Corporate Performance and Policies Under Scrutiny: Guilty by Association?

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Abstract

In this paper, we examine the impact of Russia's 2014 annexation of Crimea on firm performance in Ukraine, focusing on firms with Russian affiliations. Using a difference-in-differences approach, we find that firms with Russian majority ownership experienced a significant decline in performance compared to those without Russian ties. This decline stems from reduced sales, lower investment, restricted access to financing, and increased financial constraints. Notably, we differentiate between firms with visible Russian affiliations, such as Russian names, and those with Russian majority ownership. Our results show that deeper financial connections, rather than mere visibility, drive the negative impact. Firms with Russian ownership were also more likely to exit the market following the conflict. These findings provide important insights into how geopolitical risks affect corporate performance and firm strategic decisions.

Keywords: Ethnically diverse environments; firm name; firm ownership; performance; investment; financial constraints; private firms; panel data; Europe; Ukraine.

JEL Classification: C23, D22, G30, M14, M16

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In this paper, we examine the impact of Russia's 2014 annexation of Crimea on firm performance in Ukraine, focusing on firms with Russian affiliations. Using a difference-in-differences approach, we find that firms with Russian majority ownership experienced a significant decline in performance compared to those without Russian ties. This decline stems from reduced sales, lower investment, restricted access to financing, and increased financial constraints. Notably, we differentiate between firms with visible Russian affiliations, such as Russian names, and those with Russian majority ownership. Our results show that deeper financial connections, rather than mere visibility, drive the negative impact. Firms with Russian ownership were also more likely to exit the market following the conflict. These findings provide important insights into how geopolitical risks affect corporate performance and firm strategic decisions.

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1. Introduction

Geopolitical events have historically exerted profound impacts on global economic systems, influencing the performance and growth prospects of firms worldwide. These events, including wars and international sanctions, can disrupt trade flows, alter market dynamics, and reshape the economic landscapes in which firms operate (World Economic Forum, 2023). Understanding the extent and mechanisms through which such geopolitical risks affect firm performance is critical for both investors and corporate managers (Caldara and Iacoviello, 2022).

In recent years, there has been a rise in significant geopolitical events, such as Brexit, trade disputes between the U.S. and China, trade restrictions linked to the COVID-19 pandemic, Russia's invasion of Ukraine, and ongoing conflicts in the Middle East. These events have prompted researchers to explore their effects on the global economy. So far, much of the focus has been on how geopolitical tensions influence global and local financial markets. For example, Guidolin and La Ferrara (2010) consider the economic effect of violent conflicts, and Neiderhoffer (1971) investigates the impact of world events on global equity. Similarly, literature has been looking at the impact of specific events and their implications for the stock market. To name a few, Bradford and Robison (1997) consider the case of the Iraqi invasion of Kuwait; Fernandez (2007) focuses on the Middle East conflict; Hudson and Urquhart (2015) look at the impact of World War II; Gu, Zhang, Cheng (2021) study the effects of Sino-US trade and non-trade disputes; and Boubaker, Goodell, Pandey, Kumari (2022), and Ahmed, Hasan, Kamal (2023) examine the impact of the 2022 Russian invasion of Ukraine. Firm reactions to geopolitical crises and the resulting impact on their performance, along with the heterogeneity of these effects and their reactions to such events, remain significantly less explored.

In this paper, we focus on one of the salient geopolitical events of the past decade — the annexation of Crimea by Russia in 2014 — to explore the effect of conflict on the performance of firms affected by it. Although this event was geographically and politically significant, it did not lead to a wider war that disrupted global markets. Instead, its impact was relatively localized, primarily affecting Ukraine and its immediate economic ties with Russia. This specificity offers a unique setting to explore the nuanced ways that geopolitical risks can manifest in firm performance. We expect the conflict to have performance implications for firms that could be perceived as being of Russian origin and operating in Ukraine.

Focusing on firms with Russian affiliations operating in Ukraine provides us with an interesting setting for studying this question for several reasons. First, a sizable Russian minority has long been present in Ukraine. In the Soviet era, the Russian minority increased considerably, reaching 22.1 percent of the population in 1989; it remained substantial even after the fall of the Soviet Union, representing 17.2 percent in 2001. Ethnic Russians were mainly concentrated in the eastern part of the country, while some areas in Crimea and Donbas had a Russian majority. At the same time, districts in Western Ukraine often had less than 1 percent of ethnic Russians (2001 Ukrainian Census). This is also consistent with the use of the Russian language across the country: less than 5 percent considered Russian to be their native language in Western Ukraine, 5–24 percent in Central Ukraine, 25–74 percent in Southern Ukraine, and more than 75 percent in Crimea and Donbas (Figure 1). Second, a more general political and religious divide exists between pro-Russian and pro-European cultures. Figure 2 illustrates the 2010 election results, where Western and Central Ukraine voted for pro-European candidate Yulia Tymoshenko, while Eastern and Southern Ukraine supported pro-Russian candidate Victor Yanukovych.¹ The religion

¹ Victor Yanukovych won in 2010 and was the president until the revolution in February 2014, when he was replaced by interim president Oleksandr Turchynov and later, following the elections on May 25, 2014, by pro-European

map (Figure 3) describes the pro-European versus pro-Russian voting pattern: Western Ukraine is Greek Catholic and Orthodox; Central, Eastern, and Southern Ukraine are mostly Orthodox.

[Insert Figures 1, 2, and 3 here]

Third, the conflict was relatively isolated in a few locations and did not affect most of Ukraine's territory. Crimea's annexation occurred without direct military confrontation and didn't impact daily firm operations. Nevertheless, due to this ethnically charged event, one group of firms with Russian affiliations has likely been disproportionately more affected by this exogenous geopolitical shock compared to firms without Russian affiliations. *A priori*, one would expect the (negative) impact of the conflict to be maximal for these firms.

For analysis, we construct a large sample of privately owned firms operating in Ukraine over the period from 1999 to 2018 and differentiate between firms with and without Russian affiliations. We use the conflict between Russia and Ukraine in 2014 as a natural experiment and employ a difference-in-differences identification strategy to compare the performance of firms with Russian affiliations to those without such affiliations to establish causality. Our main finding is that firms with Russian affiliations experienced a significant drop in performance in response to the conflict, while firms with no Russian affiliations did not. This suggests that the presence of Russian affiliations, specifically Russian majority ownership, has a direct, significantly negative impact on the performance of firms after the 2014 seizure of Crimea. The results of our study provide valuable insights for policymakers and investors seeking to understand the implications of geopolitical tensions in business performance.

candidate Petro Poroshenko. The revolution in February 2014 was a result of widespread protests against Yanukovych's government and his decision to reject closer ties with the European Union. The election of Petro Poroshenko marked a shift toward a more pro-European stance for Ukraine.

We next explore the specific channels through which Russian affiliations affect firm performance during times of political unrest. Further investigation reveals that the observed decline in performance results from declining sales, lower investment, more challenging access to financing, and an overall increase in the financial constraints faced by firms with Russian majority ownership. While having Russian affiliation is not associated with financial distress following the conflict, our research shows that these firms are more likely to exit the sample after the annexation.

This paper contributes to several strands of literature. First, we contribute to the literature on the impact of geopolitical risks on various corporate policies, including investments, acquisitions, and payout policies at the micro-level (Pan, 2019; Caldara and Iacoviello, 2022; Hao, Prapan, Gavriilidis, Petmezas, and Vagenas-Nanos, 2022; Adra, Gao, Huang, and Yuan, 2023; Wang, Wu, and Xu, 2023). Unlike previous studies that tend to focus on a single corporate policy, our paper provides a more systematic view of the effects of conflict by analyzing its impact on firm performance, specifically on sales, investment decisions, leverage, cash holdings, and, more broadly, on financial constraints and the probability of bankruptcy. In addition to these impacts, we examine firms' strategic responses, such as leaving the sample or relocating to pro-Russian regions, as potential solutions to mitigate the challenges posed by geopolitical tensions.

Second, we contribute to the growing literature that examines how geopolitical risks and political events affect firm performance. The majority of the prior studies focus on the impact of political events on stock returns and market volatility, typically reporting negative effects (Rigobon & Sack, 2005; Choudhry, 2010; Smales, 2017; Bash & Alsaifi, 2019; Buigut & Kapar, 2020). Some also find that these events could yield positive outcomes (Guidolin & La Ferrara, 2010), while others document a weak relationship between war events and market returns (Hudson & Urquhart, 2015). Our paper extends this literature by shifting the focus to private (unlisted)

firms, which are arguably less vulnerable to stock market volatility. By focusing on firms not directly exposed to market sentiment, we can gain a deeper understanding of how geopolitical risks impact firm performance beyond stock prices and market reactions. We also improve our understanding of how geopolitical events influence corporate behavior across a broader spectrum of firm types.

Third, we contribute to the literature on armed conflict and firms (Guidolin and La Ferrara, 2007; Korovkin and Makarin, 2023) by examining the visibility of firms' affiliations with Russia and exploring the heterogeneity of the effect. Specifically, we differentiate between two types of firms likely to be impacted due to their Russian ties: firms with Russian names and firms with Russian majority ownership. While a Russian name can be readily identified by both customers and investors, making it a more visible marker of affiliation, our findings show that firms with Russian majority ownership are much more negatively affected by the conflict. This suggests that deeper financial connections to Russia, rather than mere surface-level visibility, expose firms to heightened risks and vulnerabilities during geopolitical crises.

The paper is organized as follows: Section 2 describes the sample, the data, and our measures of Russian affiliation. Section 3 presents the empirical analyses and discusses the results. Section 4 concludes.

2. Data

2.1. Sample construction

We collect the data from the Orbis Europe database (former Amadeus) maintained by Bureau van Dijk (BvD), a Moody's Analytics company. This database is the most comprehensive financial and ownership information source on public and private companies across Europe, including Ukraine. BvD obtains data from regulatory filings, third-party vendors, and its own

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proprietary sources. Orbis Europe contains up to 20 years of historical financials for public companies and a rolling ten years for private companies and eliminates firms that are inactive, merge, or change identification. In addition, only the most recent ownership information, date of incorporation, industry classification, and company characteristics (name, type, region) are available in the database. We use several historical queries to address these shortcomings and collect the data from seven bi-annual versions of Orbis Europe.

We focus on firms operating in the Ukraine, excluding Crimea. Firms from the Crimea region are not included in our sample because the immediate political instability and shifts in governance structures in Crimea likely disrupted local business operations. Firms with physical assets in this region faced challenges related to property rights, changes in legal jurisdictions, and the physical security of their operations. We also exclude firms that operate in the financial sector (NACE 64-66); firms belonging to public administration, defense, and compulsory social security sectors (NACE 84); firms engaged in activities of households as employers; undifferentiated goods- and services-producing activities of households for own use; and activities of extraterritorial organizations and bodies (NACE 97-99). In addition, we excluded firms that have not reported their financials for more than three years and have missing ownership information. Our final sample consists of 1,902,319 firm-year observations representing 119,568 unique firms from 1999 to 2018.²

2.2. Russian affiliations

Our primary focus is on firms affiliating with Russia, as these affiliations can significantly impact how these companies are perceived in the marketplace. One specific type of affiliation we

 $^{^{2}}$ We intentionally limit our analysis to data up to the year 2018, as subsequent years may be influenced by exogenous shocks such as the COVID-19 pandemic and the geopolitical and economic disruptions associated with the war in Ukraine. Including these years could introduce confounding factors that distort the trends and relationships under examination.

consider is whether a firm has a Russian name. This is important because firms with Russiansounding names may be perceived as Russian by both consumers and investors, regardless of whether the firm is actually owned or operated domestically. The perception of a firm's origin or affiliation can influence consumer behavior, investment decisions, and, ultimately, the firm's performance. For instance, research by Pandya and Venkatesan (2016) provides a compelling example of how perceptions tied to a company's name or origin can affect its market share. Their study demonstrates that French-sounding U.S. supermarket brands experienced a decline in market share during the 2003 diplomatic dispute between the United States and France over the Iraq War. During this period, U.S. consumers engaged in informal boycotts, preferring not to purchase products they associated with France due to political disagreements. This example illustrates that a firm's name and national or cultural connotations can be critical in consumer perception and behavior. Similarly, firms with Russian-sounding names might face challenges in maintaining their market positions, especially in contexts where geopolitical tensions or conflicts involving Russia influence public opinion.

To identify Russian firm names, we first create a separate sample that contains a list of unique words in firm names and identify how frequently they are used. Each word is then categorized as either Russian or Ukrainian based on the word ending. Russian and Ukrainian words are further checked against the corresponding dictionaries. It is noteworthy that words in both Ukrainian and Russian dictionaries are classified as Ukrainian. The resulting sample is then used to classify firm names as being Russian, or Ukrainian origin.

Another important Russian affiliation we consider is Russian majority ownership. While identifying firms with Russian-sounding names is relatively straightforward, Russian majority ownership is not directly observable by consumers and investors. Yet, firms with Russian majority ownership could face increased scrutiny, regulatory challenges, or even sanctions, impacting their operations and financial performance. Such affiliations might also lead to consumer backlash or boycotts, similar to reactions observed in other geopolitical disputes. Consumers may avoid purchasing products or services from firms linked to Russian interests, leading to declines in sales and market share. Furthermore, investors may view these firms as higher-risk investments, potentially resulting in divestment, increased cost of capital, and reduced access to international markets.

2.3. Descriptive Statistics

Table 1 provides summary statistics for the key variables in our sample. On average, firms have \$424.2 thousand in assets and are 11.6 years old. They generate \$2.59 million in sales, with a market share (2-digit NACE industry) of 0.014 and a return on assets (ROA) of 0.093. The average firm has a leverage ratio of 0.374, with approximately 30% of its tangible assets. Gross investment stands at 0.031, and cash holdings are 0.007 of total assets. In terms of distress, 3.5% of firms are legally distressed, as indicated by their legal status (insolvency, bankruptcy, or liquidation), while 25.7% are financially distressed based on an Altman score below 1.8.

3.1% of firms in our full sample have Russian names, and 0.3% of firms have Russian majority ownership. We expect that firms with Russian affiliations would be distributed differently across Ukrainian regions. Guided by the Kyiv International Institute of Sociology (KIIS) regional classification (Figure 4), plus Ukrainian language and Ukrainian political voting regional distributions (Figure 1 and Figure 2, respectively), we differentiate between Capital, West (KIIS) West and Center), Pro-Russian regions (Donetsk and Luhansk), and the rest of the Ukraine.³

³ Figure 4 shows that the Kyiv International Institute of Sociology (hereinafter, KIIS) divides Ukraine into regions as follows: 1) West (KIIS West + KIIS Center), KIIS South-East, and separately conflicting territories (Donetsk/Luhansk/Crimea); 2) KIIS West, KIIS Center, KIIS South-East, and separately conflicting territories (Donetsk/Luhansk/Crimea). We have excluded Crimea from our analysis, as detailed in Section 2.

[Insert Figure 4 here]

Figure 5 shows that in Western Ukraine, only 0.93% of firms have a Russian name, and 0.05% have majority Russian ownership. In the capital and the rest of Ukraine, the percentages are slightly higher: 1.78% and 3.44% of firms have a Russian name, while 0.33% and 0.13% have majority Russian ownership, respectively. As expected, a higher concentration of firms with Russian affiliations is found in pro-Russian regions, with 10.69% having a Russian name and 1.85% having majority Russian ownership.

[Insert Figure 5 here]

We also check if there is a change in sample composition due to the year-2014 discontinuity (Figure 6). We observe that the proportion of firms with Russian names decreases from 0.96 to 0.85% in Western Ukraine and from 1.85 to 1.63% in the capital. At the same time, there is a small increase in firms with RU names in the rest of Ukraine (from 3.42 to 3.5%) and a very large increase in pro-Russian regions (from 7.52 to 17.88%). For firms with RU majority ownership, we observe an increase in all regions following the conflict. Most notably, in the capital, it was from 0.15 to 0.71%, and in pro-Russian regions, it was from 0.13 to 5.75% of all firms in our sample.

[Insert Figure 6 here]

We further analyze the descriptive statistics for the main variables in our sample by RU affiliation and present mean comparison tests in Table 2. Firms with RU names tend to have slightly higher ROA (0.097 vs. 0.093) and size (ln(Total Assets) is 13.115 vs. 12.953) compared to firms without RU names. However, they exhibit lower market share (0.008 vs. 0.014) and tangibility (0.243 vs. 0.300). Leverage is also higher for firms with Russian names (0.403 vs. 0.373), though the difference in sales is minimal. All the differences are statistically significant.

In contrast, firms with RU majority ownership display significantly larger size (ln(Total Assets) is 15.125 vs. 12.952) and returns on assets (0.108 vs. 0.093) than those without Russian majority ownership. These firms also have a considerably higher market share (0.043 vs. 0.014), but lower tangibility (0.211 vs. 0.298). Notably, firms with Russian ownership show lower sales (2.112 vs. 2.590) and a smaller gross investment rate (0.019 vs. 0.031). Leverage is slightly higher in firms with Russian ownership (0.396 vs. 0.374). Overall, firms with Russian affiliations — whether by name or ownership — tend to be larger in terms of assets and ROA than non-Russian affiliated companies but show mixed results in terms of financial health indicators such as market share and leverage.

[Insert Table 2 here]

3. Empirical Analysis

3.1. The effect of having Russian affiliation on firm performance

We study the impact of geopolitical effects on the performance of firms with Russian affiliations. To identify the effect and establish a causal relationship between firm Russian affiliation and firm performance, we employ a difference-in-differences approach using the Russia-Ukraine conflict of 2014 as the treatment date. Specifically, to compare the performance of firms with Russian affiliations before and after the start of the conflict, we estimate the following specification:

$$Y_{it} = \alpha + \beta_1 RU Affiliation_{it} + \beta_2 RU Affiliation_{it} \times I(year \ge 2014)_{it} + \gamma X_{it} + \theta_j + \vartheta_k + \tau_t + \varepsilon_{it},$$
(1)

where Y_{it} denotes the outcome variable (ROA) of firm *i* at time *t*. *RU Affiliation* is a set of dummy variables for firms with Russian affiliation, where *RU name* equals one for firms with Russian name origin and zero otherwise; *RU majority ownership* equals one for firms with a

majority Russian owner and zero otherwise. $I(year \ge 2014)_{it}$ is the post-2014 conflict indicator. All specifications control for firm assets and firm age, leverage, and market concentration. In addition, some specifications also control for firm asset tangibility and cash holdings. θ , ϑ , and τ are complete sets of two-digit NACE codes (*j*), region (*k*), and time (*t*) dummy variables. ε is an *i.i.d.* error term. Standard errors are clustered by firms.

Our difference-in-differences design relies on the assumption that, absent the conflict, performance differences between firms with and without Russian affiliations would have evolved similarly before and after 2014. To visually assess pre-trends in performance, we plot the difference-in-differences-in-time coefficients with 95% confidence intervals, estimated without firm-level controls, in Figure 7. Panel A compares firms with Russian names to those without, while Panel B examines firms with majority Russian ownership against those without. Both panels indicate that, on average, performance is relatively similar across firms with and without Russian affiliations. The observed patterns show no statistically significant differences in pre-trends, with reasonably parallel trends prior to 2014, supporting our identification assumption. We begin to observe some divergence in trends around 2014, consistent with the conflict's onset in February, which likely affected firm outcomes that year.

Table 3 reports the estimation results for regression (1). We observe that the performance of firms with Russian names is similar to other firms operating in Ukraine as the relevant coefficients in specifications (1), (2), (5), and (6) are not statistically significant. Similarly, the coefficient for Russian majority ownership is not statistically significant across all columns (3, 4, 5, and 6). This indicates that having a Russian affiliation per se does not have a direct effect on a firm's profitability. At the same time, the coefficient for the interaction term between Russian affiliation and post-conflict period turns negative in all specifications, suggesting that firms with Russian affiliations experienced a drop in their profitability compared to firms not affiliated with Russia. The observed negative impact on ROA is stronger for firms with Russian majority ownership. This could reflect deeper operational or financial linkages to Russia, making them more vulnerable to sanctions, disrupted supply chains, or changes in the business environment due to political tensions. The magnitude and significance of these coefficients implies that firms with majority Russian ownership faced greater economic repercussions compared to firms merely having a Russian name.

[Insert Table 3 here]

The estimated coefficients of the firm-level control variables have the expected sign. Firm size and age are negatively related to the return on assets, which is consistent with the nonlinearity of the size- and age-profitability associations due to smaller gains in profitability for larger and older firms. Furthermore, leverage is negatively related to return on assets, so higher leverage must provide financing for firm operations and investments when internally generated funds are not sufficient. Higher market concentration is positively related to profitability because firms controlling a larger market share enjoy higher revenues, perhaps because they can charge higher per unit prices.

Our main results highlight the negative effect of having Russian affiliation at the time of Russian-Ukrainian geopolitical conflict. While company name of Russian origin is likely to negatively affect performance through public perception channels, majority Russian ownership appears to pose a more substantial risk, affecting profitability through limited access to funding, reduced investment, reduced cash holdings, and presence of financial constraints. Understanding these channels of effect propagation is essential for stakeholders, including policymakers, investors, and firm managers, to make informed decisions and develop strategies to mitigate these risks in similar geopolitical contexts.

3.2. Channels

There are several channels through which the performance of firms with observable Russian affiliations could be affected. These are changes in consumer animosity, difficulties securing financing resulting in investment reduction, aggravating financial constraints, and even a higher probability of default. We explore each in turn below.

A. Consumer animosity

The impact of international conflicts on consumer behavior can be significant, shaping nationalistic sentiments and driving demand for domestically produced goods. This heightened awareness prompts consumers to become more cognizant and cautious about the origins of products in these situations. Moreover, geopolitical tensions can lead consumers to boycott products from specific nations, representing a significant economic protest or act of solidarity. For instance, Pandya and Venkatesan (2016) illustrate that during the 2003 US-France dispute over the Iraq War, the market share of French-sounding brands in US supermarkets declined. Similarly, during the Intifada in Israel, consumer animosity significantly influenced purchasing decisions, leading to a reduction in the consumption of products from conflicting groups, driven by factors such as nationalism and dogmatism (Shoham, Davidow, Klein, and Ruvio, 2006).

Consumer animosity refers to consumers' strong feelings of dislike or even hatred toward a country due to its political, military, or economic behavior (Klein, Ettenson, and Morris, 1998). A primary consequence of this animosity is a negative impact on the willingness to buy products from the targeted country, as observed in multiple contexts (Klein, 2002; Leong et al., 2008). In light of the ongoing Russia-Ukraine conflict, it is reasonable to expect an increase in consumer

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animosity toward Russian-made goods and services, as well as companies perceived to be affiliated with Russia. This animosity likely results in a decrease in sales for these companies, as consumers may actively seek to avoid products associated with Russia.

However, consumers are not always sophisticated or well-informed when it comes to determining the origins of products. In many cases, the accuracy of their knowledge about a company's ownership or product provenance can vary significantly (Samiee, 1994; Samiee, Shimp, & Sharma, 2005). For example, while some consumers may conduct thorough research to ascertain whether a company is Russian-owned or manufactures its products in Russia, others might rely on more superficial cues such as a company's name, branding, or even stereotypes associated with certain languages or symbols. This variation in consumer knowledge means that not all Russian-affiliated firms will be equally affected by animosity.

We can reasonably hypothesize that companies with Russian names will be more negatively affected by consumer animosity than those with less obvious connections to Russia. This is because consumers may more readily associate these firms with Russia, even if the companies are not Russian majority-owned or their actual involvement with the country is minimal. For these firms, the visibility of their Russian ties may trigger stronger negative reactions from consumers, leading to sharper declines in sales.

On the other hand, companies that have significant Russian ownership but operate under more neutral or international names, or whose Russian ties are not readily apparent to the average consumer, may be less affected. The less observable nature of their ownership may allow them to escape the full brunt of consumer animosity, at least in the short term, as consumers may not be aware of their Russian connections. Consequently, these firms might experience a more moderate decline in sales compared to those with overt Russian branding.

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Table 4 presents the regression results from testing whether having Russian affiliations affects firms' sales both before and after the conflict. The coefficients for both Russian name and the interaction term between Russian name and post-2014 period are not statistically significant in any specifications (columns 1, 2, 5, and 6). This suggests that having a Russian name did not significantly impact a firm's sales, either before or after the conflict. For Russian majority ownership, the coefficients are strongly positive and statistically significant before the 2014 conflict (columns 3, 4, 5, and 6) and negative and statistically significant for the interaction term, indicating that firms with Russian majority ownership experienced a substantial drop in sales after the conflict. While the significant reduction in sales aligns with the decline in profitability, it is unlikely driven by consumer animosity. Firms with more visible but superficial Russian affiliations show no significant effect, while those with deeper but less visible ties, like majority ownership, experience a notable negative impact, making consumer animosity an unlikely channel for the performance drop.

[Insert Table 4 here]

B. Corporate policies – investment, leverage, cash

The significance of geopolitical risk in influencing corporate decisions has been emphasized by policymakers. Geopolitical risk, along with economic and policy uncertainty, has the potential to cause substantial negative impacts on economic outcomes (Luo and Assche, 2023). Recent literature links higher geopolitical risk to a variety of corporate outcomes, including lower investment and employment (Caldara and Iacoviello, 2022), lower R&D (Pan, 2019) and innovation activity (Lee et al., 2023), decreased acquisition activity (Hao, Prapan, Gavriilidis, Petmezas, and Vagenas-Nanos, 2022), reduced leverage (Aram, Javadi, and Chowdhury, 2024) and lower share repurchases (Adra, Gao, Huang, and Yuan, 2023). Geopolitical risk introduces uncertainty and increases the value of the real option to delay investment (Bloom, 2009). Moreover, a survey on corporate risk management conducted by Giambona et al. (2018) reveals that the primary strategy for handling periods of geopolitical risk is to simply refrain from making investments during such times. This is consistent with Bernanke (1983), Rivoli and Salorio (1996), Bloom, Bond, & Van Reenen (2007), Julio and Yook (2012), Gulen and Ion (2016), and Kim and Kung (2017), who suggest that firms become cautious and hold back on investment in the face of uncertainty.

Prior studies also show that credit markets tighten during periods of elevated uncertainty. Francis, Hasan, & Zhu (2014) find that U.S. firms exposed to political uncertainty face higher loan spreads and stricter loan terms. Similarly, Ashraf and Shen (2019), using international bank-level data, report that the cost of bank loans rises in times of increased policy uncertainty. Non-pricing loan features are also affected, as Datta et al. (2019) find that firms shorten debt maturities during uncertain periods. These findings suggest that geopolitical, policy, or political uncertainty makes access to credit more costly and restrictive. At the same time, access to financing is one of the most important factors that determine corporate investment and the performance of firms. Literature focusing on the link between geopolitical risk and corporate debt is rather scarce. Raunig, Scharler and Sindermann (2017) show that banks tend to lend less in uncertain times. Khoo and Cheung (2021) focus on geopolitical uncertainty and find that it is associated with the reduction of debt. They also document the decrease in debt maturity and the substitution of bank debt with public debt. The Fang and Hsu (2023) findings indicate a significant negative association between firm-level geopolitical risk and leverage level, suggesting that firms opt for lower leverage as a risk mitigation strategy against the uncertainties stemming from higher geopolitical risk.

Higher uncertainty represented by higher geopolitical risk could also affect firm cash holdings. For example, in line with a precautionary motive, Behera and Mahakud (2024) find that geopolitical risk has a positive impact on the cash holdings of Indian firms. The authors also find that the positive relationship between geopolitical risk and cash holdings is consistent for financially constrained and unconstrained firms. Similarly, Cho (2023) reports a positive relationship between geopolitical risk and cash holdings of Korean firms, while Lee and Wang (2021) show the same holds for Chinese firms.

In the context of the 2014 Russian-Ukrainian conflict, we expect that firms with Russian affiliations are more likely to experience a significant decline in investment and leverage and a potential increase in cash holdings as these firms are perceived as having higher geopolitical risk exposure. Their ties to Russia would likely made them vulnerable to sanctions, trade disruptions, and political instability. This heightened risk would lead investors and financial institutions to see them as less stable, reducing their willingness to provide capital or finance future projects and forcing them to rely on their internal funding.

$$Y_{it} = \alpha + \beta_1 R U Affiliation_{it} + \beta_2 R U Affiliation_{it} \times I(year \ge 2014)_{it} + \gamma X_{it} + \theta_j + \vartheta_k + \tau_t + \varepsilon_{it},$$
(2)

where Y_{it} denotes a corporate outcome (gross investment, leverage, or cash holdings) of firm *i* at time *t*. *RU Affiliation* is a set of dummy variables for firms with Russian affiliation, where *RU name* equals one for firms with Russian name origin and zero otherwise; *RU majority ownership* equals one for firms with a majority Russian owner and zero otherwise. $I(year \ge 2014)_{it}$ is the post-2014 conflict indicator. All specifications control for firm assets and firm age, tangibility and market concentration. In addition, specifications for gross investment and cash holdings also control for sales growth; sales are included in the leverage specification. θ , ϑ , and τ are complete sets of two-digit NACE codes (*j*), region (*k*), and time (*t*) dummy variables. ε is an *i.i.d.* error term. Standard errors are clustered by firms.

We test our conjectures and present the findings in Table 5. Of the two measures used to assess Russian affiliation—having a Russian name (RU name) and Russian majority ownership the firm name is more straightforward to observe. The results reveal that having a Russian name has no significant effect on a firm's investment, leverage, or cash holdings, both before and after the onset of the conflict. In other words, firms with Russian names are not statistically distinguishable from other firms operating in Ukraine regarding these corporate outcomes. However, the results are notably different for firms with Russian majority ownership. Prior to the conflict, these firms tended to exhibit higher levels of gross investment and larger cash reserves compared to their counterparts. This suggests that Russian ownership may have provided firms with access to additional financial resources or a greater willingness to invest. After February 2014, as geopolitical tensions intensified, the situation for firms with Russian majority ownership shifted significantly. These firms saw notable declines in gross investment, leverage, and cash holdings. This suggests that their strong ties to Russia made them particularly vulnerable to the economic uncertainty, sanctions, and trade disruptions brought on by the conflict. The increased difficulty in raising capital, evidenced by the drop in leverage, likely forced these firms to scale back new investments. Consequently, they began relying more on internal funds to sustain day-today operations, which explains the reduction in their cash holdings.

[Insert Table 5 here]

C. Financial constraints and financial distress

Lower investment, lower debt, lower cash, and declining sales and profitability observed for firms with Russian affiliations suggest that these firms are experiencing financial constraints. Firms that cannot invest in growth or sustain day-to-day operations will struggle to remain solvent. Consequently, firms with Russian affiliations may face significantly higher financial constraints and a greater risk of failure than their peers without such affiliations. To investigate this, we construct the Hadlock-Pierce Index, known as the size-age or SA index, designed to estimate firms' financial constraints based on their size and age (Hadlock and Pierce, 2010).

 $SA Index = -0.737 \times Size + 0.043 \times Size^2 - 0.040 \times Age,$

where *Size* is the natural logarithm of the firm's total assets (in millions of dollars), and *Age* is the firm age in years. Higher values of SA index indicate lower financial constraints, and lower values indicate higher financial constraints. Typically, small and young firms have lower SA index values, reflecting greater financial limitations, whereas larger and more established firms tend to have higher SA index values, indicating fewer financial constraints.

Table 6 presents the results of estimations investigating whether firms with Russian affiliations face higher financial constraints. Firms with RU name have significantly higher SA index values, suggesting these firms face fewer financial constraints compared to others. However, after February 2014, the interaction term for RU name \times Post Feb 2014 shows a significant negative effect. This implies that after the geopolitical conflict, firms with a RU name experienced increased financial constraints. Firms with RU majority ownership face higher financial constraints compared to other firms. Post-2014 Russian-owned firms experience a further increase in financial constraints.

[Insert Table 6 here]

In addition to financial constraints, we also look at the probability of bankruptcy. To assess this, we use a well-established in the literature Altman's Z-score adjusted for private firms (Altman, 2013). The model for manufacturing firms is (Z') and for service firms is (Z''). We use NACE classification to determine whether the firm belongs to a manufacturing (10–33) or nonmanufacturing industry.

$$Z' = 0.717(X_1) + 0.847(X_2) + 3.107(X_3) + 0.420(X_4) + 0.998(X_5),$$

 $Z'' = 6.56(X_1) + 3.26(X_2) + 6.72(X_3) + 1.05(X_4),$

where X_1 is the working capital to total assets ratio; X_2 is the retained earnings to total assets; X_3 is the EBIT to total assets ratio; X_4 is the book value of equity to book value of total liabilities ratio; X_5 is the sales to total assets ratio.

Based on standard distress classification criteria, a firm is classified as financially distressed if its Altman score falls below 1.8. We use an alternative legal distress measure based on the company's legal status (insolvency, bankruptcy, or liquidation) as reported in the Orbis database. Table 7 reports the results. The results suggest that firms with RU majority ownership faced higher financial distress (based on the Altman score) before the conflict but did not experience a significant increase in financial or legal distress after February 2014. Firms with RU names, however, show no significant impact on financial or legal distress, both before and after the geopolitical conflict. These findings imply that despite an increase in financial constraints faced by firms with Russian affiliations, the conflict did not significantly impact the probability of bankruptcy.

[Insert Table 7 here]

3.3. Exit

The analysis so far clearly shows that firms with Russian affiliations do not benefit from performance improvements following the conflict. In fact, these affiliations seem to have had a neutral or even adverse effect on firm outcomes. For instance, firms with Russian names do not show any significant changes in investment, leverage, or cash holdings, suggesting that their

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performance did not improve or deteriorate relative to other firms. Yet, they tend to experience higher financial constraints. On the other hand, firms with Russian majority ownership exhibit significant reductions in investment, lower leverage, and declining cash holdings, together with higher financial constraints post-conflict. This suggests that having Russian ties likely made these firms more vulnerable to the economic and geopolitical uncertainties brought on by the conflict. Approximately 12% of unique firms exited the sample by the end of 2018. Notably, around 8.4% of these exits occurred after February 2014, accounting for more than two-thirds of all departing firms. Among these firms, those with Russian-associated names had a lower rate of bankruptcy, liquidation, or default, indicating that their exit was likely due to a shift in affiliation rather than financial distress.⁴ We thus further analyze whether firms with Russian affiliations are more likely to exit the sample post-conflict.

Our data does not allow us to see if firms are temporarily leaving the sample and re-entering the sample with a new identification after changing their name or ownership. To account for these possibilities, we use nearest neighbor matching to match firms that are leaving the sample (treated firms) to similar firms that are entering the sample (control firms). As described in the methodology section, we construct the pseudo-linked firm by requiring that leaving and entering firms work in the same region and industry and exit/enter the sample in the same year. Technically, we also match other covariates, including size (ln(Total Assets)), leverage, and market power, measured by the Herfindahls-Hirsh Index.

Table 8 presents the Average Treatment Effect on Treated (ATET), which measures how Russian affiliations influence the likelihood of firms leaving the sample after 2014. As expected, firms with Russian names or majority Russian ownership are much more likely to exit the sample

⁴ This is just indicative information, as we do not know the legal status for more than 90% of firms at the exit time.

after 2014. However, surprisingly, firms with Russian affiliations are also more likely to enter the sample post-2014.

To investigate further, we analyze the data by separating firms in pro-Russian regions (Table 8, Panel B) from those in other parts of Ukraine (Table 8, Panel C). The findings align with our expectations: firms with Russian affiliations are significantly more likely to leave the sample if they are outside pro-Russian regions and more likely to enter the sample in pro-Russian areas. This suggests a potential geographic shift within the country rather than a complete withdrawal from the Ukrainian market. Therefore, relocation to pro-Russian regions appears to be a logical strategic move for these firms in response to the challenging post-2014 environment.

4 Conclusion

We study the impact of Russian affiliation on firms' outcomes in a sample of Ukrainian companies spanning 1999 to 2018 in the aftermath of the 2014 Russia-Ukraine conflict. Our findings suggest that the drop in performance of firms with Russian affiliations could be due to financial burdens imposed on these companies. Firms with Russian majority ownership experience sharper declines in profitability, sales, investment levels, and leverage post-conflict, revealing heightened vulnerability to geopolitical tensions, sanctions, and investor skepticism. Additionally, these firms face increased financial constraints and a higher distress probability than their non-Russian-affiliated counterparts.

The findings suggest that firms with more visible but superficial Russian ties, such as a Russian name, were not as severely impacted as those with deeper financial connections to Russia. This highlights that consumer animosity, while a potential factor, may not have played a decisive role in the observed decline in firm performance. Instead, access to credit, investment delays, and financial distress emerge as key drivers of the negative performance outcomes. These insights are critical for stakeholders such as investors, firm managers, and policymakers, as they underline the importance of understanding the multifaceted effects of geopolitical crises on firm performance. Firms operating in politically sensitive environments must be prepared for the financial and operational constraints that may arise, particularly for those companies affiliated with countries at the center of conflicts. This understanding is crucial for developing effective strategies to mitigate risks and navigate uncertain geopolitical landscapes.

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Figure 1. Shares of native Russian speakers across Ukrainian regions

(Source: 2001 Ukrainian census)



Figure 2. Results of the 2010 Presidential Elections (Second Round) across Ukrainian regions

(Source: Ukraine central election commission)



Figure 3. Major religions in Ukraine across regions

(Source: Religious Information Service of Ukraine)



Figure 4: Regional division of Ukraine (by KIIS)



Figure 5. Regional distribution of firms with Russian affiliations





Figure 7. Pre-conflict trends in firm performance

This figure provides statistical evidence that performance trends are similar for firms with and without Russian affiliations. Figures report the coefficient estimates of the interaction between year fixed effects and the Russian affiliation indicator variables. Panel A reports trends for performance of firms with RU names; Panel B depicts trends in performance of firms with majority RU ownership.

Panel A. RU name



Panel B. RU majority ownership



Table 1. Descriptive statistics

			_		Distribution	
	Obs	Mean	Std. Dev.	p10	Median	p90
RU name	1,902,319	0.031	0.173	0.000	0.000	0.000
RU majority ownership	1,902,319	0.003	0.052	0.000	0.000	0.000
ln(Total Assets)	1,902,319	12.958	2.665	9.549	12.940	16.393
ROA	1,902,319	0.093	0.320	-0.128	0.040	0.419
Leverage	1,902,319	0.374	0.325	0.008	0.291	0.886
ln(1 + Firm Age)	1,902,319	2.243	0.665	1.386	2.398	2.944
Sales	1,787,044	2.589	3.123	0.153	1.459	6.537
Market Share (HHI)	1,902,319	0.014	0.341	0.000	0.000	0.009
Cash	353,478	0.007	0.015	0.000	0.001	0.020
Tangibility	388,702	0.297	0.305	0.000	0.191	0.798
Gross Investment	104,243	0.031	0.151	-0.132	0.018	0.197
Legal Distress	393,521	0.035	0.183	0.000	0.000	0.000
Altman's Distress	107,567	0.257	0.437	0.000	0.000	1.000

This table provides summary statistics for the main firm-level variables used in the econometric analysis. The data covers Ukrainian firms over the period from 1999 to 2018.

Table 2. Descriptive statistics by Russian affiliations

This table provides summary statistics for the main firm-level variables by Russian affiliations. The data covers firms operating in Ukraine in the period from 1999 to 2018. Panel A focuses on firms with Russian names and Panel B reports descriptives for firms with Russian majority ownership.

	No	No RU name			RU nam	Difference of	
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	means
ln(Total Assets)	1,843,608	12.953	2.664	58,711	13.115	2.700	-0.162***
ROA	1,843,608	0.093	0.320	58,711	0.097	0.316	-0.004***
Market Share (HHI)	1,843,608	0.014	0.347	58,711	0.008	0.057	0.006***
Tangibility	373,149	0.300	0.305	15,553	0.243	0.298	0.057***
Sales	1,733,510	2.587	3.121	53,534	2.639	3.168	-0.052***
Gross Investment	101,108	0.031	0.151	3,135	0.031	0.151	0.000
Cash	339,592	0.007	0.015	13,886	0.006	0.014	0.001***
Leverage	1,843,608	0.373	0.324	58,711	0.403	0.335	-0.030***
ln(1 + Firm Age)	1,843,608	2.245	0.662	58,711	2.181	0.736	0.064***

Panel A. Descriptives by Russian name

Panel B. Descriptives by Russian majority ownership

	No RU m	No RU majority ownership		RU m	ajority ov	Difference of	
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	means
ln(Total Assets)	1,897,142	12.952	2.662	5,177	15.125	2.669	-2.173***
ROA	1,897,142	0.093	0.320	5,177	0.108	0.323	-0.015***
Market Share (HHI)	1,897,142	0.014	0.341	5,177	0.043	0.523	-0.029***
Tangibility	384,800	0.298	0.305	3,902	0.211	0.278	0.087***
Sales	1,782,579	2.590	3.124	4,465	2.112	2.563	0.478***
Gross Investment	103,554	0.031	0.151	689	0.019	0.139	0.012**
Cash	349,974	0.007	0.015	3,504	0.007	0.014	0.000
Leverage	1,897,142	0.374	0.325	5,177	0.396	0.339	-0.022***
ln(1 + Firm Age)	1,897,142	2.243	0.665	5,177	2.307	0.760	-0.064***

Table 3. Baseline results

This table reports the difference-in-differences estimation results examining the impact of the Russia-Ukraine conflict on performance of firms with Russian affiliations. Variable definitions are provided in the Appendix. Standard errors (in brackets) are clustered by firm and robust to arbitrary heteroskedasticity. ***, ** , and * denote statistical significance at the 1%, 5%, and 10% levels correspondingly.

]	Dependent va	riable = ROA	4	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>RU</i> name	0.001	-0.005			0.001	-0.005
	(0.002)	(0.005)			(0.002)	(0.005)
RU name × Post Feb 2014	-0.007**	-0.006			-0.006*	-0.006
	(0.003)	(0.006)			(0.003)	(0.006)
RU majority ownership			0.013	0.004	0.013	0.004
			(0.009)	(0.010)	(0.009)	(0.010)
RU majority ownership × Post Feb 2014			-0.029***	-0.028**	-0.028***	-0.028**
			(0.011)	(0.013)	(0.011)	(0.013)
ln(Total Assets)	-0.004***	0.002***	-0.004***	0.002***	-0.004***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln(1 + Firm Age)	-0.037***	-0.027***	-0.037***	-0.027***	-0.037***	-0.027***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Leverage	-0.083***	-0.115***	-0.083***	-0.115***	-0.083***	-0.115***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Market Share (HHI)	0.007***	0.006**	0.007***	0.006**	0.007***	0.006**
	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)
Tangibility		-0.142***		-0.142***		-0.142***
		(0.002)		(0.002)		(0.002)
Cash		0.213***		0.213***		0.213***
		(0.021)		(0.021)		(0.021)
Constant	0.253***	0.220***	0.253***	0.219***	0.253***	0.220***
	(0.003)	(0.006)	(0.003)	(0.006)	(0.003)	(0.006)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.033	0.060	0.033	0.060	0.033	0.060
Adjusted R ²	0.033	0.060	0.033	0.060	0.033	0.060
Ν	1,902,319	358,187	1,902,319	358,187	1,902,319	358,187

Table 4. Effect of Russian affiliation on firm sales

This table reports the difference-in-differences estimation results examining the impact of the Russia-Ukraine conflict on sales of firms with Russian affiliations. Variable definitions are provided in the Appendix. Standard errors (in brackets) are clustered by firm and robust to arbitrary heteroskedasticity. ***, ** , and * denote statistical significance at the 1%, 5%, and 10% levels correspondingly.

	Dependent variable = $Sales$					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>RU</i> name	0.027	-0.073			0.026	-0.077
	(0.034)	(0.071)			(0.034)	(0.071)
RU name × Post Feb 2014	-0.024	0.109			-0.022	0.114
	(0.037)	(0.076)			(0.037)	(0.076)
RU majority ownership			0.663***	0.334**	0.662***	0.338**
			(0.128)	(0.140)	(0.128)	(0.140)
RU majority ownership × Post Feb 2014			-0.738***	-0.428***	-0.736***	-0.434***
			(0.132)	(0.146)	(0.132)	(0.146)
ln(Total Assets)	-0.490***	-0.405***	-0.490***	-0.405***	-0.490***	-0.405***
	(0.002)	(0.004)	(0.002)	(0.004)	(0.002)	(0.004)
ln(1 + Firm Age)	-0.126***	-0.145***	-0.126***	-0.145***	-0.126***	-0.145***
	(0.007)	(0.013)	(0.007)	(0.013)	(0.007)	(0.013)
Leverage	1.312***	0.702***	1.312***	0.702***	1.312***	0.702***
	(0.014)	(0.022)	(0.014)	(0.022)	(0.014)	(0.022)
Market Share (HHI)	0.252***	0.238***	0.251***	0.237***	0.251***	0.237***
	(0.056)	(0.055)	(0.056)	(0.055)	(0.056)	(0.055)
Tangibility		-1.293***		-1.293***		-1.293***
		(0.023)		(0.023)		(0.023)
Cash		2.596***		2.589***		2.591***
		(0.235)		(0.235)		(0.235)
Constant	8.821***	8.772***	8.823***	8.771***	8.823***	8.771***
	(0.033)	(0.067)	(0.033)	(0.067)	(0.033)	(0.067)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.221	0.244	0.221	0.244	0.221	0.244
Adjusted R ²	0.221	0.244	0.221	0.244	0.221	0.244
Ν	1,808,863	347,943	1,808,863	347,943	1,808,863	347,943

Table 5. Effect of Russian affiliation on firm corporate policies

This table reports the difference-in-differences estimation results examining the impact of the Russia-Ukraine conflict on corporate policies of firms with Russian affiliations, i.e., investment, leverage and cash holdings. Variable definitions are provided in the Appendix. Standard errors (in brackets) are clustered by firm and robust to arbitrary heteroskedasticity. ***, ** , and * denote statistical significance at the 1%, 5%, and 10% levels correspondingly.

	G	Fross investme	ent		Leverage			Cash	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>RU</i> name	0.001		0.001	0.012		0.011	-0.000		-0.000
	(0.003)		(0.003)	(0.010)		(0.010)	(0.001)		(0.001)
RU name × Post Feb 2014	-0.005		-0.005	-0.009		-0.006	-0.000		-0.000
	(0.006)		(0.006)	(0.010)		(0.010)	(0.001)		(0.001)
RU majority ownership		0.011**	0.011**		0.006	0.006		0.005***	0.005***
		(0.006)	(0.006)		-0.01	(0.010)		(0.001)	(0.001)
RU majority ownership × Post Feb 2014		-0.018**	-0.018**		-0.053***	-0.053***		-0.004***	-0.004***
		(0.009)	(0.009)		-0.01	(0.010)		(0.001)	(0.001)
Constant	-0.054***	-0.054***	-0.054***	0.238***	0.240***	0.240***	0.025***	0.025***	0.025***
	(0.004)	(0.004)	(0.004)	-0.008	-0.008	(0.008)	(0.000)	(0.000)	(0.000)
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.274	0.274	0.274	0.199	0.199	0.199	0.194	0.194	0.194
Adjusted R^2	0.273	0.273	0.273	0.199	0.199	0.199	0.194	0.194	0.194
N	116,636	116,636	116,636	373,902	373,902	373,902	381,898	381,898	381,898

Table 6. Effect of Russian affiliation on firm financial constraints

The table reports the difference-in-differences estimation results examining the impact of the Russia-Ukraine conflict on financial constraints faced by firms with Russian affiliations. The dependent variable is SA index (Hadlock and Pierce, 2010). Higher values of SA index indicate lower financial constraints, and lower values indicate higher financial constraints. Variable definitions are provided in the Appendix. Standard errors (in brackets) are clustered by firm and robust to arbitrary heteroskedasticity. ***, ** , and * denote statistical significance at the 1%, 5%, and 10% levels correspondingly.

	Dependent variable = SA Index					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>RU</i> name	0.209***	0.160***			0.211***	0.162***
	(0.061)	(0.055)			(0.061)	(0.055)
RU name × Post Feb 2014	-0.285***	-0.232***			-0.283***	-0.231***
	(0.059)	(0.053)			(0.059)	(0.053)
RU majority ownership			-0.388***	-0.310***	-0.396***	-0.314***
			(0.111)	(0.110)	(0.111)	(0.110)
RU majority ownership × Post Feb 2014			-0.069	-0.292***	-0.058	-0.287***
			(0.114)	(0.111)	(0.114)	(0.111)
Market Share (HHI)		-0.274***		-0.274***		-0.274***
		(0.069)		(0.069)		(0.069)
Tangibility	-1.286***	-1.106***	-1.285***	-1.106***	-1.285***	-1.106***
	(0.018)	(0.017)	(0.018)	(0.017)	(0.018)	(0.017)
Sales growth		-0.102***		-0.102***		-0.102***
		(0.003)		(0.003)		(0.003)
Constant	-0.002	-0.304***	0.002	-0.301***	0.002	-0.301***
	(0.008)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.161	0.197	0.162	0.198	0.162	0.198
Adjusted R^2	0.161	0.197	0.161	0.197	0.161	0.197
N	579,794	461,692	579,794	461,692	579,794	461,692

Table 7. Effect of Russian affiliation on firm probability of default

The table reports the difference-in-differences estimation results examining the impact of the Russia-Ukraine conflict on firms' probability of default. Two alternative default measures are used: (i) Altman's distress equals to unity when firm's Altman score falls below 1.8; (ii) legal distress equals to unity if the firm's legal status is either insolvency, bankruptcy, or liquidation as reported in Orbis database. Variable definitions are provided in the Appendix. Standard errors (in brackets) are clustered by firm and robust to arbitrary heteroskedasticity. ***, ** , and * denote statistical significance at the 1%, 5%, and 10% levels correspondingly.

Dependent variable =	(Altn	nan score<1	1.8)=1	Leg	gal distress	= 1
	(1)	(2)	(3)	(4)	(5)	(6)
<i>RU</i> name	-0.017		-0.017	-0.008		-0.008
	(0.021)		(0.021)	(0.010)		(0.010)
RU name × Post Feb 2014	0.026		0.027	0.005		0.005
	(0.024)		(0.024)	(0.009)		(0.009)
RU majority ownership		0.086*	0.087**		-0.015	-0.015
		(0.044)	(0.044)		(0.017)	(0.017)
RU majority ownership × Post Feb 2014		-0.031	-0.032		0.022	0.022
		(0.046)	(0.046)		(0.017)	(0.017)
ln(Total Assets)	0.002*	0.002*	0.002*	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
ln(1 + Firm Age)	-0.058***	-0.058***	-0.058***	0.002	0.002	0.002
	(0.004)	(0.004)	(0.004)	(0.001)	(0.001)	(0.001)
Constant	0.531***	0.531***	0.531***	0.033***	0.033***	0.033***
	(0.020)	(0.020)	(0.020)	(0.005)	(0.005)	(0.005)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.097	0.097	0.097	0.041	0.041	0.041
Adjusted R^2	0.097	0.097	0.097	0.041	0.041	0.041
N	139,515	139,515	139,515	534,725	534,725	534,725

Table 8: Probability of leaving and entering sample after 2014

This table reports the Average Treatment Effect on Treated (ATET), measuring the impact of Russian affiliations on the propensity to leave the sample after 2014. The exact matching was done using year, industry (letter classification), and region categories (aggregated into West, Capital, Pro-Russian, and the rest of the UA). Matching covariates comprised ln(total assets), ln(firm age), and firm leverage. The balance summaries are listed at the bottom of the table.

The treatment variables are (1) firms with RU names, and (2) firms with RU majority ownership. The dependent variable is a dummy variable, equal to 1 for firms leaving the panel after 2014 and 0 for those staying. Therefore, the ATET is a percentage point increase (decrease) for the firms leaving the panel and having the specified characteristics. Matching is conducted using nearest neighbor matching on the common support, using Mahalabish distance. The standard errors of the ATET (in parentheses) are computed with the robust option (at least two suitable matches for each treated).

	(Firm leaves	s after 2014) =1	(Firm enters	after 2014) =1
-	RU name	RU majority ownership	RU name	RU majority ownership
	(1)	(2)	(3)	(4)
ATET	0.0063*** (.0023)	0.0127** (.0055)	0.0212*** (.0016)	0.0563*** (.0057)
p-value	0.006	0.020	< 0.001	< 0.001
Number of treated	17,145	2,215	18,849	2,853
Number of observations	503,118	414,920	493,975	406,957
Balance: mean, <i>ln(toas)</i>	0.005	0.012	0.006	0.008
Balance: variance ratio, <i>ln(toas)</i>	1.032	1.040	1.042	1.039
Balance: mean, <i>ln(age)</i>	-0.004	-0.005	-0.005	-0.002
Balance: variance ratio, <i>ln(age)</i>	1.016	1.029	1.015	1.003
Balance: mean, leverage	0.005	0.001	0.004	0.002
Balance: variance ratio, <i>leverage</i>	0.997	0.993	0.995	0.996

Panel A. Full sample

Panel B. Pro-Russian regions

	(Firm leaves	s after 2014) =1	(Firm enters	after 2014) =1
-	RU name	RU majority ownership	RU name	RU majority ownership
	(1)	(2)	(3)	(4)
ATET	0.0016 (.0063)	-0.0112 (.0112)	0.0069*** (.0025)	0.0207*** (.0063)
p-value	0.800	0.316	0.005	0.001
Number of treated	2,858	618	14,287	1,597
Number of observations	26,332	23,770	476,786	391,150
Balance: mean, <i>ln(toas)</i>	0.022	0.035	0.002	0.003
Balance: variance ratio, <i>ln(toas)</i>	1.084	1.071	1.021	1.024
Balance: mean, <i>ln(age)</i>	-0.014	-0.012	-0.002	-0.002
Balance: variance ratio, <i>ln(age)</i>	1.061	1.083	1.006	1.005
Balance: mean, leverage	0.010	0.011	0.003	-0.002
Balance: variance ratio, <i>leverage</i>	0.997	0.998	0.998	0.995

Panel C. Excluding Pro-Russian regions

	(Firm leaves	s after 2014) =1	(Firm enters	after 2014) =1
-	RU name	RU majority ownership	RU name	RU majority ownership
	(1)	(2)	(3)	(4)
ATET	0.0069*** (.0025)	0.0207*** (.0063)	0.0008 (.0005)	0.0020 (.0015)
p-value	0.005	0.001	0.110	0.179
Number of treated	14,287	1,597	13,711	1,529
Number of observations	476,786	391,150	462,500	376,229
Balance: mean, <i>ln(toas)</i>	0.002	0.003	0.002	0.004
Balance: variance ratio, <i>ln(toas)</i>	1.021	1.024	1.021	1.021
Balance: mean, <i>ln(age)</i>	-0.002	-0.002	-0.003	-0.002
Balance: variance ratio, <i>ln(age)</i>	1.006	1.005	1.009	1.002
Balance: mean, leverage	0.003	-0.002	0.003	-0.001
Balance: variance ratio, <i>leverage</i>	0.998	0.995	0.997	0.996