns of multiple stocks are found, average abnormal return (*AAR*) is calculated for each day since announcement (*n*). To evaluate the cumulative effect of the announcement on stock prices over a period of time, cumulative average abnormal return (*CAAR*) is calculated by summing up the abnormal returns over time.

Thus, positive *CAAR*s of "activist" companies after their announcement of divestment from Russia would capture stock price gains associated with CPA, while negative *CAAR*s would, vice versa, represent price losses. The results of this event study will be reviewed and robustness-checked in section 3.2.1 of this thesis.

2.3 Difference-in-Differences (DiD) Data and Methodology

To complement the study of stock market performance of "activist" companies described in the previous section, other aspects of company performance will be investigated using a different methodological approach – a difference-in-differences (DiD) model. Here, financial performance of "activist" companies (i.e., firms with the KSE status "exit"/"leave") will be compared to financial performance of "non-activist" companies (KSE status "stay"). A stricter definition of "activist" than in the event study is used here to isolate pure cases in each group and limit overlapping characteristics between them as much as possible. The aim of using the DiD method in this thesis is to locate meaningful differences in terms of financial performance (by financial statement data) between the corporate "activists" vs. "non-activists" since when the "activists" engaged in CPA. The results of the comparison will, presumably, shed light on how corporate political activity is associated with financial performance of firms.

The DiD model will be executed using EViews 8 software; data visualizations and some statistical tests will be performed in Python. The variables considered in the model design are outlined in Table 2.3.

Table 2.3 – DiD model variables overview

Variable	**Description**
TICKER	Company identifier (stock symbol) – same as in Table 2.2
STATUS	Activist status (dummy variable, where exit/leave = 1, stay = 0)
YEAR	Year of financial reporting, from 2019 to 2024
POST	Post – dummy variable for data since 2022: 1 if year ∈ [2019, 2021]; 0 if year ∈ [2022, 2024]

Table 2.3 continued

IND	Industry group, same as in Table 2.2: Tech (technology & IT), CG (consumer goods & retail), Tr (transport & automotive), Prof (professional services), Indust (industrial & manufacturing), Util (utilities), Entmt (entertainment & media), Hspt (real estate, hospitality & tourism), H (healthcare & pharma), Agr (agriculture)
REG	Region (country groups) of company headquarters: USA, GB (Great Britain), EUR (Europe: Ireland, Germany, Netherlands, Sweden, Switzerland, Czech Republic, Norway, Italy), CAN (Canada), BR (Brazil), AUS (Australia), Asia (Japan, China, Taiwan, South Korea, India, Israel)
LOCALSUB	Number of subsidiaries in Russia
NETINCOME	Net income from income statement, in USD million
ASSETS	Total assets from balance sheet, in USD million
GOODWILL	Goodwill from balance sheet, in USD million
ROA	Net income to assets ratio
GA	Goodwill to assets ratio

Source: summarized by the author

A total of 201 companies were selected: 152 “activists” (status = 1) and 49 “non-activists” (status = 0). As mentioned before, in this part of the thesis two polarities (exited/leaving companies vs. “business-as-usual” companies from the KSE database) are investigated, eliminating in-between cases. Net income is the target financial performance indicator in the model, since it is a fundamental financial metric reflecting the actual profitability of a company after taxes, which can reflect the firm’s position in its regulatory environment, making it more relevant in the context of CPA than revenue or operating income. A higher number of subsidiaries may signify higher extent of involvement in Russia, potentially implying greater losses from corporate political activity. Industry and region

control variables are aimed to capture inter-industry and inter-region variations. Including assets as control variable will help take company size into account. Companies with high goodwill might ascribe greater value to their reputation, have a more loyal customer base etc., which may also influence the outcome of corporate political activity on firm performance. ROA and GA ratios serve as more normalized measures of assets and goodwill.

Before proceeding with model execution, the prepared dataset has been examined for statistical characteristics that can be relevant to the design and interpretation of the model (see Figures 2.4 – 2.7).

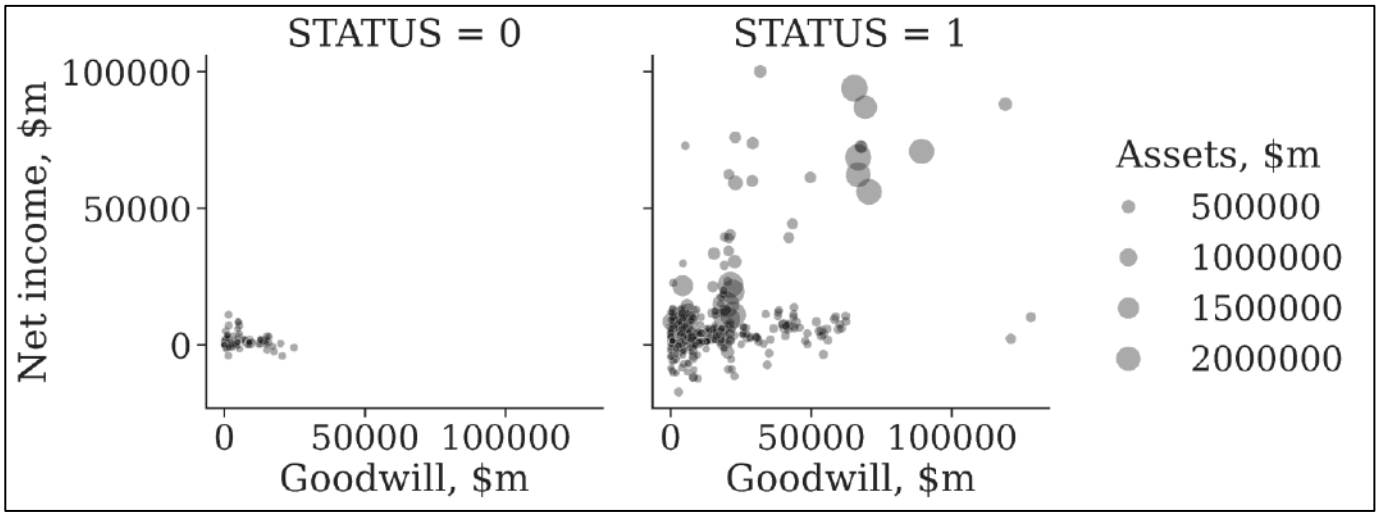

Figure 2.4 – Net income by goodwill, assets & status scatterplot

Source: created by the author

It can be immediately noticed that the biggest companies by net income, assets, and goodwill in our sample are “activists”. One obvious flaw of the dataset is the quantitative disbalance between “activist” and “non-activist” companies: only 15% of the sample are the firms that decided to stay in Russia. The bias towards “activist” companies can be attributed to the fact that the data search was limited to listed companies, which are naturally more susceptible to public scrutiny and thus, presumably, are more likely to respond to public pressure to divest from Russia.

Overall, net income is distributed in a bell-like shape around zero, with significant outliers noticeable (see Figure 2.5).

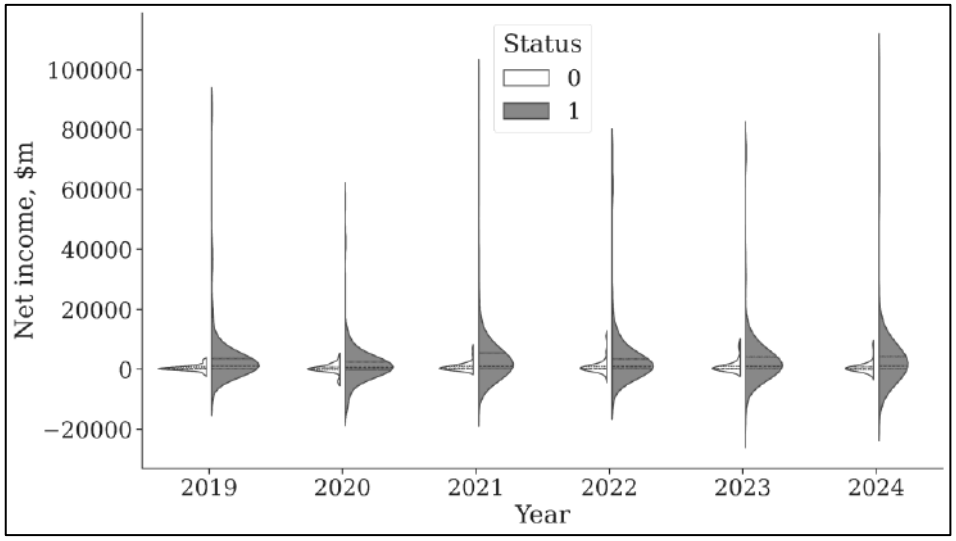

Figure 2.5 – Net income distribution by year & status

Source: created by the author

The dataset is also significantly skewed towards US tech companies (see Figure 2.6). The US and Asian tech giants are the overperforming outliers in the dataset.

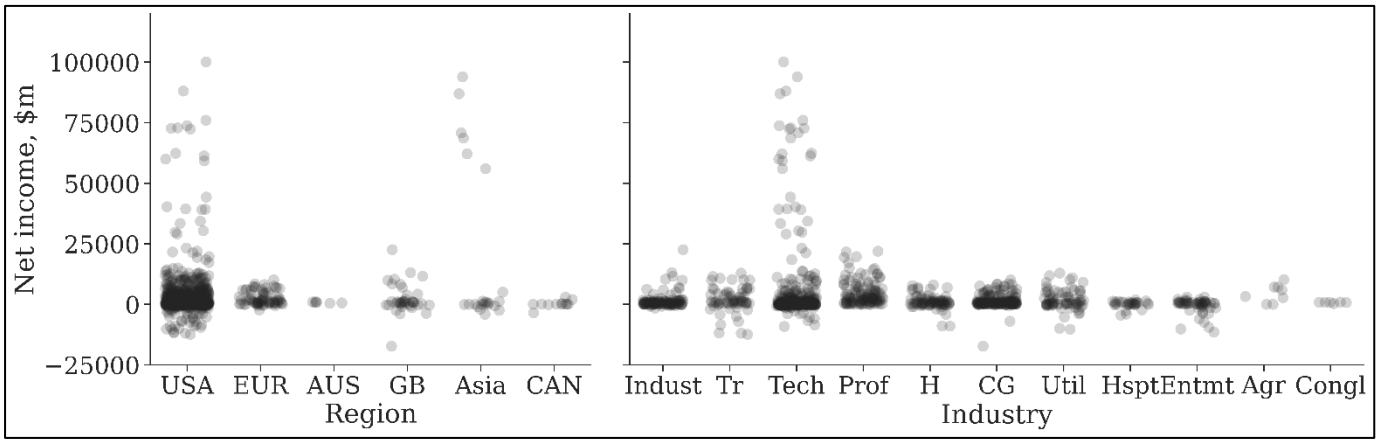

Figure 2.6 – Net income distribution by region & industry

Source: created by the author

Net income, in line with economies of scale, moderately positively correlates with assets and goodwill (see Figure 2.7). Goodwill and assets are, naturally, also correlated. To limit multicollinearity, as well as to use more normalized indicators of firm performance, ROA and GA ratios instead of absolute values of assets and goodwill will be mostly used going forward. Other than that, no significant correlations between dependent variables are observed.

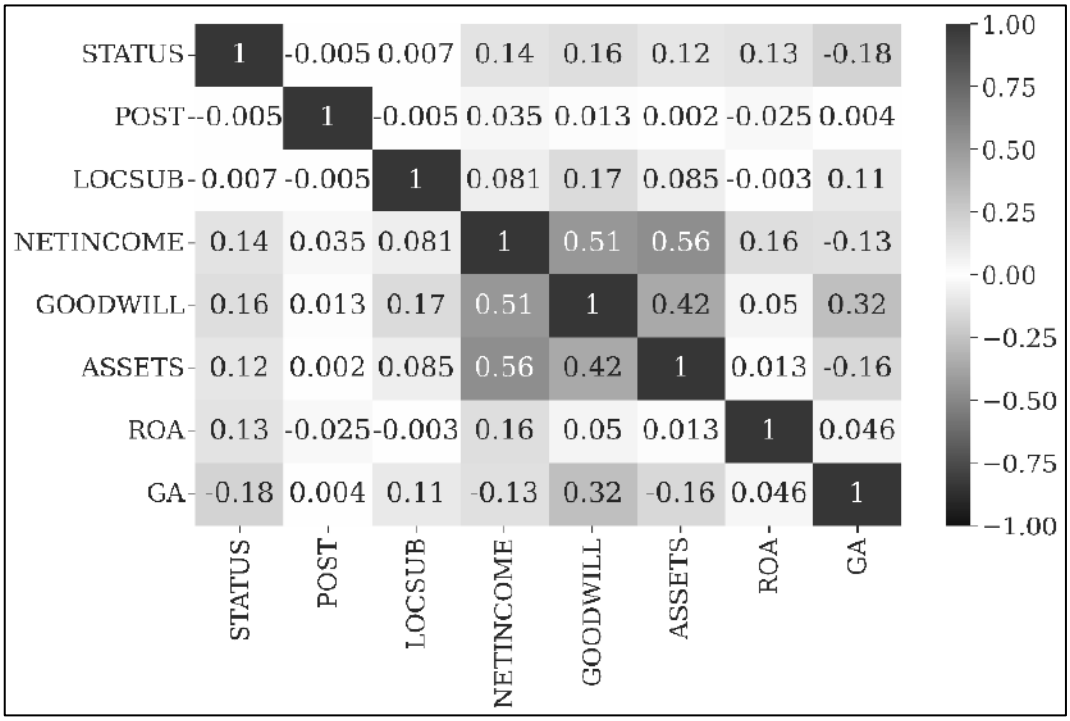

Figure 2.7 – Pairwise variable correlations

Source: created by the author

The hypothesis behind the DiD model presented in this section is that the decision of "activist" firms to withdraw from Russia in 2022 affected their financial performance, as compared to "non-activist" firms that decided to stay. The DiD approach, in essence, is a combination of before-after and treatment-control group comparison, which allows to assess the impact of a certain treatment on a group more accurately, making it a popular research tool [20]. In our case, the treatment is the application of CPA (firm's withdrawal from Russia,

i.e., self-sanctions). Thus, a DiD linear regression exploring the financial implications of CPA is formulated as follows (see Equation 2.2):

$$NetIncome = c + \beta_1 \cdot Status + \beta_2 \cdot Post + \beta_3 \cdot (Status \cdot Post) + \beta_{3+i} Control_i + \varepsilon_i, \quad (2.2)$$

where *NetIncome*, *Status*, and *Post* are the corresponding variables from Table 2.3;

c is the intercept, reflecting average net income of "non-activist" companies;

β_1 is the coefficient capturing the baseline net income difference between "activists" and "non-activists" before 2022;

β_2 is the "time effect" coefficient capturing the net income difference before and after 2022;

Status · *Post* is the interaction term, a dummy variable for "activist" companies since 2022;

β_3 is the key DiD coefficient, illustrating the effect of "activist" status on the net income change over time, isolated from the impact of general differences between "activists" and "non-activists" and from the time effect;

$Control_i$ are control variables;

β_{3+i} are coefficients for the effects of corresponding control variables;

ε_i is the error term.

As described above, the key metric by which the impact of CPA on financial performance in this model will be judged is the β_3 (STATUS·POST) DiD coefficient, indicating, if statistically significant, the impact of CPA on firms' net income. β_1 (STATUS)

coefficient, if positive and significant, would capture the phenomenon of self-selection bias of "activist" firms: more profitable companies are, naturally, better positioned to spend on political activity, buffered against potential CPA-related losses, and thus might be more likely to engage in CPA. β_2 (POST) coefficient, if significant, could hint at the impact of the post-2022 geopolitical and economic climate on firm financial performance.

Control variables mentioned in Table 2.3 will be included in the model in order to improve the robustness of the model, based on their theoretical and statistical merit. Control variable selection is based mostly on such criteria: adjusted R-squared, Akaike info criterion, F-statistic and p-values, Jarque–Bera test.

After examining the correlogram of the independent variable (Figure 2.8), it has been decided to include two lags of net income in the model to control for autocorrelation. This way, we acknowledge that a firm's financial performance is linked with its financial performance in the previous two periods.

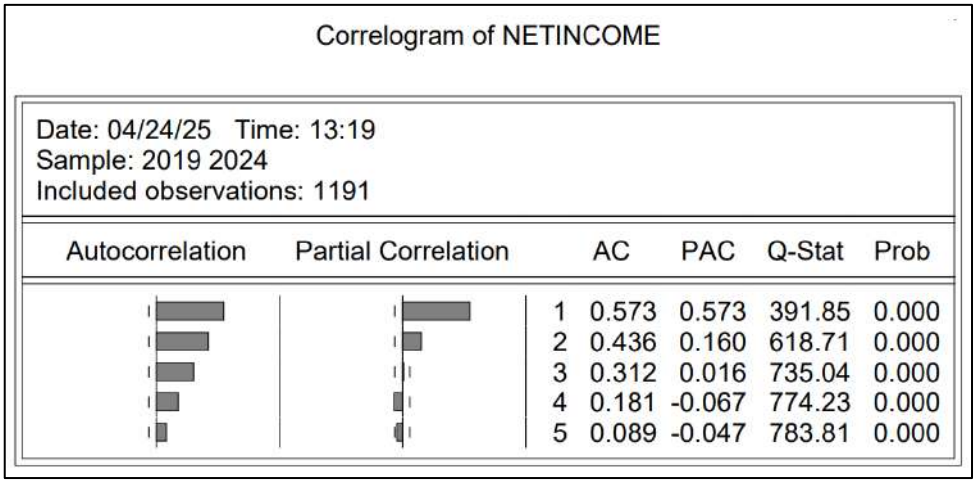

Figure 2.8 – Correlogram of net income

Source: created by the author

The preliminary model specification moving forward includes the following control variables: first and second lags of NETINCOME, ROA, GA, LOCSUB, dummies created

from REG and IND variables: REG_USA, REG_EUR, REG_CAN, REG_Asia, IND_Tech, IND_Util, IND_Indust, IND_H, IND_Entmt.

Since we are dealing with a panel dataset of companies from different countries and industries, heteroskedasticity across firms is expected, as confirmed by White test results (Figure 2.9):

```
--------- White's Test Results -----
        Test Statistic  8.527323e+02
Test Statistic p-value 1.827582e-135
           F-Statistic  6.293335e+01
        F-Test p-value 8.871506e-310
```

Figure 2.9 – White test for heteroskedasticity

Source: created by the author

This issue could be dealt with by introducing firm fixed effects to the model, but, since the dataset contains only 6 annual observations for each firm and has missing observations, fixed effects calculations result in near-singular matrix errors.

Thus, the following adjustments are applied to account for cross-firm heteroskedasticity: GLS cross-sectional weights (correcting for different variance across firms by giving more weight to firms with lower variance) and White period robust standard errors with degrees of freedom correction (accounting for serial firm-specific correlation, with small-sample bias adjustment), resulting in a feasible (weighted) generalized least squares (FGLS) model [17].

The application of GLS weights and robust errors improved the fit of the model (see Figures 2.10 – 2.11):

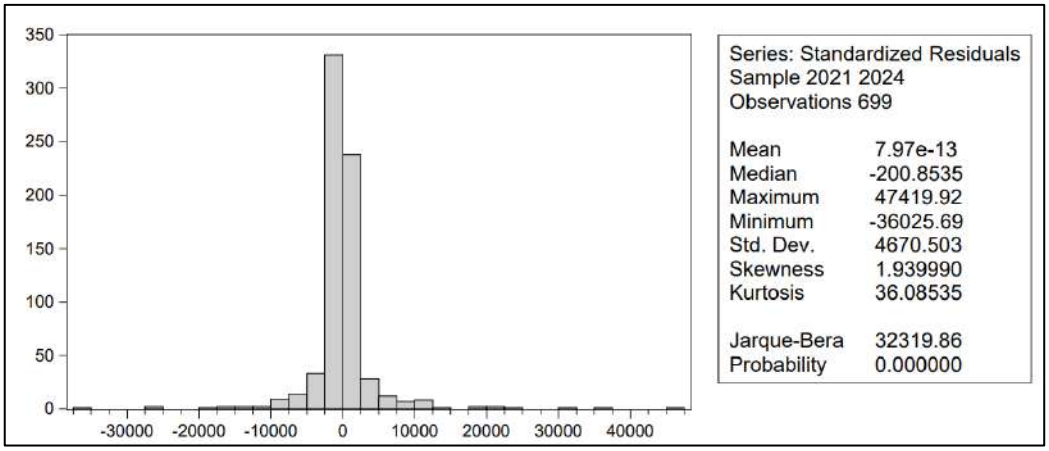

Figure 2.10 – Residuals histogram and Jarque-Bera test before model respecification from OLS

Source: created by the author

The Jarque-Bera test indicates significant improvement, although the distribution of residuals is still non-normal (see Figure 2.11).

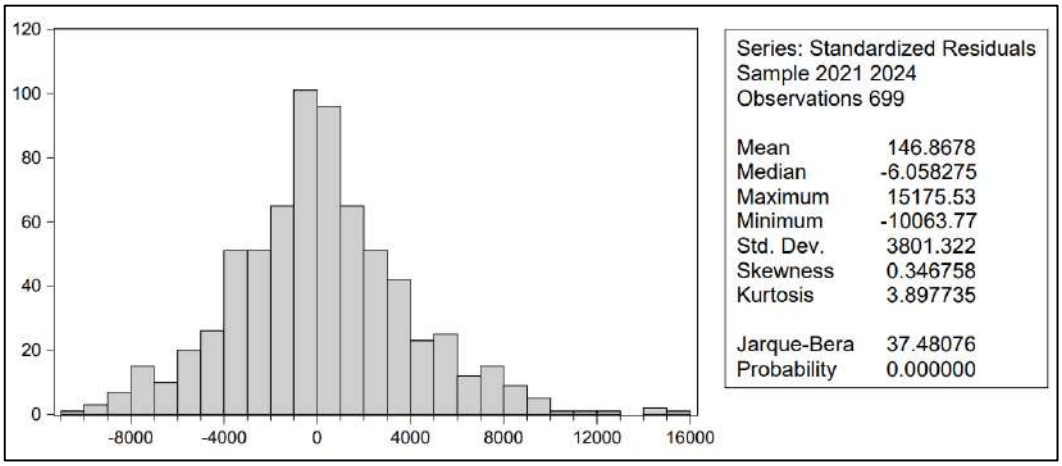

Figure 2.11 – Residuals histogram and Jarque-Bera test after model respecification to FGLS with robust errors

Source: created by the author

To normalize the model's residuals, the inverse hyperbolic sine (IHS or arcsinh) transformation is applied to the dependent variable and its lags, where IHS(x) = arcsinh(x) = ln($x + \sqrt{x^2 + 1}$). Unlike the logarithmic transformation, the IHS transformation can be used to normalize variables containing a substantial number of non-positive values, as in the case of our net income data. The IHS also mends the distortions of heteroskedasticity and outliers [5], which are relevant concerns for this sample. Overall, the IHS transformation reduces the spread and skewness of net income, allowing for better comparability across groups (see Figure 2.12):

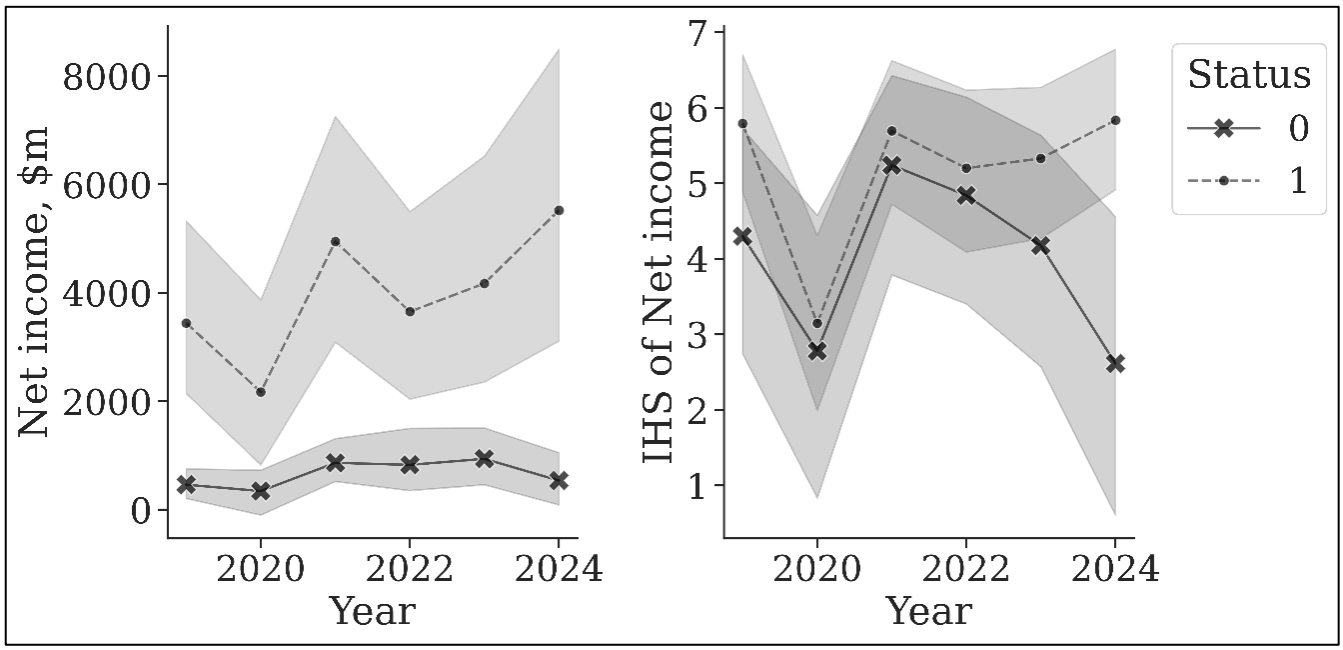

Figure 2.12 – Average net income vs. average inverse hyperbolic sine (IHS) of net income by year and status

Source: created by the author

The IHS transformation, as shown in Figure 2.13, combined with weights and robust errors introduced earlier, helps improve the fit of the model.

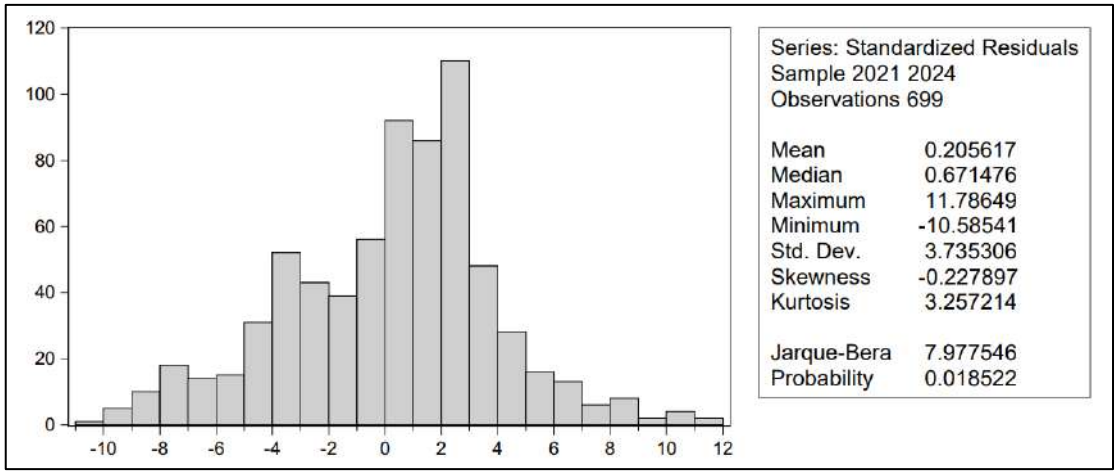

Figure 2.13 – Residuals histogram and Jarque-Bera test after model respecification to FGLS with robust errors and the IHS transformation of net income

Source: created by the author

Upon further model respecification, the residuals are finally normalized (see Figure 2.14).

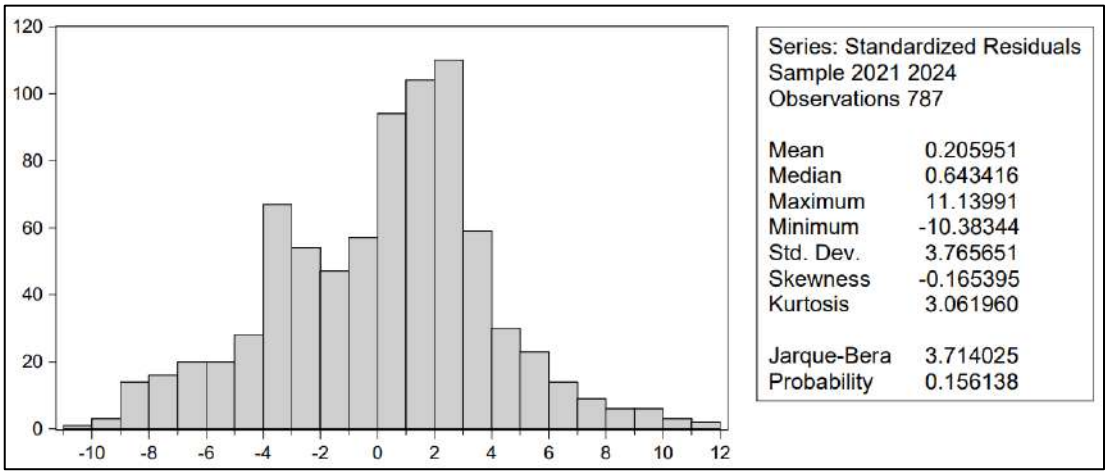

Figure 2.14 – Residuals histogram and Jarque-Bera test after model respecification to FGLS with robust errors, the IHS transformation of net income, exclusion of GA variable

Source: created by the author

The model benefited from excluding the GA variable, likely because the goodwill ratio of a firm shares the heteroskedasticity and outlier distortions with net income.

Thus, the following control variables are included for the DiD model: first and second lags of IHS-transformed NETINCOME, ROA, LOCSUB, dummies from REG and IND variables: REG_USA, REG_GB, REG_EUR, REG_CAN, REG_Asia, IND_Tech, IND_Indust, IND_H, IND_Entmt. In section 3.2.2 of this thesis the results will be reviewed and checked for sensitivity to model specification, including alternative clustering and absence of GLS weights. The developed model will capture the impact of CPA (self-sanctions) on the financial performance of sampled firms since the escalation of the Russo-Ukrainian war.

CHAPTER 3
THE IMPACT OF CORPORATE POLITICAL ACTIVITY

3.1 Event Study Results

The announcements of exit from Russia ("self-sanctions") were made by firms against the backdrop of market anxiety due to the escalation of the Russian invasion of Ukraine. The direct impact of the announcement on stock returns is not obvious, highly divergent across firms and countries, as seen from the movement of cumulative returns in the first half of 2022 (see Figures 3.1-3.3). A substantial number of US-based firms that later declared divestment from Russia had been declining in stock returns before the outbreak of the full-scale invasion, likely in anticipation of the Russian attack (see Figure 3.1).

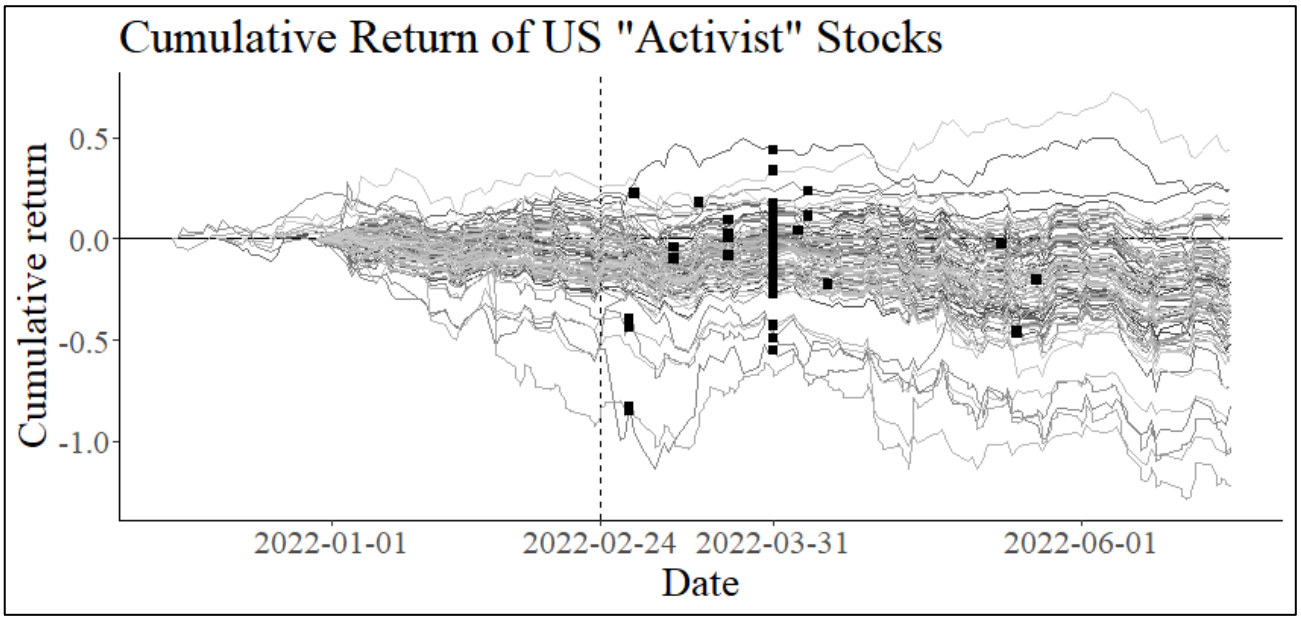

Figure 3.1 – Overview of cumulative stock returns of US-based "activist" firms, with announcement dates marked as black squares

Source: created by the author

A similar, although smaller in scope, decline in stock returns preceding February 24th, 2022, is observed among Japanese firms that later announce divestment (see Figure 3.2).

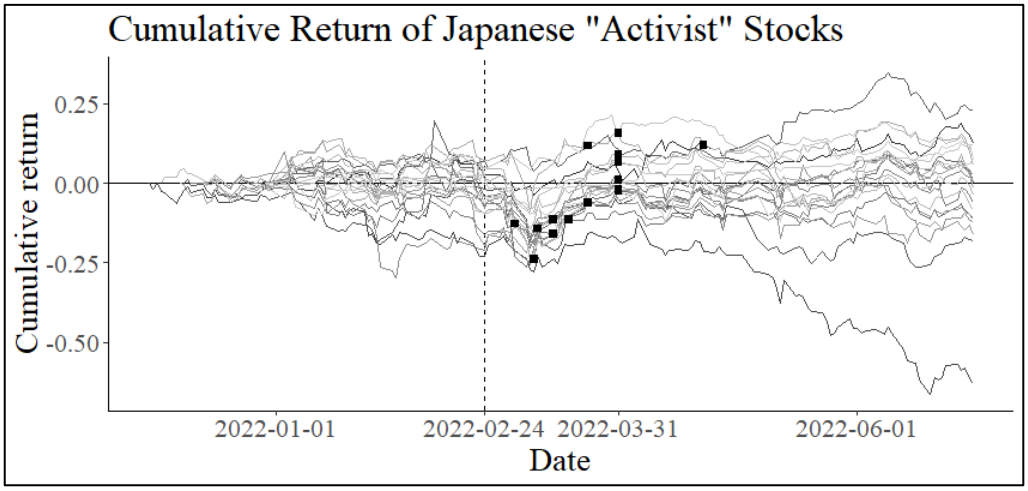

Figure 3.2 – Overview of cumulative stock returns of Japan-based "activist" firms, with announcement dates marked as black squares

Source: created by the author

Finland-based stocks were most severely affected by the Russo-Ukrainian war escalation, likely due to the country's proximity to the aggressor country (see Figure 3.3).

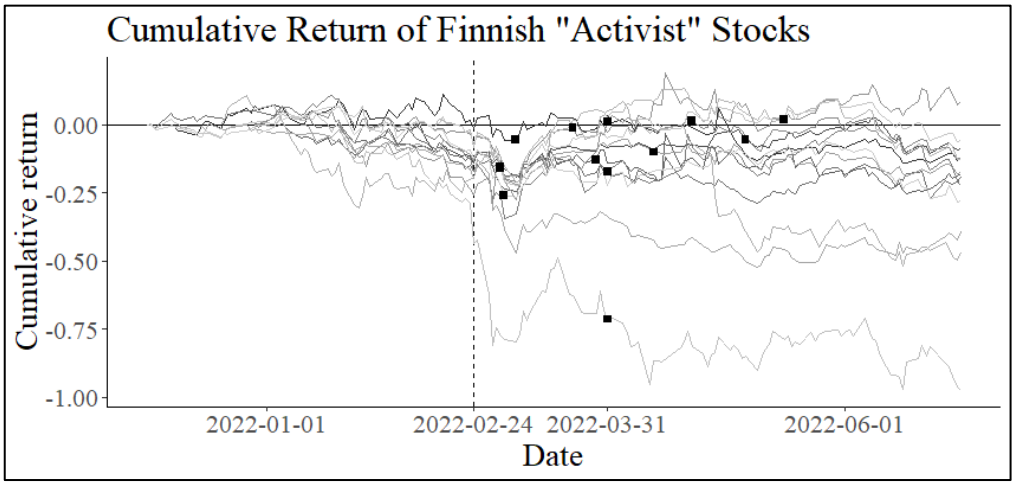

Figure 3.3 – Overview of cumulative stock returns of Finland-based "activist" firms, with announcement dates marked as black squares

Source: created by the author

Taking into account the general downward trend in all three countries in the beginning of 2022, post-announcement abnormal returns described in section 2.2 help isolate the impact of CPA announcements on stock prices. In the first two weeks since announcement the average abnormal return of US-based stocks tends to be negative but reverses roughly a week later (see Figure 3.4). On the 17th day since announcement the CAAR turns positive, then slides back, until it recovers again after 43 days. Since then, the CAAR remains positive and proceeds with an upward trend, although fluctuating significantly. From this can be inferred that exit announcements are immediately met with a negative reaction in anticipation of exit-attributed losses. However, this initial reaction is eventually followed by a positive price correction, as market absorbs information about the resilience of "activist" firms.

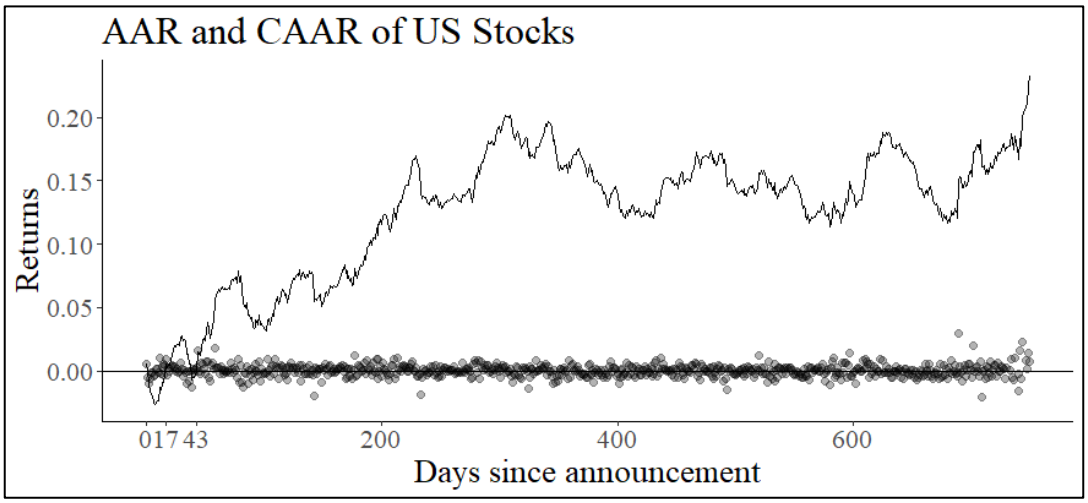

Figure 3.4 – Average Abnormal Return (scatter plot) and Cumulative Average Abnormal Return (line plot) of US-based firms since announcement of exit from Russia

Source: created by the author

Japanese stocks seem to recover sooner than the American ones: in 15 days the CAAR of Japan-based firms turns positive and remains so, yet with a more modest magnitude than American stocks, hovering close to zero during the first year since announcement (see Figure

3.5). This suggests that Japanese “activist” firms are met with a more reserved degree of optimism than American “activist” companies.

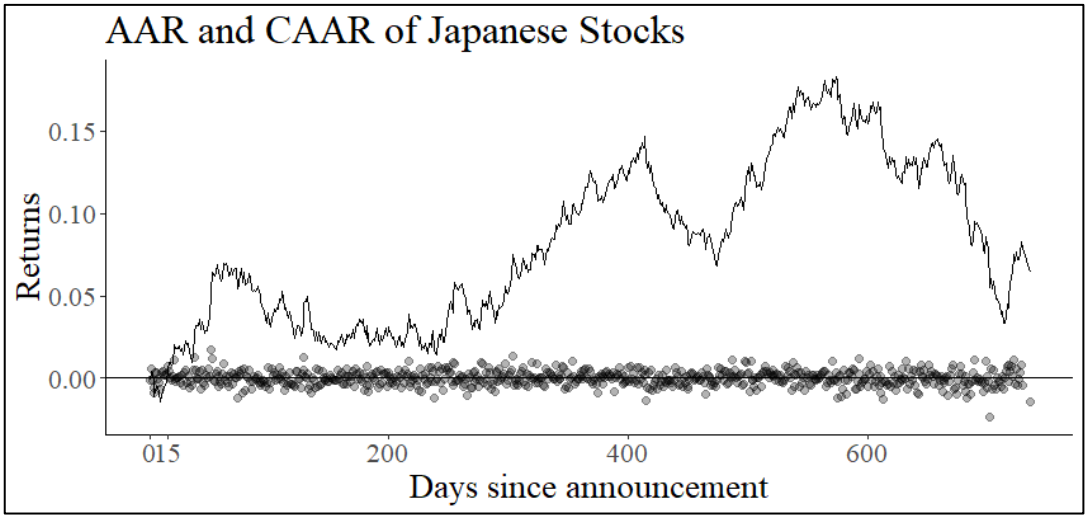

Figure 3.5 – Average Abnormal Return (scatter plot) and Cumulative Average Abnormal Return (line plot) of Japan-based firms since announcement of exit from Russia

Source: created by the author

Finnish firms experience a dramatically different situation(see Figure 3.6).

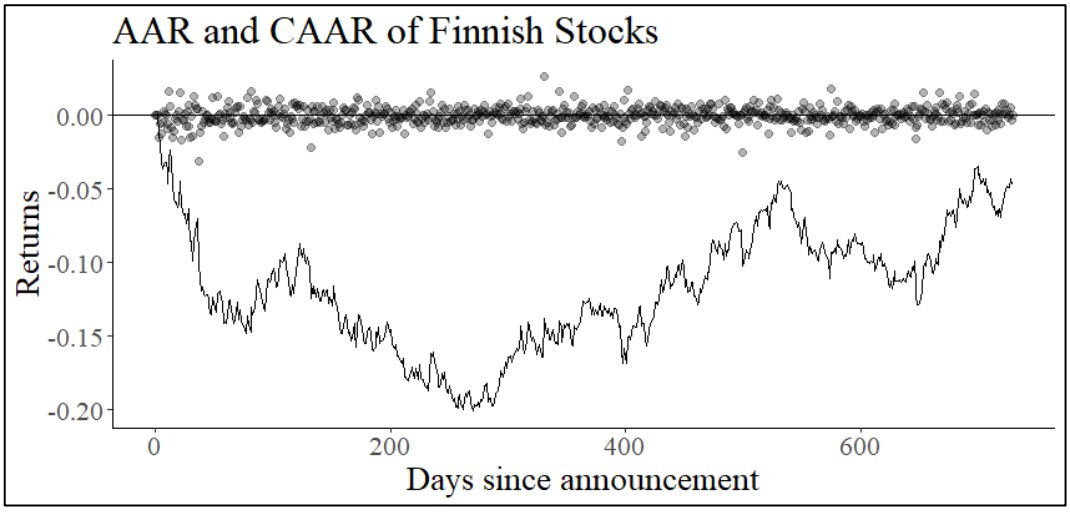

Figure 3.6 – Average Abnormal Return (scatter plot) and Cumulative Average Abnormal Return (line plot) of Finland-based firms since announcement of exit from Russia

Source: created by the author

The Finnish post-event CAARs stay negative, although appear to be slowly recovering after about a year from announcement. This may reflect heightened economic vulnerabilities of Finland-based "activist" companies. By referring back to Figure 3.3, one can consider that the abnormal returns for Finnish "activist" firms are driven downwards by the magnitude of losses set off by the Russo-Ukrainian war escalation on February 24, 2022. Any positive impact of CPA in this case might have been overpowered by the general market pessimism.

Companies seem to be affected by CPA differently depending on their industry. By looking at the AARs of US-based firms by industry (selected industries represented by more than 5 firms in the sample), one can note that entertainment has the most volatile abnormal returns, and consumer goods the least volatile (see Figure 3.7). Publicity-sensitive and less stable industries may be to a greater extent affected by CPA.

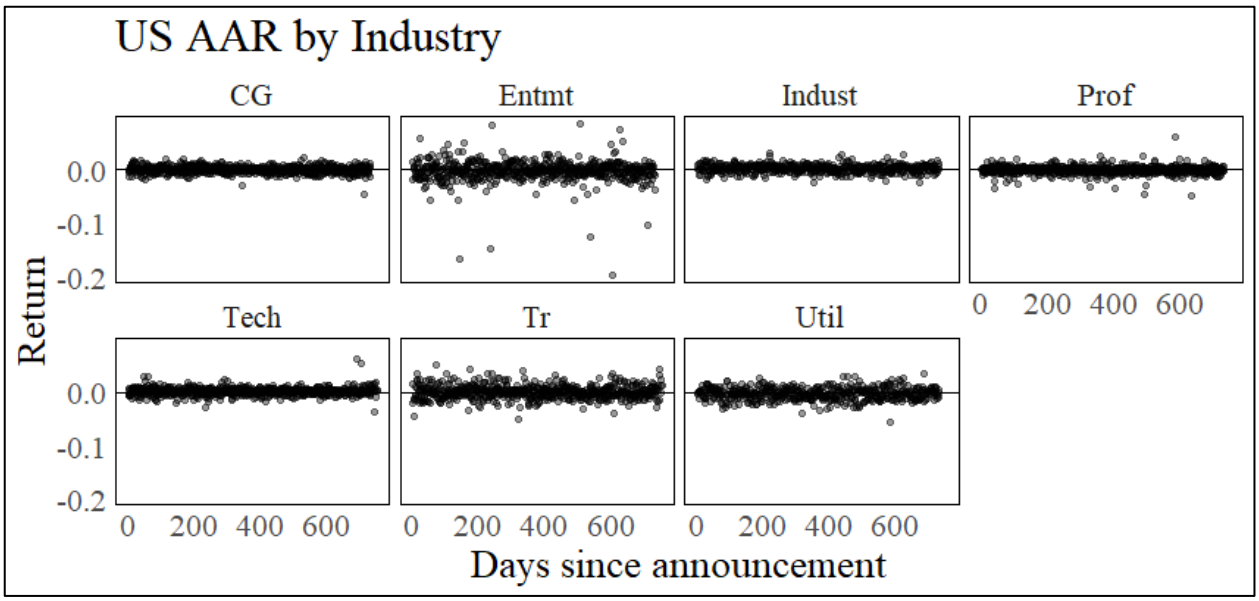

Figure 3.7 – Average Abnormal Returns of US-based companies since announcement of divestment from Russia, by industry

Source: created by the author

The industry-specific reactions to CPA are even more clearly illustrated by CAARs, which differ considerably over time across industries. Consumer goods demonstrate

moderate growth; professional services and transportation seem largely unaffected; tech and industrials grow significantly, whereas entertainment and utilities significantly decline (see Figure 3.8). Utilities companies, highly sensitive to supply chain disruptions, and entertainment firms, highly dependent on public sentiment, seem to be the most vulnerable in times of crisis, with their exit from Russia proving to be ineffective or even harmful in terms of stock market performance. In contrast, tech and industrials demonstrate an ability to persevere and reap benefits post-CPA.

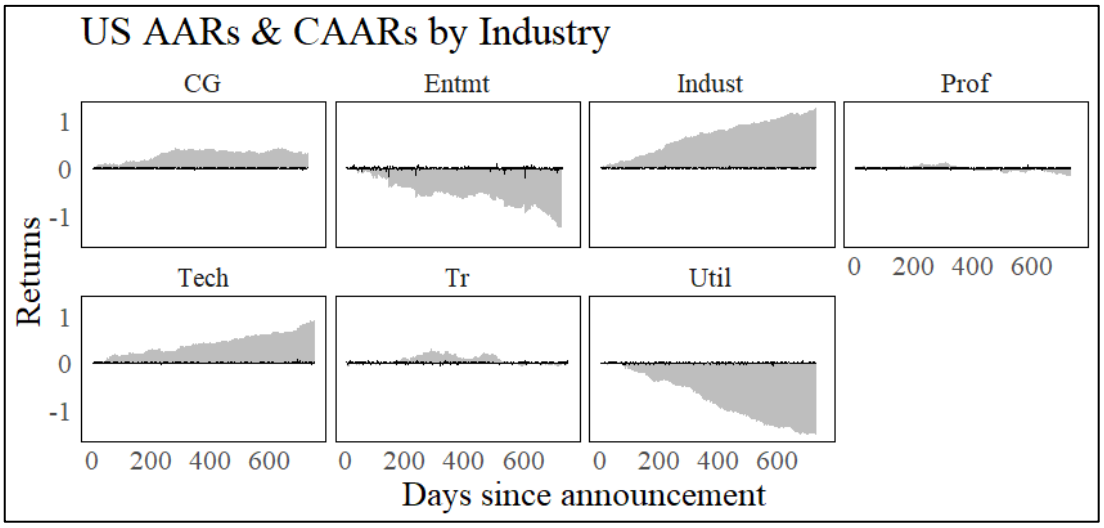

Figure 3.8 – Average Abnormal Returns and Cumulative Average Abnormal Returns of US-based companies since announcement of divestment from Russia, by industry

Source: created by the author

Finally, a quantitative examination of the event study results will provide a more definitive glimpse at the extent of impact CPA might have had on stock returns of "activist" companies. The calculations were performed for the three countries over multiple event windows to explore the impact of CPA over the short-term (event windows A & B), medium-term (C & D), and long-term: a year from the estimation window (E), two years (F), and over the entire span of 750 days since the announcement (G). Several common event study tests were performed over the specified event windows, as discussed in Boehmer et al. [7] and Dutta [13], namely: the ordinary cross-sectional t-test, standardized-residual test (Patell

Z-test), standardized cross-sectional test (BMP) test, Sign test, and Wilcoxon signed-rank test (see Tables 3.1 – 3.3). T-test is the basic measure of statistical significance, Patell Z-test checks for statistical significance while taking into account firm-specific variance of abnormal returns; BMP test goes further, accounting for event-induced changes in return's variance. Sign test and Wilcoxon test check whether the calculated abnormal returns are more positive or more negative than expected by chance, with Wilcoxon test incorporating not just the number of positive or negative observations but their magnitude as well.

For US-based companies the initial reaction to announcements of exit from Russia is decisively negative, captured in window B with statistical significance across all tests (see Table 3.1). The US market seems skeptical towards CPA initially – although, interestingly, the immediate reaction (window A) is not negative, hinting that some companies may have experienced a short-term hike in stock returns one day post announcement.

Table 3.1 – Event study results overview for US-based firms

Event window		**A [0; 1]**	**B [0; 10]**	**C [0; 90]**	**D [0; 120]**	**E [270; 360]**	**F [630; 720]**	**G [0; 750]**
Mean of AAR, %		0.02	-0.22	0.04	0.05	0.02	-0.02	0.03
CAAR at window end, %		0.04	-2.38	3.55	5.42	2.12	-2.15	23.24
t-test	*** for $p \leq 0.05$; * for $p \leq 0.1$*	0.2	-1.87*	0.59	0.69	1.18	-0.65	1.07
Patell Z-test		8.53**	-2.28**	1.68*	2.07**	1.67*	-1.32	4.4**
BMP test		-1.63	-5.47**	2.76**	2.15**	-5.85**	-1.46	-3.54**
Sign test		0.1	-1.84*	1.02	0.82	0.82	-0.41	0.61
Wilcoxon test		2360	1735**	2531	2512	2573	1973	2564

Source: summarized by the author

In the subsequent windows positive abnormal returns are observed, supported by Patell Z and BMP tests, but not sign and Wilcoxon tests, suggesting that the positive abnormal returns may be driven by a smaller number of over-performing firms. A negative tendency is observed in the later windows (E to G). Specifically, a highly significant negative BMP test yet insignificant sign and Wilcoxon again point to over-performing outliers potentially skewing abnormal returns to be more positive.

The post-announcement impact on Japanese stocks is less certain and severe: in particular, the initial market reaction (windows A-B) is not statistically significant (see Table 3.2). A similar pattern with positive abnormal returns yet a highly significant negative BMP value as in American stocks occurs in the Japanese sample, suggesting that, although average abnormal returns of Japanese "activist" firms are positive, they are driven by a handful of successful companies, masking an underlying negative trend.

Table 3.2 – Event study results overview for Japan-based firms

Event window		**A [0; 1]**	**B [0; 10]**	**C [0; 90]**	**D [0; 120]**	**E [270; 360]**	**F [630; 720]**	**G [0; 750]**
Mean of AAR, %		0.2	-0.11	0.06	0.02	0.08	-0.07	0.01
CAAR at window end, %		0.4	-1.16	5.56	2.91	7.24	-6.19	6.45
t-test	*** for $p \leq 0.05$; * for $p \leq 0.1$*	0.75	-0.7	1	0.44	0.5	-0.67	0.23
Patell Z-test		-1.13	-0.82	1.89*	1.09	0.72	-0.74	0.8
BMP test		-0.91	-1.02	-2.66**	-3.85**	-6.32**	0.55	-3.17**
Sign test		0	-0.22	1.53	0	1.96**	0.22	0.85
Wilcoxon test		107	96	156	146	153	104	145

Source: summarized by the author

As for Finland-based companies, abnormal returns reflect a negative post-announcement reaction in window B (see Table 3.3), similar to American stocks, and hint at some positive fluctuations (BMP tests in windows C-D). Across the event windows few statistically significant values are observed, illustrating that stock performance of Finnish firms is likely driven by other factors, with CPA playing a limited role.

Table 3.3 – Event study results overview for Finland-based firms

Event window		**A [0; 1]**	**B [0; 10]**	**C [0; 90]**	**D [0; 120]**	**E [270; 360]**	**F [630; 720]**	**G [0; 750]**
Mean of AAR, %		0.04	-0.34	-0.14	-0.09	0.06	0.06	-0.01
CAAR at window end, %		0.07	-3.73	-12.27	-10.61	5.53	5.11	-4.57
t-test	*** for $p \leq 0.05$; * for $p \leq 0.1$*	0.07	-1.76*	-1.02	-0.6	0.7	0.37	0.11
Patell Z-test		0.9	-1.96**	-1.51	-1.07	0.08	0.33	-0.28
BMP test		-1.44	1.15	2.12*	1.92*	0.53	-0.22	0.16
Sign test		0	-1.07	-1.07	0	0	-0.54	-1.07
Wilcoxon test		58	23*	41	45	61	57	50

Source: summarized by the author

Overall, the event study confirms a negative market reaction to announcements of exit from Russia, consistent with previous findings [25]. American and Japanese stocks, on average, rebound over time, whereas Finnish stocks remain in decline. Utilities and entertainment stocks accumulate abnormal losses post announcement, unlike tech and industrial companies, which abnormally grow; consumer goods grow moderately, while professional services and transportation firms seem unaffected by CPA. Some firms largely benefited from CPA, while a substantial portion of companies incurred losses, possibly

reflecting increased vulnerabilities of certain individual firms or industries. The findings point to a large cross-firm diversity of responses to CPA, initial market skepticism, and a limited ability to promote the resilience of companies in times of crisis.

3.2 Difference-in-Differences (DiD) Model Results

The DiD model developed in section 2.3 of this work has been executed in EViews 8, yielding the following result (see Figure 3.9).

Dependent Variable: NETINCOME_IHS
Method: Panel EGLS (Cross-section weights)
Date: 05/07/25 Time: 17:05
Sample (adjusted): 2021 2024
Periods included: 4
Cross-sections included: 201
Total panel (unbalanced) observations: 787
Linear estimation after one-step weighting matrix
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.125739	0.203384	10.45183	0.0000
STATUS	0.090730	0.188285	0.481879	0.6300
POST	-0.873363	0.232767	-3.752100	0.0002
STATUS*POST	0.490349	0.238761	2.053729	0.0403
NETINCOME_IHS(-1)	0.474384	0.033738	14.06091	0.0000
NETINCOME_IHS(-2)	0.202597	0.023403	8.657010	0.0000
ROA	0.045904	0.005837	7.864086	0.0000
LOCSUB	0.108637	0.018658	5.822583	0.0000
REG_USA	0.417045	0.062505	6.672235	0.0000
REG_EUR	0.575387	0.149507	3.848557	0.0001
REG_CAN	-0.840135	0.080663	-10.41537	0.0000
REG_ASIA	1.183973	0.175211	6.757407	0.0000
REG_GB	1.146890	0.253392	4.526145	0.0000
IND_TECH	-0.687645	0.133741	-5.141634	0.0000
IND_INDUST	-0.304771	0.076112	-4.004268	0.0001
IND_H	-0.447049	0.221311	-2.020004	0.0437
IND_ENTMT	-1.207566	0.567871	-2.126478	0.0338

Weighted Statistics

R-squared	0.818232	Mean dependent var	26.58286
Adjusted R-squared	0.814455	S.D. dependent var	33.16942
S.E. of regression	3.810267	Sum squared resid	11178.96
F-statistic	216.6362	Durbin-Watson stat	1.451512
Prob(F-statistic)	0.000000		

Figure 3.9 – Results of the DiD model

Source: created by the author

Overall, the model is statistically significant and well-fit, as seen from the R-squared (0.818), adjusted R-squared (0.814), and F-statistic p-value (0) estimates.

Since the dependent variable of the model is IHS-transformed, the interpretation of beta coefficients is not straightforward. The arcsinh behaves more like a logarithm as it increases, so the coefficients can be approximately interpreted as percentage change, i.e. $\beta \cdot 100\%$, at large absolute values of net income. However, at small absolute values (roughly less than 10, as discussed by Bellemare and Wichman [5]) of net income, the coefficients approximately reflect absolute change, since the IHS behaves linearly around zero. With this in mind, one can interpret the results of the model in Figure 3.9.

Judging from the coefficients of STATUS, POST, and STATUS·POST, companies experienced a downturn in terms of net income since 2022 ($\beta_{POST} = -0.873$), but this negative period effect (presumably, the effect of increased geopolitical and economic turmoil) has been partially mediated for "activist" firms ($\beta_{STATUS \cdot POST} = 0.49$). Thus, "non-activist" firms with large net incomes or losses suffered approximately an 87% reduction of net income since 2022, in contrast to their "activist" counterparts, whose losses amounted to ~38%, roughly a 56% offset of the negative POST-effect due to the "activist" status. For small earners or losers (under 10 million), the POST-period caused a ~0.87 million dollar loss for "non-activists" and a ~0.38 million dollar loss for "activists". This finding is consistent with the initial examination of our dataset in Figure 2.12, where the gap in terms of net income between "activists" and "non-activists" since 2022 is illustrated. Notably, the coefficient of STATUS itself ($\beta_{STATUS} = 0.09$) is not statistically significant (at $p \leq 0.05$), unlike POST and STATUS·POST, affirming that the "activist" status starts to play a role only in the POST period. This preliminary finding supports the assumption that engagement in CPA (in this case, exit from Russia), and not intrinsic baseline differences between "activist" and "non-activist" companies, has financial implications for companies. Specifically, the results here point to a significant positive effect of CPA on financial performance.

Coefficients of lagged net income variables ($\beta_{NETINCOME\_IHS(-1)}$ = 0.47 and $\beta_{NETINCOME\_IHS(-2)}$ = 0.2) show that present net income of firms is linked to their previous net income. Canadian companies (β_{REG_CAN} = -0.84) incur heavier losses in terms of net income. In contrast, sampled companies based in Asia and in the UK (β_{REG_Asia} = 1.184; β_{REG_GB} = 1.147) perform better – roughly speaking, Asian and British "non-activist" companies are better cushioned against the negative POST-period effect in terms of net income, possibly thanks to more resilient business models, more secure supply chains etc., and when these companies do engage in CPA, they are financially rewarded ($\beta_{POST} + \beta_{STATUS*POST} + \beta_{REG\_Asia}$ = 0.801; $\beta_{POST} + \beta_{STATUS*POST} + \beta_{REG\_GB}$ = 0.764). In terms of different industries, firms in tech (β_{IND_Tech} = -0.688), industrials (β_{IND_Indust} = -0.305), healthcare (β_{IND_H} = -0.447), and entertainment (β_{IND_Entmt} = -1.208) perform financially worse than other groups, aggravating the negative POST-period effect. Number of local subsidiaries in Russia (β_{LOCSUB} = 0.109) has a positive association with net income, signifying that firms with more subsidiaries may be more financially resilient: bigger in size, more diversified etc. Return on assets (β_{ROA} = 0.046), an indicator of overall financial health of a company, is also slightly positively associated with net income, as expected. All the above discussed effects are statistically significant ($p \leq 0.05$).

Notably, despite the inclusion of two lags of the dependent variable, some positive autocorrelation seems to be present in the model, judging from the Durbin-Watson statistic (~1.45). Net income is, naturally, persistent over time, so some serial correlation is to be expected, and it is partially addressed in the model by White period covariance and standard errors. However, the Durbin-Watson statistic is a less reliable autocorrelation indicator due to the presence of lagged variables and cross-sectional GLS weights (GLS weighting reweights observations to correct for heteroskedasticity and, in turn, distorts the model's residuals).

To make sure that the issue of autocorrelation does not lower the quality of the model, a more reliable Breusch-Godfrey LM test was performed manually (since automatic Breusch-Godfrey LM test is not available for panel datasets in EViews 8) – see Figure 3.10.

Dependent Variable: RESIDS
Method: Panel Least Squares
Date: 05/08/25 Time: 16:31
Sample (adjusted): 2022 2024
Periods included: 3
Cross-sections included: 199
Total panel (unbalanced) observations: 586

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.245947	0.186411	-1.319383	0.1876
RESIDS(-1)	-0.046198	0.042491	-1.087242	0.2774

R-squared	0.002020	Mean dependent var	-0.244271
Adjusted R-squared	0.000311	S.D. dependent var	4.513072
S.E. of regression	4.512370	Akaike info criterion	5.854929
Sum squared resid	11891.11	Schwarz criterion	5.869855
Log likelihood	-1713.494	Hannan-Quinn criter.	5.860746
F-statistic	1.182096	Durbin-Watson stat	2.011055
Prob(F-statistic)	0.277378		

Figure 3.10 – Manual Breusch-Godfrey LM test for 1st-order serial correlation

Source: created by the author

Here, no significant correlation of residuals is apparent. LM statistic = $n \cdot R^2 = 586 \cdot 0.002 = 1.184$, which is less than the critical value of Chi-squared distribution with 1 degree of freedom at 5% significance = 3.841 [28]. Thus, first-order serial correlation of residuals is rejected. For a dataset spanning only 6 periods, it is reasonable to conclude that autocorrelation is not a serious problem.

Further, the results will be tested for stability and sensitivity to model specification. If estimates of the key DiD coefficients (β_{STATUS}, β_{POST}, $\beta_{STATUS \cdot POST}$) varied drastically depending on the presence of certain variables, clustering or GLS weights, it would signal a potential unreliability in the developed model. The results of selected model respecifications are summarized in Table 3.4.

Table 3.4 – DiD model respecifications overview

Model respecification	**Key result metrics**	β_{STATUS}	β_{POST}	$\beta_{STATUS \cdot POST}$
		** for $p \leq 0.05$; * for $p \leq 0.1$		
Original (see Figure 3.9)	Adjusted R-squared: 0.814. Normal residuals (JB p-value: 0.16).	0.09	-0.873**	0.49**
DiD and lags only (see Appendix A)	Adjusted R-squared: 0.784. Non-normal residuals (JB p-value ≈ 0).	-0.056	-1.006**	0.577**
DiD, lags, goodwill (see Appendix B)	Adjusted R-squared: 0.849. Non-normal residuals (JB p-value ≈ 0).	0.107	-0.918**	0.487*
No ROA (see Appendix C)	Adjusted R-squared: 0.778. Normal residuals (JB p-value: 0.15).	-0.024	-1.15**	0.63*
Alternative dummies: IND only (see Appendix D)	Adjusted R-squared: 0.811. Normal residuals (JB p-value: 0.43).	0.074	-0.828**	0.45*

Table 3.4 continued

White cross-section covariance & std. errors (see Appendix E)	Adjusted R-squared: 0.814. Normal residuals (JB p-value: 0.16). Lower std. errors & p-values overall.	0.09	-0.873**	0.49**
No GLS weights (see Appendix F)	Adjusted R-squared: 0.462. Non-normal residuals (JB p-value ≈ 0).	0.05	-1.56**	0.76
No GLS weights, White cross-section covariance & std. errors, select IND dummies (see Appendix G)	Adjusted R-squared: 0.428. Non-normal residuals (JB p-value ≈ 0).	0.483	-1.96**	1.006*

Source: summarized by the author

Across all the model specifications overviewed in Table 3.4, the general trend revealed in the original model in Figure 3.9 is roughly confirmed: the decision to engage in CPA since 2022 might have helped companies ease the negative impact of the post-2022 economic environment. β_{STATUS} tends to be statistically insignificant, confirming the absence of inherent differences between the sampled "activist" and "non-activist" companies before 2022 (i.e., before they engaged in or decided not to engage in CPA in terms of divestment from Russia ("self-sanctions") since the Russo-Ukrainian war escalation). In other words, this finding opposes the idea that positive outcomes of CPA are merely the reflection of the fact that only more successful companies attempt to engage in CPA to begin with (i.e., self-selection bias). β_{POST} ranges from -0.828 to -1.15 (-1.56 and -1.96 for OLS) at high statistical significance, likely reflecting the financial strain of heightened geopolitical and economic uncertainty since 2022 on sampled companies. $\beta_{STATUS*POST}$ ranges from 0.45 to 0.63 (0.76 and 1.006 for OLS), and its statistical significance varies from high to moderate, even down

to insignificant, revealing that the estimate of the positive impact of CPA on net income since 2022 is quite unstable.

Taking into account the presence of the same trend across different specifications of the model, yet with noticeable instability of estimates, one can only cautiously conclude that, for the sampled companies in the 2022-2024 financial years, CPA might have played a positive, mitigating role against the overall reduction of net incomes since 2022.

3.3 CPA and Company Performance: Results Synthesis and Discussion

Two methodological approaches were undertaken to investigate the impact of CPA on company performance in this thesis: an event study, concerned with stock market performance of "activist" firms, and a difference-in-differences (DiD) model, exploring annual net incomes of "activist" vs. "non-activist" firms. Roughly speaking, abnormal returns in the event study reflect future expectations in reaction to CPA, whereas the DiD model of net income measures more direct financial impact of CPA on firm operations.

The event study reviewed in section 3.1 of this work examines the abnormal stock returns of firms after their announcements of divestment from Russia. Initial reaction to exit announcements tends to be negative. The post-announcement impact varies across countries and industries: Finnish stocks were most negatively impacted, while Japanese and US stocks demonstrated positive cumulative abnormal returns over time. Overall, some firms disproportionally benefited from CPA, US tech and industrial firms especially, but a large portion of stocks also accumulated abnormal losses. In the US sample, entertainment and utilities stocks performed the worst post CPA announcements, possibly revealing heightened risks these industries experience in the current uncertain geopolitical environment.

Contrary to the intuitive expectation that divestment from the Russian market would entail net losses for the "activist" ("self-sanctioning") companies, the DiD model reviewed

in section 3.2 suggests that self-sanctions might have helped firms mitigate the market-wide decline of net incomes since 2022. CPA, in such case, might have proven a beneficial extension of proactive risk management, stakeholder management and public relations. The findings of the model reject the presence of self-selection bias, i.e. that more financially successful companies are more likely to choose to divest from Russia. The model also points to potential vulnerabilities of certain industries, namely: healthcare, entertainment, tech, and industrials. Canadian companies seem to be underperforming, in contrast to British and Asian firms. Companies with more subsidiaries in Russia were, contrary to expectations, less negatively impacted. This might mean that the number of subsidiaries does not necessarily correlate with the depth of involvement and severity of losses in Russia – rather, it might signify a larger size and/or a higher degree of diversification, which helps alleviate financial losses. Overall, in terms of the impact of CPA on financial performance, it is too early to affirm causation, since the results of the model are quite unstable. However, the hereby revealed trend of CPA engagement potentially alleviating the financial losses in times of crisis is worth attention.

Interestingly, the DiD model corroborates the unfavorable position of the entertainment industry revealed by the event study. However, the model also finds tech and industrial firms to be performing worse in terms of net income, while these industries are best performers in terms of cumulative abnormal stock returns post announcement in the event study. These results are not necessarily contradictory, since current profitability (here, net income) does not always reflect expected future cash flows (stock price). Plus, the industry dummies in the DiD model indicate only the baseline net income differences between industries (not specifically the post-CPA difference, as in the event study). The DiD model simply shows that healthcare, entertainment, tech, and industrial firms have, on average and adjusted for outliers, lower net incomes than other industries in the sample, which does make them financially more vulnerable. The event study, in turn, shows positive abnormal stock market reactions to CPA for tech and industrial firms, possibly reflecting

post-CPA forward-looking investor optimism for these industries, which can coexist with lower average baseline net incomes compared to other industries.

Overall, the preliminary findings in this work illustrate that CPA tends to be negatively perceived by markets initially, likely in anticipation of losses attributed to divestment and, possibly, also as a signal of increased risk exposure. Yet, especially over the long-term, the impact seems to depend largely on firm characteristics, such as country and industry of operation, in some cases leading to significant positive abnormal returns, signifying market optimism. When it comes to annual financial statements, CPA may have been able to partially alleviate the detrimental impact of heightened risks and uncertainty post 2022, demonstrating the ability of firms to proactively tackle emerging geopolitical risks through CPA.

This work with its limitations offers multiple future research avenues. The event study can be extended by testing the selected multiple event windows by industry, and by exploring in greater depth the distribution of CAARs among firms to tackle the issue of possible outliers. The same sample of "activist" firms as in the DiD model could be examined in the event study for more direct comparison. The DiD model developed in this thesis would greatly benefit from a larger, more balanced sample, especially in terms of those firms that decided to stay in Russia. Specifically, developing methods to capture the performance of private companies presents a challenge but would greatly contribute to the study, shedding light on the potentially distinct behavior of public vs. private companies in the context of CPA. Other potential beneficial modifications include a longer time period and including quarterly data; balancing the sample in terms of country and industry distribution; including country and industry interaction terms (i.e., IND*POST, REG*POST) to explore the industry- and country-specific effects post-2022.

CONCLUSIONS

This work aims to shed light on the performance implications of voluntary exit from Russia (self-sanctions) as a form of corporate political activity in response to the Russian full-scale invasion of Ukraine in 2022.

In the theoretical chapter of this thesis it is discussed that companies employ CPA as a non-market strategy to improve performance, manage risk, and secure competitive advantage, especially in uncertain environments. In the context of the Russo-Ukrainian war, firms have engaged in CPA in the form of self-sanctions as a response to stakeholder pressure and as part of a larger geopolitical trade reconfiguration.

Two methodological approaches were developed to approach the question of CPA impact on company performance: an event study of daily stock returns of 132 firms over up to two years after announcement to exit Russia, and a difference-in-differences model of annual net incomes from 2019-2024 of 152 listed companies that decided to divest from Russia vs. 49 listed companies that stayed in Russia.

The event study reveals highly diverse market reactions to CPA across firms, mostly negative initially, and later leading to an abnormal boost for a smaller portion of companies, while inflicting abnormal losses on the others. Entertainment and utilities stocks react to CPA most negatively over time, in contrast to tech and industrials. Finnish stocks incur heaviest abnormal losses after announcements of self-sanctions, compared to the US and Japanese stocks.

The difference-in-differences model demonstrates that CPA may have served as a partial remedy for post-2022 market-wide financial downturn. The model rejects self-selection bias among companies that decided to exit Russia, meaning: the decision to self-sanction is not made only by more profitable firms.

Overall, the findings point to the ability of CPA to benefit businesses in challenging circumstances, although the extent of impact seems to be highly dependent on the country and industry of firm operation. Companies may choose to engage in CPA when met with increased uncertainty, and may need to exercise CPA with greater caution in certain industries, such as entertainment. In an era of rising geopolitical risks and global fragmentation, CPA can help companies "do the right thing" while remaining competitive and driving sustainable growth.

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Appendix A

Dependent Variable: NETINCOME_IHS
Method: Panel EGLS (Cross-section weights)
Date: 05/07/25 Time: 17:09
Sample (adjusted): 2021 2024
Periods included: 4
Cross-sections included: 201
Total panel (unbalanced) observations: 787
Linear estimation after one-step weighting matrix
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.911505	0.277968	6.876719	0.0000
STATUS	-0.055502	0.228807	-0.242571	0.8084
POST	-1.005881	0.257766	-3.902303	0.0001
STATUS*POST	0.577026	0.262813	2.195576	0.0284
NETINCOME_IHS(-1)	0.574611	0.033625	17.08901	0.0000
NETINCOME_IHS(-2)	0.242825	0.031568	7.692023	0.0000

Weighted Statistics

R-squared	0.784135	Mean dependent var	24.31389
Adjusted R-squared	0.782753	S.D. dependent var	26.98139
S.E. of regression	3.827025	Sum squared resid	11438.62
F-statistic	567.4018	Durbin-Watson stat	1.676344
Prob(F-statistic)	0.000000		

Figure A – Respecified DiD model: DiD and lags only

Source: created by the author

Appendix B

Dependent Variable: NETINCOME_IHS
Method: Panel EGLS (Cross-section weights)
Date: 05/07/25 Time: 15:56
Sample (adjusted): 2021 2024
Periods included: 4
Cross-sections included: 183
Total panel (unbalanced) observations: 699
Linear estimation after one-step weighting matrix
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.061216	0.290111	7.104920	0.0000
STATUS	0.107038	0.217120	0.492989	0.6222
POST	-0.918080	0.265697	-3.455369	0.0006
STATUS*POST	0.486995	0.268448	1.814113	0.0701
NETINCOME_IHS(-1)	0.552617	0.035778	15.44585	0.0000
NETINCOME_IHS(-2)	0.205148	0.032232	6.364745	0.0000
GOODWILL	1.40E-05	2.06E-06	6.795209	0.0000

Weighted Statistics

R-squared	0.850722	Mean dependent var	24.38426
Adjusted R-squared	0.849428	S.D. dependent var	28.93153
S.E. of regression	3.738041	Sum squared resid	9669.282
F-statistic	657.2761	Durbin-Watson stat	1.700213
Prob(F-statistic)	0.000000		

Figure B – Respecified DiD model: DiD, lags, goodwill

Source: created by the author

Appendix C

Dependent Variable: NETINCOME_IHS
Method: Panel EGLS (Cross-section weights)
Date: 05/07/25 Time: 17:11
Sample (adjusted): 2021 2024
Periods included: 4
Cross-sections included: 201
Total panel (unbalanced) observations: 787
Linear estimation after one-step weighting matrix
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.074736	0.305714	6.786520	0.0000
STATUS	-0.024316	0.271236	-0.089650	0.9286
POST	-1.151314	0.326403	-3.527276	0.0004
STATUS*POST	0.631689	0.329922	1.914663	0.0559
NETINCOME_IHS(-1)	0.556849	0.036051	15.44621	0.0000
NETINCOME_IHS(-2)	0.200516	0.030722	6.526790	0.0000
LOCSUB	0.082578	0.016889	4.889564	0.0000
REG_USA	0.492719	0.067559	7.293132	0.0000
REG_EUR	0.687206	0.099278	6.922045	0.0000
REG_CAN	-0.735668	0.077507	-9.491631	0.0000
REG_ASIA	1.113891	0.180155	6.182966	0.0000
REG_GB	1.276315	0.387779	3.291345	0.0010
IND_TECH	-0.468744	0.096720	-4.846411	0.0000
IND_INDUST	-0.403174	0.058576	-6.882948	0.0000
IND_H	-0.623109	0.236058	-2.639642	0.0085
IND_ENTMT	-1.208816	0.579482	-2.086028	0.0373

Weighted Statistics

R-squared	0.782307	Mean dependent var	27.56205
Adjusted R-squared	0.778072	S.D. dependent var	34.65632
S.E. of regression	3.913264	Sum squared resid	11806.81
F-statistic	184.7123	Durbin-Watson stat	1.676987
Prob(F-statistic)	0.000000		

Figure C – Respecified DiD model: No ROA

Source: created by the author

Appendix D

Dependent Variable: NETINCOME_IHS
Method: Panel EGLS (Cross-section weights)
Date: 05/07/25 Time: 17:15
Sample (adjusted): 2021 2024
Periods included: 4
Cross-sections included: 201
Total panel (unbalanced) observations: 787
Linear estimation after one-step weighting matrix
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.445998	0.235838	10.37152	0.0000
STATUS	0.074345	0.205764	0.361313	0.7180
POST	-0.827959	0.231013	-3.584036	0.0004
STATUS*POST	0.450256	0.237358	1.896950	0.0582
NETINCOME_IHS(-1)	0.478526	0.033175	14.42429	0.0000
NETINCOME_IHS(-2)	0.211729	0.023384	9.054283	0.0000
ROA	0.046465	0.005848	7.945832	0.0000
LOCSUB	0.107290	0.021145	5.073892	0.0000
IND_TECH	-0.580013	0.117164	-4.950453	0.0000
IND_INDUST	-0.161387	0.102139	-1.580080	0.1145
IND_H	-0.303412	0.195712	-1.550300	0.1215
IND_ENTMT	-1.117561	0.549187	-2.034939	0.0422

Weighted Statistics

R-squared	0.814070	Mean dependent var	26.30122
Adjusted R-squared	0.811431	S.D. dependent var	33.13493
S.E. of regression	3.801886	Sum squared resid	11202.11
F-statistic	308.4768	Durbin-Watson stat	1.435732
Prob(F-statistic)	0.000000		

Figure D – Respecified DiD model: Alternative dummies (IND only)

Source: created by the author

Appendix E

Dependent Variable: NETINCOME_IHS
Method: Panel EGLS (Cross-section weights)
Date: 05/07/25 Time: 17:10
Sample (adjusted): 2021 2024
Periods included: 4
Cross-sections included: 201
Total panel (unbalanced) observations: 787
Linear estimation after one-step weighting matrix
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.125739	0.301628	7.047548	0.0000
STATUS	0.090730	0.103918	0.873100	0.3829
POST	-0.873363	0.085958	-10.16030	0.0000
STATUS*POST	0.490349	0.066080	7.420487	0.0000
NETINCOME_IHS(-1)	0.474384	0.110897	4.277696	0.0000
NETINCOME_IHS(-2)	0.202597	0.052738	3.841609	0.0001
ROA	0.045904	0.005347	8.584209	0.0000
LOCSUB	0.108637	0.016538	6.569092	0.0000
REG_USA	0.417045	0.086803	4.804476	0.0000
REG_EUR	0.575387	0.152659	3.769090	0.0002
REG_CAN	-0.840135	0.303846	-2.765005	0.0058
REG_ASIA	1.183973	0.408996	2.894826	0.0039
REG_GB	1.146890	0.383971	2.986921	0.0029
IND_TECH	-0.687645	0.113793	-6.042941	0.0000
IND_INDUST	-0.304771	0.099316	-3.068712	0.0022
IND_H	-0.447049	0.162692	-2.747830	0.0061
IND_ENTMT	-1.207566	0.342519	-3.525542	0.0004

Weighted Statistics

R-squared	0.818232	Mean dependent var	26.58286
Adjusted R-squared	0.814455	S.D. dependent var	33.16942
S.E. of regression	3.810267	Sum squared resid	11178.96
F-statistic	216.6362	Durbin-Watson stat	1.451512
Prob(F-statistic)	0.000000		

Figure E – Respecified DiD model: White cross-section covariance & standard errors

Source: created by the author

Appendix F

Dependent Variable: NETINCOME_IHS
Method: Panel Least Squares
Date: 05/07/25 Time: 18:05
Sample (adjusted): 2021 2024
Periods included: 4
Cross-sections included: 201
Total panel (unbalanced) observations: 787
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.151141	0.629738	5.003890	0.0000
STATUS	0.054495	0.657695	0.082858	0.9340
POST	-1.559749	0.762418	-2.045792	0.0411
STATUS*POST	0.762726	0.828559	0.920546	0.3576
NETINCOME_IHS(-1)	0.383282	0.046432	8.254614	0.0000
NETINCOME_IHS(-2)	0.186230	0.038976	4.778066	0.0000
ROA	0.046812	0.030753	1.522223	0.1284
LOCSUB	0.181969	0.093473	1.946758	0.0519
REG_USA	0.399737	0.294884	1.355571	0.1756
REG_EUR	0.986386	0.481418	2.048917	0.0408
REG_CAN	-0.107560	0.711200	-0.151238	0.8798
REG_ASIA	0.720783	0.819389	0.879659	0.3793
REG_GB	0.340114	1.081040	0.314617	0.7531
IND_TECH	-1.226264	0.350974	-3.493884	0.0005
IND_INDUST	-0.064343	0.450882	-0.142704	0.8866
IND_H	-1.217823	0.682364	-1.784711	0.0747
IND_ENTMT	-2.360518	1.033862	-2.283205	0.0227

R-squared	0.472644	Mean dependent var	5.134912
Adjusted R-squared	0.461686	S.D. dependent var	5.878379
S.E. of regression	4.312958	Akaike info criterion	5.782489
Sum squared resid	14323.24	Schwarz criterion	5.883328
Log likelihood	-2258.410	Hannan-Quinn criter.	5.821257
F-statistic	43.13222	Durbin-Watson stat	2.066832
Prob(F-statistic)	0.000000		

Figure F – Respecified DiD model: No GLS weights

Source: created by the author

Appendix G

Dependent Variable: NETINCOME_IHS
Method: Panel Least Squares
Date: 05/07/25 Time: 18:01
Sample (adjusted): 2021 2024
Periods included: 4
Cross-sections included: 201
Total panel (unbalanced) observations: 787
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.327373	0.136163	24.43671	0.0000
STATUS	0.482818	0.027481	17.56938	0.0000
POST	-1.960154	0.459249	-4.268171	0.0000
STATUS*POST	1.005889	0.598849	1.679703	0.0934
NETINCOME_IHS(-1)	0.433614	0.009429	45.98767	0.0000
NETINCOME_IHS(-2)	0.209891	0.019635	10.68979	0.0000
IND_TECH	-1.164020	0.381858	-3.048305	0.0024
IND_INDUST	-0.430295	0.229007	-1.878960	0.0606
IND_ENTMT	-2.561501	0.589486	-4.345316	0.0000

R-squared	0.428347	Mean dependent var	5.134912
Adjusted R-squared	0.422469	S.D. dependent var	5.878379
S.E. of regression	4.467302	Akaike info criterion	5.842816
Sum squared resid	15526.38	Schwarz criterion	5.896201
Log likelihood	-2290.148	Hannan-Quinn criter.	5.863340
F-statistic	72.87069	Durbin-Watson stat	2.145785
Prob(F-statistic)	0.000000		

Figure G – Respecified DiD model: No GLS weights

Source: created by the author