The Financial Cost of Social Unrest: Evidence from Small Business Borrowing

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Abstract

We examine the financial cost of social unrest. Using 312,130 small, private firms in Europe during 2018 to 2023, we find that small businesses located in the city that are more frequently exposed to violent protests pay higher interest on their debts and borrow less long-term debt. The finding is robust to various controls and fixed effects. Additionally, we find that the negative impact of violent protests is more pronounced for firms with limited insurance coverage, younger firms, and those with more volatile cash flows. To address the endogeneity concern, we further show that firms located closer to the vicinity of these protest events have higher cost of debt and lower long-term debt, while such effects are not found among peaceful protests occurred in the same city. Lastly, we find that firms that endure more violent protests within a city experience a high chance of bankruptcy due to the increased level of costs of debts. These findings highlight the financial vulnerabilities of small businesses during periods of violent protests and indicate the need for policymakers to enhance the financial resilience of private enterprises in the face of ongoing instability.

1 Introduction

Citizens have the right to express on the streets their views and protest for a change (Cantoni et al., 2023). These protests, albeit many of them being peaceful and producing changes at multi-level scales, can suddenly escalate into violent clashes between groups that have different positions and cause local disturbances (Acemoglu et al., 2018; Cantoni et al., 2023; Dimitriadis, 2021; Nassauer, 2018). Accumulated evidence from news reports and social media suggests that violent protests or demonstrations could cause substantial losses for small businesses located in the area. For example, during the period when protests over the death of George Floyd erupt across the U.S., CNN reports that "*small businesses are facing a new threat to their survival… small businesses owners say their stores have suffered damage such as broken windows and that merchandise has been looted (during the violent protests) …*"[1] While there is a growing interest in identifying the effects of violent protests on firm performance (Barrett et al., 2024; Boulton et al., 2022), the impact of violent protests on debt contracting for firms, particularly for small firms, remains relatively unexplored. In this study, we investigate whether violent social protests influence the financing costs for small businesses. Specifically, we examine whether small and private firms in Europe pay a higher cost of debt and borrow a shorter-term debt because of the impact of violent protests.

Small business plays an important role in the global economy. According to the World Trade Organisation (WTO), small and medium enterprises (SMEs) account for 90 percent of the business population.[2] However, due to a lack of reliable ways (verified financial statements, credit scores) to communicate with investors, small businesses often suffer from information opacity and have greater difficulty accessing external finances than larger firms (Cassar et al., 2015; Cowling et al., 2012; Levine et al., 2020). The information opaque problems could be more severe if there is an unfavourable exogenous shock (Miklian &

[1]https://edition.cnn.com/2020/06/01/business/george-floyd-protests-business-looting/index.html
[2]https://www.worldbank.org/en/topic/smefinance

Hoelscher, 2022). Moreover, since violent protests events are often localized, the effects of the protests can be confined within a certain geographic area (Tilcsik & Marquis, 2013). Consequently, small businesses located in the vicinity of these protest areas are likely to be among the first sectors that endure the unfavourable shock associated with violent protests. In the event of such social disturbances, small firms are more vulnerable and less likely to survive. The ability to secure financing in social shocks is vital in terms of small businesses' survival (Desa & Basu, 2013; Mills & McCarthy, 2016). Therefore, we are motivated to examine whether and how violent protests influence small business borrowing and ultimately, the firms' bankruptcy risks. Although extant literature shows that violent protests can have a long-lasting negative effect on real economy (Barrett et al., 2024), most prior studies focus on large and public firms (Barrett et al., 2024; Boulton et al., 2022), thereby failing to provide systematic evidence of the effects of violent protests on small and private business. To fill this research gap, we examine the impact of violent protests on small business borrowings.

We expect that small, private businesses[3] are likely to experience an increase in costs of debt and a decline in debt maturity after violent protests in their community. Exposure to violent protests could induce agency costs between lenders and borrowers (Jensen & Meckling, 2019). Financing constraint theory suggests that greater uncertainty about profits aggravates information asymmetries, which could result in tightening financing constraints for businesses (Greenwald & Stiglitz, 1990a, 1990b). Violent protests lead to a higher uncertainty for firms to conduct their businesses. The loss of inventory due to vandalization, temporary closure due to regulatory requirements or safety concerns could result in a loss of revenues during the protest periods. Also, after the protests, the negative sentiments associated with violent protests could stigmatize the business community, leading to a loss of

[3]See the definition of small, private businesses at: https://single-market-econoour.ec.europa.eu/smes/sme-fundamentals/sme-definition_en

customers and profits in the long term (Dimitriadis, 2021). The decrease in revenues during and after the protest periods casts serious doubts on firms' ability to repay the loans. Debtholders may incorporate these factors into their decision-making process, and consequently, small and private businesses located in the city that are more frequently exposed to violent protests pay higher interest on their debts and borrow less long-term debt.

Despite the above arguments, our research question is not without tension because there might be some benefits that violent social protests may bring to the businesses. Specifically, prior studies suggest that violent social protests can significantly reshape laws and political processes by forcing urgent attention to important yet salient issues (Garcia & Ortega, 2024). These protests often compel policymakers to act swiftly, leading to legislative and policy reforms that might not occur through traditional, non-violent methods (Cantoni et al., 2023; Garcia & Ortega, 2024). As a result, legislative reforms may facilitate the implantation of government financial support schemes that offer accessible finances to small businesses[4]. Furthermore, protests may lead to systematic changes in financial services and eventually lower the debt burdens on small businesses by eliminating bias towards vulnerable groups. Aligned with this argument, Garcia and Ortega (2024) show that racial protests improve the credit access for black business owners using the loan-level data provided by the U.S. Small Business Administration. Therefore, whether and how violent social protests influence the borrowing cost of small local businesses remains an empirical question.

We use small business data from the Orbis database, which includes a comprehensive set of small, privately held firms in Europe. We gather data on violent demonstrations from the Armed Conflict Location and Event Data (ACLED) database. Upon merging data from the two databases and applying our sample selection procedures, we have a final sample of 312,130 firms in Europe during the period of 2018-2023. We find that firms headquartered in

[4]See https://single-market-economy.ec.europa.eu/access-finance_en for government support for SMEs in EU countries in social unrest.

cities experiencing more frequent violent protests/demonstrations pay a higher cost of debt and borrow less long-term debt. More specifically, for one percent increase in the frequency of local violent protests, the costs of debt increase by 1.2 percent, and the long-term debts decrease by 4 percent, controlling for firm, year, and country fixed effects.

Our main analyses may suffer from endogeneity concerns. For instance, omitted observable and unobservable factors may influence local borrowing and social protests simultaneously (Kim, 2019). Also, reverse causality may be a concern. It is possible that increased small business borrowing costs may lead to social protest events, which can escalate into violence during protest movements. We conduct two additional tests to minimize these concerns. First, we consider the saliency of the violent protests. Since a firm could endure several violent protests within certain vicinity in a given year, we calculate the average distance between a firm and the violent protests within the proximity of 100km each year[5]. We find that firms located closer to the vicinity of the violent protest are associated with higher cost of debt and lower long-term debt. This strengthens our assertions that violent protests have a negative impact on private firms' borrowing. Second, we conduct a placebo test to address the issue that our results may be location driven. If our results are location-driven, then the frequency of peaceful protests may also have an impact on small business borrowing because many violent protests are usually an escalated consequence evolved from peaceful protests (Jasper, 1998). In contrast to our main findings, we do not find the frequency of peaceful protests with a crowd size of over 1000 within a city that experience violent protest[6] significantly influence the costs of debt and debt maturity. This result strengthens our hypothesis that only violent protests influence debt borrowing for small, private firms.

[5]Prior research (Chen, Wu, & Zhang, 2021) that examines the distance between terrorist attacks and management sentiment also use 100km as the cut-off point.
[6]We delete the peaceful protests that have an unknown number of crowd size or crowd size less than 1000; because a small group of participants in the peaceful protests can hardly affect the daily operations of normal businesses (Wouters, 2019).

Next, we examine the channels through which violent protests affect private firms' borrowing. First, insurance plays an important role in private firms' survival and growth, especially in troubled times (Al-Khalifah, 2018). In most European countries, unrest insurance can be included as part of certain insurance policies, but it is up to the business owners to decide whether to purchase it or not (Porrini & Schwarze, 2014). However, in Spain, the Insurance Compensation Consortium (CCS) requires all businesses to purchase Extraordinary Risk Insurance, which covers social unrest risk[7](Porrini & Schwarze, 2014). Consistent with the argument that private firms recover better if insurance provides more support during troubled times (Al-Khalifah, 2018), we find that firms located in Spain are less influenced by violent protests than those located in other European countries. Further, we find that the effects of violent protests are more prominent for younger firms and firms with more volatile cash flows. These results support the notion that firms in a more vulnerable position are more likely to suffer from higher borrowing costs and shorter debt maturity due to violent protests.

Finally, we examine the interactions effects of the cost of debt and violent protests on bankruptcy risks. We find that firms that endure more violent protests within a city experience a higher chance of bankruptcy due to the increased level of costs of debts.

We contribute to the literature in several ways. First, we contribute to the stream of literature that examines the economic impacts of violent protests. Prior literature has largely focused on the adverse effects of social unrest on macroeconomy and firms' profitability. For instance, Hadzi-Vaskov et al. (2023) show that social unrest events are associated with lower gross domestic products (GDP). Dimitriadis (2021) documents a decline in profitability for local entrepreneurs when violent protests occur. Barrett et al. (2024) suggests that social unrest protest events lead to a 1.4 percentage drop in cumulative abnormal returns in a typical

[7]For the detailed coverage of CCS, see the official website: https://www.consorseguros.es.

country. While these studies provide valuable insights into the macroeconomic and market consequences of violent protests, they did not examine the crucial channel through which such events can have lasting effects: business financing. Our study fills this gap by examining whether and how violent protests influence small business borrowing costs and debt maturity structures. We show that violent protests negatively affect the cost and maturity of debts. By focusing on this overlooked consequence, our research highlights the broader financial ramifications of violent protests, demonstrating that the costs of social unrest extend beyond immediate economic disruptions and have important implications for business financing.

Moreover, we contribute to the research on the debt financing of small businesses (Cassar et al., 2015; Cowling et al., 2012; Levine et al., 2020; Miklian & Hoelscher, 2022). Compared with large and public firms, small businesses often have limited internal resources and lack access to capital markets (Levine et al., 2020; Miklian & Hoelscher, 2022). Although debt financing plays a crucial role in the growth and future prospect of small, private-held businesses, the existential challenges faced by small businesses in accessing debt financing is relatively underexplored (Belitski et al., 2022). The limited research on small business is largely attributable to the lack of empirical data for small and private businesses. By exploiting the Orbis Database, we examine the borrowing patterns for over 300,000 small firms in Europe and provide comprehensive evidence showing the change in borrowing costs for small businesses after protest periods. This study contributes to the studies that identify the impacts of local disruptive effects (violent protests) on small businesses.

Finally, the findings of our research have important practical implications. Small businesses contribute to economic growth, employment, and innovation in many ways (Bartz & Winkler, 2016; Calabrese et al., 2022; Cassar et al., 2015; Lee et al., 2015; Miklian & Hoelscher, 2022; Mills et al., 2020). Consequently, it is important not only for scholars but also for policy makers to understand what factors are related to the survival of small

businesses. While violent social protests may promote social movements to some extent, its costs on small businesses can never be neglected and should be taken into consideration when such events occur.

The remainder of the paper proceeds as follows: Section 2 discusses the related literature review and the hypothesis development. Section 3 presents the research design, data sources, sample selection and descriptive statistics. Section 4 presents the results of our main analyses as well as the results of the additional analyses. Section 5 concludes the paper and discusses its limitation.

2 Literature review and hypothesis development

2.1 Violent protests

From Arab Spring to Yellow Vest Protests, individuals have long taken to the streets to protest and demand for a change (Cantoni et al., 2023; Dimitriadis, 2021). Some protests are successful as they foster a societal change, such as raising awareness of racial issues (Garcia & Ortega, 2024) or ushering political reform (Cantoni et al., 2023). There is a line of literature that documents the profound effect of protests on political and economic change, which leads to economic prosperity in the long term. For example, Aidt and Franck (2013) argue that protests help alter the distribution of political power. Acemoglu et al. (2018) show that street protests serve as a partial rent-seeking activity, they show that intense protests lead to a decrease in stock market valuations for firms connected to political groups that are in power but have no effect on stock market valuations for firms connected to opposing political group. Bogan et al.(2021) show that Black Lives Matter protests lead to an increase in the appointment of black directors on boards. Additionally, Garcia and Ortega (2024) show that local racial protests improve credit access for minority business owners through the channel of social and public awareness.

Nonetheless, one collateral damage of these protests is that many escalate into violent matters, with the consequences of chaos, injuries and sometimes even death (Nassauer, 2018). A group of social science studies examine the situations when violence is likely to occur during peaceful protests. Nassauer (2018) documents that spatial incursions, police mismanagement, escalation signs communication problems and property damage are the key to the emergence of violence. Considering the rise in violence among protests, another stream of studies focuses on the detrimental consequences of the violent protests on economic outcomes. Specifically, Hadzi-Vaskov et al. (2023) document that the protest episode contributes to a 0.2 percentage decrease in GDP that persist into six quarters. Barrett et al. (2024) document that a social unrest episode, such as large protests, riots, and other forms of disorder, causes a drop in cumulative abnormal returns over a two-week event window and the effects are more prominent for protests that last longer and are in emerging markets. Dimitriadis (2021) documents a decline in profitability when violent protests occur, but the effect is mitigated if local entrepreneurs have strong community ties.

2.2 Debt contracting for small, private businesses

Small business plays an important role in the global economy (Bartz & Winkler, 2016; Calabrese et al., 2022; Cassar et al., 2015; Lee et al., 2015; Miklian & Hoelscher, 2022; Mills et al., 2020). However, there are some debates about the performance of small businesses during uncertain times. One view is that small firms are more flexible to survive during a crisis as they have less assets to mobile. Schumpeter (2013) suggests that exogenous shocks could facilitate new entrepreneurs emerging from a period of stability and that uncertainty can help entrepreneurs discover more creative opportunities. However, the other common view is that uncertainty is detrimental to small firms as it impedes the smooth process of creative development (Bartz & Winkler, 2016). Our hypothesis is aligned with the latter view as small businesses are more vulnerable and in need of external finance to survive.

Moreover, small businesses often face challenges in accessing debt financing (Cassar et al., 2015). In the absence of high-quality quantitative data (audited financial reports, institutional affiliations, etc.) for small businesses, lenders usually rely on "soft" information to evaluate borrowers' capabilities to meet debt requirements and reduce information asymmetry (Cassar et al., 2015; Mills et al., 2016). This "soft" information includes but is not limited to subjective assessments of the personalities of the borrowers, evaluations of the local economic prosperity, etc. (Levine et al., 2020). Compared to larger firms, small businesses often have limited internal resources and lack access to capital markets (Cowling et al., 2012). The problems become severe when there is an unfavorable societal shock (Cowling et al., 2012). The financial constraint literature suggests that when the future profitability is uncertain, debtholders may incorporate the increased default risks into the debt contracting, resulting in a more stringent debt contract terms for small businesses (Greenwald & Stiglitz, 1990a). For example, Cowling et al. (2012) show that during the UK recession, larger and older firms are more likely to obtain finance, in contrast, smaller firms are more likely to be denied access to credits. Lee et al. (2015) show that innovative firms are more likely to be turned down for access to external finance than other firms during the financial crisis.

2.3 Hypothesis development

Exposure to violent protests could induce agency costs between lenders and borrowers (Jensen & Meckling, 2019). Financing constraint theory suggests that greater uncertainty about profits exacerbates information asymmetries, which could result in tightening financing constraints for businesses (Greenwald & Stiglitz, 1990a, 1990b). Violent protests cast doubts on firms' development in multiple ways. First, violent protests cause severe property damage, such as destructions on infrastructure, and require unexpected expenditures on repairment from local businesses; Secondly, even if firms do not suffer from

property damage, violent protests could lead to temporary closure of businesses during the protest periods for safety concerns or regulatory requirements. The temporary closure negatively affects small business profits, as small businesses continue to incur fixed costs, like rent and utility costs, irrespective of the level of income during the closure periods. Mills et al. (2020) show that around 20 percent of small business owners permanently close their businesses if they face a two-month revenue loss as they cannot afford the fixed costs to stay in the business. Additionally, violent protests result in the deterioration of local business environment in the long term (Rivera, 2008). Customers are unwilling to visit local businesses due to the negative sentiments towards areas where violence occurs (Rivera, 2008). This long-lasting negative sentiments towards local businesses could result in a decreased number in total customers and consequently, a decline in profitability (Dimitriadis, 2021;Sampson & Raudenbush, 2005). The loss of profitability increases the default risks for small businesses. Consequently, lenders may ask for more interests to compensate the associated higher risks.

H1: The frequency of violent protests is associated with higher cost of debt.

Long-term debt contracts are more desirable to small and private business owners because long-term debt contracts can promote firm-specific financial conditions (Díaz-Díaz et al., 2016). Firms with intermediate credit risks often try to avoid frequent negotiations between debtholders about debt renewal (Scherr & Hulburt, 2001). Particularly if firms reveal some negative information (i.e.: suffer from social disturbances), lenders may choose not to refinance and force firms into premature liquidation (Scherr & Hulburt, 2001). Consequently, in the case of local disruptive events, such as violent protests, shortening debt maturity is a way for debt holders to deal with firms operating in volatile environments (Brick & Ravid, 1985; Stohs & Mauer, 1996). Debt holders may choose to monitor the affected firm more

frequently (Scherr & Hulburt, 2001). Therefore, we argue that after the violent demonstrations, affected firms are less likely to receive long-term debt.

H2: The frequency of violent protests is associated with lower long-term debt.

3 Research design

3.1 Sample selection

The initial sample consists of small European firms included in Orbis, which integrates information held across BvDEP's company information product range. Our sample includes only those firms in Europe registered as a private limited partnership or sole trader/proprietorship. This initial sample screening process generates 4,452,817 firms and 29,878,402 firm-year observations. Table 1 Panel A shows our sample screening steps and data cleaning process. We eliminate firms that do not report the city where they are incorporated and exclude firm-year observations that have insufficient data to measure dependent and control variables. We also eliminate the observations where the interest paid is larger than long term debt or a short-term loan to mitigate the effect of outliers. We winsorise all continuous variables at the 1st and 99th percentiles. After applying the sample cleaning process, we obtain a sample size of 1,877,353 firm-year observations for 312,130 firms over the years 2018-2023. Table 1 Panel B describes the industry distributions of the observations based on two-digit US SIC codes. The data is heavily concentrated in the Services (23.52%), Manufacturing (16.67%), and Retail Trade (15.04%) sectors, collectively accounting for over 55% of the final sample.

[Insert Table1 Here]

3.2 Identification of violent protests and the locations

We collect our sample of violent protests from ACLED database. It is an open-source database that contains information on the dates, actors, locations (coordinates), fatalities, and types of all reported political violence and protest events worldwide. Because the ACLED

includes information on protests worldwide, we eliminate any event that occurred outside Europe. Further, because ACLED focuses on tracking a range of violent and non-violent actions by or affecting political agents, we focus on the types of events contained in “protests” and “demonstrations”. We also exclude “peaceful protests” from our sample. We further exclude “mob violence” from our sample. A mob is considered a crowd of people that is disorderly and has the intention to cause harm or disruption through violence or property destruction (ACELD,2023). In contrast, we examine spontaneous demonstrations that inadvertently lead to violence. Thus, “mob violence” does not fit into our criteria of violent protest.

Appendix B provides some examples of violent protests identified by the ACLED database. For example, on 29 May 2023, Kosovo Serb demonstrators gathered in front of the municipality of Zvecan to demand that the Albanian mayors won the local election do not take their offices because they claim the Albanian mayors do not represent them. They clashed with NATO KFOR units, both sides used shock bombs and pepper spray. 30 KFOR soldiers and more than 50 demonstrators were injured, one of whom with gunshot wounds. The demonstrators also attacked journalists from Top Channel. Their car was also sprayed with a Serbian nationalist symbol and their tires were blown out. Journalists were seriously injured.

Another example is that on 15 April 2021, about 2,000 members of student associations, members of teachers' federations including OLME, and members of teachers' associations and unions, marched towards parliament in Athens - Central Athens against the new education law and particularly against allowing police to patrol university campuses. They also demanded increased coronavirus safety measures in schools. At the end of the march, a group of about 200 demonstrators changed direction and clashed with police when

they attempted to enter university grounds. Police used tear gas and stun grenades. The rioters continued to march to a central park.

Table 2 presents the year and country distributions of violent protests in Europe[8]. According to the ACLED database, France experienced the highest number of protests over the period, with a significant spike in 2023 (397 protests) and a total of 785 protests throughout the years. Germany and Italy followed, with 405 and 287 protests, respectively, showing a consistent level of social unrest throughout the period, especially in 2020 and 2021. Countries like Greece, with a total of 174 protests, and Spain, with 257 protests, saw notable but less frequent social unrest compared to the top three. Greece saw a consistent spread of protests across the years, whereas Spain had a peak in 2020 and 2021. Many countries saw a rise in protests in 2020 and 2021, possibly due to global events like the COVID-19 pandemic and political instability. For instance, France and Germany had significant peaks in 2020 and 2021. However, in 2023, the number of protests appears to be lower in several countries, such as Germany, France, and Spain, indicating a decline in frequency. Countries like Slovenia, Slovakia, and Cyprus experienced relatively low protest activity, with total numbers generally under 10 throughout the period. These countries exhibited only sporadic incidents of social unrest, mostly in 2019 or 2020. Overall, the data suggests that violent protests have been widespread in certain European nations.

[Insert Table2 Here]

Next, to identify the location where the violent protests occurred, for each firm in our sample, we first identify its headquarter cities from the Orbis database. We then match the headquarter cities with the cities where the violent protests are found by city names. To ensure the accuracy of the identification, we manually check the matching results. Specifically, if the spelling of the city name is the same as that of the small business city in

[8]ACLED database acknowledges the differences in time period coverage per country and region. See the full list of country-year coverage at: https://acleddata.com/curated-data-files/

the Orbis database, we adopt no procedure. If the spelling of the cities bears some similarity (e.g.: different hyphen used), but we are not sure whether it is the same place, we use Google map to confirm the merge results by entering the two cities on Google map. If Google map returns the same place, we conclude that the city of headquarters and the city of violent protests are matched successfully.

3.3 Independent variable

Our main variable of interest, *scale frequency*, is a continuous variable that captures how many times a city has experienced a violent protest event during the year scaled by local population[9].

3.4 Dependent variable

The dependent variable when we test H1, Cost of debt (CD_{it}), is the interest paid[10] in year t divided by the average of short-term loans and long-term debts at the beginning and end of the year (Francis et al. 2005a; Francis et al. 2005b; Kim et al. 2011; Pittman and Fortin 2004). The second dependent variable when we test H2 is Long-term debt ratio (LTD_{it}), which is the proportion of long-term debts in year t in a firm's total debts in year t (Barclay and Smith 1995; Vig 2013).

3.5 Control variables

To control for other factors that may influence our dependent variables, we add a series of control variables. To begin with, we add Firm Size (*Ln(asset)*) to account for the firm's structure as firm size is correlated to default risk and debt maturity (Kim et al., 2011; Pittman & Fortin, 2004). Extant literature also establishes that higher asset tangibility is associated with a decrease in the costs of borrowings and an increase in the debt maturity, as more

[9]Data for local population and GDP are obtained from euro statistics (https://ec.europa.eu/eurostat/databrowser/view/demo_r_d3dens/default/table?lang=en); Regions are identified according to the Nomenclature of Territorial Units for Statistics(NUTS) level 3 code.

[10]We acknowledge that using the realized debt cost may be a noisy proxy (Bharath,2008). However, given that interest rates in the lending contracts are not available in Orbis, we use interest paid instead of interest expenses to calculate the costs of debt.

tangible assets are associated with decrease in default risks. Thereby, we add *Asset Tangibility* as a control variable, which is calculated by dividing tangible assets by total assets in year t (Chen et al., 2024). In addition, prior studies suggest that debtholders will often charge profitable firms with lower interest rates and offer more favourable long-term contracts (Chen et al., 2024; Spiceland et al., 2016). Therefore, we control *Profitability*[11], measured by dividing profit before tax by sales in year t, to account for firms' capacity to generate sufficient earnings to cover debt obligations. To account for heterogeneity in the firms' operating and financial risks that may affect small business borrowing, we include *Current ratio, Gearing, sd_ROA* (earnings volatility) *and sd_sales* (sales volatility) following prior literature (Chen et al., 2024; Kim et al., 2011; Pittman & Fortin, 2004). To be more specific, *Current Ratio* is the ratio of current assets to current liabilities in year t. *Gearing* is calculated as the total liabilities divided by total assets in year t. *sd_ROA* represents the standard deviation of Return on Assets (ROA) over the past three years. Moreover, *sd_sales* (sales volatility) is the standard deviation of sales, divided by total assets, over the past three years. These variables are used to assess various financial aspects of the companies under consideration. Macroeconomics conditions can also affect firms' borrowing (Graham et al., 2008). Hence, we also add local population density (persons per square kilometer) and local GDP[12] to account for local economic factors. The definition and measurement of all control variables is provided in Appendix A.

3.6 Model specification

We use the following model to test our hypotheses:

$$CD_{it}/LTD_{it} = \beta_0 + \beta_1 scale\ frequency_{it} + \beta_2 Controls_{it} + year\ fixed\ effect + firm\ fixed\ effect + Country\ fixed\ effect + \varepsilon_{it}$$

[11]Following prior literature（Chen et al., 2024; Kim et al., 2011), we use *Profitability* instead of ROA to avoid a possible correlation between ROA and asset tangibility.
[12]Unit: Millions of Euros [MIO_EUR]

We include firm, year and country fixed effects to control for unobserved, time-invariant factors such as firm specific characteristics, and location (country wise)-specific traits, eliminate omitted variable bias and ensure that estimated relationships are not confounded by these unchanging factors. Also, following prior literature (Chen et al., 2024; Kim et al., 2011), standard errors are clustered by firm to account for potential correlations in errors within the same firm over time.

3.7 Descriptive statistics

Table 3 presents the summary statistics. The average cost of debt is 0.055, whereas the median is 0.032, with a deviation of 0.079. The mean (median) long-term debt ratio is 0.335(0.281), which suggests that small and private firms have relatively low long-term debt in their debt structures. The scale frequency variable has a standard deviation of 0.019, and maximum value of 0.035. This variable exhibit minimal variability, as indicated by the low mean and standard deviation. The mean and median values for *ln(assets)* are 6.743 and 6.592, with a standard deviation of 1.771. The average *Asset Tangibility* is 0.29. This represents that our sample firms have a relatively low level of tangible assets (about 29 percent of total assets). In addition, the average *Profitability* is 0.002 and the median *Profitability* is 0.027. The relatively low value for *Profitability* suggests that the sample firms experience a low profit margin during the sample period of 2018-2023. On average, the sample firms maintain a good *Current ratio* of 2.671, which indicate that they are less likely to face immediate liquidity problems. However, the average *Gearing* is 0.731, with a standard deviation of 0.446. This indicates that the financial gearing is relatively high, which is aligned with the notion that debt financing constitutes as an important source for external financing for small, private-held firms (Kim et al., 2011). Finally, the sample firms experience some volatility in sales and earnings, with the mean for sales volatility reaching 0.232 and the mean for

earnings volatility reaching 0.074. In addition, we use the regional[13] population density and regional total gross domestic product (GDP) to control for the unobservable changing economic concerns. We use the logarithm of both variables; the mean for local ln (GDP) is 10.023, and the mean for local ln(population) is 5.338.

[Insert Table3 Here]

4 Main results and additional tests

4.1 Main results

Table 4 presents the estimation results for the relationship between *scale frequency* and *Cost of debt* in Columns 1 to 2 and for the impact of *scale frequency* on *Long-term debt ratio* in Columns 3 to 4. Columns 1 and 3 report the estimated coefficients of *scale frequency* on firm, year and country fixed effects. Columns 2 to 4 include control variables. The results show that firms located in cities that experience more violent protests borrow at higher costs, as indicated by positive coefficients of scale frequency in Columns 1-2. Specifically, for a one unit increase in the frequency of local violent protests, the interest rate of borrowing increases by 1.2 percent after adding all control variables and firm, year and country fixed effects. The positive relationship between *scale frequency* and *cost of debt* indicates that as the frequency of violent protests increases, lenders perceive higher risks associated with lending to firms. The result suggests that companies operating in environments with more frequent violent protests, face higher financing costs. The higher cost of debt could particularly impact small and private businesses, which already face higher borrowing costs due to limited access to capital markets.

For the long-term debt ratio, the results show that for one unit increase in the frequency of local violent protests, the long-term debt ratio decreases by 4.0 percent after adding all control variables and firm, year and country fixed effects in Column 4. This

[13]Regions are identified according to the Nomenclature of Territorial Units for Statistics (NUTS) level 3 code.

negative relationship suggests that as the frequency of violent protests increases, firms are more likely to possess less long-term debt given that the perceived future is more uncertain, and lenders choose to monitor the affected firm more frequently by shortening the debt maturity for these affected businesses.

The estimated coefficients on control variables are mostly consistent with prior literature (Chen et al., 2024; Kim et al., 2011; Pittman & Fortin, 2004; Regenburg & Seitz, 2021; Scherr & Hulburt, 2001). First, the negative coefficients on *ln(asset) and asset tangibility* for costs of debt suggest that lenders charge lower interest costs to larger firms with more tangible assets. Also, the positive coefficients on *ln(asset) and asset tangibility* for long-term debt ratio indicate that firms that are more sizable and obtain more tangible assets tend to have longer debt maturity. On the other hand, the negative coefficients for earnings volatility suggests that firms with more volatile earnings borrow at less expensive rates, which is contrary to an expectation of a positive relation. In addition, for long term debt ratio, firms with more tangible assets and higher current ratios tend to have more long-term debt (Chen et al., 2024; Fung & Goodwin, 2013; Gul & Goodwin, 2010). The positive coefficient on *Gearing* suggests that highly indebted firms are more likely to seek long term debt to mitigate monitoring costs and refinancing risks-lenders might not refinance given the firms' higher default and operational risks (Scherr & Hulburt, 2001).

[Insert Table 4 Here]

4.2 Endogeneity concerns

4.2.1 Coordinates of the episodes of violent protests

We are aware that our results may be driven by unobservable factors or concurrent events occurring in the city. To address this endogeneity concern, we further collect data for the coordinates of the episodes of violent protests. If we can accurately pinpoint the violent protest centres and observe that companies within its vicinity experience an impact on their

debt contracting, we can effectively rule out some alternative explanations within the city's context. In other words, we conjecture that firms located closer to the violent protests are more severely affected than firms located farther away. To achieve this, we first use Factiva to hand-collect the coordinates of the vicinity of violent clashes by incorporating the location information provided by the ACLED database. Also, if the protests include multiple routes through the city, we use the destination points of the protests to extract coordinates. In the end, we obtain 404 coordinates for the violent clashes that have over 1,000 crowd size(Acemoglu et al., 2018)[14].

Orbis database provides the coordinates for some of the small businesses. For the small businesses that do not have coordinates in our sample, we use google geocoding GPI to extract the coordinates based on the addresses the Orbis database provided. We then associate each firm in our sample to each violent protest episodes and calculate the geographical distance between the focal firms and episodes of the violent protests using the obtained coordinates. Since a small business could endure several violent protests within one year, we calculate the average distance between a firm and the violent protests within the proximity of 100km each year. We take the logarithm of the average distance (*ln(Average Distance)*). We expect that firms located closer to the episode centre of violent protests have a higher cost of debt and obtain less long-term debt, because debtholders perceive these firms having greater default and credit risks. Table 6 presents the results. Column 1 presents the result for costs of debt and Column 2 present the results for long term debt ratio. Specifically, the negative coefficient on cost of debt (*t* value is -2.029) and positive coefficient on long term debt ratio (*t* value is 2.202) indicate that firms located farther from the violent protest centre experience lower debt pricing and obtain more long-term debt.

[14]Prior study (Acemoglu et al., 2018) show that more intense protests (more participants) are associated with lower stock market valuations for political-connected firms. Therefore, we use the crowd size of 1000 as the cut-off points to show the intensity of the protests.

[Insert Table5 Here]

4.2.2 Peaceful protests

In our setting, our specification may suffer from a mechanical bias picking up convergent trends in cities that experienced violent protests. To address the concern that our results may be location driven, we conduct a placebo test to validate our results. People mostly express their frustrations through peaceful protests (Eisinger, 1973). These peaceful protests are likely to occur in the same places as those violent protests as violent protests are the escalated consequences evolved from peaceful protests (Eisinger, 1973; Jasper, 1998). If our results are location driven, then it is possible that the frequency of peaceful protests also has an impact on the debt contracting for focal firms. Therefore, we examine firms that also experience peaceful protests. We calculate the frequency of peaceful protests with over 1,000 crowd size within a city that also endures violent protests. The argument is that for cities that experience both type of protests, only the frequency of violent protests matters; the frequency of peaceful protests should not have any impact on the debt contracting for private firms. Table 6 Column 1-2 present the results, which are insignificant for both costs of debt and long-term debt ratio. The results are consistent with our expectation that firms experiencing peaceful protests in the local areas are not affected.

[Insert Table 6 Here]

4.3 Cross-sectional tests

4.3.1 Country insurance setting

Next, we test the channels through which violent protests affect the private, small firms' borrowing. First, we consider the supportiveness of the various countries' insurance systems. Intuitively, if the insurance system in a specific country is more supportive for businesses during turbulent times, the affected business can easily claim their damage and restore their business to normal operations. Debtholders can also incorporate this factor into their

decision-making process and accordingly adjust the debt contracting terms given the lower operational risks compared to other businesses that have less favorable insurance coverage. Therefore, we propose that for countries that have more comprehensive insurance systems targeted to private businesses, the cost of debt and debt maturity will be less affected.

In most of European countries, unrest insurance can be included in certain insurance policies, but it is up to the owners themselves to purchase this insurance (Porrini & Schwarze, 2014). However, in Spain, catastrophic risk insurance is already integrated into various business insurance policies (Porrini & Schwarze, 2014). Particularly, the Insurance Compensation Consortium (CCS) requires all businesses to purchase Extraordinary Risk Insurance, which covers risks such as natural disasters, terrorism, and social unrest (Porrini & Schwarze, 2014). Under such regulatory framework, private insurers must collect add-on premium in building, accident and occupational incapacity insurance and pass on the premiums to Consorcio de Compensacio´n de Seguros (Consorcio), which is a state monopoly insurer. The penetration rate for insurance coverage is high, reaching as much as 80 % (Porrini & Schwarze, 2014). Given the border coverage of such compulsory insurance, we expect small businesses that are directly impacted by violent protests could gain easier access to the insurance program and recover better compared to other small businesses with access to voluntary or no insurance. The results are tabulated in Table 7 Panel A. Columns 1-2 present the results of the comparison for costs of debt between Spain and other countries. Columns 3-4 present the results for long term debt ratio. The insignificant result in Column 1 suggests the cost of debt for firms in Spain is not affected by the occurrence of violent protests, whereas for other countries, the positive coefficient in Column 2 suggest that firms with no compulsory insurance are associated with a higher cost of borrowing. Similarly, the positive coefficient in Column 3 (significant at 10% level) suggests that firms in Spain are not negatively affected by the violent protests in terms of the debt structure. More

importantly, the coefficient is -0.051 and significant at 1% level for long term debt for other countries, suggesting that firms located in other countries are obtain less long-term debt.

4.3.2 Firm age

We further test that the impact of violent protests on small business borrowing may not be uniform but varies with firm-specific contexts. Younger firms generally suffer more information opaque problems due to their limited interactions with private lenders, therefore, they are more likely to receive more monitoring from the debtholders and higher interest costs (Diamond, 1989). Aligned with this argument, we posit that younger firms are more likely to suffer more during the violent protests in terms of debt contracting (Diamond, 1989). We partition the full sample into subsamples of *younger* firms (firms whose age is below the median of an industry in a country) and older firms (all other firms). The results are tabulated in Table 7 Panel B. As anticipated, in the subsample of younger firms, the coefficients on *scale frequency* for the *Cost of debt* is 0.035 and significant at 1% level. This suggests that younger firms endure more cost of borrowing after the violent protests.

4.3.3 Cash flow volatility

We use cash flow volatility to proxy for the uncertainty mechanism. Firms operating in uncertain environments are more likely to be charged with higher premium to compensate the associated risks (Jiang, 2008). Minton & Schrand (1999) suggest that cash flow volatility is associated with higher external financing costs. We partition the full sample into high cash flow volatility and low volatility according to the median of the cash flow volatility in an industry of a country each year. The results are tabulated in Table 7 Panel C. To interpret the results, we find that the coefficient for the subsample of high cash flow volatility in the cost of debt regression is 0.017 and significant at 1% level, whereas the coefficient for low cash flow volatility is -0.001, which is 1.6 percent lower than the high cash flow volatility group. Moreover, the coefficient of high cash flow volatility in the long-term debt ratio regression is

-0.05, whereas the coefficient for low cash flow volatility is 0.002. The difference is significant at 1% level. The results are consistent with our argument that firms which operate in higher uncertainty receive higher costs of debt and shorter debt maturity.

[Insert Table7 Here]

4.4 Bankruptcy risk and cost of debt

In the event of social disturbances, small firms are more vulnerable and less likely to survive. The ability to secure financing in violent protests is vital in terms of small businesses' survival (Desa & Basu, 2013; Mills & McCarthy, 2016). Therefore, we test for the interaction effect of the frequency of local violent protests and the cost of debts on the bankruptcy risks of small businesses. We acquire the bankruptcy data from the Orbis Database. Our dependent variable, *Bankruptcy,* is coded one if the focal firm are in bankruptcy, liquidation and dissolved stage and zero otherwise. Dependent variable *Bankruptcy* is one year led to other variables.

We use Linear Probability Model (OLS model) to test for the association between bankruptcy risk and the interaction of the cost of debt and the local violent protest frequency. Despite the well-known limitations of the Linear Probability Model (LPM) compared with logit or probit model, given the relatively large sample size, LPM provides a simple expression for the change in the dependent variable (bankruptcy risks) and independent variables (interaction effects on the *cost of debt and scale frequency*) (Amemiya, 1977). Also, by using the Linear Probability Model, we can account for the fact that the predicted probability of bankruptcy lies outside the range of 0 to 1(Betts & Fairlie, 2001). We include firm, year and country fixed effects to control for unobserved, time-invariant factors. Table 8 presents the results. Column 1 shows that the coefficient on *Bankruptcy* and the interaction on *costs of debt* and *scale frequency* is positive and significant at 5% level. The result

suggests that for firms that endure more frequent violent protest, the bankruptcy risks are higher due to the increased level of cost of debt.

[Insert Table 8 Here]

5 Conclusion and limitation

This study investigates the impact of violent social protests on small business debt contracting. While protests can raise awareness and drive legislative reforms, they often escalate into destructive events, causing localized economic disturbances. Small businesses, which represent 90% of the global business population, are particularly vulnerable due to their limited access to external financing and higher information opacity (Cowling et al., 2012). Using 312,130 small, private firms in Europe during the period of 2018-2023, we find that small businesses located in the city where violent protests frequently occur pay a higher interest on their debts and obtain less long-term debt. The finding is robust to various controls and fixed effects. In addition, further analyses show that within the radius of 100km, firms located closer to the violent protests centre borrow at a higher cost and obtain less long-term debt, which further corroborates our finding that violent protests have a negative impact on small business borrowing. Moreover, we mitigate the concern that our results may be location-driven by conducting a placebo test. We find that even though many peaceful protests happen in the same place as the violent protests (Eisinger, 1973; Jasper, 1998), the frequency of peaceful protests does not impact small business borrowing. Also, we conduct three cross-sectional tests to examine some firm-specific contexts. We find that firms without compulsory insurance (i.e.: firms located in other countries instead of Spain), younger firms and firms with higher cash flow volatility are associated with a higher cost of debt and shorter-term debt. Moreover, we find that firms that endure more violent protests within a city are more likely to go bankruptcy due to the higher costs of debt, which corroborates our finding that violent protests could negatively impact on the survival of small businesses.

This study contributes to the literature by shedding light on the significant and often overlooked impact of violent protests on the borrowing costs of companies, particularly small businesses. While prior research has focused on the broader economic consequences of social unrest, we specifically examine how violent protests affect small business borrowing. Our findings highlight that such protests can lead to increased borrowing costs and shorter debt maturity for small and private businesses due to the heightened uncertainty and volatile environments. The findings also provide practical implications for policymakers to support small businesses, highlighting the need to account for their financial resilience in the face of uprising social unrest.

However, one of the primary limitations of this study is that we are unable to directly observe the negotiations of debt contracts between firms and lending institutions. Debt contracts are often the result of complex negotiations involving various factors, such as the bargaining power of both parties, the specific risk assessments conducted by lenders, and the strategic priorities of the borrowing firms. Without access to detailed information on these negotiations, it is difficult to fully capture the nuances of how violent protests influences the small business borrowing. As a result, while our study identifies the relationship between frequency of violent protests within a city and some of the debt contracting terms such as the cost of debt and debt maturity, we cannot fully explore the dynamic, real-time decisions made by lenders and borrowers during contract negotiations.

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Appendix A Variable Definition

Variables	Definitions
Cost of debt	This is the firm's average interest rate on interest-bearing debts in year t. I estimate the interest rate using interest paid in year t divided by the average interest-bearing debts in year t: interest paid/ ((short-term loan_t-1+long-term debt_t-1) + (short-term loans_t+ long-term debt_t))/2
Long term debt ratio	This is the firm's long-term debt ratio in year t: long-term debt/ (current liabilities and long-term debt)
Scale frequency	The number of each city endured **violent** protests in the current year scaled by local population
lnasset	Ln(asset+1); Total assets in year t.
Asset Tangibility	Tangible le assets in year t divided by total assets in year t
Profitability	Profit before tax in year t divided by sales in year t
Current Ratio	Current assets in year t divided by current liabilities in year t
Gearing	Total liabilities in year t divided by total assets in year t
sd_ROA	The standard deviation of ROA in the past three years
sd_sales	The standard deviation of sales divided by total assets in the past three years
lngdp	Logarithm of local GDP sum by NUTS3 region
lnpopulation	Population density by NUTS 3 region Obtained from euro statistics (https://ec.europa.eu/eurostat/databrowser/view/demo_r_d3dens/default/table?lang=en)
Spain	Equal to 1 if the Country is Spain;0 otherwise
Average Distance	The average distance of the focal firms to nearby violent protests within the proximity of 100km
ln(Average Distance)	Ln (average distance+1)
Pscale_frequency	The number of the city which endured **peaceful** protests scaled by local population
Cash flow volatility	The standard deviation of net income plus depreciation and amortization in the past three years
Bankruptcy	Coded one if the focal firm are in bankruptcy, liquidation and dissolved stage in the current year and zero otherwise

Note. Appendix A provides the variables definitions and calculations.

Appendix B Samples of ACLED Database

EVENT_ID_CNTY	COUNTRY	CITY	Event Description
GRC2757	Greece	Athens	On 15 April 2021, about 2,000 members of student associations, members of teachers' federations including OLME, and members of teachers' associations and unions, marched towards parliament in Athens - Central Athens against the new education law and particularly against allowing police to patrol university campuses. They also demanded increased coronavirus safety measures in schools. At the end of the march, a group of about 200 demonstrators changed direction and clashed with police when they attempted to enter university grounds. Police used tear gas and stun grenades. The rioters continued to march to a central park.
FRA26725	France	Lille	On 29 June 2023, overnight, rioters set ablaze the Wazemmes and Fives neighborhood town halls in Lille and targeted three schools with mortar fireworks. The event was part of a national wave of riots and demonstrations denouncing police violence and demanding justice in the wake of the shooting and subsequent death of 17-year-old Nahel M. by a police officer in Nanterre on 27 June 2023.
XKX809	Kosovo	Zvecan	On 29 May 2023, Kosovo Serb demonstrators gathered in front of the municipality of Zvecan to demand that the Albanian mayors that won in the local elections that they boycotted not take their offices, since they claim they do not represent them. They clashed with NATO KFOR units, both sides used shock bombs and pepper spray. 30 KFOR soldiers and more than 50 demonstrators were injured, one of whom with gunshot wounds. The demonstrators also attacked journalists from Top Channel. Their car was also sprayed with a Serbian nationalist symbol and their tires were blown out. Journalists was seriously injured.
AUT982	Austria	Vienna	On 10 January 2022, around 6:30 am, activists blocked the Rheinmetall MAN Military Vehicles' (RMMV) military truck plant in Vienna - Liesing to denounce the company's alleged delivery of RMMV vehicles to the Turkish army and its environmental impact. One participant allegedly slightly injured an employee while closing the factory gate, others allegedly tried to force their way into the building, while some climbed onto the roof of the structure to hoist banners and others chained themselves to concrete barrels to block the gate. 21 participants were taken into custody by the police after refusing to leave and produce identity documents.

Note. Appendix B provides some of the examples of ACLED database.

Table 1 Sample selection and distribution across industries

Panel A: Sample Selection

Orbis: Search Steps		Number of firms
1. Status	Active companies, Unknown situation, Inactive companies	485,209,648
2. World region/Country/Region in country	Western Europe, Eastern Europe	141,674,929
3. Standardized legal form	Private limited company, Partnership, Sole trader/proprietorship	107,712,011
4. Loans & short-term debt	All companies with a known value, 2023, 2022, 2021, 2020, 2019, 2018, for at least one of the selected periods, exclusion of companies with no recent financial data and public authorities/States/Governments	15,409,123
5. Long term debt	All companies with a known value, 2023, 2022, 2021, 2020, 2019, 2018, for at least one of the selected periods, exclusion of companies with no recent financial data and public authorities/States/Governments	12,346,290
6. Interest paid	All companies with a known value, 2023, 2022, 2021, 2020, 2019, 2018, for at least one of the selected periods, exclusion of companies with no recent financial data and public authorities/States/Governments	4,452,817
This generates 4,452,817 firms and 29,878,402 firm-year observations		
TOTAL		Number of observations
Initial sample		29,878,402
minus:	No report on cities where the businesses are incorporated	-1,322
	negative dollar values	-66,304
	missing values for cost of debt	-3,528,739
	missing values for long term debt ratio	-1,107
	missing values for the control variables	-24,400,031
	Values that interest paid is higher than long-term debt or short-term loan	-3,546
TOTAL		1,877,353
The final sample contains 312,130 firms with 1,877,353 firm-year observations		

Panel B: Industry Distributions

Industry Distribution	**Obs**	**Percent**
Agriculture, Forestry, Fishing	76,119	4.05%
Mining	4,659	0.25%
Construction	231,201	12.32%
Manufacturing	313,005	16.67%
Transportation & Public Utilities	154,335	8.22%
Wholesale Trade	252,337	13.44%
Retail Trade	282,402	15.04%
Finance, Insurance, Real Estate	121,608	6.48%
Services	441,467	23.52%
Public Transportation	220	0.01%
Total	1,877,353	

Note. Table 1 Panel A describes the sample selection process. Panel B presents the industry distributions of the observations based on two-digit US SIC classification.

Table 2 Country and year distribution of violent protests

Country	2018	2019	2020	2021	2022	2023	Total
Albania	8	19	8	9	1	0	45
Andorra	NA	NA	0	0	1	0	1
Austria	NA	NA	12	25	18	28	83
Belarus	8	8	48	10	11	0	85
Belgium	NA	NA	15	9	8	16	48
Bosnia Herzegovina	8	6	1	2	0	1	18
Bulgaria	9	8	11	3	1	1	33
Croatia	2	4	1	4	1	1	13
Cyprus	3	4	8	4	8	4	31
Czech Republic	NA	NA	4	7	8	1	20
Denmark	NA	NA	12	7	7	8	34
Estonia	NA	NA	1	2	0	1	4
Finland	NA	NA	4	5	6	7	22
France	NA	NA	139	136	113	397	785
Germany	NA	NA	79	118	102	106	405
Greece	25	33	43	26	26	21	174
Hungary	NA	NA	3	1	4	4	12
Iceland	NA	NA	0	0	1	0	1
Ireland	NA	NA	2	5	1	6	14
Italy	NA	NA	98	65	64	60	287
Kosovo	5	4	1	4	1	3	18
Latvia	NA	NA	1	2	2	0	5
Lithuania	NA	NA	1	5	0	0	6
Luxembourg	NA	NA	1	1	1	0	3
Malta	NA	NA	4	0	0	0	4
Moldova	4	5	6	5	4	4	28
Montenegro	1	4	7	6	1	1	20
Netherlands	0	0	26	47	29	17	119
North Macedonia	1	1	1	3	1	0	7
Norway	NA	NA	6	8	10	3	27
Poland	NA	NA	17	19	12	5	53
Portugal	NA	NA	4	4	2	5	15
Romania	2	7	5	9	4	1	28
Serbia	6	9	6	8	7	5	41
Slovakia	NA	NA	2	3	1	0	6
Slovenia	NA	NA	2	1	0	1	4
Spain	NA	NA	78	77	70	32	257
Sweden	NA	NA	11	20	16	12	59
Switzerland	NA	NA	5	14	9	8	36
United Kingdom	NA	NA	70	95	64	35	264
Total	**82**	**112**	**743**	**769**	**615**	**794**	**3115**

Note. Table 2 presents the country and year distribution of violent protests for the year 2018-2013. "NA" represents the year and the country for which the ACLED database did not start to cover.

Table 3 Summary Statistics

Variables	Obs	Mean	SD	Min	P25	Median	P75	Max
Cost of debt	1,877,353	0.055	0.079	0.000	0.017	0.032	0.060	0.527
Long term debt ratio	1,877,353	0.335	0.283	0.000	0.082	0.281	0.544	0.969
scale frequency	1,877,353	0.002	0.019	0.000	0.000	0.000	0.000	0.035
lnasset	1,877,353	6.743	1.771	2.936	5.527	6.592	7.814	11.804
Asset_tangibility	1,877,353	0.290	0.270	0.000	0.055	0.207	0.470	0.960
Profitability	1,877,353	0.002	0.337	-2.210	0.001	0.027	0.086	0.947
Current_ratio	1,877,353	2.671	4.156	0.070	1.009	1.526	2.576	30.905
Gearing	1,877,353	0.731	0.446	0.075	0.484	0.699	0.880	3.344
sd_ROA	1,877,353	0.074	0.124	0.000	0.011	0.032	0.081	0.820
sd_sales	1,877,353	0.232	0.278	0.004	0.067	0.140	0.280	1.628
lngdp	1,877,353	10.023	1.291	5.261	9.091	10.015	10.939	12.438
lnpopulation	1,877,353	5.338	1.349	1.065	4.457	5.438	6.251	9.952

Note. Table 3 provides summary statistics for the main variables used in the regression. All continuous variables are winsorized at 1 percent and 99 percent percentile. All variables are defined in Appendix A.

Table 4: Main Test

Variables	(1) Cost of debt	(2) Cost of debt	(3) Long term debt	(4) Long term debt
Scale_frequency	0.015***	0.012***	-0.047***	-0.040***
	(3.857)	(2.933)	(-4.261)	(-3.644)
lnasset		-0.010***		0.041***
		(-33.545)		(49.367)
Asset tangibility		-0.013***		0.307***
		(-18.697)		(125.944)
Profitability		-0.000		-0.002***
		(-1.035)		(-3.556)
Current ratio		-0.000***		0.013***
		(-15.793)		(147.121)
Gearing		-0.016***		0.079***
		(-39.403)		(60.199)
sd_ROA		0.003***		-0.008***
		(2.785)		(-3.246)
sd_sales		-0.001***		0.009***
		(-3.937)		(9.552)
lngdp		0.037***		-0.334***
		(23.747)		(-81.554)
lnpopulation		0.199***		-0.439***
		(19.280)		(-18.688)
Intercept	0.055***	-1.297***	0.336***	5.574***
	(6,950.546)	(-23.095)	(15,308.115)	(43.524)
Country fixed effect	yes	yes	yes	yes
Year fixed effect	yes	yes	yes	yes
Firm fixed effect	yes	yes	yes	yes
Observations	1877353	1877353	1877353	1877353
R-squared	0.820	0.822	0.892	0.908

Note. Table 4 presents the results of the tests on the association of the frequency of violent protests scaled by population and the cost of debt in columns 1 to 2, and the relationship between scale frequency and debt maturity in columns 3 to 4. Columns 1 and 3 report the results of the baseline regression. Columns 2 and 4 report the regression results of the full models, including all control variables and, year, firm and country fixed effect effects. All variables are defined in Appendix A. The t-statistics are reported in parentheses and the standard errors are clustered at the firm level.

*** p value <0.01, ** p value <0.05, * p value<0.1

Table 5: Distance test

Variables	(1) Cost of debt	(2) Long term debt
ln (Average Distance)	-0.001**	0.003**
	(-2.029)	(2.202)
Controls	yes	yes
Country fixed effect	yes	yes
Year fixed effect	yes	yes
Firm fixed effect	yes	yes
Observations	279,827	279,827
R-squared	0.905	0.951

Note. Table 5 presents the results of average distance tests. we calculate the average distance between a firm and the violent protests within the proximity of 100km each year. We take the logarithm of the average distance. Column 1 presents the result for costs of debt and Column 2 present the results for long term debt ratio. All variables are defined in Appendix A. The t-statistics are reported in parentheses and the standard errors are clustered at the firm level.

*** p value <0.01, ** p value <0.05, * p value<0.1

Table 6: Peaceful protest

Variables	(1) Cost of debt	(2) Long term debt
Pscale_frequency	-0.001	0.001
	(-0.970)	(1.206)
Controls	yes	yes
Country fixed effect	yes	yes
Year fixed effect	yes	yes
Firm fixed effect	yes	yes
Observations	279,827	279,827
R-squared	0.905	0.951

Note. Table 6 presents the results of the association between the frequency of the peaceful protests scaled by local population and the dependent variables. Column 1 presents the result for costs of debt and Column 2 present the results for long term debt ratio. All variables are defined in Appendix A. The t-statistics are reported in parentheses and the standard errors are clustered at the firm level. *** p value <0.01, ** p value <0.05, * p value<0.1

Table 7 Cross-sectional tests

Panel A: Cross sectional Tests: Country insurance setting

	(1)	(2)	(3)	(4)
Variables	Cost of debt	Cost of debt	Long term debt	Long term debt
	Spain	Other Countries	Spain	Other Countries
Scale_frequency	0.000	0.013***	0.048*	-0.051***
	(0.007)	(3.123)	(1.656)	(-3.821)
p value of equal coefficients	0.286		0.012**	
Controls	yes	yes	yes	yes
Firm fixed effect	yes	yes	yes	yes
Year fixed effect	yes	yes	yes	yes
Observations	546,040	1,331,313	546,040	1,331,313
R-squared	0.797	0.823	0.906	0.912

Note. Table 7 Panel A presents the results of Country insurance settings. Column 1-2 present the results of the comparison for costs of debt between Spain and other countries. Column 3-4 present the results for long term debt ratio. All variables are defined in Appendix A. The t-statistics are reported in parentheses and the standard errors are clustered at the firm level.

*** *p* value <0.01, ** *p* value <0.05, * *p* value<0.1

Panel B: Cross-sectional tests: Firm age

Variables	(1) Cost of debt	(2) Cost of debt	(3) Long term debt	(4) Long term debt
	Older firms	Younger firms	Older firms	Younger firms
Scale_frequency	0.002	0.035***	-0.033***	-0.049**
	(0.455)	(6.741)	(-2.739)	(-2.142)
p value of equal coefficients	0.336		0.702	
Controls	yes	yes	yes	yes
Country fixed effect	yes	yes	yes	yes
Firm fixed effect	yes	yes	yes	yes
Year fixed effect	yes	yes	yes	yes
Observations	1,084,127	793,226	1,084,127	793,226
R-squared	0.83	0.826	0.917	0.915

Note. Table 7 Panel B presents the results of firm age. We partition the full sample into subsamples of younger firms (firms whose age is below the median of an industry in a country) and older firms (all other firms). Column 1-2 present the results of the comparison for costs of debt between younger firms and older firms. Column 3-4 present the results for long term debt ratio between younger firms and older firms. All variables are defined in Appendix A. The t-statistics are reported in parentheses and the standard errors are clustered at the firm level.

*** p value <0.01, ** p value <0.05, * p value<0.1

Panel C: Cross-sectional tests: Cash flow volatility

Variables	(1) Cost of debt	(2) Cost of debt	(3) Long term debt	(4) Long term debt
	high cash flow volatility	low cash flow volatility	high cash flow volatility	low cash flow volatility
Scale_frequency	0.017***	-0.001	-0.050***	0.002
	(3.535)	(-0.203)	(-3.575)	(-0.150)
p value of equal coefficients		0.000***		0.008***
Controls	yes	yes	yes	yes
Country fixed effect	yes	yes	yes	yes
Firm fixed effect	yes	yes	yes	yes
Year fixed effect	yes	yes	yes	yes
Observations	1,179,767	697,586	1,179,767	697,586
R-squared	0.852	0.875	0.928	0.937

Note. Table 7 Panel C presents the results of the comparison of the cash flow volatility. We partition the full sample into high cash volatility and low volatility according to the median of the cash flow volatility in an industry of a country each year. Column 1-2 present the results of the comparison for costs of debt between low cash flow volatility group and high volatility group. Column 3-4 present the results for long term debt ratio between low cash flow volatility group and high volatility group. All variables are defined in Appendix A. The t-statistics are reported in parentheses and the standard errors are clustered at the firm level.
*** p value <0.01, ** p value <0.05, * p value<0.1

Table 8 Bankruptcy risk

Variables	(1) Bankruptcy Risk
*Cost of debt *Scale frequency*	0.082**
	(2.201)
Cost of debt	-0.002*
	(-1.886)
Scale_frequency	-0.005*
	(-1.681)
Controls	yes
Country fixed effect	yes
Firm fixed effect	yes
Year fixed effect	yes
Observations	1877353
R-squared	0.686

Note. Table 8 present the result of the association between bankruptcy risks and the interactions of cost of debt and scale frequency. All variables are defined in Appendix A. The t-statistics are reported in parentheses and the standard errors are clustered at the firm level.
*** *p* value <0.01, ** *p* value <0.05, * *p* value<0.1