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GEOPOLITICAL RISK, COST OF EQUITY, AND BANK LENDING: EVIDENCE FROM THE UKRAINIAN WAR

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Geopolitical Risk, Cost of Equity, and Bank Lending: Evidence From the Ukrainian War

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Abstract

How does geopolitical risk affect banks and their lending behavior? Using the attack of Russia on Ukraine in February 2022 as an unanticipated geopolitical risk event and exploiting the syndicated loan exposures of European banks, we document that Russia-exposed banks experience a more pronounced increase of their cost of equity compared to banks with limited Russian lending exposure. In a difference-in-differences setup, we find that Russia-exposed banks significantly curtail their syndicated lending and that this contraction is most pronounced for lending to new borrowers and unsecured loans. We find no relationship between (changes in) the cost of equity of banks and their credit supply. We conclude that geopolitical risk shocks affect banks' risk profiles and may cause a contraction in lending. Hence, geopolitical risk is a relevant concern for bank supervisors.

Keywords: Geopolitical risk; cost of equity; syndicated lending

JEL: E51; G21

1. Introduction

This paper examines how geopolitical risk influences the cost of equity and lending behavior of European banks. In an era marked by increasing geopolitical tensions, it is crucial for policymakers to understand how such risks impact the banking sector and the real economy. Geopolitical risk has emerged as a prominent source of uncertainty, with recent research linking it to declines in investment and employment, and increases in tail risk (Caldara & Iacoviello, 2022). We contribute to the literature by exploring how shocks to geopolitical risk affect the banking system, focusing in particular on cost of equity and credit supply. To this end, we use the escalation of the Russia-Ukraine conflict as a quasi-natural experiment. On February 24, 2022, Russia launched a full-scale attack on Ukraine, dramatically intensifying a conflict that has been ongoing since 2014. This event marked the return of large-scale warfare to Europe and generated profound geopolitical and economic repercussions. Throughout this paper, we refer to this conflict as the Ukrainian

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War. Although tensions between the two neighboring countries had been mounting in the preceding weeks, the attack itself represented a sharp and unanticipated shock to geopolitical risk, offering an appropriate case study to investigate the effects of geopolitical risk on banks. We start by investigating the impact of the Ukrainian War on the cost of equity of European banks. The cost of equity represents the return that shareholders require for investing in a bank, and is hence a reflection of risk. Additionally, since banks need equity to support lending, the cost of equity is also a vital determinant for lending. If equity becomes more expensive, this can have important implications for credit supply. Previous research indicates a negative relationship between a bank's cost of equity and its lending activity (Burietz et al., 2023; Kovner & Van Tassel, 2022). However, empirical evidence on the drivers of cost of equity remains limited. We contribute to this literature by exploring the effects of a large, unprecedented geopolitical risk shock, namely the escalation of the Ukrainian War, on the cost of equity of the banks. In a difference-in-differences setting, we compare banks that are directly exposed to Russia through their syndicated loan portfolios (i.e. the treated group) with banks that had no or a negligible Russian exposure prior to the onset of the conflict (i.e. the control group). This method allows for clean and timely identification of banks' direct exposure to Russia. Over a half-year window, we find that the cost of equity of the exposed banks rises significantly compared to the non-exposed banks. This is an unambiguous market signal, capturing both the change in banks' perceived risk and the impact for their funding costs.

Next, we assess the impact of the Ukrainian War on the credit supply of Russia-exposed banks. We focus on syndicated loans, as they capture new lending, often to large internationally active firms, which is important to support investment in the economy during periods of elevated uncertainty. We employ a difference-in-differences setup, where the treated group consists of banks that exhibit exposure to Russia through their syndicated loan portfolios prior to the onset of the conflict, while the control group consists of banks with no or very limited exposure. This setup yields significant results. The Russia-exposed banks reduce new syndicated loans amounts by between 16% and 27% following the start of the Ukrainian War. Our setup carefully rules out that these findings are driven by lower demand by borrowers. We also include the cost of equity in the analysis but find no evidence that the reduction in lending is primarily caused by the cost of equity. Hence it is not a funding cost shock that causes the tighter credit supply. Furthermore, banks primarily reduce unsecured loans and curtail lending to borrowers with whom they have no established relationship. These findings provide empirical evidence that the decrease in credit supply by the Russia-exposed banks is due to general risk aversion.

The rest of the paper is structured as follows. Section 2 reviews our contribution to the existing literature. Section 3 describes the data, while Section 4 details the methodology. We present our results in Section 5, and examine their robustness in Section 6. Finally, Section 7 concludes.

2. Literature overview and hypothesis development

Geopolitical risk is attracting substantial attention in the literature. In their seminal paper, Caldara & Iacoviello (2022) develop a newspaper-based measure of geopolitical events and associated risks, linking elevated geopolitical risk to lower investment and employment, as well as heightened tail risk. Brignone et al. (2025) further investigate the transmission of geopolitical risk shocks to the real economy, showing that the effect is non-linear: uncertainty only dampens real activity when shocks surpass a certain threshold. Moreover, such shocks are found to increase sovereign spreads (Demiralay et al., 2024) and equity connectedness (Jalloul & Miescu, 2023). This paper contributes to the growing body of research examining the impact of geopolitical risk on financial institutions. Geopolitical risk weakens bank stability (Phan et al., 2022) and significantly increases systemic risk in the banking sector (Wang et al., 2025). Behn et al. (2025) further show that bank capitalisation declines only when geopolitical risk rises substantially. Rather than examining the effects of geopolitical risk over time, we focus on a single, well-identified geopolitical risk shock: the escalation of the Russia-Ukraine conflict into full scale war in February 2022. Equity markets reacted strongly to this event, with stock prices falling most for firms geographically closer to Ukraine (Federle et al., 2024). In terms of market valuation declines, the financial sector exhibits larger decreases compared to other industries (Ahmed et al., 2023). Martins et al. (2023) further focus on the response of bank equity prices, showing that banks with greater exposure to Russia experienced larger declines. They also document that more profitable, efficient, and larger banks, as well as those with lower institutional ownership, performed relatively better following the shock. We add to this literature by examining how bank cost of equity responds to a major geopolitical shock. While earlier research (Acosta-Smith et al., 2023) has explored how cost of equity responds to a policy shock, the role of geopolitical risk remains underexplored. Our work is perhaps closest related to Dieckelmann et al. (2025), who use supervisory data to construct a bank-level indicator of geopolitical risk and link increases in the index to higher CDS spreads and lower stock prices in the short term. However, we explore a different determinant of banks' funding costs, namely cost of equity, which offers an advantage over stock market valuations as it allows to isolate the required shareholder return that is reflected in these market valuations. Further, we obtain our measure of exposure to geopolitical risk from a comprehensive dataset of syndicated loans. Banks' operations as lead arranger in the syndicated loan market reflect an active strategy to engage in a particular geographical area, and are therefore a sound measure of their vulnerability to geopolitical risk in the context of the Ukrainian War.

Moreover, we contribute to the literature on the credit supply effects of geopolitical risk. Nguyen & Thuy (2023) find that geopolitical risk is associated with higher loan prices and tighter non-price terms, with the effects driven primarily by geopolitical acts rather than threats. These findings are in line with Chowdhury

et al. (2025), who relate geopolitical risk to declined credit supply. Demir & Danisman (2021) however, find no impact on banks' overall credit growth, though they do report a negative effect on consumer credit and mortgage lending. Niepmann & Shen (2025) examine the response of U.S. banks to increased geopolitical risk and show a reduction in cross-border lending, while local lending remains stable. In the specific context of the Ukrainian war, they find an increase in the credit risk of U.S. banks' loan portfolios. Pradhan et al. (2025) also find that rising geopolitical tensions between countries lead to reduced cross-border lending by banks. These findings are in line with De Haas et al. (2025), who show that violent conflicts diminish foreign banks' overall credit supply. We depart from these studies by focusing on European banks' credit supply responses amid geopolitical uncertainty in the syndicated loan market, and by incorporating the role of cost of equity into the analysis. The relationship between cost of equity and credit supply remains underexplored. Kovner & Van Tassel (2022) find that a higher cost of equity is associated with a tighter credit supply by U.S. banks. In line with these findings, Burietz et al. (2023) find that a regulatory-induced relative decrease in the cost of equity has a positive impact on banks' credit supply. We add to this strand of the literature by investigating the reaction of cost of equity to a sharp increase in geopolitical risk and relating these changes to banks' credit supply. While previous studies examine cost of equity as a determinant of lending in the longer term, we explore whether cost of equity is a driver of credit supply under conditions of abrupt uncertainty, such as during a geopolitical risk shock.

Based on the literature reviewed above, we formulate the following hypotheses:

- **Hypothesis 1:** *Following the outbreak of the Ukraine war, the cost of equity of European banks with direct exposure to Russia through their syndicated loan portfolios increases more than that of less-exposed banks.*

  Caldara & Iacoviello (2022) show that geopolitical risk shocks, especially when materialized through conflict, increase tail risk in the economy and negatively affect banks with higher exposure. We therefore expect a stronger rise in the cost of equity for directly exposed banks, as the cost of equity is a direct reflection of risk.

- **Hypothesis 2:** *In the aftermath of the Ukraine war, European banks with direct exposure to Russia through their syndicated loan portfolios reduce new lending more than less-exposed peers.*

  Geopolitical risk is associated with more strict lending terms (Chowdhury et al., 2025; Nguyen & Thuy, 2023) and has repercussions for how banks allocate credit supply across countries (Pradhan et al., 2025; Niepmann & Shen, 2025). Following the Ukraine conflict, the overall credit risk of U.S. banks has also increased (Niepmann & Shen, 2025). Banks with direct exposure to Russia face heightened uncertainty and risk, which we expect to translate into a stronger contraction in lending activity.

- **Hypothesis 3:** *A higher cost of equity is associated with a larger reduction in lending supply.*
  Empirical evidence shows that banks facing a higher cost of equity tend to restrict credit supply (Burietz et al., 2023; Kovner & Van Tassel, 2022). We expect that a higher cost of equity limits banks' capacity or willingness to lend amid an abrupt increase in geopolitical risk.

3. Data

Our sample consists of 53 listed European banks. We only include banks that serve as lead arrangers in the syndicated loan market prior to the start of the Ukrainian War.[3] Stock market data (total return indices) are obtained from LSEG. Banks that are not sufficiently liquid during the time period of our analysis (Q3 2021 - Q4 2022) are removed from the sample[4]. For the estimation of the cost of equity we use a standard Capital Asset Pricing Model (CAPM) and choose the MSCI Europe as market index and the Euro Short Term Rate (€STR) as risk-free rate. Bank-level variables (balance sheet, income statement) are retrieved from S&P Capital IQ Pro and refer to year-end 2021.[5] The descriptive statistics for the main variables are reported in the top half of Table 1.

For the analysis of syndicated loans, we utilize data from LPC Dealscan. Lenders in Dealscan are manually matched to the banks in our sample, ensuring that all loans (tranches) issued by majority-owned subsidiaries are attributed to their parent banks while accounting for mergers and acquisitions. To focus on loans to non-financial corporations (NFCs), we exclude loans to borrowers with Standard Industrial Classification (SIC) codes between 6000 and 6999, following the approach of Ferreira & Matos (2012). We include originations only (not amendments). An important characteristic of the syndicated loan market is the shared structure of credit provision, whereby loan tranches are distributed across multiple banks within a syndicate. Within this framework, there is a distinction between lead arrangers and participant banks. The lead bank plays a central role in the syndication process: it initiates the deal, coordinates negotiations, and performs due diligence on the borrower. Following these stages, the lead arranges the allocation of the loan amount across the participating banks. Importantly, the lead bank typically retains a significant portion of the loan and receives additional compensation for its coordinating and monitoring responsibilities. Therefore in this paper we primarily focus on this subset of lenders. Our identification of lead banks follows the approach established in Ivashina (2009) and Degryse et al. (2023a). We include loans that are granted between Q4 2021 and Q3 2022, which corresponds to a full year and is a symmetrical period around the start of the post-period (i.e. 2022 Q2). Summary statistics for the syndicated loans data can be found in the second panel of Table 1.

[3] Specifically, we focus on outstanding loans in the final quarter of 2021. Out of these 53 banks, 48 banks issue new syndicated loans as a lead arranger between Q4 2021 and Q3 2022. Hence, 5 banks are part of the cost of equity analysis but not of the syndicated loans analysis.

[4] Selection based on the estimated market beta.

[5] A bank is removed from the sample when no data is available for key variables.

Table 1: Summary Statistics

Variable	N	Q1	Mean	Q3	SD
Cost of equity analysis					
Exposure to Russia (%)	53	0.00	0.63	0.48	1.38
Total Assets (b USD)	53	83,958	495,482	727,900	612,844
Return on Average Assets (%)	53	0.37	0.47	0.83	0.98
Core Tier 1 Ratio (CET1 Ratio) (%)	53	13.23	15.29	17.39	2.33
Syndicated loans analysis					
Tranche Amount (m USD)	2005	31.64	337.97	342.96	722.10
Number of Lead Arrangers	2005	1	2.75	4	2.24
Exposure to Russia (%)	48	0.00	0.70	0.63	1.44
Bank Equity / Assets	48	0.05	0.07	0.08	0.02
Bank log(Assets)	48	18.45	19.56	20.68	1.30
Bank Loans / Assets	48	0.49	0.57	0.66	0.13
Bank Deposits / Assets	48	0.49	0.64	0.81	0.18
MDA Buffer	23	3.80	5.18	6.76	1.79
COE Change (%)	48	11.02	36.92	54.38	31.02
COE	48	4.44	4.94	5.46	0.88

This table reports the number of observations, 25th percentile, mean, 75th percentile and standard deviation for key variables. The first panel corresponds with the cost of equity analysis, whereas the second panel shows summary statistics for the lending part of our analysis.

4. Methodology

4.1. Cost of Equity

We estimate the cost of equity for the 53 listed European banks in our sample using the Capital Asset Pricing Model (CAPM). This methodology is used as a standard tool in both academia and the financial industry. According to Altavilla et al. (2021), most banks rely on some variant of the CAPM when assessing their own cost of equity. Hence, we decide to use a similar approach in our baseline analysis.

$$COE_{it} = \beta_{it}\lambda + Rf_{it} \tag{1}$$

Equation 1 represents our methodology to obtain the cost of equity for the banks in our sample. In this setting, the cost of equity is estimated by multiplying a time-varying beta coefficient β_{it} with a time-invariant risk premium λ, to which the risk-free rate is added. Within the CAPM framework, the only risk factor is the market factor. For robustness, we also estimate the cost of equity using a three-factor model as in Fama & French (1993), which augments the CAPM by including additional factors related to firm size (market capitalisation) and value (book-to-market ratio).[6] The beta coefficients are estimated using a rolling window regression of 6 months. We employ the MSCI Europe as the market index and the risk free

[6]Daily Fama-French factors are obtained from the Kenneth French Data Library.

rate corresponds with the Euro Short-Term Rate (€STR). For the risk premia we obtain estimates from Altavilla et al. (2021).[7] The cost of equity is estimated on a daily basis.

4.2. Country Exposure

To measure bank exposures, we follow the methodology of Doerr & Schaz (2021). The authors compute lending shares by country using a two-step approach. First, they sum bank b's active loan amounts to all borrowers in country j at time t. Second, they divide bank b's total lending to borrowers in country j by its overall lending, yielding bank b's lending share to country j at time t. Further, for observations with missing lender share information, we allocate loan amounts equally among participating banks. Unlike Doerr & Schaz (2021), we calculate lending shares only for loans for which the banks operate as lead arrangers. This restriction ensures that our exposure measure captures banks' deliberate strategic decisions to engage in a specific country, rather than merely reflecting passive participation.

We focus on banks' lending shares in the syndicated loan market to Russia-headquartered borrowers in the final quarter of 2021. Doerr & Schaz (2021) argue that syndicated loan data provide an appropriate measure of geographic diversification for banks operating across a wide range of countries, as it represents a granular dataset on international bank lending available for banks headquartered in different countries and is based on non-supervisory data. A list of all banks and their exposures to Russian borrowers at year-end 2021 can be found in the appendix.

In a robustness check, we relax our decision to only incorporate lead banks. In addition, we account for exposure to the conflict area (i.e. Ukraine, Belarus, and Russia), and exposure to countries that share borders with the conflict area (i.e. Ukraine, Belarus, Russia, Poland, Slovakia, Hungary, Moldova, and Romania).

4.3. Difference-in-differences: Cost of Equity

To estimate the causal effect of treatment on the cost of equity, we employ a difference-in-differences (DiD) approach. Specifically, we estimate the following specification for a half-year window around the Russian invasion:

$$COE_{it} = \beta_0 + \beta_1(Treated_i \times Post_t) + \gamma_i + \delta_t + \varepsilon_{it} \tag{2}$$

COE_{it} represents the cost of equity for bank i in week t.[8] The variable $Treated_i$ is a binary indicator

[7] These risk premia amount to 5.10 for the market factor, 3.80 for the value factor and 2.36 for the size factor (Altavilla et al., 2021).

[8] As the cost of equity is estimated on a daily basis, we retain the last observation for each week.

equal to 1 if bank i is in the treatment group and 0 otherwise. We classify a bank as treated if it belongs to the highest quartile of exposure to borrowers headquartered in Russia in its syndicated loan portfolio at the end of 2021. The variable $Post_t$ is a binary indicator equal to 1 for all weeks starting from the treatment event onward (i.e. week 8 of 2022) and 0 otherwise. The interaction term $Treated_i \times Post_t$ captures the treatment effect of interest. To investigate whether it is the intensive or extensive margin that drives the results, we replace the binary dummy variable with a continuous exposure measure in a separate specification. The term γ_i represents bank fixed effects to control for time-invariant heterogeneity across banks. The term δ_t denotes week fixed effects to account for time trends common to all banks. Finally, ε_{it} is the error term, which is clustered at the bank level to account for within-bank correlation in standard errors.

The coefficient of interest, β_1, measures the causal effect of the treatment on the cost of equity. A significant positive estimate of β_1 would suggest that the banks in the treated group experience a significant increase in their cost of equity compared to the control group following the beginning of the Ukrainian War. This would be in line with Hypothesis H1.

4.4. Difference-in-differences: Lending

We apply a difference-in-differences (DiD) approach to estimate the impact of the Ukrainian War on credit supply.

$$ln(amount)_{l,b,f,t} = \beta_0 + \beta_1(Treated_i \times Post_t) + \beta_2 \mathrm{X}_{b,t-1} + \alpha_b + \eta_{i,c,t} + \varphi_l + \varepsilon_{l,b,f,t} \tag{3}$$

The dependent variable in our analysis is the natural logarithm of the loan amount, where each loan l is extended by lead bank b to borrowing firm f at time t. Following Ferreira & Matos (2012), loans with multiple lead banks are included multiple times, once for each lead bank. To mitigate the potential overrepresentation of such loans, we employ weighted least squares (WLS) estimation, assigning weights that are inversely related to the number of lead banks, as suggested by Botsch & Vanasco (2019).

The key independent variable is an interaction term that combines a treatment indicator $Treated$, which indicates whether a bank is exposed to Russia prior to the Ukrainian War through its syndicated loan portfolio, and a post-treatment indicator $Post_t$, which takes a value of one for all loans issued from March 1 2022 and later. This represents the first quarter after the start of the Ukrainian War (i.e. February 24 2022). The slight delay in the start of treatment is justified by the fact that the origination of syndicated loans generally entails due diligence, negotiations, and finalization, which requires time to complete. The baseline specification covers a symmetrical window of two quarters before and after the start of the Ukrainian War. Again, in a separate specification we replace the binary dummy with a continuous exposure measure.

Equation 3 includes a set of controls for other (lagged) bank characteristics, represented by the vector $X_{b,t-1}$. This vector encompasses bank size, as well as key balance sheet ratios such as equity, loans, and deposits, expressed as a percentage of total assets. To account for unobserved heterogeneity across banks, we include bank fixed effects (α_b). Additionally, to address variations in credit demand, we incorporate industry-country-quarter fixed effects ($\eta_{i,c,t}$), following the methodology of Gropp et al. (2019) and Degryse et al. (2023b). This approach assumes that firms operating within the same country and industry (classified at the SIC-2 level) exhibit similar credit demand in a given quarter. Degryse et al. (2019) argue that this specification is preferable to firm-quarter fixed effects, which only identify treatment effects through firms that borrow from multiple banks in the same quarter, as in Khwaja & Mian (2008). Furthermore, we control for loan characteristics (φ_l) by incorporating fixed effects for loan currency, purpose, and type.

5. Results

5.1. Cost of Equity Analysis

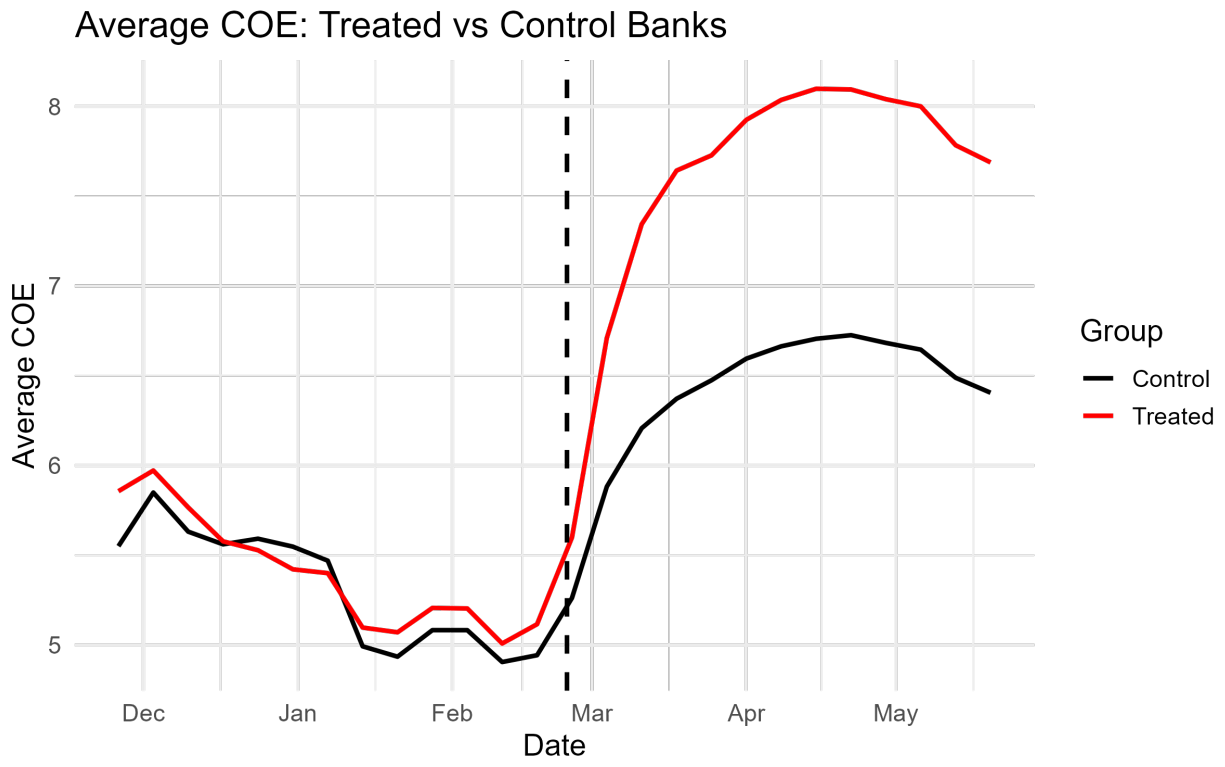

Figure 1: Cost of equity estimates over time

In the first part of the Results section, we analyze the impact of the Ukrainian War on the cost of equity of European banks. Based on Hypothesis H1, we expect that the cost of equity of European banks with substantial exposure to Russia through their syndicated loan portfolios increases more than the cost of equity of banks without such exposure. Figure 1 shows that overall, banks experience an increase in their cost of equity following the start of the Ukrainian War (February 24 2022, marked by the dotted black line). Moreover, this rise is more pronounced for banks in the treated group (i.e. the banks for which the exposure to Russian borrowers lies within the highest quartile of the sample). This gap between the cost of equity of the treated and control group persists in the first months after the start of the Ukrainian War.

The results from the difference-in-differences estimation provide further support for Hypothesis H1. Column (1) of Table 2 compares the weekly cost of equity between the banks in the control group and the banks in the treated group over a symmetrical half-year window around the start of the Ukrainian War. The coefficient on the interaction term of interest is positive and statistically significant, suggesting that banks that rank among the top quartile in exposure to Russian borrowers in their syndicated loan portfolio experience

an increase in their cost of equity by approximately 1.12 percentage points more relative to the banks in the control group. In Column (2) we show that the coefficient on the interaction term remains significant and positive when replacing the binary dummy with a continuous measure of exposure (i.e. the percentage of outstanding loan amounts originated to Russian borrowers as percentage of the total portfolio before the escalation of the conflict). These findings show that shareholders perceive treated banks as becoming more risky, since the cost of equity is the return that is required for investing in a bank. Additionally, a higher cost of equity translates into higher overall funding costs for a bank, which could undermine its capacity to support credit to the real economy.

A central assumption in a difference-in-differences framework is that of parallel trends, which requires that, in the absence of treatment, the cost of equity for both the treatment and the control group would have evolved similarly over time. While the post-treatment counterfactual is unobservable, the validity of this assumption can be assessed by investigating pre-treatment dynamics through interactions between the treatment indicator and weekly time dummies. Moreover, this specification allows for the detection of any anticipation or delayed effects. As illustrated in figure 2 and figure 3, the parallel trends assumption is satisfied in both setups (i.e. discrete and continuous difference-in-differences).

Taken together, these results corroborate Hypothesis H1: the Ukrainian War led to a pronounced and statistically significant increase in the cost of equity of banks with syndicated loan exposure to Russia. This raises concerns, as the literature shows that changes in the cost of equity induce banks to adjust their credit supply (Burietz et al., 2023; Kovner & Van Tassel, 2022). This is because cost of equity is a vital determinant of banks' funding costs.

Table 2: Cost of Equity and the start of the Ukrainian War

Dependent variable	COE	
Model	(1)	(2)
Explanatory variables		
Treated × Post	1.1156*	
	(0.5785)	
Exposure × Post		0.5599***
		(0.1266)
Fixed effects		
Bank	Yes	Yes
Week	Yes	Yes
Fit statistics		
R^2	0.6964	0.7304
Observations	1,378	1,378

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

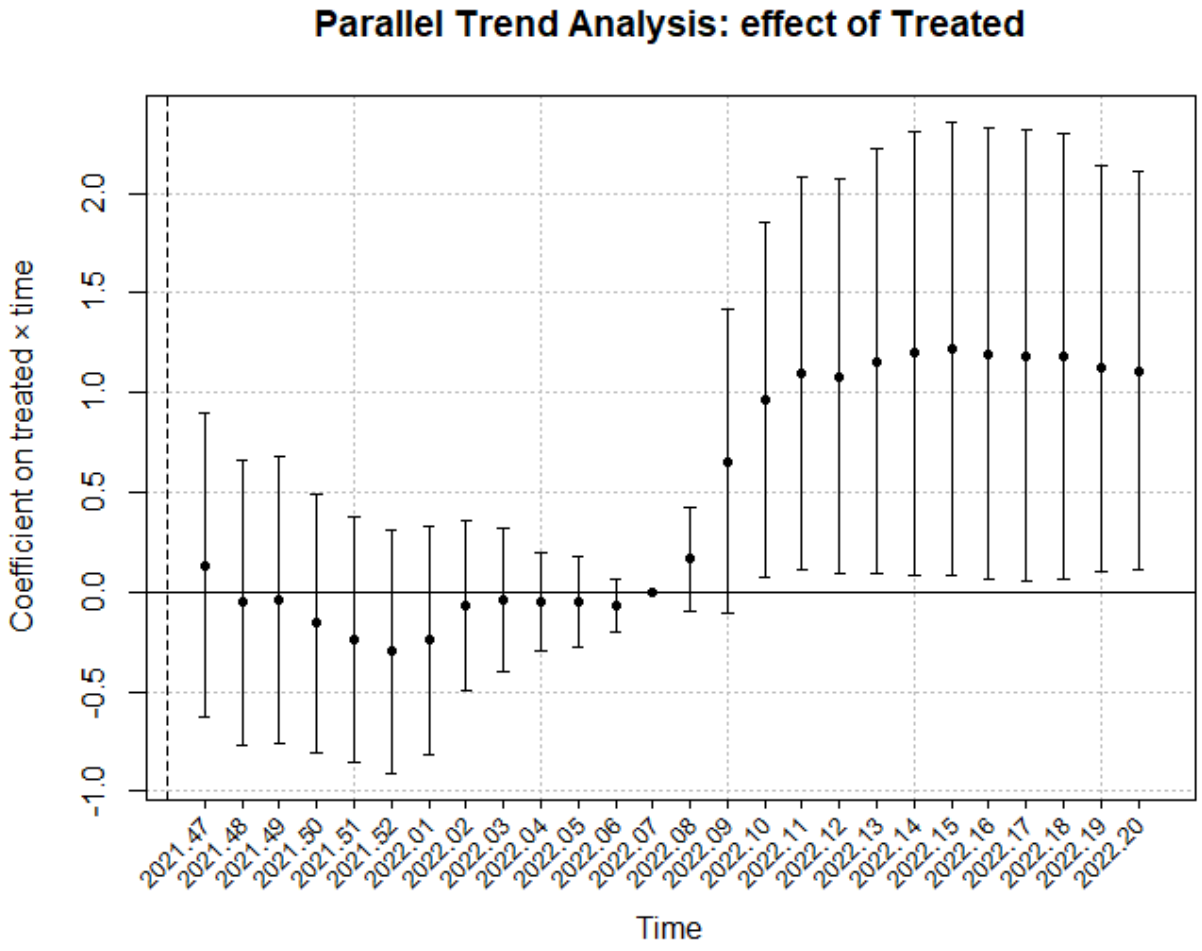

Figure 2: Parallel Trend Analysis Cost of Equity: discrete DiD

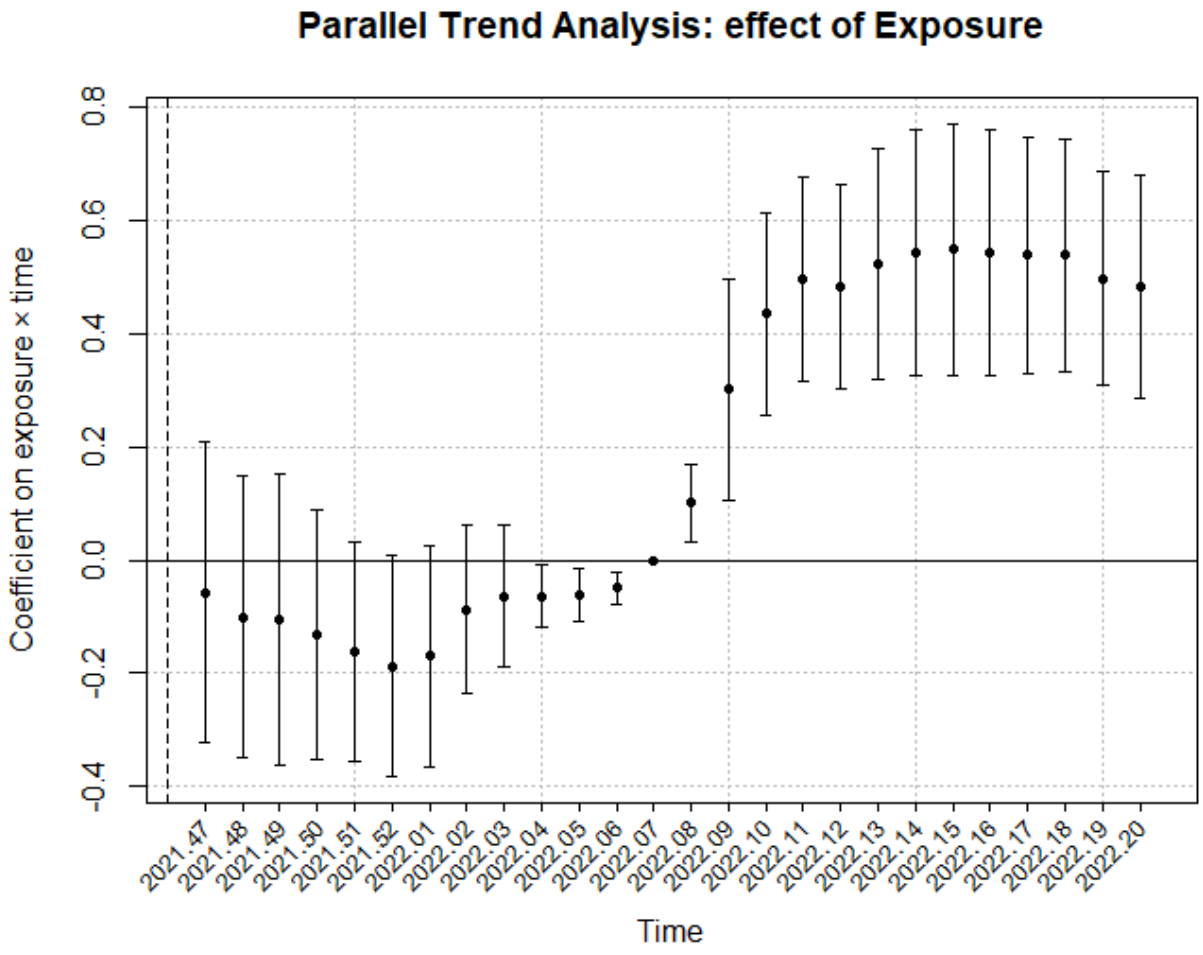

Figure 3: Parallel Trend Analysis Cost of Equity: continuous DiD

5.2. Lending Analysis

We explore the impact of the start of the Ukrainian War on the credit supply of European banks. Based on Hypothesis H2, we expect European banks with direct exposure through their syndicated loan portfolios to reduce their lending more compared to their non-exposed peers following the start of the conflict. The results in Column (1) of Table 3 are in line with Hypothesis H2. The coefficient of interest is statistically significant at the 5% significance level, and indicates that the average amount of a loan extended by a treated bank is 16.84% smaller compared to a loan extended by a bank in the control group. In column (2) we replace the binary dummy with the continuous exposure measure. This setup does not yield significant results. Hence, it is the extensive margin of exposure that drives the credit rationing by treated banks, not the intensive margin. The findings suggest that banks adjust their lending behavior when they are directly exposed to a large, unexpected geopolitical risk shock. This response is driven by the fact that they are

exposed to the shock, and not necessarily by this magnitude of the exposure. The banks might want to reduce their overall risk profile by cutting credit, which is typically a risky asset for banks.

In Table 4 we examine whether banks' cost of equity influences their credit supply response following the start of the Ukrainian War. This analysis connects with Hypothesis H3, which relates banks' lending response to the Ukrainian War to their cost of equity and posits that banks with a higher cost of equity would respond more conservatively to this geopolitical risk shock, either by increasing lending to a lesser extent or by reducing it more sharply. To test this hypothesis, we introduce the level of the cost of equity as measured one week prior to the start of the Ukrainian War.[9] We add the variable COE in a triple interaction with the $Post$ and $Treated$ dummies in Column (2) of Table 4 and as a separate interaction with $Post$ in Column (3) of Table 4. In both specifications the coefficients on these interactions are not significant and the main treatment effect remains dominant. In Columns (4) and (5) of Table 4 we repeat this analysis but change the level of cost of equity with the change in cost of equity around the start of the War.[10] Again, the coefficient of the $Treated \times Post$ remains significantly negative, indicating that the overall impact on the credit supply of the treated banks is negative. As is the case for the level in cost of equity, the change in cost of equity is not a significant determinant of banks' lending behavior following an unanticipated geopolitical risk shock. Therefore, we cannot confirm Hypothesis H3 that there is a negative relationship between the cost of equity of a bank and its credit supply in the aftermath of the start of the Ukrainian War.

To further shed light on the credit supply impact of the Ukrainian War we explore the role of banks' capital position. Since banks need to hold capital against loans, it is a crucial determinant for their willingness to lend in a period of elevated risk. Prior research highlights the importance of bank capital for lending dynamics (Gambacorta & Mistrulli, 2004). For instance, during the pandemic, Couaillier et al. (2022) find that capital buffer releases were more effective in stimulating lending for banks with limited capital headroom above regulatory thresholds. To investigate the role of capital in shaping lending behavior during a geopolitical risk shock, we include banks' Maximum Distributable Amount (MDA) buffers in Table 5. When a banks' capital ratio falls below the MDA threshold, distributions to shareholders are restricted by the regulator. We proxy the distance to the MDA buffer by subtracting the sum of Pillar 1 requirements (P1R), the capital conservation buffer (CCoB), the countercyclical buffer (CCyB)[11], the buffer for system-

[9] In order to facilitate interpretation, this variable is demeaned.

[10] To measure the change in cost of equity we compare its value one week prior to the start of the Ukrainian War with its value one month thereafter, and derive the corresponding percentage change. These variables are demeaned to simplify interpretation. A positive value for this variable indicates that a bank experiences a change in cost of equity in the first month since the start of the Ukrainian War that is higher than the average for the sample. Our findings are robust to other cut-off dates (e.g. 2 weeks, 6 weeks).

[11] Announcements of CCyB increases are typically followed by a 12 month implementation period, while decreases are immediately applicable. To construct our measure, we take the CCyB buffers that are applicable at year-end 2021.

ically important institutions (G-SII or O-SII)[12], and Pillar 2 requirements (P2R) from the banks' CET1 ratio.[13]. Since P2R values are not publicly available for all banks, incorporating them reduces the number of observations in this part of the analysis.[14] In Column (2) of Table 5 we add the (demeaned) MDA Buffer to the analysis in a triple interaction with the *Treated* and *Post* dummies. In column (3) we interact the MDA Buffer separately with the *Post* dummy. Overall, the coefficient on $Treated \times Post$ remains negative and statistically significant. In contrast, interactions with the MDA buffer remain insignificant, highlighting the limited role of capital as a driver of credit supply after the start of the War. Together with our findings that cost of equity does not shape banks' lending behavior when they face an unanticipated geopolitical risk shock, the fact that capital is also not a significant driver suggests that it is rather general risk aversion that is driving these results. Banks reduce overall credit, and this happens irrespective of their capital position or their cost of equity.

Next, in Table 6 we divide our sample into subsamples to further investigate heterogeneity by exploring whether the results differ for different types of loans. In Column (1) of Table 6 the sample consists of only secured loans, whereas we restrict the sample to unsecured loans in Column (2). The results show that the negative credit supply impact is mainly driven by unsecured lending. This is plausible as unsecured loans expose banks to higher credit risk. In periods of elevated uncertainty, for instance when geopolitical risk is elevated, banks may therefore seek to reduce such exposure. Further, in Table 7, we investigate whether or not relationship lending plays a role. Relationship lending alleviates asymmetric information (Boot et al., 1994). If banks want to avoid increased credit risk, they will avoid new borrowers, but since they know existing borrowers they may elect to continue established lending relationships. In Column (1) of Table 7 we only include bank-firm pairs for which there was a non-matured loan on the date on which the new loan was issued, whereas Column (2) consists only of new bank-borrower pairs. Our results highlight that the negative credit reaction following the start of the Ukrainian War is restricted to new borrowers.

Finally, we assess the validity of the parallel trends assumption in Figure 4. We find no evidence that the credit supply of treated banks differs significantly from the banks in the control group before the treatment takes place. A statistically significant divergence only occurs post-treatment. This corroborates the parallel trends assumption.

As a whole, these results suggest general risk aversion, namely credit rationing, that is caused by an unanticipated increase in geopolitical risk. The credit responses of banks are not driven by their capital

[12]Banks are not required to hold both buffers (if applicable), but only the highest of the two.

[13]We do not account for the systemic risk buffer (SyRB), as it is not always applied to a bank's full risk-weighted assets and would require more granular information on asset composition, which is not publicly available.

[14]We are able to proxy the MDA buffer for 23 out of the 48 banks. These banks are responsible for 3750 of the 5502 tranches in our sample. 9 out of the 23 banks are classified as treated (as opposed to 13 out of 48 banks in the baseline).

buffers, the level or change in their cost of equity, and are isolated to loan categories that expose banks typically to higher credit risk. Banks cut credit to borrowers they do not know and decrease loans that are not secured. Our results are large and economically meaningful. Depending on the specification, banks decrease their lending by between 16.84% and 27.47%. Geopolitical risk has a material impact on the financial system and the real economy.

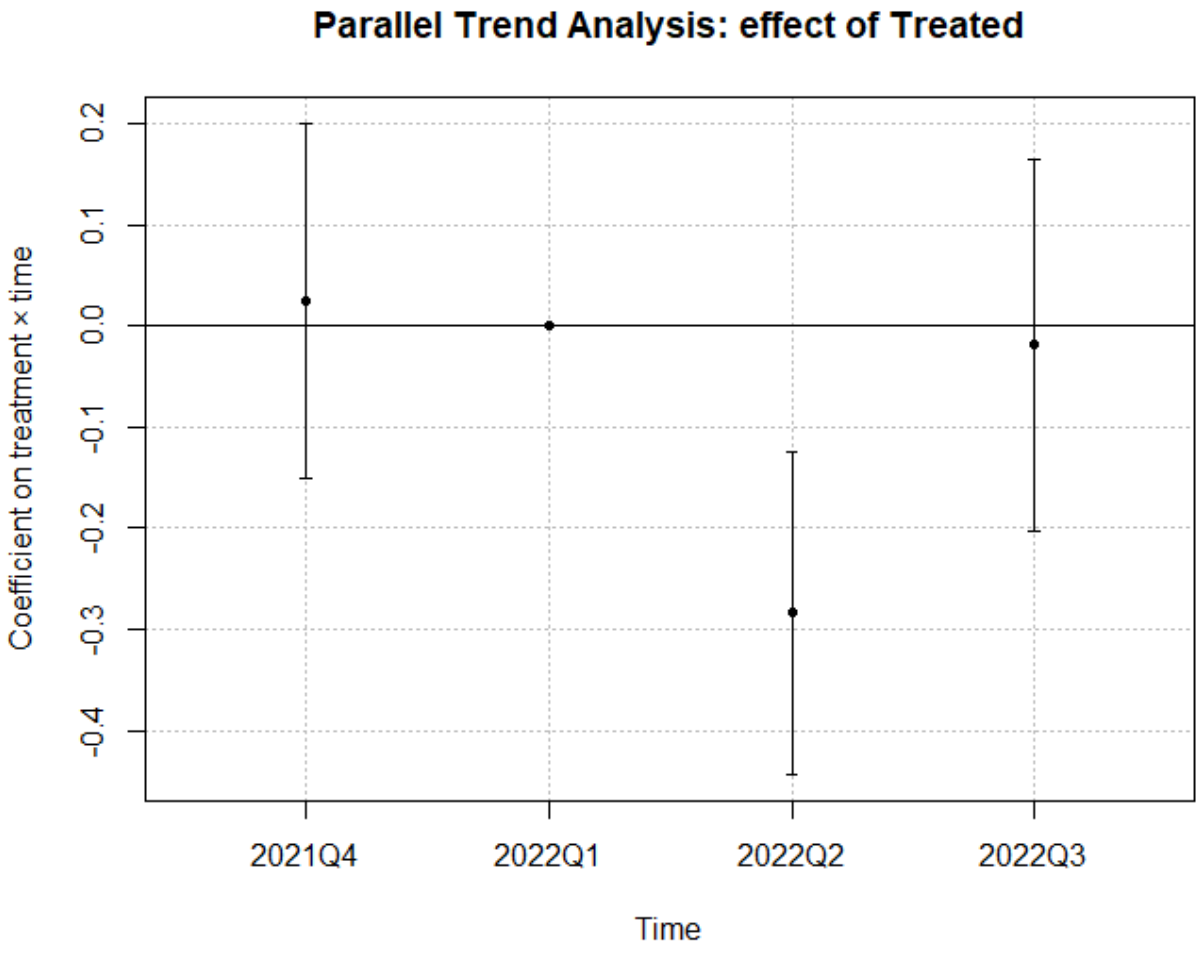

Figure 4: Parallel Trend Analysis Lending: discrete DiD

Table 3: Syndicated Lending and the start of the Ukrainian War

Dependent variable	Ln of 1 + total loan amount	
Model	(1)	(2)
Explanatory variables		
Treated × Post	-0.1684**	
	(0.0743)	
Exposure × Post		-0.0171
		(0.0308)
Bank deposits/assets	-1.7775	-1.9411
	(1.5569)	(1.8067)
Bank loans/assets	-0.9111	-1.4014
	(1.0617)	(1.1189)
Bank size	-0.9721***	-0.9210***
	(0.3043)	(0.3207)
Bank equity/assets	-30.3907**	-29.5885**
	(11.3591)	(11.3734)
Fixed effects		
Loan currency	Yes	Yes
Loan purpose	Yes	Yes
Loan type	Yes	Yes
Bank	Yes	Yes
Industry-country-time	Yes	Yes
Fit statistics		
R^2	0.7505	0.7502
Observations	5,502	5,502

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 4: Syndicated Lending and the start of the Ukrainian War - Cost of Equity

Dependent variable	Ln of 1 + total loan amount				
Model	(1)	(2)	(3)	(4)	(5)
Explanatory variables					
Treated × Post	-0.1684**	-0.1749**	-0.1682**	-0.1855**	-0.1697**
	(0.0743)	(0.0700)	(0.0755)	(0.0802)	(0.0784)
Post × COE		-0.0033	0.0012		
		(0.0442)	(0.0392)		
Treated × Post × COE		0.0204			
		(0.1154)			
Post × COE (% change)				0.0017	0.0001
				(0.0025)	(0.0017)
Treated × Post × COE (% change)				-0.0029	
				(0.0034)	
Bank deposits/assets	-1.7775	-1.7743	-1.7787	-1.8605	-1.7593
	(1.5569)	(1.5563)	(1.5502)	(1.5935)	(1.5999)
Bank loans/assets	-0.9111	-0.9244	-0.9094	-0.7857	-0.9211
	(1.0617)	(1.0684)	(1.0686)	(1.0845)	(1.0808)
Bank size	-0.9721***	-0.9830**	-0.9676**	-1.0507***	-0.9757***
	(0.3043)	(0.4019)	(0.4049)	(0.3646)	(0.3318)
Bank equity/assets	-30.3907**	-30.3527**	-30.3799**	-29.8217**	-30.3737**
	(11.3591)	(11.4520)	(11.3739)	(11.5800)	(11.3173)
Fixed effects					
Loan currency	Yes	Yes	Yes	Yes	Yes
Loan purpose	Yes	Yes	Yes	Yes	Yes
Loan type	Yes	Yes	Yes	Yes	Yes
Bank	Yes	Yes	Yes	Yes	Yes
Industry-country-time	Yes	Yes	Yes	Yes	Yes
Fit statistics					
R^2	0.7505	0.7505	0.7505	0.7506	0.7505
Observations	5,502	5,502	5,502	5,502	5,502

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 5: Syndicated Lending and the start of the Ukrainian War - MDA Buffer

Dependent variable	Ln of 1 + total loan amount		
Model	(1)	(2)	(3)
Explanatory variables			
Treated × Post	-0.1684**	-0.2627**	-0.2747**
	(0.0743)	(0.1123)	(0.1138)
Post × MDA Buffer		-0.0145	0.0042
		(0.0414)	(0.0382)
Treated × Post × MDA Buffer		0.0350	
		(0.0596)	
Bank deposits/assets	-1.7775	-1.1569	-1.5071
	(1.5569)	(1.7619)	(1.8729)
Bank loans/assets	-0.9111	-0.9966	-0.6638
	(1.0617)	(1.5958)	(1.5752)
Bank size	-0.9721***	-0.8590***	-0.8664***
	(0.3043)	(0.2960)	(0.3041)
Bank equity/assets	-30.3907**	-38.0568***	-40.4484***
	(11.3591)	(12.2657)	(12.4133)
Fixed effects			
Loan currency	Yes	Yes	Yes
Loan purpose	Yes	Yes	Yes
Loan type	Yes	Yes	Yes
Bank	Yes	Yes	Yes
Industry-country-time	Yes	Yes	Yes
Fit statistics			
R^2	0.7505	0.7543	0.7543
Observations	5,502	3,750	3,750

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 6: Syndicated Lending and the start of the Ukrainian War - Secured vs unsecured

Dependent variable	Ln of 1 + total loan amount	
Model	(1)	(2)
Explanatory variables		
Treated × Post	0.0177	-0.2656***
	(0.0665)	(0.0419)
Bank deposits/assets	2.9203	-4.4969***
	(1.8380)	(0.9851)
Bank loans/assets	-3.5269**	0.3076
	(1.4381)	(1.3273)
Bank size	-0.5305*	-0.8631
	(0.2889)	(0.6440)
Bank equity/assets	-1.1368	-40.3970***
	(17.1112)	(13.4804)
Fixed effects		
Loan currency	Yes	Yes
Loan purpose	Yes	Yes
Loan type	Yes	Yes
Bank	Yes	Yes
Industry-country-time	Yes	Yes
Specification		
Sample	Secured loans	Unsecured loans
Fit statistics		
R^2	0.7976	0.7969
Observations	2,079	3,423

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 7: Syndicated Lending and the start of the Ukrainian War - Relationship Lending

Dependent variable	Ln of 1 + total loan amount	
Model	(1)	(2)
Explanatory variables		
Treated × Post	-0.1359	-0.2982***
	(0.1156)	(0.0986)
Bank deposits/assets	-2.2061	-2.7071
	(2.1589)	(2.2162)
Bank loans/assets	2.9704	-2.3185
	(2.0795)	(1.6601)
Bank size	-1.6100**	-1.0246**
	(0.6801)	(0.4849)
Bank equity/assets	-11.1761	-14.8933
	(14.1128)	(19.5008)
Fixed effects		
Loan currency	Yes	Yes
Loan purpose	Yes	Yes
Loan type	Yes	Yes
Bank	Yes	Yes
Industry-country-time	Yes	Yes
Specification		
Sample	Existing borrowers	New borrowers
Fit statistics		
R^2	0.8344	0.7563
Observations	1,962	3,444

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

6. Robustness

6.1. Cost of Equity Analysis

In this subsection, we assess the robustness of the results presented in the previous section, which indicate that the outbreak of the War in Ukraine is associated with an increase in the cost of equity for banks with exposure to Russia. One potential concern is that these results may be influenced by the composition of the sample. In the baseline analysis, 53 banks were included, with 13 classified as treated and 40 as part of the control group. To address possible biases arising from this imbalance, we implement a nearest-neighbor matching procedure. Specifically, for each treated bank, we select the closest control bank based on three key characteristics: size (Total Assets), profitability (Return on Average Assets), and capital position (Core Equity Tier 1 Ratio).[15] This matching approach effectively improves the comparability between the treated and control groups. As shown in Table 8, the average size of banks in the matched control group increases to approximately 800 billion USD in total assets, compared to 386 billion USD for the control group before matching.

We repeat the baseline for the matched sample in Table 9. This approach confirms the results of the main analysis. The cost of equity of the banks in the treatment group increases significantly more compared to the banks in the control group following the start of the War. In addition, Column (2) of Table 9 highlights that interacting the *Post* dummy with the continuous exposure measure yields a significant positive coefficient, as was the case for the unmatched panel.

Table 8: Summary Statistics: Treated and control groups before and after matching

	Treated	Control (Before Matching)	Control (After Matching)
Total Assets (m USD)	832,550,288	385,935,243	800,188,909
CET1 Ratio (%)	15.10	15.35	15.72
ROAA (%)	0.53	0.45	0.65

This table reports the mean for bank-level variables.

In the main analysis we obtain the cost of equity for the banks in our sample via a CAPM methodology. To ensure that our results are not driven by the choice of modeling approach, we obtain cost of equity estimates based on a three-factor model as in Fama & French (1993) in this part of the analysis. The Fama & French (1993) approach differs from CAPM by including additional factors related to firm size (market capitalisation) and value (book-to-market ratio). We report our results in Table 10 and confirm the findings of the baseline in this specification.

In the next part of the robustness section we adjust the exposure measure. In the main analysis we derive

[15] These variables correspond to year-end 2021.

exposure from banks operating as lead arrangers in the syndicated loan market. For robustness, we relax this assumption and incorporate all participating banks to construct the exposure measure. We report the results in Table 11. This approach yields results that remain in line with the baseline, which underscores the robustness of our earlier findings. Further, in the main analysis we only consider exposure to Russia-based borrowers. In Table 12 and Table 13 we show that our results remain similar to the baseline when expanding the geographical scope of our exposure measure. Note that magnitude of the coefficient on the interaction of the *Post* dummy and the continuous exposure measure diminishes (but remains statistically significant) when expanding its geographical coverage. This indicates that it is mainly the extensive margin of exposure that leads to an increased cost of equity for banks in these specifications.

Table 9: Cost of Equity and the start of the Ukrainian War - Matching

Dependent variable	COE	
Model	(1)	(2)
Explanatory variables		
Treated × Post	1.2112*	
	(0.6748)	
Exposure × Post		0.6165***
		(0.1388)
Fixed effects		
Bank	Yes	Yes
Week	Yes	Yes
Fit statistics		
R^2	0.6707	0.7455
Observations	676	676

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

6.2. Lending Analysis

Next, we assess the validity of our results for lending. Again, a first concern is that our findings are driven by sampling composition. To address this, we match the banks in the control group to the treatment group using a nearest-neighbor matching procedure. The summary statistics in Table 14 show that we are able to substantially improve the comparability between treated and control banks in terms of size, capital ratio, and profitability in this setup. In Table 15, we repeat the baseline lending analysis for the matched sample. Our results confirm the main analysis. Exposure to Russian borrowers prior to the start of the Ukrainian War is associated with a decrease in credit supply. Column (1) of Table 15 shows that the magnitude of the coefficient is equivalent to the baseline analysis and indicates a negative impact on loan amounts of -19.06%, compared to -18.64% in the baseline. Similar to the baseline, our results suggest that lending responses are

Table 10: Cost of Equity and the start of the Ukrainian War - Alternative COE - Fama and French 3-Factor Model

Dependent variable	COE	
Model	(1)	(2)
Explanatory variables		
Treated × Post	1.6370*	
	(0.9524)	
Exposure × Post		0.6552**
		(0.3092)
Fixed effects		
Bank	Yes	Yes
Week	Yes	Yes
Fit statistics		
R^2	0.7118	0.7212
Observations	1,378	1,378

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 11: Cost of Equity and the start of the Ukrainian War - Alternative Exposure a - All participating banks

Dependent variable	COE	
Model	(1)	(2)
Explanatory variables		
Treated × Post	1.1156*	
	(0.5785)	
Exposure × Post		0.6353***
		(0.1019)
Fixed effects		
Bank	Yes	Yes
Week	Yes	Yes
Fit statistics		
R^2	0.6964	0.7445
Observations	1,378	1,378

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 12: Cost of Equity and the start of the Ukrainian War - Alternative Exposure b - Conflict Area

Dependent variable	COE	
Model	(1)	(2)
Explanatory variables		
Treated × Post	1.1156*	
	(0.5785)	
Exposure × Post		0.5592***
		(0.1267)
Fixed effects		
Bank	Yes	Yes
Week	Yes	Yes
Fit statistics		
R^2	0.6964	0.7304
Observations	1,378	1,378

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 13: Cost of Equity and the start of the Ukrainian War - Alternative Exposure c - First Neighbors

Dependent variable	COE	
Model	(1)	(2)
Explanatory variables		
Treated × Post	2.5828***	
	(0.5274)	
Exposure × Post		0.0563***
		(0.0068)
Fixed effects		
Bank	Yes	Yes
Week	Yes	Yes
Fit statistics		
R^2	0.7925	0.8119
Observations	1,378	1,378

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

driven by the extensive margin and not the intensive margin, as the analysis yields no significant results when interacting the size of the Russian exposure with the *Post* dummy.

Further, in Table 16, we add firm-quarter fixed effects as in Khwaja & Mian (2008) to control for any borrower-driven credit demand effect, instead of the industry-country-quarter setup following Gropp et al. (2019) and Degryse et al. (2023b). This approach identifies treatment using firms that borrow from more than one bank within a given quarter. The results in Column (1) and Column (2) of Table 16 confirm the negative impact of the Ukrainian War on the credit supply of Russia-exposed banks.

Table 17 repeats the baseline analysis while excluding borrowing firms headquartered in Russia. This robustness check addresses the concern that some banks may have reduced their exposure to Russia due to regulatory or political pressure, which could have confounded the main results. This exclusion however, has no material impact on the significance and magnitude of our findings, as shown in Columns (1) and (2) of Table 17.

Finally, we investigate whether our results are sensitive to variations of the exposure measure. In Table 18 we take into account all participating banks when deriving banks' exposure, as opposed to only lead banks. In Table 19 we expand the geographical scope of the exposure measure to include Russia, Ukraine, and Belarus, while Table 20 also includes Poland, Slovakia, Hungary, Romania, and Moldova. These countries share borders with Ukraine, which exposes them to potential geopolitical risk spillovers. Across these alternative specifications, our findings remain consistent, with the exception of the most broad geographical definition of exposure. In this final setup, the interaction term of interest is no longer significant, both in the extensive and the intensive margin. This confirms that it is really the direct exposure to the most sensitive geographical area that matters for credit supply.

Table 14: Summary Statistics: Treated and control groups before and after matching

	Treated	Control (Before Matching)	Control (After Matching)
Total Assets (m USD)	832,550,288	435,074,473	754,916,325
CET1 Ratio (%)	15.10	15.40	14.24
ROAA (%)	0.53	0.40	0.66

This table reports the mean for bank-level variables.

Table 15: Syndicated Lending and the start of the Ukrainian War - Robustness - Matching

Dependent variable	Ln of 1 + total loan amount	
Model	(1)	(2)
Explanatory variables		
Treated × Post	-0.1906**	
	(0.0860)	
Exposure × Post		-0.0148
		(0.0398)
Bank deposits/assets	-0.5382	-0.9881
	(1.7212)	(2.1221)
Bank loans/assets	-3.7674*	-4.1214
	(2.1425)	(2.4646)
Bank size	-0.9552**	-0.8261
	(0.4293)	(0.4965)
Bank equity/assets	-11.2097	-8.7344
	(17.2435)	(18.9951)
Fixed effects		
Loan currency	Yes	Yes
Loan purpose	Yes	Yes
Loan type	Yes	Yes
Bank	Yes	Yes
Industry-country-time	Yes	Yes
Fit statistics		
R^2	0.7533	0.7529
Observations	4,405	4,405

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 16: Syndicated Lending and the start of the Ukrainian War - Robustness - Borrower-Time FE

Dependent variable	Ln of 1 + total loan amount	
Model	(1)	(2)
Explanatory variables		
Treated × Post	-0.0261*	
	(0.0139)	
Exposure × Post		-0.0103**
		(0.0048)
Bank deposits/assets	-0.0946	-0.1569
	(0.3051)	(0.2962)
Bank loans/assets	0.1481	0.1662
	(0.2172)	(0.2153)
Bank size	-0.1621	-0.1769
	(0.1208)	(0.1200)
Bank equity/assets	-2.5849	-3.3594
	(2.8916)	(2.9148)
Fixed effects		
Loan currency	Yes	Yes
Loan purpose	Yes	Yes
Loan type	Yes	Yes
Bank	Yes	Yes
Borrower-time	Yes	Yes
Fit statistics		
R^2	0.9028	0.9028
Observations	5,502	5,502

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 17: Syndicated Lending and the start of the Ukrainian War - Robustness - no Russian Borrowers

Dependent variable	Ln of 1 + total loan amount	
Model	(1)	(2)
Explanatory variables		
Treated × Post	-0.1648**	
	(0.0747)	
Exposure × Post		-0.0170
		(0.0310)
Bank deposits/assets	-1.8013	-1.9623
	(1.5753)	(1.8173)
Bank loans/assets	-0.8925	-1.3688
	(1.0788)	(1.1405)
Bank size	-0.9732***	-0.9238***
	(0.3064)	(0.3207)
Bank equity/assets	-30.5957**	-29.8330**
	(11.5979)	(11.5482)
Fixed effects		
Loan currency	Yes	Yes
Loan purpose	Yes	Yes
Loan type	Yes	Yes
Bank	Yes	Yes
Industry-country-time	Yes	Yes
Fit statistics		
R^2	0.7496	0.7493
Observations	5,493	5,493

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 18: Syndicated Lending and the start of the Ukrainian War - Robustness - Alternative Exposure a - All participating banks

Dependent variable	Ln of 1 + total loan amount	
Model	(1)	(2)
Explanatory variables		
Treated × Post	-0.1684**	
	(0.0743)	
Exposure × Post		-0.0133
		(0.0349)
Bank deposits/assets	-1.7775	-1.9092
	(1.5569)	(1.8257)
Bank loans/assets	-0.9111	-1.4885
	(1.0617)	(1.1508)
Bank size	-0.9721***	-0.9016***
	(0.3043)	(0.3239)
Bank equity/assets	-30.3907**	-28.7652**
	(11.3591)	(11.8034)
Fixed effects		
Loan currency	Yes	Yes
Loan purpose	Yes	Yes
Loan type	Yes	Yes
Bank	Yes	Yes
Industry-country-time	Yes	Yes
Fit statistics		
R^2	0.7505	0.7502
Observations	5,502	5,502

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 19: Syndicated Lending and the start of the Ukrainian War - Robustness - Alternative Exposure b - Conflict Area

Dependent variable	Ln of 1 + total loan amount	
Model	(1)	(2)
Explanatory variables		
Treated × Post	-0.1684**	
	(0.0743)	
Exposure × Post		-0.0180
		(0.0308)
Bank deposits/assets	-1.7775	-1.9477
	(1.5569)	(1.8041)
Bank loans/assets	-0.9111	-1.3878
	(1.0617)	(1.1146)
Bank size	-0.9721***	-0.9242***
	(0.3043)	(0.3206)
Bank equity/assets	-30.3907**	-29.7345**
	(11.3591)	(11.3255)
Fixed effects		
Loan currency	Yes	Yes
Loan purpose	Yes	Yes
Loan type	Yes	Yes
Bank	Yes	Yes
Industry-country-time	Yes	Yes
Fit statistics		
R^2	0.7505	0.7502
Observations	5,502	5,502

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 20: Syndicated Lending and the start of the Ukrainian War - Robustness - Alternative Exposure c - First Neighbors

Dependent variable	Ln of 1 + total loan amount	
Model	(1)	(2)
Explanatory variables		
Treated × Post	-0.0127	
	(0.0992)	
Exposure × Post		0.0088
		(0.0112)
Bank deposits/assets	-1.8881	-1.7862
	(1.8424)	(1.8856)
Bank loans/assets	-1.5709	-1.7620
	(1.1169)	(1.2090)
Bank size	-0.8811***	-0.8154**
	(0.3264)	(0.3261)
Bank equity/assets	-27.8943**	-24.6646*
	(11.8454)	(12.3805)
Fixed effects		
Loan currency	Yes	Yes
Loan purpose	Yes	Yes
Loan type	Yes	Yes
Bank	Yes	Yes
Industry-country-time	Yes	Yes
Fit statistics		
R^2	0.7502	0.7502
Observations	5,502	5,502

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

7. Conclusion

In this paper, we employ the escalation of the Russia-Ukrainian conflict as a quasi-natural experiment to investigate the impact of geopolitical risk on banks' cost of equity and credit supply. Using a difference-in-differences approach in which treatment is defined based on banks' exposure to Russian borrowers in the syndicated loan market, we find that treated banks experience a significant increase in their cost of equity following the start of the Ukrainian War. This is accompanied by a reduction in credit supply, with new syndicated lending by Russia-exposed banks declining by between 16% and 27%. Banks that experience a larger increase in their cost of equity or enter this period of heightened geopolitical risk with a higher level of cost of equity do not adjust their lending more conservatively compared to banks with more muted cost of equity reactions. In addition, we show that banks mainly reduce unsecured loans and lending to new borrowers. These results suggest that the credit rationing approach of the banks is driven by increased risk aversion.

Robustness checks confirm that these effects are not caused by sampling decisions or a retrenchment in lending to Russian borrowers specifically. Our findings shed light on the important consequences of geopolitical risk. A large, unanticipated geopolitical risk shock is associated with an increase of banks' cost of equity and has significant negative outcomes for credit supply. Therefore, it is crucial for policy makers and bank supervisors to integrate geopolitical risk into their risk assessment strategies to strengthen resilience during periods of geopolitical stress.

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9. Appendix. List of banks & exposure to Russia

Table 21: List of banks & exposure to Russia-based borrowers on the syndicated loan market

Name	Exposure (%)
ABN AMRO Bank N.V.	0.42
AIB Group plc	0
Aktia Pankki Oyj	0
Alior Bank S.A.	0
Alpha Bank S.A.	0
Banca Monte dei Paschi di Siena S.p.A.	0
Banca Popolare di Sondrio S.p.A	0
Banco Bilbao Vizcaya Argentaria, S.A.	0.34
Banco BPM S.p.A.	0
Banco Comercial Português, S.A.	0
Banco de Sabadell, S.A.	0
Banco Santander, S.A.	0.12
Bank of Ireland Group plc	0.79
Bank Polska Kasa Opieki S.A.	0
Bankinter, S.A.	0
Barclays PLC	0
BAWAG Group AG	0
BNP Paribas SA	0.48
BPER Banca SpA	0
CaixaBank, S.A.	0
Commerzbank AG	1.69
Credit Suisse Group AG	1.03
Danske Bank A/S	0.14
Deutsche Bank Aktiengesellschaft	0.67
DNB Bank ASA	0
Erste Group Bank AG	0.92
Eurobank Ergasias Services and Holdings S.A.	0
HSBC Holdings plc	0.62

Name	Exposure (%)
ING Groep N.V.	3.04
Intesa Sanpaolo S.p.A.	3.83
Jyske Bank A/S	0
KBC Group NV	0
Lloyds Banking Group plc	0
Mediobanca Banca di Credito Finanziario S.p.A.	0.09
National Bank of Greece S.A.	0
NatWest Group plc	0.07
Nordea Bank Abp	1.58
OTP Bank Nyrt.	3.69
Piraeus Financial Holdings S.A.	0
Powszechna Kasa Oszczednosci Bank Polski Spólka Akcyjna	0
Raiffeisen Bank International AG	7.45
Skandinaviska Enskilda Banken AB (publ)	0.01
Société Générale Société anonyme	2.49
SpareBank 1 SMN	0
SpareBank 1 Sør-Norge ASA	0
Sparebanken Norge	0
Standard Chartered PLC	0.34
Svenska Handelsbanken AB (publ)	0
Swedbank AB (publ)	0
Sydbank A/S	0
UBS Group AG	0.10
Unicaja Banco, S.A.	0
UniCredit S.p.A.	3.40