

T.C

MARMARA ÜNİVERSİTESİ

SOSYAL BİLİMLER ENSTİTÜSÜ

İŞLETME (İNGİLİZCE) ANA BİLİM DALI

MUHASEBE FİNANSMAN (İNGİLİZCE) BİLİM DALI

**ACCESS TO FINANCE AND ECONOMIC UNCERTAINTY: AN EXAMINATION
ON SMEs IN TURKEY AND EUROPE**

Doktora Tezi

SEMİH YILMAZER

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ÖZET

FİNANSMANA ERİŞİM VE EKONOMİK BELİRSİZLİK: TÜRKİYE VE AVRUPA KOBİ'LERİ ÜZERİNE BİR ARAŞTIRMA

Bu tez çalışması, ekonomik belirsizliğin Türk ve Avrupa şirketlerinin finansmana erişim olasılığı üzerindeki etkisini 2015-2020 yılları için, Türk şirketlerinin sermaye yapısı üzerindeki etkisini ise 2009-2022 yılları için incelemektedir. Türk ve Avrupalı firmaların finansmana erişim düzeyini ölçmek için İşletmelerin Finansmana Erişimi Anketi (SAFE) veri seti, Türk firmalarının sermaye yapısını tespit etmek için TÜİK Sektör Bilançoları veri seti kullanılmış, belirsizliği ölçmek için ise IMF Dünya Belirsizlik Endeksi (WUI) gösterge olarak dikkate alınmıştır. Lojistik regresyon modeli sonuçlarına göre, belirsizlik firmaların banka kredilerine erişim olasılığını negatif yönde etkilerken, ticari krediye erişim olasılığını pozitif yönde etkilemektedir. Sonuçlar ayrıca bazı firma düzeyinde değişkenlerin ve makroekonomik göstergelerin işletmelerin finansmana erişimini önemli ölçüde etkilediğini ortaya koymaktadır. Sabit etkiler regresyon sonuçları ise hem Türkiye'nin ekonomik belirsizliğinin hem de küresel ekonomik belirsizliğin firmaların toplam borçlanma düzeyini negatif etkilediğini göstererek politika yapıcıların finansmana erişimi iyileştirmek için ekonomik belirsizliğe odaklanması gerektiğini ortaya çıkarmıştır.

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ABSTRACT**ACCESS TO FINANCE AND ECONOMIC UNCERTAINTY: AN EXAMINATION
ON SMEs IN TURKEY AND EUROPE**

This dissertation examines the effect of economic uncertainty on the probability of access to finance of Turkish and European firms between 2015 and 2020 and the capital structures of Turkish Firms between 2009 and 2022. Survey on Access to Finance of Enterprises (SAFE) dataset is used to measure the probability of access to bank loans and trade credit, TURKSTAT Company Accounts Dataset is used to determine capital structures, and The IMF World Uncertainty Index (WUI) is considered as a proxy for uncertainty. According to logistic regression model results for the SAFE dataset, the uncertainty negatively affects the probability of firms' access to bank loans while positively affecting the likelihood of access to trade credit. The results also reveal that some firm-level and macroeconomic indicators significantly impact access to finance. Fixed effects regression results indicate that Turkey's economic uncertainty and global economic uncertainty negatively influence the total leverage of Turkish firms, implying policymakers should focus on economic uncertainty to enhance firms' access to finance.

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Small and Medium-sized Enterprises (SMEs) are, without a doubt, the backbone of the economy. Despite their significant contributions, SMEs face a major challenge in accessing finance, particularly during uncertain times. The lack of access to finance poses a serious threat to the growth and sustainability of SMEs, ultimately having a negative impact on the economy as a whole.

This study provides a thorough analysis of the macroeconomic and firm-level factors that affect SMEs' access to finance, with a particular focus on uncertainty. Drawing on the findings, the study aims to identify key issues and provide policymakers with clear guidance to support SMEs.

I dedicate my thesis to my beloved wife Begüm and Ilgaz, our son, whose unwavering support and presence provided me with the strength to persevere through this challenging journey. I also want to express my deepest gratitude to my incredible parents, who have dedicated their lives to their children and my brothers and sister.

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LIST OF ABBREVIATIONS

BRSA	: Banking Regulation and Supervision Agency of Turkey
CDS	: Credit Default Swaps
CGF	: Credit Guarantee Fund
CGS	: Credit Guarantee Schemes
EC	: The European Commission
ECB	: The European Central Bank
EPU	: Economic Policy Uncertainty
EU	: The European Union
EUR	: Euro
FE	: Fixed Effects
FED	: The Federal Reserve
GDP	: The Gross Domestic Product
ICO	: Initial Coin Offerings
IMF	: International Monetary Fund
IPO	: Initial Public Offerings
KOSGEB	: Small and Medium Enterprises Development Organization of Turkey
OECD	: The Organisation for Economic Co-operation and Development
POLS	: Pooled Ordinary Least Squares
RE	: Random Effects
SAFE	: The Survey on The Access to Finance of Enterprises
SMEs	: Small and Medium-Sized Enterprises
TRY	: Turkish Lira
TURKSTAT	: Turkish Statistical Institute
UK	: The United Kingdom
US	: The United States
UN	: The United Nations

WB	: The World Bank
WBES	: World Bank Enterprise Surveys
WUI	: The World Uncertainty Index
VIX	: Chicago Board Options Exchange Volatility Index



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INTRODUCTION

Both in developed and developing countries, Small and Medium-Sized Enterprises (SMEs) are among the most important economic actors and key determinants of growth. Numerous academic studies find evidence of SMEs' contribution to welfare, job creation, competitiveness, and innovation (Ribeiro-Soriano, 2017). According to the World Bank (WB), about nine out of every ten businesses are SMEs worldwide. These enterprises also provide more than half of employment globally. They represent 99.8 percent of all companies and half of private sector employment in the United States (Caglio et al., 2021). Likewise, the share of SMEs by numbers of company in the European Union is above 99 percent.

Despite their significant contributions to economies, particularly in recovery periods following financial shocks, they are more financially constrained than large firms (Kaya and Schildbach, 2014). Although access to finance for SMEs is vital to survive, they are among the most disadvantaged groups. This constraint is observed in both developed and developing countries and access less external financing for their investments, which is especially noticeable for small firms (Beck and Demirguc-Kunt, 2006). Furthermore, SMEs heavily rely on internal or short-term financing sources (Dowling et al., 2019). The Reasons why SMEs are restricted are information asymmetry (Guercio et al., 2019), opacity (Kaya and Schildbach, 2014), the lack of audited financial statements (Rahman et al., 2017), the inefficient financial markets (Beck et al., 2005; Malhotra et al., 2007), the concentration and competition of banking sector (Dong and Men, 2014), and the lack of collateral (Guercio et al., 2019).

The challenge of accessing finance becomes even more formidable for SMEs under uncertain economic conditions. The uncertainty severely affects SMEs compared to large companies. As, SMEs need more external financing to grow and survive, they are highly depended on bank loans to meet their needs for financing. However, during periods of high uncertainty, financing costs increase, and banks refrain from providing funds due to credit rationing (Kundid and Ercegovac, 2011), making SMEs more vulnerable to increased uncertainty. Moreover, uncertainty even have non-financial consequences for SMEs, such as limited availability of skilled employees. It is documented that uncertainty leads to a decrease the number of employees of SMEs, whereas the impact is either very weak or non-existent for large enterprises (Ghosal and Ye, 2019).

The dissertation aims to achieve two main objectives. Firstly, it seeks to investigate the impact of uncertainty on SMEs' access to finance, with a specific focus on two traditional financing sources: bank loans and trade credit. The second aim is to find out how global and local economic uncertainty affect the capital structures of Turkish SMEs.

The first analysis is conducted using data from the Survey on the Access to Finance of Enterprises (SAFE), a collaborative effort by the European Commission and the European Central Bank. Logistic regression is employed to examine the relationship between uncertainty and SMEs' financial accessibility for 25 countries. In the second analysis, the impact of uncertainty on the capital structure of Turkish SMEs is examined using the Turkish Statistical Institute (TURKSTAT) Company Accounts Dataset.

The findings of the analysis conducted on the SAFE dataset reveal that uncertainty has a negative impact on the probability of firms' access to bank loans, while its influence is positive on the likelihood of access to trade credit. Owing to the apprehension of banks to provide financing under high uncertainty, firms tend to look for alternative financing tools. In this regard, supplier financing emerges as a viable option during such periods. The study further analyzed sub-groups of firms based on their sector and country. The sectors were classified into four groups: manufacturing, construction, service, and trade. The countries were categorized using three criteria: MSCI, geographical, and welfare classification. Upon analyzing sectors, the impact of uncertainty on the probability of access to bank loans was found to be insignificant. However, its impact on access to trade credit was positive and significant for all sectors, indicating the robustness of uncertainty's effect on trade credit. Regarding country classification, uncertainty was found to be negatively associated with the access to bank loans only for developed countries as per the MSCI classification. The results of the geographical and welfare classifications indicate that uncertainty positively influences access to bank loans in Southern European countries, while its impact is insignificant for other groups. This suggests that policies aimed at addressing uncertainty in Southern European countries are successful, as the probability of access to loans is increasing. The study concludes that uncertainty is positively associated with the probability of access to trade credit in the MSCI developed and Southern European countries. However, it should be noted that the number of observations is low for other country groups, which may lead to biased results.

The TURKSTAT company accounts dataset reveals that the economic uncertainty in Turkey and the world has an adverse and significant impact on the total leverages of Turkish companies. This validates the findings of the SAFE dataset, which also acknowledges uncertainty as a challenging issue for businesses. The research delves into various components of leverage, including short-term and long-term leverage, the percentage of financial debts on total assets, and the percentage of trade credits on total assets. This study offers valuable insights not just for total leverage but also for the maturity and types of finance preferred by Turkish enterprises. Furthermore, the study stratified micro, small, middle-sized, and larger companies into sub-groups, facilitating the identification of indicators for each group and the development of more efficient strategies, particularly for SMEs.

This research contributes to the literature from various aspects. First, it is used two distinct databases measuring both the perceptions of firms with the SAFE dataset and actual situation with TURKSTAT Company Accounts Dataset regarding to access to finance. Second, there is a gap in the

literature about the effect of economic uncertainty, particularly for emerging countries. Third, sample periods cover many important events increasing uncertainty enormously, providing a very comprehensive findings to evaluate the impact of uncertainty.

The research consists of four parts. In the chapter one, the concept of access to finance is comprehensively handled with its measurement and importance, also including SME finance with its traditional and alternative source and reasons why SMEs are financially constrained. The chapter two presents the concept of economic uncertainty, its importance, and measurement. The chapter three includes theoretical background of the subject, literature review, data, methodology, and empirical results, evaluating consistency with previous studies. In the conclusion part, it is pointed out the key findings and evaluate their implications for policymakers.



1. ACCESS TO FINANCE

Access to finance has become an increasingly important concept in recent decades. In the aftermath of the global crisis of 2007-2009, the easing monetary policies bound interest rates to zero and, in parallel, reduced the financing costs. Moreover, an unconventional expansionary monetary policy through asset purchases was adopted to prevent recession and revitalize the economy. The process ended in the US in 2013 when the Federal Reserve (Fed) announced the start of tapering in January 2014 (Lim et al., 2014). The European Central Bank (ECB), on the other hand, used unconventional monetary policy tools in response to the sovereign debt crisis, cutting interest rates below zero in 2014, and continuing its expansionary monetary policy under the 2% inflation target until 2019 (Finnegan and Kapoor, 2023).

In 2020, with the new coronavirus pandemic, economies suddenly stopped, and central banks of all countries, especially the FED, cut interest rates to get the economic wheels turning again. However, the recovery of economies after the pandemic-induced recession has pushed inflation up rapidly (Jiang, 2024). In addition, the global supply failing to meet demand due to the disruption of supply chains and the energy crisis caused by the Russia-Ukraine war were other factors that pushed inflation higher. The Russian Federation's invasion of Ukraine caused a 1.3-point increase in global inflation (Caldara et al., 2022). Policy rates started to increase as high inflation forced central banks to take measures. Therefore, the normalization period started with policy rate hikes, making the issue of access to finance even more essential.

According to the Financial Access Survey conducted by the International Monetary Fund (IMF), the share of SME financing on GDP has declined in the post-pandemic period, gender gap issue was still persistent as well, indicating women are disadvantaged in terms of financial inclusion (IMF, 2023). The survey also shows that microfinance has been rapidly growing with the support of microfinance institutions. The last key takeaway of the survey is that digital financial services such as applications and mobile payment agents gradually replace traditional financial access points like ATMs or bank branches.

OECD (2024) states that inflation and tightening monetary policy are challenging for SME finance, leading to a decline in lending. The report also concludes that the stock of SME loans and equity finance declined with women-led and minority-led businesses disproportionately affected while asset-based finance is recovering although the rebound strength varies. The report points out that access to finance is a significant barrier for SMEs' net-zero action since they have limited capacity to align with sustainable finance requirements. It is expected that financing conditions will remain tight, credit growth

will be weak, and the downward trend in SME finance will continue in coming years, making the access to finance issue more prominent.

This chapter provides comprehensive information about the conceptual framework of access to finance, its measurement, its significance for the economy, and why it is crucial for small and medium-sized enterprises (SMEs) that face financial restrictions. The chapter also covers both conventional and alternative financing instruments, particularly for SMEs.

1.1. Definition of Access to Finance

The concept of access to finance can be broadly defined as the ability to access financial services with appropriate quality and at affordable costs according to certain standards- (Claessens, 2006). Beck et al. (2008) describe this concept as the absence of price or non-price barriers. It is beneficial in many ways, such as managing cash flows, raising living standards, purchasing assets, and reducing vulnerability to risks (Arora, 2014). A manufacturer's access to finance for fixed or working capital investments increases production and hence the number of employees (Kumar et al., 2005).

Access to finance and the use of finance are distinct concepts. Access to finance encompasses both demand and supply, whereas the use of finance pertains solely to demand, rendering the concept challenging to quantify. For example, a company or an individual may opt not to pursue external financing for reasons that do not necessarily indicate difficulties in accessing finance. A person or organization is considered to be constrained if it cannot access finance despite its demand (Bae et al., 2012). Similarly, Lamont et al. (2001) define the financial constraint as the inability of a company to fund the projects it wants to realize. This concept can be expressed in mainly three different forms: (i) complete lack of financing, (ii) slow pace of access to finance, and (iii) very high-interest rates (Savignac, 2008). Financially constrained firms are entities that lack sufficient cash to seize investment opportunities and incur agency costs in accessing financial markets (Korajczyk and Levy, 2003).

The measurement of access to finance or, from another perspective, financial constraints - inadequate or no access to finance- can be classified into two types: Direct and indirect measurement. Direct measurements are surveys asking participants questions about their access to finance level while indirect measurements use financial indicators retrieved from financial statements.

Previous studies have primarily used surveys to directly measure access to finance. The World Bank Enterprise Surveys (WBES), conducted by the World Bank, and the Survey on Access to Finance of Enterprises (SAFE), jointly conducted by the ECB and the European Commission (EC), are the most common surveys used to determine the perception and level of access to finance by considering various firm characteristics.

Indirect measurements determine the level of financial constraints using various financial indicators of firms. Kaplan and Zingales' (1997) KZ Index and Whited and Wu's (2006) WW Index are mostly used measures of financial constraints based on firms' financial data. The higher the value of both indices, the higher the level of the financial constraint of firms. KZ Index includes ratios of (i) cash flows to property, plant, and equipment of the previous year, (ii) Tobin Q, (iii) debt to total capital, (iv) dividends to property, plant, and equipment, and (v) cash to property, plant, and equipment as determinants of financial constraint (Lamont et al., 2001). The WW index, on the other hand, uses (i) cash flow, (ii) whether a company pays dividends or not (dummy), (iii) leverage, (iv) firm size, (v) the sales growth of the industry, and (vi) sales growth of the firm to determine the level of financial constraints. Hadlock and Pierce (2010) criticize the KZ index by highlighting several issues: the evidence on the index is inconclusive and unreliable since only two components are consistently associated with constraints and coefficients can change with data addition. Index also has a sampling problem because results change with different samples. The empirical findings of Farre-Mensa and Ljungqvist (2016) indicate that the behaviors of firms classified as financially constrained according to indices do not overlap with the notion that they are facing financial constraints. In addition, another drawback is that these indices are suitable for businesses in advanced economies rather than emerging countries (Karasoy Can and Erdogan Cosar, 2023).

The level of access to finance is also examined from the capital structure perspective. Total debt to total assets (D'amato, 2020; Daskalakis et al., 2017; Demirgüç-Kunt et al., 2020; Rossi, 2014) and their components such as short-term debt to total assets (Abor and Biekpe, 2009; D'amato, 2020; Yazdanfar et al., 2019), long-term debt to total assets (Abor and Biekpe, 2009; D'amato, 2020; Demirgüç-Kunt et al., 2020; Yazdanfar et al., 2019), bank loans to total assets (Carbo-Valverde et al., 2016), and trade credit to total assets (McGuinness and Hogan, 2016) are mostly used capital structure determinants in the relevant literature.

1.2.The Importance of Access to Finance

Access to finance is substantial for individuals, firms, and economy. There is a two-way interaction between access to finance and many indicators including financial innovation, poverty reduction, financial sector stability, economic state, financial literacy, and regulatory frameworks that vary across different countries (Ozili, 2021).

The financial condition of firms and their access to external finance is crucial for investment and hence for economic growth (Ferrando and Mulier, 2015). Additionally, access to finance positively affects the growth of number of permanent employees, which is more visible for manufacturing sector firms (Brixiová et al., 2020). Similarly, Ayyagari et al. (2021) find that SMEs demonstrate a larger

positive impact on job creation when granted access to finance. However, the moderating effect of financial literacy should be considered to increase the effect of access to finance on small firms' growth (Fatoki, 2021).

An enhanced access to finance improves resource allocation by helping firms to deal with liquidity pressure (Wurgler, 2000). Also, it can be instrumental in reducing poverty (Honohan, 2004). If access to finance is allocated for low-income individuals, it can be significantly helpful for diminishing poverty (Bruhn and Love, 2014). Salgotra et al. (2021) examine the nexus between the dimensions of poverty and access to finance and find that lives of poor people improve with a better access to finance, considering some indicators such as health, education, and standard of living. On the other hand, Ndlovu and Toerien (2020) find the effect of access to finance is more significant at higher levels of wealth while it is almost negligible for the poorest households, indicating that current financial system is primarily beneficial for wealthier households rather than those living in extreme poverty.

Inadequate access to finance has many negative consequences, including income inequality and low growth rates (Arora, 2014). The situation of inadequate access to finance expressed as financial constraint harms investment, growth, and employment, especially for firms that lack sufficient internal resources. Particularly, investment decisions are sensitive to financial constraints (Gómez, 2019). In times of crisis, financially constrained firms are more likely to postpone investments, distribute fewer dividends, and burn more cash compared to unconstrained firms (Campello et al., 2010). Financially unconstrained firms, on the other hand, tend to have a faster growth rate compared to the growth rate of constrained firms (Fowowe, 2017).

Financial constraint stands out as a significant barrier to innovation, with its impact more pronounced for small and service sector firms (Alvarez and Crespi, 2015). This is observed both in product and process innovation and in decisions related to innovative activities (Ayalew and Xianzhi, 2020). To summarize, reduced financial access has a negative impact both at the firm level and at the macroeconomic level from different angles. In this regard, it becomes essential to identify the factors affecting financial access and to determine which types of firms are subject to restrictions.

1.3.SMEs and Access to Finance

In both developed and developing countries, Small and medium-sized enterprises (SMEs) are among the most substantial economic actors and one of the main determinants of growth. SMEs contribute to employment more than large firms, particularly in emerging and low-income countries, and experience faster employment growth (Rao et al., 2023). A significant number of academic studies find evidence about the contribution of SMEs to welfare, the creation of new jobs, competition, and

innovation (Ribeiro-Soriano, 2017). Thus, countries make efforts to constitute policies for the sustainability and development of SMEs.

In this respect, whether a firm is accepted as SME is a significant issue for conducting funds and applying policies efficiently. Thus, in the first part of the section, definitions of SMEs in Turkey and other selected countries in the world are presented. The second part discusses the various financing options that are available to SMEs, including both traditional and alternative instruments. The last part of the section delves into the reasons behind the financial constraints faced by SMEs.

1.3.1. Definitions of SMEs and The Importance of SMEs in the World Economy

The categorization of enterprises and identification of SMEs varies by country. According to European Commission (2003), SMEs are enterprises that employ less than 250 persons and have an annual turnover of not more than EUR 50 million or total assets of not more than EUR 43 million. As well as in European Union (EU), Turkey defines SMEs as firms having less than 250 employees. On the other hand, financial limitations, which are annual net sales or the balance sheet size, increased to TRY 500 million from TRY 250 million in 2023 (KOSGEB, 2023). Even though enterprises having fewer than 500 employees are considered SMEs in the United States (US) (OECD, 2005), the classification differentiates according to their sector. Also, China's SME definition alters by sector. For instance, a manufacturing company is in the scope of an SME if it has fewer than 1,000 employees while a wholesale company should employ less than 200 persons for identification as SME (Prange and Zhao, 2018). Table 1 summarizes SME definitions by selected countries.

Table 1: SME Definitions and Classifications in Selected Countries

COUNTRY	SME Definition	Micro	Small	Medium
The European Union	<250 employees and ≤€50 million turnover or ≤€43 million balance sheet total	<10 employees and ≤€2 million turnover or ≤€2 million balance sheet total	<50 employees and ≤€10 million turnover or ≤€10 million balance sheet total	<250 employees and ≤€50 million turnover or ≤€43 million balance sheet total
The United States (for manufacturing companies)	<500 employees	-	--	
Turkey	<250 employees and ≤₺500 million turnover or ≤₺500 million balance sheet total	<10 employees and ≤₺10 million turnover or ≤₺10 million balance sheet total	<50 employees and ≤₺100 million turnover or ≤₺100 million balance sheet total	<250 employees and ≤₺500 million turnover or ≤₺500 million balance sheet total
China (for manufacturing companies)	<1000 employees	-	-	-
Canada	<500 employees	-	Between 1 and 99 employees	Between 100 and 499 employees
Japan	≤300 employees or ≤¥300 million Capital/total amount of investment	-	-	-
The Russian Federation	≤250 employees and ≤₽2 billion turnover or ≤₽2 billion balance sheet total	<15 employees and ≤₽120 million turnover or ≤₽120 million balance sheet total	Between 15 and 100 employees and ≤₽800 million turnover or ≤₽800 million balance sheet total	Between 100 and 250 employees and ≤₽2 billion turnover or ≤₽2 billion balance sheet total

Sources: Ancarani et al., 2019; KOSGEB, 2023; European Commission, 2003; OECD, 2005; Colacelli and Hong, 2019; Banki.ru, 2022.

Whether SMEs operate in a developed or developing country, they are building blocks of economies and main drivers of growth from different aspects since the vast majority of enterprises are defined as SMEs. According to the World Bank, nearly nine out of ten businesses are SMEs when considering all countries. Also, they provide more than half of employment globally. In the United States (US), SMEs represent 99.8 percent of all companies and half of the private-sector jobs (Caglio et al., 2021). In like manner, the percentage of firms identified as SMEs in the European Union (EU) is above 99 percent of total firms.

SMEs contribute to the economy through production, exportation, and employment. A digest of their shares from different sides is presented in Table 2. However, it should be noted that each country defines SMEs differently in terms of revenue or employee number shown in Table 1. Therefore, their contributions cannot be compared precisely.

According to Table 2, SMEs constitute a significant share of the total companies both in Turkey and the most prominent countries in terms of economic power. The contribution of these enterprises to economic activity changes from country to country. As well as policies for SMEs and economic structure, the lack of a uniform in SME classification accepted by all countries might be another reason for this variety. However, regardless of the classification criteria or country-specific factors, SMEs enormously contribute to growth, new job creation, and exportation. In Turkey, SMEs have employed 3 out of every 4 employees and carried out more than half of exportation. Besides, Turkish SMEs contributed more than 60% of the GDP, leaving behind companies in the same category in other countries. Hence, policies toward SMEs have become even more crucial for Turkey.

Table 2: SMEs' Contributions to Economic Activity in Selected Countries

Country	Percentage of SMEs	GDP	Employment	Exportation
The EU	99%	50%	67%	38%
The US	99.8%	43%	47%	32%
Turkey	99.8%	65%	74%	56%
China	98%	60%	80%	N/A
Canada	99.8%	52%	85%	43%
Japan	99.7 %	50%	60%	54%
The Russian Federation	N/A	20%	35%	N/A

Sources: Pinkovetskaia et al., 2018; European Commission, 2020; Eurostat, 2021; OECD, 2021; Innovation, Science and Economic Development Canada, 2021; TOBB, 2021; Zhang and Xia 2014; U.S. Small Business Administration, 2020; Hironaka et al., 2017

1.3.2. Funding Source of SMEs

SMEs, akin to their larger counterparts, use both internal and external resources to fund their operations and investments. While internal resources such as retained earnings and equity are intensively utilized, SMEs tend to have a less diverse range of external sources at their disposal than larger firms,

leading them to rely on traditional financing tools such as bank finance and supplier financing although alternative forms of finance have emerged in recent decades. Besides, SMEs are financed by owners, family, and friends, which is called as trust capital (Abbasi et al., 2017), or informal loan. Other debt finance tools that SMEs have preferred are leasing, factoring, and bonds. However, they rarely issue bonds.

1.3.2.1. Bank Finance

Bank financing refers to the provision of funds by two main banking institutions, namely investment banks and commercial banks. Investment banks are institutions that primarily finance the long-term projects of firms, while commercial banks accept deposit payables and provide loans to individuals or corporates (Westerhuis, 2016). This type of finance is one of the most dominant instruments for SMEs since banks are considered one of the most powerful entities in the financial system, owing to their extensive geographic presence through their branches and adherence to well-established regulations. Their robust and established infrastructure enables them to operate with utmost efficiency, providing them a competitive advantage over other financial institutions. Banks provide funds in different forms such as overdrafts and medium and long-term loans with fixed or variable interest rates.

Although SMEs are dependent on bank finance, these financial institutions tend to provide funds to larger companies. According to Turkey's Banking Regulation and Supervision Agency¹ (BRSA), the percentage of SME loans on total loans varies from 21% to 27% between 2009 and 2022, as shown in figure 1. With more than 99% of total firms identified as SMEs in Turkey, there is a significant financing gap for smaller companies. This fact is consistent with other emerging countries, indicating that the median SME loan share on business loans is approximately 30%, while the median percentage exceeds 50% for advanced economies (OECD, 2020). The problem can be attributed to both the supply and demand side. On the supply side, SMEs are credit rationed by banks due to information asymmetries and weak creditor protection, while on the demand side, they are not considered creditworthy (Abraham and Schmukler, 2017). Bank finance constraints may also arise due to discouraged borrowers having fear of rejection from the bank despite being creditworthy (Brown et al., 2022; Ferrando and Mulier, 2015). As per the findings of Kundid and Ercegovac (2011), it has been observed that SMEs are subjected to higher financing costs. The OECD (2020) report supports this finding by revealing that there is an interest rate gap between small and large companies in all countries examined, except for Ukraine.

¹ BRSA Monthly Banking Sector Data (Advanced Analysis),
[url:https://www.bddk.org.tr/BultenAylik/en/Home/Gelismis](https://www.bddk.org.tr/BultenAylik/en/Home/Gelismis) Access Date: 25 March 2024

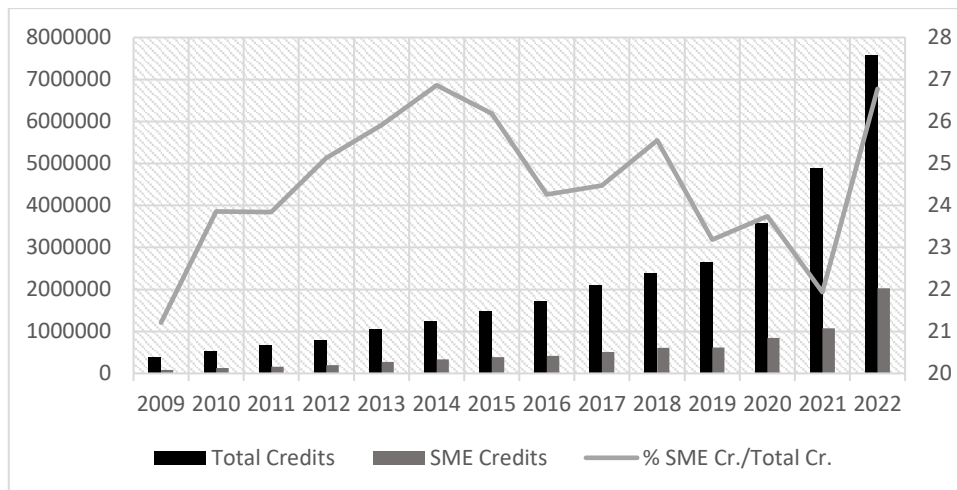


Figure 1: Bank Loans in Turkey

Source: Turkey's BRSA: <https://www.bddk.org.tr/BultenAylık/en>

1.3.2.2. Trade Credit

The second most important source of financing for SMEs is trade credit. It is a financing tool for buying goods and services from suppliers that act as financial mediators, covering the time between delivery and payment, and allowing discounts for payment before the term or bulk buying (McGuinness et al., 2018). The motives behind suppliers being creditors are having more information about customers and their repayment capacity than financial institutions, enhancing planning with scheduled delivery and payment times, and strengthening long-term relationships with customers (Liu and Dong, 2020). It also helps in increasing the profits of trade creditors (Martínez-Sola et al., 2014).

Trade credit stands out as a complementary instrument to bank financing, especially during periods of tight monetary policy (Psillaki and Eleftheriou, 2015). Trade credit is also seen as an alternative source to bank loans for financially constrained businesses which provides an opportunity to mitigate credit rationing for SMEs if suppliers meet the financing demand (Fatoki and Odeyemi, 2010).

The importance of trade credit is substantially visible during high uncertainty periods such as financial crises. In these periods, trade creditors are the lenders of last resort in the SME sector, ensuring critical liquidity to SMEs that cannot secure bank loans (Carbo-Valverde et al., 2016). During the global financial crisis, firms that were denied credit for short-term needs have used trade credit, indicating informal lending between firms as a substitute for bank loans (Casey and O'Toole, 2014). On the other hand, Tsuruta (2015) argues that the relationship between trade credit and bank lending is rather complementary, not substitute since self-rationed borrowers do not tend to use more trade credit while credit-rationed firms apply this type of lending significantly.

1.3.2.3. Leasing

As an asset-based financing tool, leasing is a contract between lessor which provides an asset and lessee which uses asset in a certain period, in return for a specified amount (Fletcher et al., 2005). Unlike traditional bank loans, the lessor maintains to be owner of the asset in a lease agreement, giving the opportunity to the lessor to repossess the asset and provide more credit than a lender whose claim is secured by the same asset (Neuberger and R  thke-D  ppner, 2013). Leasing is classified into two types: operating lease and finance lease. The main difference between them is transferring rewards and risks. In a finance lease, lessor transfers all responsibilities to lessee although its ownership continues while lessee temporarily uses the asset under a rental contract in operating lease (Kraemer-Eis and Lang, 2012).

In the context of SME financing in emerging countries, leasing plays an important role due to the lack of capital. In addition, it serves to introduce new products or industry players, thereby contributing to the deepening of financial activities (Munir et al, 2017). Leasing is also instrumental for SMEs' financial performance, by increasing their profitability (Salam, 2013). Furthermore, financially constrained and disadvantaged firms use more leasing, revealing its substitute role toward bank finance (Deghaye-Filareto and Severin, 2007).

1.3.2.4. Factoring

Factoring is a financing method where businesses sell their creditworthy accounts receivable at a discount which is the sum of interest and service fees and obtain immediate cash (Klapper, 2006). Factoring companies frequently assert that they offer an ideal financing alternative for businesses that are small, young, and having fast growth rate (Soufani, 2001). Factoring is beneficial in terms of meeting working capital needs and dealing with liquidity risk (Kouvelis and Xu, 2021).

Small businesses experiencing financial pressure tend to use factoring since factoring companies have a superiority over large financial institutions to overcome the information asymmetries due to their close relationships with clients and specialized knowledge (Summers and Wilson, 2000). In addition, factoring is less dependent on client's creditworthiness because of transferring risks from a high-risk supplier to a low-risk buyer (Klapper, 2006). On the other hand, this finance tool is poorly understood, underutilized, and plagued by a negative image despite being helpful for cash flow management (De Vries, 2004).

1.3.2.5. Grants, Subsidies, and Credit Guarantee Mechanisms

The fact that SMEs face severe financial constraints has prompted governments to create support programs for these firms, including grants, incentives, and guarantees. These supports can take many forms, such as expenditures, subsidized loans, price supports, and favorable conditions for goods and services support (IMF et al., 2022). The main aim of these supports is to increase several kinds of

investment which also enhance firm performance, employment, and productivity, consequently revolving more investment and better access to finance (Kersten et al., 2017). However, many studies have questioned whether this aim is reached. According to Gustafsson et al. (2020), supporting firms through innovation and growth-focused grants may cause firms to be subsidy entrepreneurs, as an unproductive form of entrepreneurship.

One of the main reasons why SMEs come across financing difficulties is lack of collateral. To address this issue, credit guarantee schemes (CGSs) have been introduced in the worldwide. These mechanisms involve an entity - mostly state-backed entity- acting as a guarantor between the bank and the borrower, which eliminates the collateral requirement and allows banks to extend lending capacity to SMEs. Other reasons why CGSs emerged is to deal with information asymmetries and diversify or transfer risks (OECD, 2010)

In Turkey, the Credit Guarantee Fund (CGF) was established in 1991 for this purpose, and its importance has grown significantly since the 2000s. The CGF program in 2017 was one of the largest credit guarantee programs in the world. A recent study by Akçiğit et al. (2021) found that companies that utilized this program significantly increased their employment and turnover, and decreased default rates. It is also stated that medium-sized enterprises were the most positively impacted group. However, it should be noted that an increase in indebtedness can also increase the risk for enterprises in the long run. Considering CGF provides treasury or equity-based guarantees, Bezircioğlu and Saatçioğlu (2022) argue that treasury-based guarantees are inefficient as they do not track where loans are used, leading banks to refrain from lending in the absence of treasury-based guarantees. According to the authors, guarantees should be provided based on the credit guarantee fund's equity to increase efficiency.

1.3.2.6. Initial Public Offerings (IPO)

Although the public offering of enterprises is an established and traditional method of financing, it is not widely utilized today, especially by SMEs. The main reasons for this include a lack of knowledge among business owners about capital markets, the long and costly process of going public, and a reluctance to disclose information. However, if an SME selects to be publicly open, it can benefit from increased resource diversity, better corporate governance structure, and greater reputation of the firm (Nassr and Wehinger, 2016). IPOs offer SMEs an opportunity to raise capital and access the public equity markets, providing them to expand their business operations and pursue new growth opportunities (Jiang et al., 2022). Also, by going public, SMEs can improve their creditworthiness and credibility in the eyes of creditors and other stakeholders, potentially enhancing their ability to secure additional debt financing.

Previous studies find that the financial structures of SMEs significantly alter after IPO process. Although Koçdemir and Küçükçolak (2021) did not observe a significant change in the profitability of these enterprises after the IPO, they found that their financial structures became healthier. Similarly, Ghalke et al. (2022) found that the total debt of SMEs decreased after the initial public offering, providing financial benefits such as strengthening equity and reducing financial leverage for firms. However, the financial performances listed companies after IPO significantly drop when compared to pre-IPO period, indicating firms apply ‘the market timing’ meaning that firm owners sell equity in when firm performance is peaked (Laokulrach, 2019). In addition, firm choose this method when they are financially restricted or financing costs get higher (Abbasi et al., 2017).

1.3.2.7. Crowdfunding

Crowdfunding refers to the process of providing funds, in the form of equity or debt, to specific projects and investments through internet. It is a contemporary financial tool that has recently emerged as a mechanism focusing on obtaining funds for start-up projects (Abdeldayem and Aldulaimi, 2023). The concept covers a range of fundraising models grouped as investment financing that are lending and equity crowdfunding and non-investment financing that are reward and donation crowdfunding (Shneor et al., 2020).

Crowdfunding offers many benefits. Golić (2014) lists them as (i) the wisdom of crowds which means that a large group of investors can make more effective decisions than an individual angel investor or venture capitalist in identifying potential projects, (ii) no geographical barrier through online platforms (iii) retaining management control, (iv) marketability as investors can be costumer at the same time, (v) marketing purposes since products can be promoted via the crowdfunding platform and (vi) cost reduction. However, there are potential issues that need to be addressed, such as the risk of fraud by professional scammers, the possibility of projects failing, information asymmetry between investors and fund requesters, reputational risk for crowdfunding platforms, and risks associated with the information disclosed by fund requesters about their projects (Kuti and Madarász, 2014). Therefore, for crowdfunding to be successful, it is essential to have an oversight by regulatory bodies, adequate legal infrastructure, and continuous supervision after funding to ensure that crowdfunding is done in a healthy and fair manner. However, overregulation may lead to market concentration, implying that few crowdfunding platforms survive (Leboeuf and Schwenbacher, 2018) that may diminish the efficiency of this instrument.

Crowdfunding has a huge potential for SMEs, as it provides a means of accessing capital that is more accessible, cost-effective, and efficient (Golić, 2014). According to Eldridge et al. (2021), the use of crowdfunding can significantly increase the net income growth rate of small businesses. Furthermore,

crowdfunding can facilitate the internationalization of SMEs by improving their visibility abroad, diversifying sources of finance, providing access to international networks, and raising awareness (Troise et al., 2022).

1.3.2.8. Initial Coin Offerings (ICOs)

Initial Coin Offerings (ICO) have represented an innovative financing method that gained significant interest in recent years. This method benefits from blockchain technology to fund startup projects, particularly in the technology sector, on a global scale. Blockchain-based finance can be revolutionary for SME finance with lower information asymmetry, more transparent record-keeping, reduced fraud risk, and automated financial processes (Kumar et al., 2023). With increasing market adoption and the implementation of legal infrastructure, SMEs can utilize blockchain-based finance or ICO financing.

Some countries such as the US, the UK, Switzerland, Singapore, and Hong Kong are at the forefront of ICO financing globally. Between 2013 and 2019, ICOs raised over \$31 billion (Brochado and Troilo, 2021). There are positive and negative aspects of this financing tool. While low transaction costs, the ability to access investors on a global scale, and the ability to be traded in the secondary market are the positive aspects of the method, ICOs also present potential challenges, including information asymmetry between investors and coin issuers (Block et al., 2020). In addition, higher risk of loss, the volatile nature of cryptocurrency markets, cyber-attack risks, and strict regulations of governments are other drawbacks of the instrument (Alshater et al., 2023). Besides, ICOs can be used for fraud purposes because of the absence of legal sanctions, which erodes trust in the system (Arıcı and Ovalı, 2022).

1.3.3. Why are SMEs Financially Restricted?

Access to finance is crucial for SMEs' survival and contribution to economic growth (Rao et al., 2023). On the other hand, SMEs are among the most disadvantaged groups in obtaining finance. They are more constrained than large firms although their contribution to the economy is relatively high and they play an integral role in recovery periods (Kaya and Schildbach, 2014). Despite the need for external financing, they are subject to financial constraints in both developing and emerging countries and access less external finance for their investments, which is notably visible for small-sized firms (Beck and Demircuc-Kunt, 2006). These firms heavily use internal or short-term financing sources significantly (Dowling et al., 2019).

The factors underlying SMEs' restricted access to finance have been extensively discussed in the literature. According to Guercio et al. (2019), financial constraints are based on agency problems, large-scale information asymmetry, and insufficient collateral. Large information gaps for SMEs - the impact

is more apparent in emerging economies - lead to a bias of credit toward large firms (Guercio et al., 2020). The opacity of SMEs also negatively affects their access to equity or debt financing instruments in standardized financial markets (Kaya and Schildbach, 2014). The lack of audited financial statements of SMEs which is the main reason for the opacity, cause banks to apply their own credit rating models and SMEs being credit rationed not only in terms of cost but also in terms of maturity, collateral and loan size (Rahman et al., 2017).

The poor intermediation role of financial markets is another barrier to SMEs' access to finance, owing to government interventions to drive down interest rates, state-owned companies or large infrastructure projects obtaining the bulk of financing, public sector borrowing, credit guarantee mechanisms, and the inadequacy of the legal and regulatory framework for different financing instruments (Malhotra et al., 2007). Small firms are severely affected by obstacles such as underdeveloped financial institutions or legal infrastructure and corruption (Beck et al., 2005). Banking structures like bank concentration, competition, or ownership are also determinants for SME financing: a more competitive and well-diversified banking system eases obtaining funds while a concentrated and less competitive one is among the main reasons for SMEs' financial constraints (Dong and Men, 2014).

2. ECONOMIC UNCERTAINTY

Uncertainty is a concept that is often associated with risk but differs from it in certain points. In economics literature, these two concepts were first mentioned in the research of Knight (1921). The author highlighted the points where risk and uncertainty differ from each other as follows: Risk is a concept that can be predicted, assigned a numerical probability, and managed through diversification and insurance because it is measurable, whereas uncertainty is a concept that includes complex events that are difficult to predict, measure or manage, as well as non-financial situations such as technological disruption, sudden changes in consumer preferences, and geopolitical events. Keynes also argues risk and uncertainty, emphasizing the distinction between these two concepts as risk refers to assigned probabilities to future events while uncertainty is a subjective circumstance in that probabilities cannot be objectively determined (Davidson, 1991). On the other hand, both mean divergent views in practice (Miller, 1977). Uncertainty encompasses risk since it is a degree of uncertainty. According to Tversky and Fox (1995), the level of uncertainty ranges from a situation in which a probability distribution is known as decision-making under risk to a situation in which uncertainty cannot be measured as decision-making under ignorance.

Economic Uncertainty is a situation that economic agents cannot evaluate the current situation and predict future outcomes sufficiently and confidently (European Central Bank, 2017). Also, Economic Policy Uncertainty (EPU) is a concept that means clarity or lack of clarity about economic activities in the future (Moore, 2017). It also refers to the unpredictability of fiscal and monetary policies leading to market volatility in the final (Al-Thaqeb and Algharabali, 2019). According to Sahinoz and Erdogan Cosar (2018), Economic policy uncertainty is the economic policies of governments and the outcomes of these policies being unpredictable.

Uncertainty rises significantly after political or financial shocks (Bloom, 2009). Thus, it is a broader concept that encompasses not only financial but also non-financial events such as political conflicts, elections, coup attempts, and natural disasters. A comprehensive study examining 60 countries for the years between 1970-2012 finds that non-financial shocks like natural disasters, terrorist events, and political shocks as uncertainty indicators explain half of GDP growth by leading to stock market volatility (Baker and Bloom, 2013).

2.1. The Measurement of Economic Uncertainty

Being comprehensive and having a subjective notion complicates the measurement of uncertainty. To this end, several approaches have been adopted in the literature to measure it: (i) newspaper-based

measurements (Baker et al., 2016; Moore, 2017), (ii) market-driven measurements (Bloom, 2009; Caggiano et al., 2014), (iii) measurements using macroeconomic indicators (Jurado et al., 2015; Mugaloglu et al., 2022), and (iv) the measurements using dispersions at surveys (Bachmann et al., 2013; Altig et al., 2020; Banerjee et al., 2015).

The first- and the most widely used proxy to measure uncertainty- is the newspaper-based measure developed by Baker et al. (2016). In this study, the authors create monthly indices named the 'Economy Policy Uncertainty (EPU) Index' by scanning the articles of leading newspapers – the number of sources changes by country- containing specific terms which are economic, economy, uncertain, uncertainty, regulation, legislation, white house, congress, federal reserve, and deficit in three categories: economy, policy, and uncertainty. Currently, they expand the scope of the index to twenty-nine countries in total. According to Al-Thaqeb and Algharabali (2019), the index measurement is easy to use and includes most factors that drive uncertainty in a simple index. They also state that the EPU index consistently spikes with substantial events like elections, wars, financial crisis in Eurozone, and debt ceiling debates, having also a high correlation with the Volatility Index (VIX). It is also quite timely because of enabling daily searches (Moore, 2017).

Market-driven techniques use volatility in some financial instruments such as the stock market, credit default swaps (CDS), and sales growth as an indicator of uncertainty. The volatility index for the stock market by Chicago Board Options Exchange Volatility Index (VIX) is commonly used as a proxy for uncertainty in related literature, especially in firm-level studies (Lee, 2017). The VIX index -also known as the 'Fear Index'- measures market expectations of volatility within the next 30 days at a specific period (Caggiano et al., 2014). The market-driven approach has some drawbacks: Although corporate earnings are linked to economic activity, there may not be a direct connection between stock prices and economic activity. Moreover, short-term volatility may be driven by other factors (Moore, 2017), which are rather associated with time-varying risk aversion (Jurado et al., 2015). Also, the volatility-based measurements have an insufficient theoretical background since the price fluctuations are the result of investors' collective decisions (Lee, 2017).

Expectations related to the future economic outlook are a substantial factor in investment decisions (Banerjee et al., 2015). The divergence and deviation of these expectations may signal the presence of uncertainty, making business surveys and analyst forecasts a proxy to measure uncertainty. Surveys are advantageous for measurement in that they are easily accessible compared to financial data of companies, capture subjective uncertainty, i.e., the opinions of actual decision-makers, and determine forecast errors by comparing expectations and actual outcomes (Bachmann et al., 2013).

All measurement techniques mentioned above provide beneficial insights to examine the impact of uncertainty at the macro and the firm level, but they have some limitations: they are mostly applicable to developed economies and the data are available only after the beginning of the 1990s for many countries (Ahir et al, 2022).

2.2. The Impact of Uncertainty

The impact of uncertainty has been immensely examined in economy and finance literature. No matter which country is analyzed, or the econometric model is applied, there is a consensus that uncertainty has adversely influenced the economy (Al-Thaqeb et al., 2022). We can classify previous studies by analyzing their influences according to the macroeconomic or firm level. Some studies also investigate its influences by separating low and high uncertainty periods.

2.2.1. The Impact of Uncertainty on Macroeconomy

Uncertainty has unintended consequences for the economic system. Initially, it prolongs the recovery process after financial turmoil as corporates or individuals tend to postpone their investments. Although the ease of financial conditions aftermath of the global financial crisis, the level of investment remains weak as uncertainty remains higher. In this respect, it is an essential indicator to explain investment patterns (Banerjee et al., 2015). Another reason for the decline in investment during uncertainty is the widening credit spreads, which raises the cost of financing (Gilchrist et al., 2014). Decreasing numbers of patenting inventors in high uncertainty periods proves that policy uncertainty also undermines innovation (Bhattacharya et al., 2017).

Jones and Enders (2016) argue that the impact of uncertainty is asymmetric, i.e., periods of high uncertainty have a more considerable macroeconomic impact than periods of low ones. Hassan et al. (2018) examine the asymmetric effects of uncertainty from the aspect of US trade flows, finding that trade flows are more sensitive to positive shocks of uncertainty than negative ones. The asymmetric impact of policy uncertainty is also seen in inflation expectations in the study of Istiak and Alam (2019).

Uncertainty is one of the principal determinants of financial asset pricing since it affects investors' portfolio decisions (Su et al., 2019). Positive shocks in policy uncertainty increase stock market volatility and decrease employment (Baker et al., 2016). According to Pastor and Veronesi (2013), government policy changes affect stock prices in two ways, one positive and one negative: First, the new policies will push stock prices up as they will likely increase the expected profitability of the firms, and second, the higher uncertainty will lead to a decrease in stock prices as discount rates will rise. However, the findings reveal that the second effect dominates since prices react to the changes negatively until the investors perceive that the abolished policy is harmful.

Uncertainty also influences exchange rates and the efficiency of monetary policies. According to Mueller et al. (2017), monetary policy uncertainty causes excess exchange returns. Similarly, Kido (2016) states that there is a negative correlation between The US EPU and high-yielding currencies and a positive correlation with the Japan Yen, finding in the higher EPU periods, these currencies depreciate while Japan Yen appreciates. Krol (2014) analyzes the impact of both global and country-specific economic policy uncertainties on exchange rate volatilities, concluding that a local EPU causes currency volatility for emerging countries when the economy performs poorly. Hence, policymakers in emerging countries should consider the EPU to manage their exchange rate strategies (Abid, 2020).

2.2.2. The Impact of Uncertainty on Corporates

Economic Policy Uncertainty influences the financial situation and decisions of firms. One of the main consequences of uncertainty is that mergers and acquisitions decrease significantly during this period. Nguyen and Phan (2017) find a statistically significant and negative relationship between uncertainty and M&A in their study covering the years 1986-2014 and analyzing over 88,000 observations. Moreover, they conclude that higher uncertainty periods prolong acquisition processes. Similarly, Bhagwat et al (2016), using VIX as an indicator of uncertainty, predict that firm-level and industry-level uncertainty adversely affect merger deals and delays the processes.

Empirical studies at the firm level also include the impact of uncertainty on corporate borrowing. Liu and Zhang (2020) state that economic policy uncertainty reduces Chinese firms' debt issuance, particularly short-term debts. However, the results differ from their ownership structure, finding leverages of state-owned corporates do not change in higher uncertainty periods. Likewise, Lv and Bai (2019) observe that Chinese listed firms prefer debt financing less and equity financing more during political uncertainty. The preference of companies for less debt financing during periods of political uncertainty may be a reflection of risk-averse behavior. On the other hand, it is also observed that borrowing costs rise at these times (Waisman et al., 2015). Therefore, the increasing costs that stem from information asymmetry and default risk (Tran, 2021) are another component that determines this preference.

Firms tend to be conservative in terms of cash policy under uncertainty. The motivations behind holding more cash reserves are to be resilient to financial shocks, to reduce cash expenditures because of delayed investments, and to be flexible in the aftermath of uncertainty for new investment opportunities (Phan et al., 2019). Even though there is a positive relationship between economic policy uncertainty and cash holding for all corporates, the association is more vigorous for financially constrained firms (Duong et al., 2020), indicating that these firms behave more precautionary to decrease the adverse effects of uncertainty on their operations. The findings of Li (2019) are consistent with these

results showing that firms with severe free cash flow problems and a low ability to obtain external finance are more prone to keep cash reserves. Excessive cash holding by companies as a hedging instrument also means relinquishing profitable investments, which has a detrimental effect on the allocation of funds efficiently and economic growth (Demir and Ersan, 2017).

The tendency to hold more cash also may alter dividend policies in times of uncertainty. Huang et al. (2013) point out that companies paying out dividends in the past probably terminate while others are less likely to begin to pay out dividends in a higher political risk environment. On the other hand, agency problems between shareholders and managers increase under uncertainty. Hence, firms may pay out higher dividends during these periods to deal with agency problems, although this contradicts the findings of previous studies that firms hold more cash under uncertainty. Attig et al. (2021) document that dividend payout ratios -dividend-to-earnings, dividend-to-price, dividend-to-sales, and dividend-to-cash flow- are positively associated with economic policy uncertainty, supporting the agency hypothesis. Similarly, Farooq and Ahmed (2019) examine the effects of the US presidential elections as an indicator of political uncertainty on the dividend payout and find a positive relationship between them.

3. THE EFFECT OF ECONOMIC UNCERTAINTY ON ACCESS TO FINANCE: AN EMPIRICAL EXAMINATION OF TURKISH AND EUROPEAN SMES

This chapter includes theoretical background of the subject, hypothesis development, data, methodology, findings, and discussion. The first part of the chapter explains theories by highlighting their relevance with SME finance. The second part of the research includes hypothesis development and variables examined in the dissertation. Third part of the chapter presents results for the SAFE and TURKSTAT data sets. Finally, the last part of the chapter evaluates findings to discuss its consistency with previous studies.

3.1. Theoretical Background

The nexus between economic uncertainty and access to finance has been explored through various theories. Credit rationing theory, the real options theory, and capital structure theories, including trade-off and pecking-order theories, have been the most widely handled theories in previous research. Credit rationing and real options theories focus on the behavior of creditors, in other words, supply side of financing under higher uncertainty situations while capital structure theories, on the other hand, aim to determine the financing strategies of firms in times of economic uncertainty. These theories discuss whether firms rely on external or internal financing and in what proportion. This section presents the theoretical framework of relevant theories and their connection with SME finance.

3.1.1. Credit Rationing Theory

Jaffee and Stiglitz (1990) define credit rationing as excess demand for loans because of lower loan rates than the Walrasian market-clearing level and classify it into several types: (i) interest rate rationing -obtaining a smaller size of a loan at a determined interest rate-, (ii) divergent views rationing- an individual cannot borrow at an interest rate appropriate for their probability of default-, (iii) redlining – lenders choose not to give loan since interest rates are lower than their expected returns-, and (iv) pure credit rationing -some borrowers access to finance while others not-. According to Keeton (2017), credit is rationed in two ways: first, a borrower partially accesses to credit needed which is consistent with interest rate rationing, and second, only some borrowers obtain credit while others do not which is defined by Jaffee and Stiglitz (1990) as pure credit rationing.

Banks or financial institutions are more sensitive to economic policy uncertainties than other corporations and their risks increase in higher uncertainty periods since they operate in a severely regulated environment (De Silva et al., 2023). Thus, the probability of credit rationing increase in the

uncertainty periods with rising selection costs and interest rates (Kundid and Ercegovac, 2011). Banks prefer to fund risky projects - their expected returns are also high- to sustain their profits due to tightening credit channels during these periods, bringing up the lemon problem first described by Akerlof (1970). This problem highlights the information asymmetry using the automobile market as an example: There are good cars and bad cars, known as "lemons" in the market, and a seller has more information than a buyer about whether the car is good or a lemon which leads to the lemon car is priced equally with the good car, and consequently good cars quit the market.

Studies examining SME financing from credit rationing perspective find they are more credit rationed because of lack tangible assets as collateral, lower proportion of public property rights, and higher information asymmetry with creditors (Jin & Zhang, 2019). Smaller companies have more adverse selection problems because of not being listed on the Stock Exchange, making it difficult to find reliable information. Asymmetric information also makes it more challenging for these firms to access external finance (Serrasqueiro and Caetano, 2015), leading to higher transaction costs. As a result, achieving the target debt ratio may not be the first objective for these SMEs (Serrasqueiro et al., 2011).

3.1.2. Real Options Theory

Financial options provide option holders the right but not the obligation to buy (call option) or sell (put option) financial assets at a fixed price named the exercise price for a specific date (Li, 2007). The real options approach is an adaptation of them to non-financial assets. In different words, real options are related to strategic investments while financial options are based on contracts (Chambers, 2005).

Traditional valuation techniques used for investment decisions like net present value (NPV), or internal rate of return (IRR) assume that expected cash flows are certain although it is rarely possible in the practice (Miller and Park, 2002). These methods also ignore that a company may get new information that will alter the original plan when building the investment or neglect decision points where companies can adapt to crucial changes (Brach, 2003). The growing dissatisfaction with these methods for evaluating projects under uncertainty is one of the motivations for the emergence of the theory (Ceseña et al., 2013). On the other hand, McDonald (2006) criticize the idea that the real options approach has superiority over classic methods, emphasizing that there are no great differences between them.

Real Options Theory refers to a decision maker taking to a future decision only when she thinks it is beneficial (Trigeorgis and Reuer, 2017). In this respect, the opportunity for a firm to invest or not to invest is analogous to a financial call option (Fernandes et al., 2011). From an uncertainty perspective, the theory emphasizes that companies should adopt a wait-and-see strategy in response to high

uncertainty to decide on investment (Gilchrist et al., 2014). During uncertainty periods, firms tend to postpone their investments or diminish allocated funds for investment spending (Doan et al., 2020).

Based on this theory, research and development (R&D) and innovation expenditures - perceived as too risky by companies- diminish in a greater uncertainty period (Tajaddini and Gholipour, 2020). However, if companies compete- for example, to find a new product or turn an idea into an innovation- real options may disappear and be costly (Bloom, 2014).

3.1.3. Capital Structure Theories: Trade-off Theory and Pecking Order Theory

Capital structure refers to a company's debt and equity composition. In the realm of capital structure, several theories have emerged after the introduction of Modigliani and Miller's (1958) irrelevance theory. This theory posits that firm value remains unchanged regardless of its capital structure and dividend decision in a perfect market environment where no tax or bankruptcy cost exists. However, other theories have surfaced, which suggest that a company's capital structure can influence its value due to the tax shield of the debt. Among these theories, the trade-off theory and the pecking order theory stand out as the most prominent.

Trade-off theory states that a firm's optimal capital structure should be at a point, namely the target debt ratio, where the benefits of tax shield are maximum and bankruptcy probability is minimum. This approach argues that the practice of utilizing leverage is deemed advantageous under certain conditions and firm owners or managers may tend to prefer external finance even when internal funds are available (Martinez et al., 2018). Thus, this theory makes the cost and benefit analysis of debt financing to constitute an optimal capital structure (Ahmadimousaabad et al., 2013).

Trade-off theory is classified into two types: (i) static trade-off theory and (ii) dynamic trade-off theory. According to static trade-off theory, increases in the cost of financial distress and non-debt tax shields reduce the optimal debt level while increases in the personal tax rate on equity and profitability of the firm increase the optimal debt level (Cekrezi, 2013). On the other hand, this approach ignores adjustment cost, which is considered by dynamic trade-off theory, suggesting firms adjust their debt level towards a target level, but may temporarily deviate due to some adjustment costs such as transaction costs or agency conflicts with creditors (Sardo & Serrasqueiro, 2017). Firms take action to change their capital structure only when the benefits of adjustment outweigh its costs (Fischer et al., 1989), which may prolong the adjustment period.

The pecking order theory developed by Myers (1984) claims that capital structure is shaped by hierarchical financing decisions of firms rather than an optimal and defined capital structure. In this respect, firms choose financing sources in the following hierarchy: retained earnings, short-term debts,

long-term debts, and equity, respectively (Chen and Chen, 2011). According to the theory, the pecking order structure is shaped by the idea that the issuance of equity results in a higher degree of adverse selection compared to debt, as well as tax issues, agency conflicts, transaction costs, or manager and owner behaviors (Frank et al., 2020).

Previous studies extensively examine SME finance based on trade-off and pecking order theories, comparing them to determine which capital structure theory is more effective in explaining SMEs' finance choices. Findings of López-Gracia and Sogorb-Mira (2008) reveal that these theories explain SME financing decisions since SMEs follow a finance source hierarchy that is consistent with the pecking order theory while they also have an optimal capital structure target as the dynamic trade-off theory proposed even if the adjustment process is longer than large companies. Similarly, Serrasqueiro and Caetano (2015) find that Portuguese SMEs' capital structures are explained by both the trade-off and the pecking order theories, concluding they are not mutually exclusive. On the other hand, the results of Agyei et al. (2020) mostly support the pecking order theory predictions since Ghanaian SMEs utilize profits to lower their leverage, indicating that they prefer internal finances over external debt funds due to the higher cost of external financing although the trade-off theory is also applicable.

3.2. Literature Review and Hypothesis Development

It has been widely documented that SMEs have more challenging access to finance than larger firms. However, identifying the company characteristics or macroeconomic factors that affect access to finance will also guide the policies to be established, making it possible to steer limited financing resources in a way that provides the optimal solution to existing problems. This section provides a comprehensive review of the macroeconomic and firm-level indicators analyzed in the study. Additionally, the literature is summarized in Table 3, classifying previous studies into two parts: studies using surveys and financial statements.

Empirical studies include macroeconomic variables such as GDP, inflation, CDS, legal infrastructure, and banking system or company-specific variables e.g., size (in terms of turnover, asset or employee number), age, ownership structure, innovation, and exportation to find the determinants of access to finance. Also, the impact of crisis years on access to finance, especially in the aftermath of the 2007-2009 global financial crisis, has been extensively covered in the related literature. Most studies reveal that SMEs' access to finance diminishes during crisis periods. Even the level of borrowing was observed to remain below pre-crisis levels in the two subsequent years after the crisis (Demirgüç-Kunt et al., 2020). Costs have also exerted an impact on SMEs' lower access to finance since the borrowing costs of small enterprises are higher than large firms. It has even been found that this gap further widened during and after crisis periods (Kundid and Ercegovic, 2011). Not the level of finance, the quality of

financing deteriorates during crisis periods, as well. Cowling et al. (2016) find that banks prefer to finance SMEs in the short term rather than the long-term making these firms give up new investments during these periods (Vermoesen et al., 2013). Accordingly, Zubair et al. (2020) show that the determining factor in investments during crisis years is not internal financing but access to bank finance. Thus, crisis periods lead to the deterioration of access to finance in terms of quantity, cost, and contractual conditions (Serrasqueiro et al., 2021). Also, SMEs' perceptions that their loan applications will be rejected result in financing constraints. When compared to large firms, small firms are more likely to fear that their loan application will be denied during crisis years (Rostamkalaei, 2017).

3.2.1. The Economic Uncertainty and Access to Finance

The connection between economic uncertainty and access to finance is limitedly handled in the literature. Also, studies focusing on SME finance from the uncertainty perspective- particularly for emerging economies- are quite scarce although they face higher uncertainty because of their vulnerable structure to the shocks. It has been observed that countries under high uncertainty are more subject to financial restrictions than others (Farooq et al., 2024). Increasing uncertainty affects current borrowing as well as borrowing in subsequent periods. The adverse impact of high uncertainty on external finance in a period exponentially increases in the following periods (Almustafa et al., 2023). The study of Makosa et al. (2021) is even more striking, finding that high uncertainty reduces the financial constraint in the short run due to reduced investment, but increases it in the long run. Total credit to the private sector decreases after economic uncertainty shocks (Caglayan and Xu, 2019) because banks' risk aversion behavior under high uncertainty exacerbates financing constraints. Banks tend to squeeze lending channels, holding more cash or liquid assets in these times (Berger et al., 2022). Small banks are more cautious at this point (Tran, 2020).

Economic uncertainty can have a significant impact on firms' capital structures. During high uncertainty periods, such as the global financial crisis, the Covid-19 outbreak, and the US-China Trade War in 2018-2019, firms tend to experience a decline in leverage (Gao and Tsusaka, 2023). However, it has been observed that firms tend to rely more on trade credit during these periods, even though the total leverage decreases, indicating the substitute role of supplier financing (Zhang et al., 2015). The decrease in leverage is mainly due to firms' tendency to postpone investments, resulting in a decline in demand for finance during these uncertain times (Tabash et al., 2022). Therefore, economic uncertainty can have a long-term impact, even if it lasts for a short time.

Since this dissertation empirically analyzes two distinct databases to measure the effect of economic uncertainty on the probability of access to finance and the capital structures of firms, following hypothesis are stated:

H₁: The economic uncertainty significantly reduces the probability of access to bank loans.

H₂: The economic uncertainty significantly increases the probability of access to trade credit.

H₃: The economic uncertainty significantly impacts total leverage of firms.

H_{3a}: The economic uncertainty significantly impacts short-term leverage of firms.

H_{3b}: The economic uncertainty significantly impacts long-term leverage of firms.

H_{3c}: The economic uncertainty significantly impacts financial debt rate of firms.

H_{3d}: The economic uncertainty significantly impacts trade credit of firms.

The study involves testing two hypotheses, H₁ and H₂, using the "SAFE Dataset," while H₃ and its sub-hypotheses are tested with the "TURKSTAT Company Accounts Database." The first two hypotheses aim to measure how the perceptions of SAFE participants from different countries regarding access to bank loans and trade credits - the primary financing tools for SMEs - have changed under economic uncertainty. On the other hand, the analysis using the second database mainly aims to determine how economic uncertainty affects capital structure and its primary components by including firm-specific variables.

3.2.2. Macroeconomic Conditions and Access to Finance

Since SMEs, as one of the pivotal components in the economy, significantly contribute to growth, the higher GDP also provides higher growth for SMEs (Serrasqueiro et al., 2021), leading to an increased demand for finance to fund investments. In addition, the growth of a country's economy ensures enhanced access to finance. Thus, both loan demand and supply of SMEs improve when the Gross Domestic Product (GDP) grows (Carbo-Valverde, 2016). Also, positive GDP growth significantly mitigates credit rationing, one of the biggest challenges that SMEs suffer (Andrieş et al., 2018) while GDP decline following the global financial crisis caused an increase in the rejected loan applications of SMEs (Koráb and Poměnková, 2015).

Table 3: The Summary of The Literature

Panel A: The Effect of Uncertainty, Macroeconomic Conditions, and Firm Characteristics on Access to Bank Loans and Trade Credit				
Indicators	Access to Bank Loan		Access to trade credit	Literature
	Expected Sign		Expected Sign	
Uncertainty	Negative		Positive	Caglayan and Xu (2019); Calabrese et al. (2022); Farooq et al. (2024)
GDP Growth	Positive		Positive	Andrieş et al. (2018); Carbo-Valverde et al. (2016)
Domestic Credits to Private Sector in GDP	Negative		Negative	Andriei et al. (2018); Morgan and Pontines (2018)
Financial Development	Positive		Positive	Andrieş et al. (2018); Beck et al. (2013); Beck and Demirgüç-Kunt (2006); Degryse et al. (2018); Goyal et al. (2011)
Employee Number	Positive		Positive	Casey and O'Toole (2014); Ferrando et al. (2017)
Firm Age	Positive		Positive	Carbo-Valverde et al. (2016); D'amato (2020); Öztürk and Mrkaic (2014);
Subsidiary or Autonomous Ownership Structure	Significant		Significant	Beck et al. (2013); Ferrando et al. (2017)
	Significant		Significant	Ferrando at al. (2017); Mac an Bhaird (2013)
Turnover	Positive		Positive	Ferrando et al. (2017); Lee et al. (2015); Vermoesen et al. (2013)
Export level	Positive		Positive	Cowling et al. (2012); Cowling et al. (2016); Popov and Udell (2012)
Innovation	Negative		Negative	Calabrese et al. (2022); Freel (2007); Ipek Erdogan (2019); Lee et al. (2015); Mina et al. (2013); Santos and Cincera (2022)
Panel B: The Effect of Uncertainty and Firm Characteristics on The Capital Structure of Firms				
Indicators	Leverage	Financial Debt Rate	Trade Credit Rate	Literature
	Expected Sign	Expected Sign	Expected Sign	
Uncertainty	Negative	Negative	Positive	Almustafa et al. (2023); Li et al. (2021); Gao and Tsusaka (2023); McGuinnes and Hogan (2016)
Liquidity	Negative	Negative	Negative	D'amato (2020); He and Ausloos (2017)
Tangibility	Positive	Positive	Negative	Bussoli and Marino (2018); He and Ausloos (2017); Tabash et al. (2022); Yazdanfar et al. (2019)
Export Level	Significant	Significant	Significant	Love and Zaidi (2010)
Profitability	Negative	Negative	Negative	Demirgüç-Kunt et al. (2020); He and Ausloos (2017); Gao and Tsusaka (2023); Tabash et al. (2022)
Firm Size	Positive	Positive	Positive	Martinez-Sola et al. (2017); Gao and Tsusaka (2023); Yazdanfar et al. (2019)
Industry	Significant	Significant	Significant	Kremp and Sevestre (2013); Yazdanfar et al. (2019)
Employee Number	Positive	Positive	Positive	Love and Zaidi (2010)

The structure and functioning of the financial system in countries is also an important determinant of access to finance. A liquid and well-functioning financial system will facilitate access to finance. The financial system has two basic ingredients: financial institutions and financial markets. Both functions should be efficient and have sufficient depth for a developed financial system. Indeed, in countries heavily dependent on banking finance, it is difficult for small firms to access credit (Beck et al., 2013). Moreover, if the banking system is under the control of a group or concentrated, access to credit gets more challenging (Degryse et al., 2018; Andrieş et al., 2018). Imperfect financial systems also hinder the growth of SMEs by worsening their access to finance (Beck and Demirgüç-Kunt, 2006).

Total credits to the private sector signal the depth of financial markets. While an increase in the percentage of these loans on GDP indirectly facilitates SMEs' access to finance, on the other hand, a high share may negatively affect access to credit as it increases the risk of countries. Andrieş et al. (2018) find that the probability of credit rationing increases as the share of domestic credits granted by financial institutions in GDP increases. Also, a higher ratio of private bank credit to GDP has a detrimental effect on SME lending through decreasing financial stability (Morgan and Pontines, 2018).

3.2.3. Firm Characteristics and Access to Finance

Firm size generally has positive effect on access to finance due to increasing transparency and collateral capacity (Ferrando et al., 2017). This effect does not change according to either supplier or bank financing. Micro firms have fewer trade credit facilities than small and medium-sized firms (Casey and O'Toole, 2014). In addition, large firms receive more trade credit, and their repayment period is longer for these firms (Love and Zaidi, 2010). Like the use of finance, demand for finance is also relatively higher for larger firms (Mac an Bhaird, 2013).

The firm age is also a proxy affecting access to finance. Younger firms face more financing constraints (Carbo-Valverde et al., 2016). In line with this, Öztürk and Mrkaic (2014) find that firms older than ten years are more likely to have access to credit than younger firms. Moreover, older firms tend to be more solicitous in seeking access to credit (Mac an Bhaird, 2013). In contrast, D'amato (2020) asserts that older firms prefer to operate with less leverage due to their accumulated internal resources.

In line with the pecking order theory, companies tend to rely on internal sources when they make more profits, adversely influencing their debt levels. More profitable firms may prefer to meet their growth requirements with retained earnings rather than debt financing, as compared to less profitable firms (Demirgüç-Kunt et al., 2020). Moreover, SMEs perceive it challenging to obtain bank loans, and thus, they prioritize using retained earnings as their primary source of finance, as much as they finance their investments (He and Ausloos, 2017).

The liquidity of a firm may drive its capital structure and leverage. Previous studies find mixed results. On the one hand, businesses with higher liquidity may have more leverage to meet short-term obligations. On the other hand, they can also use their liquid assets rather than debt to finance future investments, resulting in less borrowing (He and Ausloos, 2017). Besides, liquidity preference may alter debt maturity since firms may prefer to maintain their liquid asset structure to reduce risk in the eyes of creditors and therefore to increase long-term debt capacity, leading to its positive impact on long-term leverage (D'amato, 2020).

Another firm-level factor affecting access to finance and debt maturity is the collateral structure, referred to as tangibility in previous studies. Trade-off theory proposes that firms with robust collateral have a higher capacity for debt financing which results in increasing leverage, on the contrary, pecking order theory suggests that the higher tangibility reduces information asymmetry, driving firms to issue more equity and diminishing leverage (D'amato, 2020). Yazdanfar et al. (2019) state that tangibility has a negative association with short-term leverage while having a positive effect on long-term leverage. This is plausible for two reasons: First, asset maturity and capital structure should be in alignment, and second, a higher percentage of tangible assets that can be pledged as collateral to ensure external financing are capable of more easily acquiring longer-term debt (Demirgüç-Kunt et al., 2020).

Industry may influence access to finance because a firm's financial performance and asset structure often align with the norms of its affiliated sector. Also, sector-specific policies, risks, and developments can considerably hurt the firms' access to finance, irrespective of their creditworthiness. It is thought that the leverage of a business operating within a specific industry can change by several common factors such as the type of technology implemented and the level of capital or labor intensity (Yazdanfar et al., 2019). Previous studies analyzing sectoral differences find construction sector firms have more financial constraints (Cowling et al., 2012; Mac an Bhaird, 2013). Manufacturing firms, on the other hand, are more likely to obtain bank loans due to their possession of a significant amount of tangible assets that can be utilized as collateral and stable cash flow convincing the lenders about the capacity of repayment (Harrison et al., 2022). Also, the effect of higher uncertainty periods on access to finance can be differentiated by sector. For instance, Yao and Liu (2023) find that certain industries such as tourism, hospitality, and retail sectors have encountered more serious challenges in access to debt during Covid-19 when the uncertainty peaked.

Ownership structure or legal form are also an important determinant. The financial inclusion of subsidiaries is at a better level in terms of having an account and an overdraft facility, while no significant relationship exists between being publicly listed or private firm regarding the use of financial services (Beck et al., 2013).

Innovative companies are often businesses with risky business models. Since these enterprises have intangible assets such as patents, licenses, etc. rather than physical assets, they have trouble obtaining finance (Lee et al., 2015). The opaque nature of these companies and the sunk cost of their projects due to uncertainty cause them to refrain from applying for loans (Rostamkaleei, 2017). The value of companies is measured by their future cash flows. In this respect, it is not easy to estimate the value of innovative firms. In times of uncertainty, cash flows become even more complicated to predict, leading financial institutions to tend not to provide loans to innovative firms, especially during this period (Calabrese et al., 2022). In parallel, banks' risk perception of innovative firms is higher. Especially, innovative small firms are subject to credit rationing, whereby they access a smaller amount of financing at a given interest rate than non-innovators (Freel, 2007). The nature of the projects of innovative enterprises or the dynamics of the country of operation also determines access to finance. Mina et al. (2013) argue that innovative projects where cash inflows spread over the long term are less likely to be funded. They also state that investors in the United States are more rewarded for financing risky projects than those in the UK. Ipek Erdogan (2019), in his research on SMEs in Turkey, found that innovative SMEs have better perceptions of access to credit, contrary to previous studies.

The status of being an exporter has a dual impact, influencing both the demand for financing and the actual access to finance. Exporter firms experience accelerated growth attributed to expanded market opportunities, consequently boosting their demand for external financing. With the expansion of export activities, the need for financing experiences a corresponding surge (Cowling et al., 2012; Popov and Udell, 2012). Exporters rely on bank financing rather than internal resources both in Turkey and other countries to sustain their operations (Mahmud and Akin, 2019). Yet exporting firms are less constrained than non-exporter, this is mostly because unrestricted firms export more (Manole and Spatareanu, 2010). Indeed, many studies have shown that increased access to finance affects export performance positively (Bellone et al., 2010; Wagner, 2014). On the other hand, during economic downturns, firms exporting to overseas countries have difficult access to credit due to high costs and risks (Cowling et al., 2016).

3.3. Research Design

3.3.1. Data

3.3.1.1. Survey on Access to Finance of Enterprises (SAFE) Data

One of the main aims of the research is to explore the impact of uncertainty on the access to finance for Small and Medium-sized Enterprises (SMEs), specifically focusing on two traditional financing sources: bank loans and trade credit. The dependent variables, which are access to bank loans and trade credit and firm-specific explanatory variables in the analysis are obtained from the Survey on

Access to Finance for Enterprises (SAFE) conducted by the European Central Bank (ECB) in the first half of the year including 12 European Union Member States and the European Commission in the second half of the year covering 36 countries in Europe. The survey includes questions on many aspects of access to finance, such as the difficulty of accessing finance, whether participants have applied for finance and its outcome, the purpose of using finance, and the reason for not applying. The survey also includes various firm-level indicators such as size, ownership structure, age, sector, growth expectations, export level, innovativeness, and past growth performance.

Despite the SAFE survey has been continuously conducted since 2009, this analysis specifically focuses on the period between 2015 and 2020. This specific timeframe is chosen to ensure consistent data comparison, accounting for changes in the structure of survey questions during this period. The dataset comprises 176,555 observations gathered over six years, encompassing 36 countries in total.

Our attention is directed towards two traditional forms of financing: trade credits and bank loans. Consequently, only firms that applied for each financing type are included in the analysis to assess their access levels. Some countries, lacking data from The World Uncertainty Index (WUI), are excluded. After these exclusions and accounting for unanswered questions, the analysis comprises 30,730 observations for bank loans and 21,576 observations for trade credits, covering 25 countries (See Appendix B).

The analysis for the SAFE dataset has mainly two dependent variables obtained from questions in the SAFE survey: (i) access to bank loans (AccessBank) and (ii) access to trade credits (AccessTrade). These questions are numbered as Q7B_A and Q7B_B in the survey. The questions asked to participants and their categorical answers are as follows:

"If you applied and tried to negotiate for this type of financing over the past six months, what was the outcome? Please provide a separate answer in each case.

- Received everything 1
- Received 75% and above 5
- Received below 75% 6
- Refused because the cost was too high 3
- Was rejected 4
- Application is still pending 8
- [DK] 9
- a) Bank loans (excluding overdraft and credit lines)
- b) Trade credit"

In parallel to previous studies, binary variables are constituted, coding as 1 and 0 for enterprises that have accessed (selected answers 1 and 5) or have not accessed to finance (selected other options), respectively.

As, this study aims to explore the impact of uncertainty on the access to finance for SMEs, The World Uncertainty Index (WUI) is employed as a measure of uncertainty, and hence as an independent variable. WUI is keyword-based uncertainty measurement technique is used as the uncertainty indicator (see Section 2.1). The level of uncertainty is derived from The Economist Intelligence Unit (EIU) quarterly reports, dividing uncertainty-related words by total words. However, the research team that created the index (Ahir et al., 2022) recommends using an adjusted version of the index which is also available on their website. The adjusted WUI index includes the current and previous two quarters' uncertainty levels by giving different weights for each quarter (see Table 4).

In line with the literature, macroeconomic and firm-level control variables that may affect access to finance are explored. Firm-based variables are categorical and macroeconomic indicators are continuous. The estimation method or categorization of all variables and their sources are presented in Table 4. Firm-level indicators are obtained from the SAFE survey while macroeconomic data are taken from OECD, The World Bank, and the IMF database.

Total of 4 macroeconomic variables have been used to identify factors possibly effecting the access to finance. The first macroeconomic variable is the Gross Domestic Product (GDP). In order to align with SAFE survey data, semi-annual GDP growth rate has been calculated by the use of quarterly data from the OECD database. The second and third macroeconomic variables are IMF financial development indices, which indicates financial institution development and financial market development. The indices are developed by Svirydzenka (2016) based on the conceptual framework of Čihák et al. (2013). Finally, fourth variable is the percentage of domestic credits to the private sector in GDP data, which are retrieved from the World Bank database. This indicator refers to financial resources subject to repayment and provided to the private sector by financial corporations such as deposit banks, leasing, factoring, and insurance companies.

Table 4: Definitions and Measurements of Variables for SAFE Dataset

Variable	Measurement	Source	AccessBank	AccessTrade
<i>UNC</i>	$0,6 \times \text{last quarter WUI} + 0,3 \times \text{One lag WUI} + 0,1 \times \text{Two lags WUI}$	IMF	√	√
<i>GDP6</i>	The percentage of 6-month GDP Growth	OECD	√	√
<i>DOMCR</i>	Domestic credit to private sector/GDP	World Bank	√	√
<i>FI</i>	The level of development of financial institutions in the country by depth and efficiency (between 0 and 1; 1 the highest and 0 the lowest)	IMF	√	√
<i>FM</i>	The level of development of financial markets in the country by depth and efficiency (between 0 and 1; 1 the highest and 0 the lowest)	IMF		√
<i>SIZE</i>	Categorical variables: having employee number: 1-9, 10-49, 49-250, and 250+	SAFE	√	
<i>AGE</i>	Categorical Variable (10+, 5-10, 2-5, and 0-2)	SAFE	√	√
<i>FIND</i>	Categorical: Being subsidiary, branch, or autonomous	SAFE	√	
<i>OWNER</i>	Categorical: The strongest stakeholder public family, other entrepreneurs, one person, venture capitals, and other	SAFE		√
<i>TURN</i>	Categorical: Turnover under €500.000, €500k-€2mn, €2-€10mn, €10-€50 mn, and €50mn+	SAFE	√	√
<i>EXP</i>	Categorical: Non-export, 0-25%, 25-50%, 50%+	SAFE	√	
<i>INNOV</i>	If a firm presents a new or significantly product and service in last 12 months	SAFE	√	

3.3.1.2. Turkish Statistical Institute (TURKSTAT) Company Accounts Database

The Company Accounts Database has been published by TURKSTAT and CBRT since 2009, covering enterprises' balance sheet and income statement accounts, employee numbers, legal status, and sectors identified according to Statistical Classification of Economic Activities in the European Community (NACE Rev. 2). According to TURKSTAT (2023), Balance sheets and income statements of enterprises obtained from the Revenue Administration, activity information is gathered from the Turkish Statistical Institute and credit information is obtained from the Risk Centre of the Banks Association of Turkey. The categorization of sub-groups is based on the Ministry of Industry and Technology of Turkey classification. The definition, qualifications and classification of SMEs by asset size or turnover differentiate in the sample period. Based on their asset size or revenue, companies are categorized as SMEs if they do not exceed 25 million TL in the years preceding 2013, 40 million TL between 2013-2017, 125 million TL between 2018-2021, and 250 million TL in 2022. Additionally, SME sub-groups have been reclassified in the relevant years. The classification of SMEs according to their employee number has not changed within this period.

The database includes all real sector firms and excludes financial sector enterprises. The raw data has approximately 9.8 million observations and 1.5 million firms. On the other hand, inactive firms that do not have turnover or asset were excluded. Based on D'amato's (2020) study, firms with depleted or negative equity were eliminated from the study. Any extreme values that may skew the results were removed by using Tukey's (1977) fence method. This method involves determining the first and third quartiles. The Interquartile Range (IQR) is then calculated by subtracting the first quartile (Q1) from the third quartile (Q3). Next, the upper and lower fence values are determined by multiplying the IQR by 2.2. In the last stage, observations that fall outside of these boundaries are considered outliers and are removed from the dataset. In final, dataset includes 5,265,133 observations and 1,038,067 firms. The number of observations and firms -given in parentheses- in sub-groups are 2,725,485 (801,765), 1,916,241 (480,441), 495,138 (128,989), and 128,269 (28,216) for micro, small, middle-sized, and large firms, respectively. Figure 2 illustrates the share of observations in the sample by their respective groups. On the other hand, the distribution of firms could not be determined due to their classification into different groups over the span of fourteen years covered by the data. As per the TOBB (2021) report, 99.8% of enterprises in Turkey are classified as SMEs, indicating that the sample aligns with the actual distribution with a slight difference.

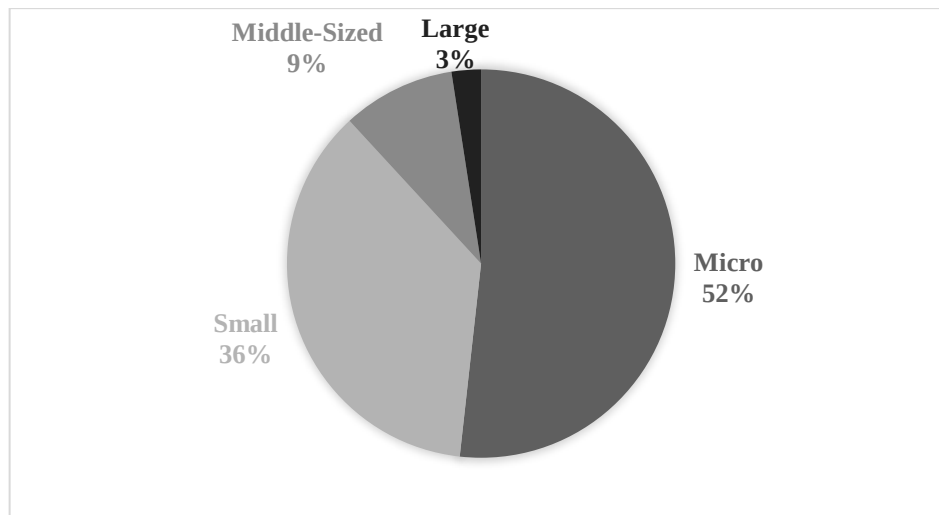


Figure 2: The Distribution of Observations by Sub-Groups

In the Figure 3, it is presented the sectoral distribution of observations. In the dataset comprising a total of 5,265,133 observations, 1,094,548 pertain to the manufacturing sector, 684,530 to the construction sector, 2,041,351 to the wholesale-retail trade sector, and 1,444,704 to other sectors.

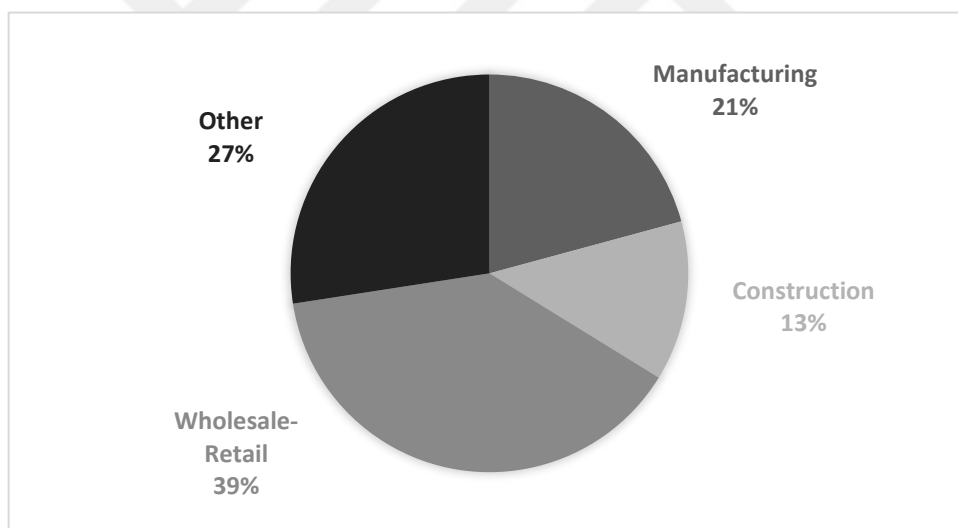


Figure 3: The Distribution of Observations by Sector

Figure 4 indicates the number of the observations in the sample according to years. As the dataset is characterized by an unbalanced panel, the quantity of observations fluctuates from year to year. Specifically, the number of observations, which stood at approximately 300,000 in 2009, exhibited a steady increase, reaching 500,000 in the most recent period.

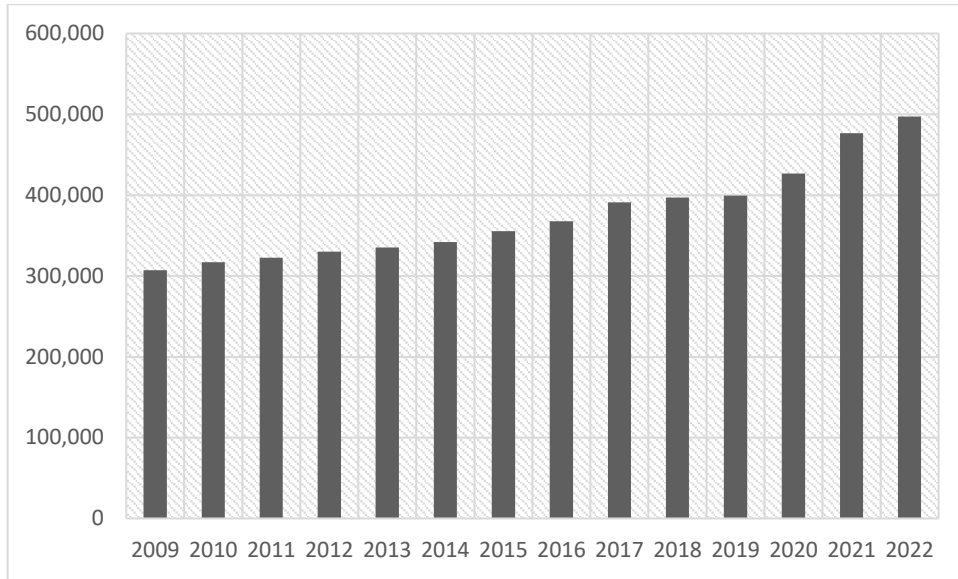


Figure 4: Number of Observations by Year

Table 5 displays the measurements of variables used in TURKSTAT dataset. The uncertainty indicators were obtained from the IMF's World Uncertainty Index, as used in the SAFE dataset. The detailed explanation of the index is presented in the first part of this section. The uncertainty level for the four quarters is averaged, unlike the SAFE dataset. This is due to the fact that the first dataset is semi-annual, while the TURKSTAT Company Accounts dataset is annual in frequency. Thus, the level of uncertainty was aligned with each separate dataset.

The study's dependent and control variables were derived from the TURKSTAT Company Accounts Database in accordance with finance literature. Firm size was assessed based on total assets, with the dataset encompassing both large and small companies, presenting challenges for analysis. To address this, the size variable was adjusted using the natural logarithm of total assets. Furthermore, in order to avoid biased results, values have been adjusted based on the consumer price index (CPI) calculated by TurkStat before taking natural logarithm. Also, liquidity was evaluated using the current ratio to gauge firms' capacity to meet short-term obligations and its impact on leverage. Profitability was measured by return on assets (ROA). The collateral capacity of the firm was examined using tangible fixed assets as a proportion of total assets. The influence of exports on leverage was analyzed using the share of export sales in total sales. Lastly, firms were categorized into four main sectors, with the manufacturing as a basis sector compared to the others.

Table 5: Measurements of Variables for TURKSTAT Company Accounts Dataset

Indicator	Variable Abbreviation	Measurement
Panel A: Dependent Variables		
<i>Total Leverage</i>	TotalLev	$[(\text{Short-Term Liabilities} + \text{Long-Term Liabilities}) / \text{Total Assets}] * 100$
<i>Short-Term Leverage</i>	ShortLev	$(\text{Short-Term Liabilities} / \text{Total Assets}) * 100$
<i>Long-Term Leverage</i>	LongLev	$(\text{Long-Term Liabilities} / \text{Total Assets}) * 100$
<i>Financial Debt Ratio</i>	FindebtR	$[(\text{Short-Term Financial Debts} + \text{Long-Term Financial Debts}) / \text{Total Assets}] * 100$
<i>Trade Credit Ratio</i>	TradeCrR	$[(\text{Short-Term Trade Credits} + \text{Long-Term Trade Credits}) / \text{Total Assets}] * 100$
Panel B: Independent and Control Variables		
<i>Turkey's Economic Uncertainty*</i>	UncTur	Average of 4 quarters of uncertainty level in the year. The raw data is standardized to compare Turkey and Global Uncertainty consistently.
<i>Thr World's Economic Uncertainty*</i>	UncGlo	Average of 4 quarters of uncertainty level in the year. (Quarterly world economic uncertainty is measured by weighted average of countries' uncertainty levels according to GDP weights in the world economy.) The raw data are standardized for the consistent comparison of Turkey and global uncertainty.
<i>Firm Size</i>	Size	Natural logarithm of total assets: Asset sizes have been adjusted according to the consumer price index (CPI) of the TurkStat using 2009 as the base year.
<i>Liquidity</i>	Current	$(\text{Current Assets} / \text{Short-term Liabilities}) * 100$
<i>Profitability</i>	ROA	$(\text{Net Income} / \text{Total Assets}) * 100$
<i>Collateral Structure</i>	Tangibility	$(\text{Tangible Fixed Assets} / \text{Total Assets}) * 100$
<i>Level of export</i>	Export	$(\text{Export sales} / \text{Total Sales}) * 100$
<i>Sector</i>	Four categorical variables: Manufacturing (base), construction, Wholesale/Retail, and other sectors (including service, agriculture, logistics, and so on)	Retrieved from TURKSTAT Database, identified under NACE Rev.2 classification standard.

*Source: Ahir et al. (2022)

3.3.2. Methodology

The thesis uses two different data sets, each requiring a different methodology. The logistic regression model is applied to the SAFE dataset due to the use of dependent variables as dummies, while panel regression analysis is utilized for the TURKSTAT Company Accounts dataset. This section gives a brief explanation of the methodological background of both types of analysis.

3.3.2.1. Logistic Regression

Since the dependent variables of the analysis using the SAFE data are binary, the logistic regression model is applied. The method has various advantages over other regression methods because

of not require assumptions such as normal distribution, linearity, and covariance (Şenel & Alatlı, 2014). Also, the method eliminates the problem of the dependent variable having a nominal scale which causes the estimates obtained with the Least Squares technique are not sufficient, in other words, the estimated variances are not minimum (Ege and Bayrakdaroglu, 2009).

The sample size should be sufficient to apply the logistic regression method (Çokluk, 2010) and the dependent variable should be binary. On the other hand, independent variables can be continuous or categorical.

The general representation of the logistic regression equation is as follows:

$$L_i = \ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 \cdot X_1 + \beta_2 \cdot X_2 + \dots + \beta_n \cdot X_n + \varepsilon \quad (1)$$

Where:

- L_i is probability of dependent variable
- $\beta_{1...n}$ are the regression coefficients,
- $X_{1...n}$ are the independent variables and
- ε is error term

3.3.2.2. Panel Data Analysis

Panel data sets offer advantages over traditional data sets for economic research. They provide a large amount of data, reduce collinearity among explanatory variables, and allow researchers to explore important economic questions (Hsiao, 2022). According to Baltagi (2005), other benefits of panel data analysis are that it can (i) analyze the dynamics of adjustment, (ii) study the duration of economic states like unemployment and poverty, (iii) identify and measure effects that are not seen in cross-section or time-series data, (iv) allow researchers to construct and examine more complicated behavioral models, and (v) provide more accurate measurements since aggregated data may give biased results. Panel data analysis is represented as follows:

$$Y_{it} = \alpha_{it} + \beta_1 \cdot X_1 + \beta_2 \cdot X_2 + \dots + \beta_n \cdot X_n + \varepsilon_{it} \quad (2)$$

Where:

- Y_{it} is the dependent variable observed for individual i at time t .
- $\beta_{1...n}$ are the regression coefficients,
- α_{it} is the unobserved time-invariant individual effect
- ε_{it} is error term

Panel data can be analyzed using pooled ordinary least squares (POLS), fixed effects (FE), or random effects (RE) models. The difference between these models is primarily in their treatment of the intercept term. The classical model has a single intercept term, while the fixed effects model has a different intercept term for each unit or time. The random effects model assumes a random intercept term. These models have common or specific assumptions. These assumptions are cross-section independence, homoskedasticity, no perfect multicollinearity, and no autocorrelation.

3.4.Findings

3.4.1. The SAFE Data Findings

Table 6 shows the results of the logistic regression analysis. the forward Stepwise (Wald) method is used to select variables. This technique starts from the null model and adds a variable that improves the model the most, one at a time, until the stopping criterion is met.

First, a negative and significant relationship between uncertainty (UNC) and the probability of accessing bank financing is found at the 5% significance level, indicating H1 is accepted. In other words, as the uncertainty of a country increases, the likelihood of firms' access to finance weakens, consistent with the studies of Berger et al. (2022), Caglayan and Xu (2019), and Farooq et al. (2024). The increase in interest rates due to uncertainty, banks' adoption of a wait-and-see strategy in the context of real options theory, the risk aversion behavior of these institutions, and higher information asymmetry in the context of credit rationing theory may be possible explanation.

When macroeconomic indicators are considered, it is observed that the 6-month GDP growth (GDP6) positively and significantly affects access to bank finance. Moreover, the probability value (140.437) reveals that the result is robust. It indicates that one unit increase in GDP growth boosts the probability of access to bank loans 1.40 times since GDP Growth is calculated as a percentage. Therefore, firms are more likely to access bank loans when economies grow, in line with the study of Carbo-Valverde (2016). The other macroeconomic variable, domestic credits to the private sector in GDP, negatively affects the probability of access to bank loans, in parallel to the study of Andrieş et al. (2018). The level of development of financial institutions (FI) is another macroeconomic indicator having a positive influence on bank finance. Accordingly, if the financial institutions are well-developed in terms of depth, efficiency, and access the probability of access to loans boosts, in parallel with the results of previous studies (Degryse et al., 2018; Andrieş et al., 2018; Beck et al., 2005; Dong and Men, 2014). However, the level of financial market development (insignificant variables are not presented in Table 3) does not significantly impact access to bank finance. The result indicates that SMEs heavily

Table 6: Logistic Regression Results for Access to Bank Loans

Variables (Dependent Variable: AccessBank)	B	S.E.	Wald	Sig.	Exp(B)
UNC (Uncertainty)	-0.732**	0.342	4.585	0.032	0.481
GDP6 (6-month GDP Growth)	4.945***	0.904	29.935	0.000	140.437
DOMCR (Domestic Credit to Private Sector in GDP)	-0.004***	0.001	15.897	0.000	0.996
FI (The Development of Financial Institutions)	2.639***	0.193	186.207	0.000	14.003
SIZE1 (Emp. Number: 1-9)			16.624	0.001	
SIZE2 (Emp. Number:10-49)	-0.382***	0.115	11.142	0.001	0.682
SIZE3 (Emp. Number:49-249)	-0.382***	0.105	13.269	0.000	0.682
SIZE4 (Emp. Number: 250 and more)	-0.200**	0.094	4.491	0.034	0.819
FIND1 (Autonomous Company)			19.799	0.000	
FIND2 (Being Subsidiary)	0.489	0.307	2.541	0.111	1.630
FIND3 (Branch of a company)	0.223	0.311	0.516	0.473	1.250
AGE1 (Older than 10 years)			23.252	0.000	
AGE2 (5-10 years old)	0.223	0.189	1.393	0.238	1.249
AGE3 (2-5 years old)	0.020	0.196	0.010	0.919	1.020
AGE4 (0-2 years old)	-0.154	0.212	0.526	0.468	0.858
TURN1 (Turnover: less than €500,000)			145.374	0.000	
TURN2 (Turnover: €500,000- €1mn)	-1.044***	0.119	77.013	0.000	0.352
TURN3 (Turnover: €1mn-€2mn)	-0.892***	0.119	56.445	0.000	0.410
TURN4 (Turnover: €2mn-€10mn)	-0.622***	0.115	29.387	0.000	0.537
TURN5 (Turnover: €10mn-€49mn)	-0.434***	0.101	18.379	0.000	0.648
TURN6 (Turnover: €50mn and more)	-0.029	0.096	0.093	0.760	0.971
EXP1 (Non-exporters)			9.146	0.027	
EXP2 (Export rate: 0%-25%)	0.169***	0.058	8.417	0.004	1.184
EXP3 (Export rate: 25%-50%)	0.138**	0.061	5.175	0.023	1.148
EXP4 (Export Rate: 50%+)	0.075	0.074	1.011	0.315	1.077
INNOV (Innovators)	-0.134***	0.040	11.266	0.001	0.875
Constant	-0.192	0.386	0.247	0.619	0.825

*, **, and *** represent significance levels at 10%, 5%, 1%, respectively.

rely on bank financing and use capital market instruments limitedly.

Firm-level factors that significantly affect the likelihood of firms' access to bank financing are the number of employees (SIZE), being a subsidiary or not (FIND), age (AGE), turnover (TURN), exports (EXP), and innovation (INNOV). Ownership structure does not affect the level of access to bank financing.

Larger firms considering the number of employees have more probability of accessing loans since odds ratios increase when the size increases. This result is consistent with previous studies (Li et al., 2021; Ghosal and Ye, 2019; Ferrando et al., 2017). Firm age is significant only for the base category. Accordingly, firms that are ten years old and above have more access to finance than younger firms which is invariant with the findings of previous studies (Öztürk and Mrkaic, 2014; Carbo-Valverde, 2016). Turnover has also a positive and significant effect on access to bank finance in line with previous studies. The companies with larger turnover have more probability of access to loans.

We analyze the level of exports into four categories according to the percentage of exports in sales and find that non-export companies are less likely to access financing than exporters. The results in previous studies vary, with some arguing that exports have a positive effect (Manole and Spatareanu, 2010) while others assert the opposite view (Cowling et al., 2016). To be an exporter, a firm needs to reach adequate size and maturity, indirectly facilitating access to finance. In addition, these firms sustain their operation with different currencies forcing them to effective risk management. In this concern, banks tend to provide more finance.

A firm's innovative status reduces the probability of bank financing. In other words, innovative firms have less external finance than their counterparts. Studies in the literature have also found this direction (Lee et al., 2015; Calabrese et al., 2022; Rostamkalaei, 2017).

Table 7 shows the results for access to trade credit as the other dependent variable of the study. The most striking result is that higher uncertainty strengthens the likelihood of access to trade credit, similar findings were obtained in the literature indicating access to supplier finance increases in times of crisis or uncertainty (McGuinness and Hogan, 2016; Martinez-Sola et al., 2017). Thus, it shows that H2 is accepted. In this context, it can be supposed that firms exposed to credit rationing by banks in times of uncertainty tend to obtain external finance from the real sector and select this as an alternative. GDP growth and the level of development of financial institutions increase the likelihood of supplier financing, as is the case for bank financing. Financial markets development level has a significant and

Table 7: Logistic Regression Results for Access to Trade Credit

Variables (Dependent Variable: AccessTrade)	B	S.E.	Wald	Sig.	Exp (B)
UNC (Uncertainty)	2.183***	0.367	35.372	0.000	8.875
GDP6 (6-month GDP Growth)	6.687***	1.182	31.980	0.000	801.623
DOMCR (Domestic Credit to Private Sector)	-0.008***	0.001	40.279	0.000	0.992
FI (The Development of Financial Institutions)	3.211***	0.279	132.846	0.000	24.797
FM (The Development of Financial Markets)	-0.523***	0.172	9.294	0.002	0.593
AGE1 (Older than 10 years)			22.784	0.000	
AGE2 (5-10 years old)	0.283	0.225	1.576	0.209	1.327
AGE3 (2-5 years old)	0.019	0.233	0.007	0.934	1.020
AGE4 (0-2 years old)	-0.122	0.251	0.235	0.628	0.885
OWNER1 (The largest stakeholder.: Public)			17.498	0.004	
OWNER2 (The largest stk.: Family)	0.087	0.182	0.227	0.634	1.091
OWNER3 (The largest stk.: other entrepreneurs)	0.256*	0.135	3.603	0.058	1.292
OWNER4 (The largest stk.: venture capital)	0.341**	0.143	5.657	0.017	1.406
OWNER5 (The largest stk.: one owner)	0.535	0.351	2.327	0.127	1.708
OWNER6 (The largest stk.: Other)	0.091	0.137	0.442	0.506	1.096
TURN (Turnover: less than €500,000)			87.522	0.000	
TURN2 (Turnover: €500,000- €1mn)	-0.668***	0.108	38.209	0.000	0.513
TURN3 (Turnover: €1mn-€2mn)	-0.593***	0.113	27.354	0.000	0.553
TURN4 (Turnover: €2mn-€10mn)	-0.445***	0.111	16.143	0.000	0.641
TURN5 (Turnover: €10mn-€49mn)	-0.315***	0.097	10.644	0.001	0.730
TURN6 (Turnover: €50mn and more)	0.044	0.100	0.195	0.659	1.045
EXP1 (Non-exporters)			10.788	0.013	
EXP2 (Export rate: 0%-25%)	0.234***	0.073	10.390	0.001	1.264
EXP3 (Export rate: 25%-50%)	0.121	0.073	2.712	0.100	1.128
EXP4 (Export Rate: 50%+)	0.131	0.092	2.006	0.157	1.139
<i>Constant</i>	-0.239	0.304	0.617	0.432	0.788

*, **, and *** represent significance levels at 10%, 5%, 1%, respectively.

negative effect. Increasing the depth, accessibility, and efficiency of financial markets may lead to a shift of funds to this market. Thus, trade credit will be adversely affected by the supply side. Also, companies seeking finance may have turned to alternative sources as these markets are advanced.

Just as in access to bank loans, older firms are more likely to access supplier financing. Long-term relationships with suppliers drive firms to be advantageous in terms of making term purchases. Likewise, higher turnover positively impact access to trade credit, revealing that the level of sales is a significant factor for both bank and supplier financing. Firms that do not export have less access to trade credit. Whether the firm is innovative or not is not statistically significant for access to supplier finance, showing the risk aversion of suppliers differentiates from banks.

Table 8: The SAFE Dataset Results According to Sector

<i>Panel A: Access to Bank Loans</i>				
	Manufacturing	Construction	Service	Trade
<i>Uncertainty</i>				
<i>GDP</i>	Positive***	Positive**	Positive***	
<i>Domestic Credits in GDP</i>	Negative***			Negative***
<i>Financial Development</i>	Positive**			
<i>Financial Institutions</i>	Positive**	Positive***	Positive***	Positive***
<i>Financial Markets</i>				
<i>Employee Number</i>			Positive***	
<i>Autonomous/Subsidiary/ Branch</i>	Significant**		Significant***	
<i>Age</i>	Positive***			
<i>Ownership Structure</i>				
<i>Turnover</i>	Positive***	Positive***	Positive***	Positive***
<i>Export</i>	Positive*			Positive***
<i>Innovation</i>	Negative***			Negative***
<i>Panel B: Access to Trade Credit</i>				
	Manufacturing	Construction	Service	Trade
<i>Uncertainty</i>	Positive**	Positive***	Positive**	Positive***
<i>GDP</i>			Positive***	Positive**
<i>Domestic Credits in GDP</i>	Negative***		Negative***	Negative***
<i>Financial Development</i>		Negative***		Negative***
<i>Financial Institutions</i>	Positive***	Positive***		Positive***
<i>Financial Market</i>				
<i>Employee Number</i>			Positive***	
<i>Autonomous/Subsidiary/ Branch</i>				Significant***
<i>Age</i>			Positive***	Positive***
<i>Ownership Structure</i>			Significant***	
<i>Turnover</i>	Positive***	Positive***		
<i>Export</i>				
<i>Innovation</i>				

Positive and negative represents the sign of coefficients. Significant refers to that results change according to the categorical variable. *, **, and *** shows the significant levels of variables at 10%, 5%, and %1, respectively.

The analysis was also applied for sub-groups based on country and sector classification. The country classifications were made according to the MSCI, geographical, and welfare classification. The MSCI classification is based on three criteria: economic development, size and liquidity requirements, and market accessibility. Thus, the classification reflects a country's economic and financial development at the same time. The United Nations' (UN) classification is considered as geographical classification. Finally, the welfare classification is composed based on the study of Béland et al. (2021). Table 8 shows additional results for sub-groups according to the sector of firms.

According to Table 8, it has been observed that the uncertainty factor does not have a significant impact on the probability of bank loans for sub-groups classified based on sector. However, it has a positive influence on the likelihood of access to trade credits for all sectors, indicating that firms tend to rely more on trade credits during periods of higher uncertainty. Additionally, the ratio of domestic credit to the private sector in GDP is a crucial indicator that adversely affects all sectors, except construction, for both access to bank loans and trade credit. This highlights that an over-aggregated indebtedness of firms has a detrimental effect on access to finance. Therefore, it is recommended that policymakers consider this ratio while formulating policies to improve the accessibility of finance to firms across all sectors. The development of financial institutions has proven to be a robust indicator of access to bank loans. Advanced financial institutions play a pivotal role in facilitating firms' access to bank credit across all sectors. What is more, they also enhance access to trade credits for sectors other than the service sector. The growth of the economy is another crucial factor that has a positive relationship with access to bank loans in almost all sectors, except for trade firms. When it comes to access to trade credits, GDP is significant in the service and trade sectors.

When considering firm characteristics, it has been noted that the age of firms is significantly and positively associated with access to bank loans, but only for the manufacturing sector. This suggests that older manufacturing firms have a higher probability of accessing bank loans, while older service and trade firms are more likely to obtain trade credits. As companies have more turnover, they tend to have better access to bank loans. Therefore, company size is a vital factor that needs to be taken into account, as previous studies have confirmed. With regard to supplier financing, turnover size is a significant and positively related factor for companies operating in the manufacturing and construction sectors. Furthermore, innovative manufacturing companies less likely access to bank loans, indicating that banks perceive these firms as risky and therefore avoid lending to them. The importance of innovation in manufacturing companies, particularly in terms of creating value-added products, cannot be overstated. Policymakers need to address this issue to ensure that innovative manufacturing firms have access to the necessary capital.

The following findings are based on country classification and are presented in Table 9. Country lists under these categorizations are listed in Appendix C. The research findings indicate that companies in MSCI developed countries experienced adverse effects when accessing to bank loans under conditions of uncertainty, with insignificant results observed for other MSCI groups. Conversely, uncertainty had a positive impact on the likelihood of obtaining trade credit for both developed and emerging countries. However, companies in standalone countries were negatively affected by uncertainty when attempting to access trade credit. Furthermore, turnover was found to positively influence the probability of accessing bank loans across all MSCI groups, underscoring the robustness of firm size as a determinant in utilizing bank finance. Additionally, turnover demonstrated a positive effect on the likelihood of obtaining trade credit in both developed and emerging countries.

According to the results under geographical classification, firms in Southern Europe demonstrated a greater likelihood of accessing finance during higher uncertainty periods, indicating successful policy implementation in this region. Furthermore, the study found that access to trade credits was also easier during higher uncertainty periods in Southern Europe. On the other hand, the effect of uncertainty is insignificant on the probabilities of access to bank loans and trade credit in other regions.

GDP growth positively influence access to bank loans of firms in Western, Southern, and Eastern Europe countries. Domestic credit to the private sector in GDP has an adverse effect on access to bank loan in in Western and Southern Europe while its impact is positive in Northern Europe. Increasing and excessive aggregated debt of private sector may signal an increase in country risk, causing firms are more restricted. When considering firm-level indicator under geographical classification, firms being an autonomous, subsidiary, or branch of another firm matter for access to bank loan. Also, turnover is positively associated with access to bank loans in all regions, consistent with MSCI classification.

As geographical classification results indicated, firms in Southern Europe countries according to welfare classification are positively affected from uncertainty for both access to bank loans and trade credit. Results are not significant for other groups. Same as other classifications, increasing turnover significantly and positively influence access to bank loans, indicating banks tend to provide funds larger firms.

Table 9: The SAFE Dataset Results According to Country Classification

Panel A: Access to Bank Loans													
	MSCI Classification				Geographical Classification				Welfare Classification				
	MSCI Developed	MSCI Emerging	MSCI Standalone	MSCI Frontier	Western Europe	Southern Europe	Northern Europe	Eastern Europe	Continental Europe	Southern Europe	Nordic Europe	Central and Eastern Europe	English Speaking Countries
Uncertainty	Negative***					Positive***				Positive***			
GDP	Negative**	Positive***		Positive***	Positive***	Positive***		Positive***	Positive***	Positive***		Positive***	
Domestic Credits in GDP		Negative***			Negative***	Negative***	Positive***		Negative***	Negative***		Positive**	
Financial Development								Positive**				Positive***	
Financial Institutions	Positive***				Positive***	Positive***	Negative***		Positive***	Positive***			
Financial Markets							Positive***						Positive***
Employee Number		Positive*						Positive**				Positive***	
Autonomous/Subsidiary/Branch	Significant***				Significant**	Significant***	Significant***		Significant**	Significant***			Significant***
Age	Positive***					Positive***				Positive***			
Ownership Structure				Significant*							Significant**	Significant**	
Turnover	Positive***	Positive***	Positive***	Positive***	Positive***	Positive***	Positive***	Positive***	Positive***	Positive***	Positive***	Positive***	Positive***
Export													
Innovation	Negative***				Negative***		Negative***		Negative***		Negative**		
Panel B: Access to Trade Credits													
Uncertainty	Positive***	Positive*	Negative**			Positive***				Positive***			
GDP	Positive***					Positive***				Positive***			
Domestic Credits in GDP		Negative***				Negative***	Positive**				Negative***		
Financial Development	Positive***						Positive***			Positive***			
Financial Institutions		Positive***				Positive***							Positive***
Financial Market								Positive***					
Employee Number			Positive**		Positive***				Positive***				
Autonomous/Subsidiary/Branch													
Age	Positive***						Positive***	Positive**			Positive**	Positive**	
Ownership Structure	Significant**	Significant***				Significant***	Significant***		Significant***				Significant***
Turnover	Positive***	Positive***				Positive***		Positive**	Positive***				
Export	Positive***						Positive***						Positive**
Innovation					Negative***				Negative**				

Positive and negative represents the sign of coefficients. Significant refers to that results statistically and significantly change according to the categorical variable. *, **, and *** shows the significant levels of variables at 10%, 5%, and %1, respectively.

3.4.2. TURKSTAT Company Accounts Data Findings

The representation in Figure 5 illustrates the variations in the five dependent variables across the analyzed years. It is evident that the average total leverage has exhibited a consistent upward trajectory over the 14-year period. It is noteworthy that the borrowing level, commencing at 60% during the initial phase of the analysis, progressed to 70% by the end of the period. Notably, a substantial proportion of the total leverage is constituted by short-term debt, indicating a predominant utilization of external resources for the funding of daily operations and working capital. The percentage of long-term debt reached its pinnacle in 2017 and 2020, at 8.30% and 8.42% respectively. This surge can be attributed to the initiation of guarantees to non-SMEs by CGF in 2017, with the volume of guarantees reaching TL 200 billion that year, propelled by Treasury-backed guarantees. However, a subsequent decline transpired in the subsequent periods. The peak ratio of financial debts reached 11.5% in 2014, 2015, and 2017. This escalation was attributed to various factors, including the presidential and local elections in 2014, two general elections in 2015, the loose monetary policy of the ECB during these years, and the CGF guaranteed loans in 2017. Furthermore, the expansion of credit to stimulate the economy, which ceased with interest rate reductions at the onset of the coronavirus pandemic, also contributed to the upsurge in financial debt compared to the previous year. In the preceding two years, despite the favorable financing costs, businesses have faced credit rationing due to a selective credit policy. The increase in the trade credit rate indicates that these constraints are being mitigated by supplier financing.

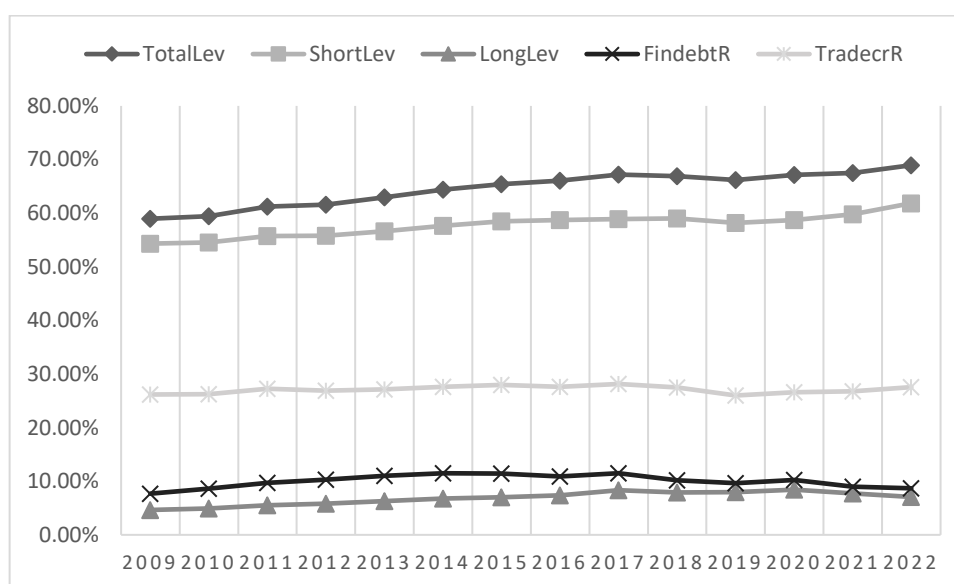


Figure 5: The Mean Values of Dependent Variables by Year

Table 10 indicates descriptive statistics for TURKSTAT Company Accounts data. The mean of the total leverage was 65% and the median was 70%, implying that it was left-skewed. Short-term leverage was much higher than long-term leverage, which shows Turkish firms tend to use short-term

finance to meet working capital needs. In addition, the median of long-term leverage is zero, indicating at least half of the firms cannot obtain long-term finance. Additionally, the ratio of financial debts is very low, compared to trade credit, indicating Turkish firms mostly rely on trade credits.

Descriptive statistics for sub-groups which are micro, small, middle-sized, and larger enterprises are shown in Appendix D.

Table 10: Descriptive Statistics

<i>Variables</i>	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
<i>TotalLev</i>	5,265,133	64.972	70.394	24.664	7.380	99.360
<i>ShortLev</i>	5,265,133	58.006	60.642	26.079	0.002	99.360
<i>LongLev</i>	5,265,133	6.966	0.000	15.150	0.000	99.237
<i>FindebtR</i>	5,265,133	10.000	0.244	16.492	0.000	85.139
<i>TradecrR</i>	5,265,133	27.171	19.424	26.009	0.000	97.850
<i>UncTurkey</i>	5,265,133	34.523	31.800	13.619	17.500	72.200
<i>UncGlo</i>	5,265,133	10.067	10.069	0.257	9.729	10.613
<i>Size</i>	5,265,133	6.579	6.487	1.720	0.001	19.048
<i>Current</i>	5,265,133	178.785	127.569	143.885	9.700	874.993
<i>ROA</i>	5,265,133	4.138	1.995	11.235	-44.760	58.820
<i>Tangibility</i>	5,265,133	18.393	9.747	21.700	0.000	99.996
<i>Export</i>	5,265,133	6.820	0.000	21.807	0.000	100.000
<i>Industry</i>	5,265,133	2.729	3.000	1.078	1.000	4.000

Table 11 displays the correlation matrix of the independent variables for the all sample. The correlation matrix for sub-groups can be found in the Appendix E. As presented in Table 11, there exists a very low correlation between variables, indicating the absence of multicollinearity issue in the sample. Therefore, it can be concluded that the sample is free from multicollinearity problem.

Table 11: Correlation Matrix

<i>Variables</i>	<i>UncTurkey</i>	<i>UncGlo</i>	<i>Size</i>	<i>Current</i>	<i>ROA</i>	<i>Tangibility</i>	<i>Export</i>
UncTurkey	1.000						
UncGlo	0.087	1.000					
Size	0.026	0.028	1.000				
Current	-0.017	-0.011	-0.095	1.000			
ROA	-0.012	0.007	-0.043	0.190	1.000		
Tangibility	0.008	-0.009	-0.005	-0.191	-0.045	1.000	
Export	-0.011	0.018	0.123	0.001	0.053	-0.038	1.000

Following this stage, the appropriate model was selected based on comprehensive assumption tests. The Hausman (1978) test was employed to determine which regression model was applied - fixed or random effects. The test hypothesis states that rejecting the null hypothesis (H0) favors the fixed effects model while failing to reject H0 favors the random effects model. Results of the test for both the main population and subgroups established that the fixed effects model was the appropriate choice. The

Hausman test results for the main population are featured in Table 12. Results for sub-groups are shown in Appendix F.

H₀: Difference in coefficients is not systematic

H₁: Difference in coefficients is systematic

Table 12: Hausman Test for Main Dataset

Dependent Variable: Total Leverage	
chi2(21) = 343618.37	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Short-Term Leverage	
chi2(21) = 242473.29	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Long-Term Leverage	
chi2(21) = 23520.53	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Financial Debt Ratio	
chi2(21) = 9770.02	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Trade Credit Ratio	
chi2(21) = 81390.71	Prob>chi2= 0.000 (H ₀ rejected)

In the next step, assumption tests were applied (See Appendix G). In this respect, Modified Wald Test is used to test for heteroskedasticity while Durbin–Watson test of Bhargava et al. (1982) and LBI test of Baltagi and Wu (1999) was applied for testing autocorrelation. Modified Wald test results reveal that there are heteroskedasticity problems in all models since null hypothesis is rejected. Both the values of Durbin-Watson Test and LBI test are lower than 2, indicating there exists autocorrelation all models. Cross-section independence could not be tested due to large dataset. To deal with autocorrelation and heteroskedasticity problem Driscoll-Kraay (1998) robust estimator was used. This estimator solves cross-section dependence problem at the same time.

Table 13 indicates the results of models where total leverage is dependent variable. In all sample and sub-groups, the world and Turkey’s uncertainty significantly and negatively impact total leverage of firms, in line with previous studies (Almustafa et al., 2023; Li et al., 2021; Gao and Tsusaka, 2023). Furthermore, due to the standardization of both Turkey and global uncertainty values, their effects can be compared. Within the entire sample, Turkey's uncertainty demonstrates a more pronounced negative impact on total leverage. A one-unit change in the standard error of Turkey's uncertainty results in a 2.3 percentage points reduction in total leverage, whereas a one-unit change in the standard error of global uncertainty leads to a 1.8 percentage points reduction. Upon examining sub-groups, it was observed that Turkey's uncertainty exerts a more adverse impact on the level of borrowing in all groups except for micro firms. Both real sector firms and banks are more cautious during high uncertainty times, causing firms hold more cash and utilize leverage less.

Table 13: Fixed-Effect Results for Total Leverage

Variables	All Sample	Micro Firms	Small Firms	Middle-Sized Firms	Large Firms
UncTurkey	-2.2993*** (0.0589)	-0.1735** (0.0835)	-4.0412*** (0.1055)	-5.5350*** (0.2141)	-4.5115*** (0.4326)
UncGlo	-1.8269*** (0.0235)	-2.3538*** (0.0347)	-1.6726*** (0.0407)	-1.1426*** (0.079)	-2.6150*** (0.1514)
Size	6.5476*** (0.0174)	7.5866*** (0.0268)	7.0923*** (0.0370)	6.0079*** (0.0826)	5.6169*** (0.1812)
Current	-0.0784*** (0.0001)	-0.0819*** (0.0002)	-0.0680*** (0.0002)	-0.0621*** (0.0004)	-0.0530*** (0.0009)
ROA	-0.2975*** (0.0009)	-0.2550*** (0.0011)	-0.3524*** (0.0017)	-0.4193*** (0.0036)	-0.5159*** (0.0075)
Tangibility	-0.2104*** (0.0009)	-0.2011*** (0.0012)	-0.2008*** (0.0016)	-0.2162*** (0.0033)	-0.2301*** (0.0072)
Export	-0.0080*** (0.0008)	-0.0066*** (0.0012)	-0.0070*** (0.0014)	-0.0003 (0.0028)	-0.0036 (0.0050)
Industry (Base: Manufacturing)					
Construction	0.3374** (0.1359)	0.1089 (0.1971)	-0.0973 (0.2162)	0.8320** (0.3715)	-0.2139 (0.8700)
WholeSail-Retail	0.4419*** (0.0970)	0.2838** (0.1398)	0.1394 (0.1545)	1.0157*** (0.2530)	-0.1181 (0.6466)
Other	0.5554*** (0.1292)	0.3596** (0.1785)	0.3467 (0.2117)	1.2152*** (0.4126)	-0.6916 (0.9649)
Constant	36.9016 (0.1651)	38.9261 (0.2197)	27.748 (0.3500)	22.7426 (0.8977)	13.2840 (2.3130)
R ²	37%	47%	39%	36%	26%
Hausman Test for Model	FE	FE	FE	FE	FE
Number of Observations	5,265,133	2,725,485	1,916,241	495,138	128,269
Number of Firms	1,038,067	801,765	480,441	128,989	28,216

*, **, and *** represent significance levels at 10%, 5%, 1%, respectively.

When considering firm characteristics, firm size is a positive indicator while liquidity, profitability, tangibility, and the percentage of export in total sales have negative signs. On the other hand, export rate is insignificant for middle-sized and large companies.

To assess the size variable, the natural logarithm of total assets is utilized. This implies that a one-unit increase in size leads to a 0.0654 percentage point increase in the total leverage of firms for the entire sample. Empirical evidence indicates that smaller firms encounter challenges in securing external financing, as borrowing levels have been observed to rise with firm size, even within sub-groups. Therefore, it can be concluded that SMEs, particularly small firms, face significant challenges in accessing financial sources, which is in line with existing literature (Martinez-Sola et al., 2017; Gao and Tsusaka, 2023; Yazdanfar et al., 2019). The current ratio, which is a measure of liquidity, has an adverse effect on the total leverage of Turkish firms in all groups. This indicates that more liquid firms tend to

use less leverage, which is consistent with the findings of He and Ausloos (2017). However, the negative coefficients decrease from micro-enterprises to large ones, suggesting that the adverse effect is more pronounced in smaller groups. In line with the pecking order theory and prior research (Demirgüç-Kunt et al., 2020; He and Ausloos, 2017; Gao and Tsusaka, 2023; Tabash et al., 2022), profitability has a negative impact on total leverage. Furthermore, negative coefficients increase in larger groups, showing that as firms grow in size, they rely more on internal financing. Tangibility, an important indicator for the collateral capacity of a firm, negatively influences total leverage, consistent with the pecking order theory, and contradicts the trade-off theory. As stated by D'amato (2020) and Yazdanfar et al. (2019), collateral structure is related to longer term financing. Thus, it was an expected and consistent result. The rate of export on total sales is another negative indicator, indicating exporters rely more internal sources of finance. However, the coefficients are very low, indicating the effect is too limited. Additionally, the results are statistically significant only for micro and small companies.

As presented in Table 13, both uncertainty measures (Global and Turkey) adversely affect the access to finance based on total leverage. Such effect is the combined effects of short-term liabilities and long-term liabilities. As short-term and long-term financing resembles from different financial motivations for both demand and supply side of financing; it is also possible that effect of uncertainty may be subject to change for different maturities. Tables 14 and 15 reveals the effect of uncertainty for short-term and long-term financing.

Based on the findings presented in Table 14, it is evident that the influence of Turkey and global uncertainty on short-term financing exhibits variability. Upon examining the entire sample and all subgroups, with the exception of micro firms, it becomes apparent that an escalation in Turkey's uncertainty leads to a reduction in the short-term borrowing ratio, while an amplification in global uncertainty results in an increase in this ratio. To ascertain the underlying reasons for the adverse impact of Turkey's uncertainty on short-term leverage, the composition of short-term debt is calculated. 45% of the short-term debt is trade credits, whereas the proportion of financial debts is merely 12%. Consequently, the trade credits mainly determine the uncertainty's effect on short-term debt. This is corroborated by the substantial adverse impact of Turkey's uncertainty on the trade credit utilization ratio (-12.3473), as depicted in Table 17. Notably, during periods of uncertainty, credit expansion facilitated by the Credit Guarantee Fund (KGF) and state banks compels enterprises to curtail their utilization of trade credits. These two forms of financing are generally perceived as substitutes for each other. Evidently, there exists a negative correlation of 38% between short-term financial borrowing and trade credits. However, it has also been found that global uncertainty has a positive impact on all sample and sub-groups except micro firms, concluding that firms in this group are more susceptible to the

consequences of uncertainty. This group primarily relies on short-term financing and has limited access to long-term finance since the mean of long-term leverage for micro firms is under 5%, making them more vulnerable to the effects of uncertainty. The positive association between global uncertainty and the trade credit ratio aligns with existing literature. The reason why global uncertainty has a positive impact on other groups is possibly due to the delayed effect of global uncertainty on Turkish firms. Additionally, trade credit is one of the most significant components of short-term financing, and the SAFE data findings reveal that uncertainty is positively associated with trade credit, as firms prefer this financing option more when there is higher uncertainty. Makosa et al. (2021) find that high uncertainty reduces the financial constraint in the short run due to reduced investment but increases it in the long run.

Table 14: Fixed-Effect Results for Short-Term Leverage

Variables	All Sample	Micro Firms	Small Firms	Middle-Sized Firms	Large Firms
UncTurkey	-4.2693*** (0.0525)	-2.3676*** (0.0750)	-5.5823*** (0.0938)	-4.8809*** (0.1884)	-2.5345*** (0.3916)
UncGlo	0.2728*** (0.0222)	-0.6100*** (0.0326)	0.8586*** (0.0388)	1.2927*** (0.0737)	0.6960*** (0.1337)
Size	3.2007*** (0.0154)	4.4302*** (0.0234)	2.9794*** (0.0331)	1.8023*** (0.0741)	1.4557*** (0.1644)
Current	-0.1123*** (0.0001)	-0.1071*** (0.0001)	-0.1132*** (0.0002)	-0.1097*** (0.0005)	-0.0959*** (0.0009)
ROA	-0.1870*** (0.0008)	-0.1818*** (0.0010)	-0.1984*** (0.0015)	-0.2015*** (0.0032)	-0.1980*** (0.0062)
Tangibility	-0.3678*** (0.0009)	-0.3252*** (0.0011)	-0.3884*** (0.0015)	-0.4240*** (0.0031)	-0.4205*** (0.0068)
Export	-0.0038*** (0.0008)	-0.0024** (0.0010)	-0.0051*** (0.0013)	0.0058** (0.0024)	0.0056 (0.0047)
Industry (Base: Manufacturing)					
Construction	0.5310*** (0.1229)	0.3409* (0.1790)	0.1710 (0.1961)	0.9100*** (0.3418)	1.0768 (0.8056)
WholeSail-Retail	0.5491*** (0.0865)	0.3350*** (0.1263)	0.3676*** (0.1366)	0.6829*** (0.2296)	1.1297** (0.5347)
Other	0.4517*** (0.1160)	0.3907** (0.1615)	0.3470* (0.1935)	0.3369 (0.3709)	-0.2310 (0.8160)
Constant	60.8330 (0.1460)	57.5589 (0.1926)	60.8489 (1.1207)	64.2097 (0.8002)	58.8562 (2.0839)
R2	58%	62%	64%	64%	55%
Model	FE	FE	FE	FE	FE
Number of Observations	5,265,133	2,725,485	1,916,241	495,138	128,269
Number of Firms	1,038,067	801,765	480,441	128,989	28,216

*, **, and *** represent significance levels at 10%, 5%, 1%, respectively.

The size of a firm has a positive impact on short-term leverage across all groups, which suggests that the size effect is robust. Smaller firms face difficulties even when they meet short-term financing needs. Additionally, liquidity has a negative impact on the short-term leverage of companies. As highlighted by He and Ausloos (2017), businesses primarily use their liquid assets to maintain their operations. Profitability also has a negative sign, which is an anticipated outcome since more profitable firms rely on retained earnings rather than borrowing. Tangibility is negatively linked to short-term leverage. Firms with a robust collateral structure tend to opt for financing long-term investments. Upon comparing different industries, it was discovered that wholesale-retail trade companies utilize short-term finance more often than manufacturing companies. Moreover, construction has a positive sign, although it is only significant for middle-sized group and the main sample.

Table 15: Fixed Effects Results for Long-Term Leverage

Variables	All Sample	Micro Firms	Small Firms	Middle-Sized Firms	Large Firms
UncTurkey	1.9700*** (0.0456)	2.1941*** (0.0590)	1.5411*** (0.0877)	-0.6541*** (0.1877)	-1.9771*** (0.4156)
UncGlo	-2.0997*** (0.0196)	-1.7439*** (0.0264)	-2.5311*** (0.0369)	-2.4353*** (0.7389)	-3.3109*** (0.1418)
Size	3.3516*** (0.0134)	3.1564*** (0.0187)	4.1129*** (0.0311)	4.2055*** (0.0750)	4.1612*** (0.1745)
Current	0.0338*** (0.0001)	0.0252*** (0.0001)	0.0452*** (0.0002)	0.0476*** (0.0005)	0.0429*** (0.0009)
ROA	-0.1105*** (0.0006)	-0.0732*** (0.0007)	-0.1540*** (0.0013)	-0.2177*** (0.0031)	-0.3179*** (0.0071)
Tangibility	0.1574*** (0.0008)	0.1239*** (0.0009)	0.1875*** (0.0015)	0.2078*** (0.0032)	0.1905*** (0.0075)
Export	-0.0041*** (0.0006)	-0.0042*** (0.0007)	-0.0019 (0.0012)	-0.00682** (0.0025)	-0.0092* (0.0049)
Industry (Base: Manufacturing)					
Construction	-0.1936* (0.1075)	-0.2317* (0.1382)	-0.2685 (0.1883)	-0.0779 (0.3557)	-0.8630 (0.9407)
WholeSail-Retail	-0.1071 (0.0754)	-0.0514 (0.0970)	-0.2282* (0.1305)	0.3870 (0.2428)	-1.2478** (0.6218)
Other	0.1037 (0.1000)	-0.0313 (0.1244)	0.0001 (0.1785)	0.8783** (0.3831)	-0.4606 (0.9648)
Constant	-23.9313 (0.1301)	-18.6328 (0.1563)	-33.1013 (0.2976)	-41.4671 (0.8136)	-45.5723 (2.2459)
R2	17%	12%	18%	17%	19%
Model	FE	FE	FE	FE	FE
Number of Observations	5,265,133	2,725,485	1,916,241	495,138	128,269
Number of Firms	1,038,067	801,765	480,441	128,989	28,216

*, **, and *** represent significance levels at 10%, 5%, 1%, respectively.

Long-term leverage is directly tied to investments that focus on strategic and long-term growth and leads to an improvement in cash flow as it does not require immediate repayment. The analysis of long-term leverage results, as shown in Table 15, demonstrates that uncertainty indicators have different effect on long-term borrowing. The influence of Turkey's uncertainty on long-term borrowing exhibits a positive effect, whereas global uncertainty demonstrates a negative impact. However, as firm size increases, the favorable effect gradually diminishes, and for medium-sized and large firms, the impact of Turkey's uncertainty aligns with that of global uncertainty, turning negative. Besides, micro and small firms already maintain notably low long-term debt utilization, with average long-term debt to total assets ratios of 5% and 8% respectively (refer to Appendix D). Consequently, the adverse effect is anticipated to be more pronounced for larger groups with comparatively higher long-term debt utilization. Furthermore, global uncertainty exerts a negative influence on long-term borrowing across all groups. Overall, uncertainty significantly impedes the financing of long-term investments and projects because a decrease in the rate of long-term debts can also lead to investment decisions being postponed. This is consistent with the real-options theory which posits that firms prefer to delay their investment plans causing them to use less long-term finance. Hence, even if uncertainty is a short-term phenomenon, its impacts can persist over the long run.

The size of a firm has a positive association with long-term leverage, the same as total and short-term leverage. However, the results for liquidity are different from previous findings, indicating that more liquid firms tend to use more long-term finance. In parallel to the study of D'amato (2020), firms can enhance their creditworthiness and be perceived as less risky by lenders, which can lead to an increase in their long-term debt capacity. Profitability remains to have negative coefficients for all groups because of sufficient retained earnings. Furthermore, the structure of collateral has a positive impact on long-term leverage. This means that the share of tangible fixed assets on total assets can be used as collateral to access long-term financing. Additionally, the use of long-term finance supports new long-term investments, which increases tangible fixed assets. The export rate does not significantly influence long-term leverage and the coefficients are close to zero. Finally, it can be stated that there is no significant sectoral differentiation both for the main and sub-groups although some sectors have a low significant effect.

The findings of the SAFE analysis presented in Table 6 and Table 7 revealed that higher uncertainty strengthens the likelihood of trade credit but weakens the likelihood of firms' access to bank loans. In order to examine the existence of such relation for Turkish SMEs, financial debts ratios and trade credits ratios have been analyzed and findings are presented in Tables 16 and 17.

Table 16 displays the results of models where financial debt ratios are dependent variable. According to the table, heightened uncertainty in Turkey results in increased financial borrowing among SMEs, particularly for micro and small group. Specifically, a one-unit rise in standard error of uncertainty is associated with a 2.3 percentage point increase in the financial debt ratio for small firms. Such finding is contrary to SAFE analysis (overall findings presented in Tables 7-8) and existing literature, which presents negative relation between uncertainty and bank loans (financial debt). Such contradiction can be explained by the credit booming toward SMEs from state banks and the Credit Guarantee Fund during periods of uncertainty. It's important to note that these findings align with the analysis of the SAFE dataset (Table 9) for Southern European countries under geographical and welfare classification, in which Türkiye is also included, despite appearing to contradict the general findings of the SAFE dataset.

Table 16: Fixed Effects Results for Financial Debt Ratio

Variables	All Sample	Micro Firms	Small Firms	Middle-Sized Firms	Large Firms
UncTurkey	1.5915*** (0.0490)	1.0142*** (0.0624)	2.3112*** (0.0946)	0.3020*** (0.2073)	-3.0163*** (0.4792)
UncGlo	-1.8027*** (0.0200)	-1.5822*** (0.0272)	-2.1089*** (0.0378)	-1.4738*** (0.0766)	-2.5951*** (0.1599)
Size	3.2086*** (0.0142)	2.9834*** (0.0188)	3.6937*** (0.0335)	3.5688*** (0.0804)	4.0470*** (0.1961)
Current	0.0015*** (0.0001)	0.0005*** (0.0001)	0.0029*** (0.0001)	0.0020*** (0.0003)	-0.0032*** (0.0007)
ROA	-0.832*** (0.0006)	-0.0505*** (0.0007)	-0.1184*** (0.0014)	-0.1993*** (0.0033)	-0.3383*** (0.0078)
Tangibility	0.1143*** (0.0008)	0.0959*** (0.0010)	0.1337*** (0.0016)	0.1167*** (0.0033)	0.0667*** (0.0078)
Export	0.0009 (0.0007)	-0.0021** (0.0008)	0.0049*** (0.0014)	-0.0004 (0.0029)	0.0005 (0.0056)
Industry (Base: Manufacturing)					
Construction	-0.0965 (0.1164)	0.2195 (0.1517)	0.0188 (0.2022)	-1.3704*** (0.3854)	-2.1794** (1.0177)
Wholesale-Retail	0.1274 (0.0868)	0.4575*** (0.1100)	-0.0609 (0.1485)	-0.0540 (0.2941)	0.1353 (0.7492)
Other	-0.0837 (0.1100)	0.2061 (0.1389)	-0.1382 (0.1964)	-0.6800* (0.4108)	-1.0831 (1.0287)
Constant	-14.5051 (0.1367)	-12.6591 (0.1588)	-18.5768 (0.3181)	-19.1827 (0.8733)	-26.8757 (2.5201)
R2	13%	6%	7%	11%	14%
Model	FE	FE	FE	FE	FE
Number of Observations	5,265,133	2,725,485	1,916,241	495,138	128,269
Number of Firms	1,038,067	801,765	480,441	128,989	28,216

*, **, and *** represent significance levels at 10%, 5%, 1%, respectively.

In line with SAFE analysis and existing literature, larger firms experience a 3-percentage point reduction in financial borrowing levels in response to a one-unit standard error change in uncertainty. This might be because larger firms rely more on financial debt during regular periods, and the impact of uncertainty is more pronounced for them.

On the other hand, the impact of global uncertainty levels exhibits a negative impact on both the overall sample and sub-groups. In essence, heightened global uncertainty results in diminished financial borrowing by firms. This highlights the imperative for policymakers to judiciously consider global uncertainty in their decision-making processes.

Larger firms possess a greater ability to access financial debts due to their size. Liquidity is another critical factor that bears significant influence. A positive effect is observed for liquidity in all sample and sub-groups, aside from larger firms. This suggests that as the liquidity of SMEs increases, the ratio of financial debt increases as well. Nonetheless, the profitability aspect remains negative, thus affirming the consistency of the results with the pecking order theory. It has been noted that the sectors in which the firms operate do not have a significant effect. However, there is an observation that medium-sized and large firms tend to have lower utilization of financial debt.

Based on the analysis presented in Table 17, it is evident that the prevailing uncertainty in Turkey and the world has divergent impacts. Specifically, the research finds that the uncertainty in Turkey has a negative influence on SMEs. On the other hand, uncertainty levels do not significantly affect larger firms when obtaining trade credit. Moreover, the coefficients tend to increase as the size of the group increases, indicating that the uncertainty in Turkey adversely affects smaller firms through limited access to supplier finance. The reduced utilization of trade credits by companies resorting to bank financing as a result of credit expansion may be attributed to this phenomenon. Notably, the preceding table illustrates that heightened uncertainty in Turkey corresponds to an increase in the proportion of financial debt. Hence, a substitution effect exists between financial debt and supplier finance.

In contrast, the global economic uncertainty does not significantly affect larger firms, but it has a positive impact on smaller ones. It is noteworthy that the findings of the SAFE data reveal that firms tend to seek alternative financing options during uncertain periods. Given the inaccessibility of bank loans, these firms resort to their suppliers for financial support.

When considering firm-level factors, size has positive effect on the rate of trade credit in SMEs, but negative effect in larger firms, meaning that the size effect is more evident in smaller groups. Liquidity and profitability are indicators that negatively influence trade credit, indicating more liquid and more profitable firms use less trade credit with more effect in smaller companies. When analyzing

factors related to a company's size, it has been found that the rate of trade credit in SMEs is positively affected by their size, whereas larger firms experience a negative effect. This implies that the size effect is more pronounced in smaller groups. Furthermore, indicators such as liquidity and profitability have a negative influence on trade credit, suggesting that firms that are more liquid and profitable tend to use less trade credit. This effect is greater in smaller companies.

Table 17: Fixed Effects Results for Trade Credit Ratio

Variables	All Sample	Micro Firms	Small Firms	Middle-Sized Firms	Large Firms
UncTurkey	-12.3473*** (0.0733)	-12.7492*** (0.1086)	-12.4070*** (0.1271)	-6.6614 *** (0.2203)	0.5868 (0.3719)
UncGlo	1.2129*** (0.0323)	0.7627*** (0.0488)	1.8727*** (0.0546)	1.2098*** (0.0914)	0.0702 (0.1417)
Size	3.3947*** (0.0224)	4.7718*** (0.0339)	2.6096*** (0.0461)	0.6266*** (0.0934)	-0.5438*** (0.1685)
Current	-0.0484*** (0.0001)	-0.0481*** (0.0001)	-0.0463*** (0.0002)	-0.0372*** (0.0003)	-0.0267*** (0.0006)
ROA	-0.0767*** (0.0009)	-0.0784*** (0.00012)	-0.0766*** (0.0017)	-0.0604*** (0.0032)	-0.0513*** (0.0055)
Tangibility	-0.2422*** (0.0001)	-0.2360*** (0.0014)	-0.2428*** (0.0017)	-0.1876*** (0.0031)	-0.1299*** (0.0056)
Export	0.0100*** (0.0011)	0.0093*** (0.0016)	0.0122*** (0.0019)	0.0195*** (0.0030)	0.0142*** (0.0047)
Industry (Base: Manufacturing)					
Construction	0.0159 (0.1743)	-0.0480 (0.2598)	-0.0295 (0.2700)	0.3351 (0.4246)	1.1294 (0.7318)
WholeSail-Retail	0.7260*** (0.1249)	0.3607* (0.1870)	0.6592*** (0.1937)	1.0000*** (0.2992)	0.0300 (0.6070)
Other	0.5394*** (0.1549)	0.3945* (0.2200)	0.5113** (0.2540)	1.0911** (0.4453)	-0.3675 (0.8523)
Constant	8.6861 (0.2037)	3.6469 (0.2712)	13.9884 (0.4241)	25.9311 (0.9906)	35.2721 (2.1214)
R2	14%	16%	18%	19%	13%
Model	FE	FE	FE	FE	FE
Number of Observations	5,265,133	2,725,485	1,916,241	495,138	128,269
Number of Firms	1,038,067	801,765	480,441	128,989	28,216

*, **, and *** represent significance levels at 10%, 5%, 1%, respectively.

The summary results regarding the effect of Turkey's and global economic uncertainty on total leverage, short-term leverage, long-term leverage, financial debt ratio, and trade credit ratio are presented in Table 18. Accordingly, the key findings are as follows: Firstly, both uncertainty indicators show significant statistical impact at the 1% level in all models, except for the trade credit ratio for large firms, implying H3 and its sub-hypotheses are accepted. This highlights the substantial influence of uncertainty in both positive and negative contexts. Secondly, there is a substitution between trade credit

and financial borrowings due to opposite coefficients, which is also evident in the SAFE data findings. Lastly, it's important to note that while access to bank loans was made easier during periods of uncertainty specific to Turkey, the adverse impact of global uncertainty should not be underestimated.

Table 18: Summary Results for Economic Uncertainty Indicators

Dependent Variables	Groups	Turkey's Economic Uncertainty	Global Economic Uncertainty
<i>Total Leverage</i>	Main Sample	Negative***	Negative***
	Micro	Negative***	Negative***
	Small	Negative***	Negative***
	Medium-Sized	Negative***	Negative***
	Large	Negative***	Negative***
<i>Short-Term Leverage</i>	Main Sample	Negative***	Positive***
	Micro	Negative***	Positive***
	Small	Negative***	Positive***
	Medium-Sized	Negative***	Positive***
	Large	Negative***	Positive***
<i>Long-Term Leverage</i>	Main Sample	Positive***	Negative***
	Micro	Positive***	Negative***
	Small	Positive***	Negative***
	Medium-Sized	Negative***	Negative***
	Large	Negative***	Negative***
<i>Financial Debt to Total Assets Ratio</i>	Main Sample	Positive***	Negative***
	Micro	Positive***	Negative***
	Small	Positive***	Negative***
	Medium-Sized	Positive***	Negative***
	Large	Negative***	Negative***
<i>Trade Credit to Total Assets Ratio</i>	Main Sample	Negative***	Positive***
	Micro	Negative***	Positive***
	Small	Negative***	Positive***
	Medium-Sized	Negative***	Positive***
	Large	Positive	Positive

*, **, and *** represent significance levels in 10%, 5%, and 1%, respectively.

CONCLUSION

SMEs are among the building blocks of economies. They significantly contribute to exports, employment, and GDP growth for developed and developing countries. Therefore, their sustainability is crucial for the well-functioning of the economy. In this context, access to finance is a lifeline for SMEs. Especially in fragile economies, inadequate capital causes small firms to depend heavily on external financing. Moreover, financing sources of SMEs are not well diversified due to the lack of information about alternative finance tools and the dominance of banks. The common finance resources for SMEs are bank loans and trade credit.

A vast number of studies show that SMEs have limited access to finance. During periods of uncertainty, the lack of adequate access to finance becomes more pronounced, because of the higher interest rates, banks' reluctance to grant new loans in the context of real options theory, increased information asymmetry between fund suppliers and demanders, and the resulting credit rationing. Furthermore, the lower transparency of small firms compared to large ones—referred to as information opacity—places SMEs at a disadvantage when seeking financing.

This dissertation mainly had two aims: (i) to investigate the effect of uncertainty on SMEs' access to the two traditional sources of financing: bank loans and trade credit and (ii) to find out how Turkish firms' capital structure is affected by uncertainty. The first analysis was conducted for 25 European countries including also Turkey, using the SAFE dataset and covering 2015-2020. The second analysis was performed only for Turkey, using the TURKSTAT Company Accounts Dataset between 2009 and 2022.

The findings of the SAFE dataset are statistically significant for both access to finance and trade credit. The uncertainty adversely influences the probability of firms' access to bank loans while positively affecting access to trade credit. The reluctance of banks to provide financing under high uncertainty pushes firms to find alternatives. In this respect, supplier financing increases during these periods. However, since bank loans are vital for small firms, policymakers should consider uncertainty indicators. Creating more stable financial and fiscal policies, improving the political environment, and carefully monitoring other factors that cause uncertainty will facilitate SMEs' access to finance.

The growth in GDP and the development of financial institutions enhance access to finance. An easily accessible, efficient, and sufficient-depth financial system strengthens the possibility of access to credit. The strengthening of other financial institutions such as factoring, leasing, and other financial institutions will provide a competitive environment and pave the way for improved financing conditions. Moreover, alternative financing instruments would improve resource diversity and partially prevent

credit crunches in case of shocks. On the other hand, the share of total loans to the private sector in GDP negatively affects access to finance. It suggests that the total volume of credit does not effectively reach those who demand funds. Moreover, high indebtedness increases risks and thus costs and adversely affects firms' need for finance. In this respect, policymakers must look not only at the size of credits but also at the distribution.

Another finding from the SAFE dataset is that younger firms, smaller firms in terms of employees or turnover, and independent businesses not affiliated with any group or company are disadvantaged in accessing finance. Young and small firms grow faster and increase their employment in percentage terms while being more vulnerable to shocks than others. Thus, financing policies and instruments should be shaped to support these enterprises. In particular, due to their inadequate collateral structure, credit guarantee funds may open limits for these firms or provide low-interest/no-interest loans to alleviate the effects of financing constraints.

The SAFE dataset results indicate that being an exporter positively affects access to finance. In this respect, formulating policies to increase the number of exporting firms and the share of exports in firms' sales will contribute to financial access. On the other hand, the fact that innovative firms have less access to bank loans than non-innovative firms is not only an expected result but also thought-provoking. Innovation is essential for the steady growth of the economy and development. Therefore, innovative firms should be granted additional opportunities, and non-innovative firms should be encouraged to transform into innovators. Hence, policymakers should constitute an effective innovation program and incentive mechanisms ensuring innovators' accessible finance.

The TURKSTAT Company Accounts Dataset reveals that global and Turkish uncertainty plays a crucial role in determining leverage and its various components. The outcomes of the analysis indicate that economic uncertainty in Turkey has a negative and significant effect on the total leverage of Turkish firms. The impact of various economic components varies depending on the level of maturity or type of leverage. Turkey's economic uncertainty has a detrimental effect on short-term borrowing rates across different groups. While the impact on the long-term debt ratio is positive for micro and small companies, it is negative for medium-sized and large companies. Surprisingly, the effect on financial debt is positive, except for large companies. This phenomenon can be attributed to increased loan guarantees through CGF, liquidity injections in the form of lifeline loans with state banks, and the implementation of loose monetary policies featuring negative real interest rates during periods of heightened uncertainty. These findings, although contrary to the overall SAFE dataset results are consistent with results observed by geographical classification in the Southern European group, including Turkey.

Furthermore, the study revealed that Turkey's economic uncertainty level hurt trade credit due to credit expansion and assuring funds from financial institutions rather than suppliers. This observation suggests that trade credit and financial borrowing represent substitutes for each other. In line with previous research, global uncertainty exhibits a positive effect on short-term borrowing and trade credit and a negative impact on financial debt and long-term leverage. As a result, businesses encounter challenges in accessing bank financing during times of global uncertainty. Moreover, heightened global uncertainty leads to decreasing long-term financing, disrupting investments. Consequently, global uncertainty poses a long-term risk to Turkish companies and the economy.

It is thus recommended that policymakers closely monitor uncertainty levels and formulate policies specifically tailored to disadvantaged groups. Furthermore, it is imperative to identify the source of uncertainty and take measures to control it, given its significant impact on the Turkish economy.

The effect of size in company accounts dataset analysis is consistent with the SAFE data findings and previous studies, revealing larger firms have more access to finance. This does not change according to its maturity or type. The strength of a company's collateral structure affects its total and short-term leverage negatively, but it has a positive impact on long-term leverage and financial debts. This is largely due to the fact that fixed assets tend to be associated with long-term financing, and companies with a robust fixed asset structure typically have significant equity.

This study does have some limitations. Although the SAFE dataset covers firms from 25 different countries, the number of observations for each country is low, which could lead to biased results. Moreover, the analysis was conducted between 2015-2020, due to data availability, thus it has some limitations. When considering the TURKSTAT Company Accounts Database, the data is retrieved from unaudited financial statements, which means the reliability of the data is comparatively lower than public firms' data. However, this dataset is very comprehensive and unique, as it captures firms' tendencies towards leverage. Another limitation is that the dataset lacks non-financial data such as ownership structure, legal status, and firm age.

REFERENCES

- Abbasi, K., Alam, A., Brohi, N. A., Brohi, I. A., & Nasim, S. (2021). P2P lending Fintechs and SMEs' access to finance. *Economics Letters*, 204, 109890.
- Abbasi, W. A., Wang, Z., & Abbasi, D. A. (2017). Potential sources of financing for small and medium enterprises (SMEs) and role of government in supporting SMEs. *Journal of Small Business and Entrepreneurship Development*, 5(2), 39-47.
- Abdeldayem, M., & Aldulaimi, S. (2023). Developing an Islamic crowdfunding model: a new innovative mechanism to finance SMEs in the Middle East. *International Journal of Organizational Analysis*, 31(6), 2623-2644.
- Abid, A. (2020). Economic policy uncertainty and exchange rates in emerging markets: Short and long runs evidence. *Finance Research Letters*, 37, 101378.
- Abor, J., & Biekpe, N. (2009). How do we explain the capital structure of SMEs in sub-Saharan Africa? Evidence from Ghana. *Journal of economic studies*, 36(1), 83-97.
- Abraham, F., & Schmukler, S. L. (2017). Addressing the SME finance problem. *World Bank Research and Policy Briefs*, (120333).
- Agyei, J., Sun, S., & Abrokwhah, E. (2020). Trade-Off Theory Versus Pecking Order Theory: Ghanaian Evidence. *Sage Open*, 10(3), 2158244020940987.
- Ahir, H., Bloom, N., & Furceri, D. (2020). 60 Years of uncertainty. *Finance & Development*, 57(1), 58-60.
- Ahir, H., Bloom, N., & Furceri, D. (2022). *The world uncertainty index (No. w29763)*. National bureau of economic research.
- Ahmadimousaabad, A., Bajuri, N., Jahanzeb, A., Karami, M., & Rehman, S. (2013). Trade-off theory, pecking order theory and market timing theory: a comprehensive review of capital structure theories. *International Journal of Management and Commerce Innovations*, 1(1), 11-18.
- Akçiğit, U., Seven, Ü., Yarba, I., & Yilmaz, F. (2021). *Firm-level impact of credit guarantees: Evidence from Turkish credit guarantee fund (No. 21/10)*. TCMB, Working Paper.
- Akerlof, G. A. (1970). The market for "lemons": Quality uncertainty and the market mechanism. *The Quarterly Journal of Economics*, 84(3), 488-500

- Almustafa, H., Jabbouri, I., & Kijkasiwat, P. (2023). Economic policy uncertainty, financial leverage, and corporate investment: evidence from US Firms. *Economies*, 11(2), 37.
- Alshater, M. M., Joshipura, M., Khoury, R. E., & Nasrallah, N. (2023). Initial coin offerings: A hybrid empirical review. *Small Business Economics*, 61(3), 891-908.
- Al-Thaqeb, S. A., & Algharabali, B. G. (2019). Economic policy uncertainty: A literature review. *The Journal of Economic Asymmetries*, 20, e00133.
- Al-Thaqeb, S. A., Algharabali, B. G., & Alabdulghafour, K. T. (2022). The pandemic and economic policy uncertainty. *International Journal of Finance & Economics*, 27(3), 2784-2794.
- Altig, D., Barrero, J. M., Bloom, N., Davis, S. J., Meyer, B., & Parker, N. (2022). Surveying business uncertainty. *Journal of Econometrics*, 231(1), 282-303.
- Alvarez, R., & Crespi, G. A. (2015). Heterogeneous effects of financial constraints on innovation: Evidence from Chile. *Science and Public Policy*, 42(5), 711-724.
- Ancarani, A., Di Mauro, C., Hartley, T., & Tátrai, T. (2019). A comparative analysis of SME friendly public procurement: results from Canada, Hungary and Italy. *International Journal of Public Administration*, 42(13), 1106-1121.
- Andrieș, A. M., Marcu, N., Oprea, F., & Tofan, M. (2018). Financial infrastructure and access to finance for European SMEs. *Sustainability*, 10(10), 3400.
- Arıcı, N. D., & Ovalı, M. (2022). Yeni Nesil Finansman Yöntemlerinin İncelenmesi: Kitle Fonlaması ve Kripto Para İlk Halka Arzı, Karğın M., Özcan, S. E., & Bakırtaş, D. (Ed.), *Para, Bankacılık Ve Finans Tartışmaları*, 73-93.
- Arora, R. U. (2014). Access to finance: an empirical analysis. *The European Journal of Development Research*, 26, 798-814.
- Attig, N., El Ghouli, S., Guedhami, O., & Zheng, X. (2021). Dividends and economic policy uncertainty: International evidence. *Journal of Corporate Finance*, 66, 101785.
- Ayalew, M. M., & Xianzhi, Z. (2020). The effect of financial constraints on innovation in developing countries: Evidence from 11 African countries. *Asian Review of Accounting*, 28(3), 273-308.
- Ayyagari, M., Juarros, P., Martinez Peria, M. S., & Singh, S. (2021). Access to finance and job growth: firm-level evidence across developing countries. *Review of Finance*, 25(5), 1473-1496.
- Bachmann, R., Elstner, S., & Sims, E. R. (2013). Uncertainty and economic activity: Evidence from business survey data. *American Economic Journal: Macroeconomics*, 5(2), 217-49.

- Bae, K., Han, D., & Sohn, H. (2012). Importance of access to finance in reducing income inequality and poverty level. *International Review of Public Administration*, 17(1), 55-77.
- Baker, S. R., & Bloom, N. (2013). *Does Uncertainty Reduce Growth? Using Disasters as Natural Experiments*. NBER Working Paper 19475.
- Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The quarterly journal of economics*, 131(4), 1593-1636.
- Baltagi B. H. (2005). *Econometric analysis of panel data. third ed.* West Sussex, England: John Wiley & Sons Inc.
- Baltagi, B. H., & Wu, P. X. (1999). Unequally spaced panel data regressions with AR (1) disturbances. *Econometric theory*, 15(6), 814-823.
- Banerjee, R., Kearns, J., & Lombardi, M. J. (2015). (Why) Is investment weak?. *BIS Quarterly Review March*.
- Banki.Ru (2022). *Small and Medium Enterprises*. Available at: <https://bit.ly/3jSMW2o> (Access Date: 20 May 2023).
- Beck, T., & Demirguc-Kunt, A. (2006). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & finance*, 30(11), 2931-2943.
- Beck, T., Demirguc-Kunt, A., Laeven, L., & Levine, R. (2008). Finance, firm size, and growth. *Journal of money, credit and banking*, 40(7), 1379-1405.
- Beck, T., Demirgüç-Kunt, A., & Maksimovic, V. (2005). Financial and legal constraints to growth: does firm size matter?. *The journal of finance*, 60(1), 137-177.
- Beck, T., Demirgüç-Kunt, A., & Singer, D. (2013). Is small beautiful? Financial structure, size and access to finance. *World Development*, 52, 19-33.
- Béland, D., Morgan, K. J., Obinger, H., & Pierson, C. (2021). *The Oxford handbook of the welfare state*. Oxford University Press.
- Bellone, F., Musso, P., Nesta, L., & Schiavo, S. (2010). Financial constraints and firm export behaviour. *World Economy*, 33(3), 347-373.
- Berger, A. N., Guedhami, O., Kim, H. H., & Li, X. (2022). Economic policy uncertainty and bank liquidity hoarding. *Journal of Financial Intermediation*, 49, 100893.
- Bezircioğlu, E., & Saatçioğlu, C. (2022). Türkiye’de Kredi Garanti Fonu AŞ’nin İncelenmesi. *Sakarya İktisat Dergisi*, 11(4), 450-465.

- Bhagwat, V., Dam, R., & Harford, J. (2016). The real effects of uncertainty on merger activity. *The Review of Financial Studies*, 29(11), 3000-3034.
- Bhargava, A., Franzini, L., & Narendranathan, W. (1982). Serial correlation and the fixed effects model. *The review of economic studies*, 49(4), 533-549.
- Bhattacharya, U., Hsu, P. H., Tian, X., & Xu, Y. (2017). What affects innovation more: policy or policy uncertainty?. *Journal of Financial and Quantitative Analysis*, 52(5), 1869-1901.
- Block, J. H., Groh, A., Hornuf, L., Vanacker, T., & Vismara, S. (2021). The entrepreneurial finance markets of the future: a comparison of crowdfunding and initial coin offerings. *Small Business Economics*, 57(2), 865-882.
- Bloom, N. (2009). The impact of uncertainty shocks. *Econometrica*, 77(3), 623-685.
- Bloom, N. (2014). Fluctuations in uncertainty. *Journal of Economic Perspectives*, 28(2), 153-76.
- Brach, M. A. (2003). *Real options in practice*. John Wiley & Sons.
- Brixiová, Z., Kangoye, T., & Yogo, T. U. (2020). Access to finance among small and medium-sized enterprises and job creation in Africa. *Structural Change and Economic Dynamics*, 55, 177-189.
- Brochado, A., & Troilo, M. L. (2021). Initial coin offerings: an emergent research area. *Digital Policy, Regulation and Governance*, 23(2), 113-131.
- Brown, R., Liñares-Zegarra, J. M., & Wilson, J. O. (2022). Innovation and borrower discouragement in SMEs. *Small Business Economics*, 59(4), 1489-1517.
- Bruhn, M., & Love, I. (2014). The real impact of improved access to finance: Evidence from Mexico. *The Journal of Finance*, 69(3), 1347-1376.
- Bussoli, C., & Marino, F. (2018). Trade credit in times of crisis: Evidence from European SMEs. *Journal of Small Business and Enterprise Development*, 25(2), 277-293.
- Caggiano, G., Castelnuovo, E., & Groshenny, N. (2014). Uncertainty shocks and unemployment dynamics in US recessions. *Journal of Monetary Economics*, 67, 78-92.
- Caglayan, M., & Xu, B. (2019). Economic policy uncertainty effects on credit and stability of financial institutions. *Bulletin of Economic Research*, 71(3), 342-347.
- Caglio, C. R., Darst, R. M., & Kalemli-Özcan, Ş. (2021). *Risk-taking and monetary policy transmission: Evidence from loans to smes and large firms (No. w28685)*. National Bureau of Economic Research.

- Calabrese, R., Degl’Innocenti, M., & Zhou, S. (2022). Expectations of access to debt finance for SMEs in times of uncertainty. *Journal of Small Business Management*, 60(6), 1351-1378.
- Caldara, D., Conlisk, S., Iacoviello, M., & Penn, M. (2022). The effect of the war in Ukraine on global activity and inflation. <https://www.federalreserve.gov/econres/notes/feds-notes/the-effect-of-the-war-in-ukraine-on-global-activity-and-inflation-20220527.html>
- Campello, M., Graham, J. R., & Harvey, C. R. (2010). The real effects of financial constraints: Evidence from a financial crisis. *Journal of financial Economics*, 97(3), 470-487.
- Carbo-Valverde, S., Rodriguez-Fernandez, F., & Udell, G. F. (2016). Trade credit, the financial crisis, and SME access to finance. *Journal of Money, Credit and Banking*, 48(1), 113-143.
- Casey, E., & O’Toole, C. M. (2014). Bank lending constraints, trade credit and alternative financing during the financial crisis: Evidence from European SMEs. *Journal of Corporate Finance*, 27, 173-193.
- Cekrezi, A. (2013). A literature review of the trade-off theory of capital structure. *ILIRIA International Review*, 3(1), 125–134.
- Ceseña, E. M., Mutale, J., & Rivas-Dávalos, F. (2013). Real options theory applied to electricity generation projects: A review. *Renewable and Sustainable Energy Reviews*, 19, 573-581.
- Chambers, N. (2005). Gerçek Opsiyonların Fiyatlandırılması. *Muhasebe ve Finansman Dergisi*, (26), 70-80.
- Chen, L. J., & Chen, S. Y. (2011). How the pecking-order theory explain capital structure. *Journal of International Management Studies*, 6(3), 92-100.
- Claessens, S. (2006). Access to financial services: A review of the issues and public policy objectives. *The World Bank Research Observer*, 21(2), 207-240.
- Çokluk, Ö. (2010). Lojistik regresyon analizi: Kavram ve uygulama. *Kuram ve uygulamada eğitim bilimleri*, 10(3), 1357-1407.
- Colacelli, M., & Hong, M. G. H. (2019). *Productivity drag from small and medium-sized enterprises in Japan*. International Monetary Fund.
- Cornelli, G., Davidson, V., Frost, J., Gambacorta, L., & Oishi, K. (2019). *SME finance in Asia: Recent innovations in fintech credit, trade finance, and beyond (No. 1027)*. ADBI Working Paper Series.
- Cowling, M., Liu, W., & Ledger, A. (2012). Small business financing in the UK before and during the current financial crisis. *International Small Business Journal*, 30(7), 778-800.

- Cowling, M., Liu, W., & Zhang, N. (2016). Access to bank finance for UK SMEs in the wake of the recent financial crisis. *International Journal of Entrepreneurial Behavior & Research*, 22(6), 903-932.
- Čihák, M., Demirgüç-Kunt, A., Feyen, E., & Levine, R. (2013). *Financial development in 205 economies, 1960 to 2010 (No. w18946)*. National Bureau of Economic Research.
- D'Amato, A. (2020). Capital structure, debt maturity, and financial crisis: empirical evidence from SMEs. *Small Business Economics*, 55(4), 919-941.
- Daskalakis, N., Balios, D., & Dalla, V. (2017). The behaviour of SMEs' capital structure determinants in different macroeconomic states. *Journal of Corporate Finance*, 46, 248-260.
- Davidson, P. (1991). Is probability theory relevant for uncertainty? A post Keynesian perspective. *Journal of Economic Perspectives*, 5(1), 129-143.
- De Silva, A., Duong, H. N., Nguyen, M., & Nguyen, Y. N. (2023). Bank risk in uncertain times: Do credit rationing and revenue diversification matter?. *Journal of Business Finance & Accounting*, 50(7-8), 1240-1273.
- De Vries, H. (2004). Factoring: the perceived role in cash management for New Zealand SMEs. *International Journal of Entrepreneurship and Small Business*, 1(3-4), 363-379.
- Deghaye-Filareto, M. C., & Severin, E. (2007). Determinants of the choice leasing vs bank loan: evidence from the French SME by KACM. *Investigacion Operational*, 28(2), 120-130.
- Degryse, H., Matthews, K., & Zhao, T. (2018). SMEs and access to bank credit: Evidence on the regional propagation of the financial crisis in the UK. *Journal of Financial Stability*, 38, 53-70.
- Demir, E., & Ersan, O. (2017). Economic policy uncertainty and cash holdings: Evidence from BRIC countries. *Emerging Markets Review*, 33, 189-200.
- Demirgüç-Kunt, A., Peria, M. S. M., & Tressel, T. (2020). The global financial crisis and the capital structure of firms: Was the impact more severe among SMEs and non-listed firms?. *Journal of Corporate Finance*, 60, 101514.
- Doan, A. T., Le, A. T., & Tran, Q. (2020). Economic uncertainty, ownership structure and small and medium enterprises performance. *Australian Economic Papers*, 59(2), 102-137.
- Dong, Y., & Men, C. (2014). SME financing in emerging markets: Firm characteristics, banking structure and institutions. *Emerging Markets Finance and Trade*, 50(1), 120-149.
- Dowling, M., O'gorman, C., Puncheva, P., & Vanwalleghe, D. (2019). Trust and SME attitudes towards equity financing across Europe. *Journal of World Business*, 54(6), 101003.

- Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *Review of economics and statistics*, 80(4), 549-560.
- Duong, H. N., Nguyen, J. H., Nguyen, M., & Rhee, S. G. (2020). Navigating through economic policy uncertainty: The role of corporate cash holdings. *Journal of Corporate Finance*, 62, 101607.
- Ege, İ., & Bayrakdaroğlu, A. (2012). İMKB şirketlerinin hisse senedi getiri başarılarının lojistik regresyon tekniği ile analizi. *Uluslararası Yönetim İktisat ve İşletme Dergisi*, 5(10), 139-158.
- Eldridge, D., Nisar, T. M., & Torchia, M. (2021). What impact does equity crowdfunding have on SME innovation and growth? An empirical study. *Small Business Economics*, 56(1), 105-120.
- European Central Bank, (2017). *The impact of uncertainty in activity in the euro area*. European Central Bank publication.
- European Commission (2020). Unleashing the Full Potential of European SMEs. Retrieved from https://ec.europa.eu/commission/presscorner/api/files/attachment/863069/EU_SMEs_strategy_en.pdf
- European Commission. (2003). Commission recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises. *Official Journal of the European union*, 46(L124), 36-41.
- Eurostat (2021, 6 October). SMEs weight in EU's international trade in goods Retrieved from <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20211006-2>
- Farooq, O., & Ahmed, N. (2019). Dividend policy and political uncertainty: Evidence from the US presidential elections. *Research in International Business and Finance*, 48, 201-209.
- Farooq, O., Jabbouri, I., & Naili, M. (2024). The nexus between economic policy uncertainty and access to finance: a study of developing countries. *International Journal of Managerial Finance*, 20(1), 222-246.
- Farre-Mensa, J., & Ljungqvist, A. (2016). Do measures of financial constraints measure financial constraints?. *The review of financial studies*, 29(2), 271-308.
- Fasano, F., & Cappa, F. (2022). How do banking fintech services affect SME debt?. *Journal of Economics and Business*, 121, 106070.
- Fatoki, O., & Odeyemi, A. (2010). The determinants of access to trade credit by new SMEs in South Africa. *African Journal of Business Management*, 4(13), 2763.
- Fatoki, O. (2021). Access to finance and performance of small firms in South Africa: The moderating effect of financial literacy. *WSEAS Transactions on Business and Economics*, 18(9), 1-10.

- Fernandes, B., Cunha, J., & Ferreira, P. (2011). The use of real options approach in energy sector investments. *Renewable and Sustainable Energy Reviews*, 15(9), 4491-4497.
- Ferrando, A., & Mulier, K. (2015). Firms' financing constraints: do perceptions match the actual situation?. *The Economic and Social Review*, 46(1, Spring), 87-117.
- Ferrando, A., Popov, A., & Udell, G. F. (2017). Sovereign stress and SMEs' access to finance: Evidence from the ECB's SAFE survey. *Journal of Banking & Finance*, 81, 65-80.
- Finnegan, M., & Kapoor, S. (2023). ECB unconventional monetary policy and SME access to finance. *Small Business Economics*, 61(3), 1253-1288.
- Fischer, E. O., Heinkel, R., & Zechner, J. (1989). Dynamic capital structure choice: Theory and tests. *The journal of finance*, 44(1), 19-40.
- Fletcher, M., Freeman, R., Sultanov, M., & Umarov, U. (2005). *Leasing in development. Guidelines for emerging economies*. Washington: International Finance Corporation.
- Fowowe, B. (2017). Access to finance and firm performance: Evidence from African countries. *Review of development finance*, 7(1), 6-17.
- Frank, M. Z., Goyal, V. K., & Shen, T. (2020). The pecking order theory of capital structure: Where do we stand?. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3540610
- Freel, M. S. (2007). Are small innovators credit rationed?. *Small Business Economics*, 28(1), 23-35.
- Gao, C., & Tsusaka, T. W. (2023). Economic Uncertainty and Firms' Capital Structure: Evidence from China. *Risks*, 11(4), 66.
- Ghalke, A., Kumar, S., & Rao, S. N. (2022). SME financing through public equity: review of the Indian SME exchanges. *Indian Growth and Development Review*, 15(1), 85-97.
- Ghosal, V., & Ye, Y. (2019). The impact of uncertainty on the number of businesses. *Journal of Economics and Business*, 105, 105840.
- Gilchrist, S., Sim, J. W., & Zakrajšek, E. (2014). *Uncertainty, financial frictions, and investment dynamics (No. w20038)*. National Bureau of Economic Research.
- Golić, Z. (2014). Advantages of crowdfunding as an alternative source of financing of small and medium-sized enterprises. *Zbornik radova Ekonomskog fakulteta u Istočnom Sarajevu*, 8, 39-48.
- Gómez, M. G. P. (2019). Credit constraints, firm investment and employment: Evidence from survey data. *Journal of Banking & Finance*, 99, 121-141.

- Goyal, V. K., Nova, A., & Zanetti, L. (2011). Capital market access and financing of private firms. *International Review of Finance*, 11(2), 155-179.
- Guercio, M. B., Martinez, L. B., & Bariviera, A. F. (2019). SME steeplechase: When obtaining money is harder than innovating. *International Journal of Financial Studies*, 7(2), 25.
- Guercio, M. B., Martinez, L. B., Bariviera, A. F., & Scherger, V. (2020). Credit Crunch or Loan Demand Shortage: What Is the Problem with the SMEs' Financing?. *Finance a Uver*, 70(6), 521-540.
- Guo, J., Fang, H., Liu, X., Wang, C., & Wang, Y. (2023). FinTech and financing constraints of enterprises: Evidence from China. *Journal of International Financial Markets, Institutions and Money*, 82, 101713.
- Gustafsson, A., Tingvall, P. G., & Halvarsson, D. (2020). Subsidy entrepreneurs: An inquiry into firms seeking public grants. *Journal of Industry, Competition and Trade*, 20, 439-478.
- Hadlock, C. J., & Pierce, J. R. (2010). New evidence on measuring financial constraints: Moving beyond the KZ index. *The review of financial studies*, 23(5), 1909-1940.
- Harrison, R., Li, Y., Vigne, S. A., & Wu, Y. (2022). Why do small businesses have difficulty in accessing bank financing?. *International Review of Financial Analysis*, 84, 102352.
- Hassan, S., Shabi, S., & Choudhry, T. (2018). *Asymmetry, uncertainty and international trade*. Swansea University, School of Management, Working Paper, 24.
- He, S., & Ausloos, M. (2017). The Impact of the Global Crisis on SME Internal vs. External Financing in China. *Banking and Finance Review*, 9(1), 1-17.
- Hironaka, C., Zariyawati, M. A., & Diana-Rose, F. (2017). A comparative study on development of Small and Medium Enterprises (SMEs) in Japan and Malaysia. *Saudi Journal of Business and Management Studies*, 2, 357-364.
- Honohan, P. (2004). Financial development, growth and poverty: how close are the links?. *Financial development and economic growth: Explaining the links*, Goodhart, C.A.E., Ed., London: Palgrave Macmillan UK:1-37.
- Hsiao, C. (2022). *Analysis of panel data (Fourth edition)*. Cambridge: Cambridge university press.
- Huang, T., Wu, F., Yu, J., & Zhang, B. (2013). Political uncertainty and dividend policy: Evidence from international political crises. Available at SSRN.
- IMF, OECD, World Trade Organization, and World Bank Group (2022). *Subsidies, Trade, and International Cooperation*, OECD Publishing, Paris, <https://doi.org/10.1787/a4f01ddb-en>.

- IMF (2023). Financial Access Survey: 2023 Trends and Developments. Retrieved from <https://data.imf.org/?sk=e5dcab7e-a5ca-4892-a6ea-598b5463a34c>
- Innovation, Science and Economic Development Canada (2021). Key Small Business Statistics - 2021. Retrieved from <https://ised-isde.canada.ca/site/sme-research-statistics/en/key-small-business-statistics/key-small-business-statistics-2021>
- Ipek Erdogan, A. (2019). Determinants of perceived bank financing accessibility for SMEs: evidence from an emerging market. *Economic research-Ekonomska istraživanja*, 32(1), 690-716.
- Istiak, K., & Alam, M. R. (2019). Oil prices, policy uncertainty and asymmetries in inflation expectations. *Journal of Economic Studies*, 46(2), 324-334.
- Jaffee, D., & Stiglitz, J. (1990). Credit rationing. *Handbook of monetary economics Volume 2*, Friedman B.M., & Hahn F. H., Eds., Elsevier Science Publishers: 837-888.
- Jiang, G. F., Reuer, J. J., Southam, C., & Beamish, P. W. (2022). The impact of initial public offerings on SMEs' foreign investment decisions. *Journal of International Business Studies*, 53(5), 879-901.
- Jiang, S. (2024). The effect of monetary policies on inflation: A fiscal perspective. *Economics Letters*, 241, 111805.
- Jin, Y., & Zhang, S. (2019). Credit Rationing in Small and Micro Enterprises: A Theoretical Analysis. *Sustainability*, 11(5), Article 5. <https://doi.org/10.3390/su11051330>
- Jones, P. M., & Enders, W. (2016). The asymmetric effects of uncertainty on macroeconomic activity. *Macroeconomic Dynamics*, 20(5), 1219-1246.
- Jurado, K., Ludvigson, S. C., & Ng, S. (2015). Measuring uncertainty. *American Economic Review*, 105(3), 1177-1216.
- Kaplan, S. N., & Zingales, L. (1997). Do investment-cash flow sensitivities provide useful measures of financing constraints?. *The quarterly journal of economics*, 112(1), 169-215.
- Karasoy Can, H. G., & Erdogan Cosar, E. (2023). Building a Financial Constraint Index for Türkiye. Research and Monetary Policy Department, Central Bank of the Republic of Turkey Retrieved from <https://www.tcmb.gov.tr/wps/wcm/connect/EN/TCMB+EN/Main+Menu/Publications/Research/Working+Papers/2023/23-06>
- Kaya, O., & Schildbach, J. (2014). SME financing in the euro area. New solutions to an old problem. EU Monitor–Global Financial Markets. *Deutsche Bank Research*, 14, 2014.

- Keeton, W. R. (2017). *Equilibrium credit rationing*. Routledge.
- Kersten, R., Harms, J., Liket, K., & Maas, K. (2017). Small Firms, large Impact? A systematic review of the SME Finance Literature. *World development*, 97, 330-348.
- Kido, Y. (2016). On the link between the US economic policy uncertainty and exchange rates. *Economics Letters*, 144, 49-52.
- Klapper, L. (2006). The role of factoring for financing small and medium enterprises. *Journal of banking & Finance*, 30(11), 3111-3130.
- Knight, F. H. (1921). *Risk, uncertainty and profit* (Vol. 31). Houghton Mifflin.
- Koçdemir, B., & Küçükçolak, R. A. (2021). Hisseleri BIST Gelişen İşletmeler Piyasasında (XPGIP) İşlem Gören Şirketlerin Finansal Performanslarının Analizi: Halka Arz Öncesi ve Sonrası Bir Karşılaştırma. *Kahramanmaraş Sütçü İmam Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 11(1), 125-141.
- Koráb, P., & Poměnková, J. (2015). Access to Credit of SMEs in the Czech Republic During the Financial Crisis and in the Post-crisis Period. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 63(4), 1297-1302.
- Korajczyk, R. A., & Levy, A. (2003). Capital structure choice: macroeconomic conditions and financial constraints. *Journal of financial economics*, 68(1), 75-109.
- KOSGEB (2023). KOBİ Tanımı Güncellendi!. Retrieved from shorturl.at/pvzW5.
- Kouvelis, P., & Xu, F. (2021). A supply chain theory of factoring and reverse factoring. *Management Science*, 67(10), 6071-6088.
- Kraemer-Eis, H., & Lang, F. (2012). *The importance of leasing for SME finance* (No. 2012/15). EIF Working Paper.
- Kremp, E., & Sevestre, P. (2013). Did the crisis induce credit rationing for French SMEs?. *Journal of Banking & Finance*, 37(10), 3757-3772.
- Krol, R. (2014). Economic policy uncertainty and exchange rate volatility. *International Finance*, 17(2), 241-256.
- Kumar, A., Beck, T., Campos, C. and Chattopadhyay, S. (2005) *Assessing Financial Access in Brazil*. Washington DC: World Bank. World Bank Working Paper No. 50.

- Kumar, D., Phani, B. V., Chilamkurti, N., Saurabh, S., & Ratten, V. (2023). Filling the SME credit gap: a systematic review of blockchain-based SME finance literature. *Journal of Trade Science*, 11(2/3), 45-72.
- Kundid, A., & Ercegovac, R. (2011). Credit rationing in financial distress: Croatia SMEs' finance approach. *International Journal of Law and Management*, 53(1), 62-84.
- Kuti, M., & Madarász, G. (2014). Crowdfunding. *Public Finance Quarterly= Pénzügyi Szemle*, 59(3), 355-366.
- Lamont, O., Polk, C., & Saaá-Requejo, J. (2001). Financial constraints and stock returns. *The review of financial studies*, 14(2), 529-554.
- Laokulrach, M. (2019). Operating performance of SMEs in Thailand after going public. *Management & Marketing*, 14(1), 1-13.
- Łasak, P. (2022). The role of financial technology and entrepreneurial finance practices in funding small and medium-sized enterprises. *Journal of Entrepreneurship, Management and Innovation*, 18(1), 7-34.
- Leboeuf, G., & Schwienbacher, A. (2018). Crowdfunding as a new financing tool. The economics of crowdfunding: startups, portals and investor behavior, Cumming, D., & Hornuf, L., Eds., Palgrave Macmillan Cham: 11-28.
- Lee, N., Sameen, H., & Cowling, M. (2015). Access to finance for innovative SMEs since the financial crisis. *Research policy*, 44(2), 370-380.
- Lee, S. (2017). Three essays on uncertainty: real and financial effects of uncertainty shocks. Doctoral Dissertation, London, University College London.
- Li, J. (2007). Real Options Theory and International Strategy: A Critical Review. Reuer, J.J., & Tong, T.W., Eds., *Real Options Theory (Advances in Strategic Management, Vol. 24)*, Emerald Group Publishing Limited: 67-101.
- Li, K., Xia, B., Chen, Y., Ding, N., & Wang, J. (2021). Environmental uncertainty, financing constraints and corporate investment: Evidence from China. *Pacific-Basin Finance Journal*, 70, 101665.
- Li, X. (2019). Economic policy uncertainty and corporate cash policy: International evidence. *Journal of Accounting and Public Policy*, 38(6), 106694.
- Lim, J. J., Mohapatra, S., & Stocker, M. (2014). *Tinker, taper, QE, bye? The effect of quantitative easing on financial flows to developing countries*. World Bank Policy Research Working Paper, (6820).

- Liu, G., & Zhang, C. (2020). Economic policy uncertainty and firms' investment and financing decisions in China. *China Economic Review*, 63, 101279.
- Liu, P., & Dong, D. (2020). Impact of economic policy uncertainty on trade credit provision: The role of social trust. *Sustainability*, 12(4), 1601.
- López-Gracia, J., & Sogorb-Mira, F. (2008). Testing trade-off and pecking order theories financing SMEs. *Small Business Economics*, 31(2), 117–136.
- Love, I., & Zaidi, R. (2010). Trade credit, bank credit and financial crisis. *International Review of Finance*, 10(1), 125-147.
- Lu, L. (2018). Promoting SME finance in the context of the fintech revolution: A case study of the UK's practice and regulation. *Banking and Finance Law Review*, 33(3), 317-343.
- Lv, M., & Bai, M. (2019). Political uncertainty and corporate debt financing: empirical evidence from China. *Applied Economics*, 51(13), 1433-1449.
- Mac an Bhaird, C. (2013). Demand for debt and equity before and after the financial crisis. *Research in International Business and Finance*, 28, 105-117.
- Mahmud, S., & Akin, T. (2019). SMEs' access to finance and choice of capital structure in Turkey. *Ege Academic Review*, 19(2), 277-291.
- Makosa, L., Jie, S., Bonga, W. G., Jachi, M., & Sitsha, L. (2021). Does economic policy uncertainty aggravate financial constraints?. *South African Journal of Accounting Research*, 35(2), 151-166.
- Malhotra, M., Chen, Y., Criscuolo, A., Fan, Q., Hamel, I. I., & Savchenko, Y. (2007). *Expanding access to finance: Good practices and policies for micro, small and medium enterprises*. Washington D.C: World Bank.
- Manole, V., & Spatareanu, M. (2010). Exporting, capital investment and financial constraints. *Review of World Economics*, 146, 23-37.
- Martinez, L. B., Scherger, V., & Guercio, M. B. (2018). SMEs capital structure: Trade-off or pecking order theory: a systematic review. *Journal of Small Business and Enterprise Development*, 26(1), 105–132.
- Martinez-Sola, C., Garcia-Teruel, P. J., & Martinez-Solano, P. (2017). SMEs access to finance and the value of supplier financing. *Spanish Journal of Finance and Accounting/Revista Espanola de Financiacion y Contabilidad*, 46(4), 455-483.

- Martínez-Sola, C., García-Teruel, P. J., & Martínez-Solano, P. (2014). Trade credit and SME profitability. *Small Business Economics*, 42, 561-577.
- Maulana, S., Nasution, I. M., Shino, Y., & Panjaitan, A. R. S. (2022). Fintech as a financing solution for micro, small and medium enterprises. *Startupreneur Business Digital (SABDA Journal)*, 1(1), 72-83.
- McDonald, R. L. (2006). The role of real options in capital budgeting: Theory and practice 1. *Journal of Applied Corporate Finance*, 18(2), 28-39.
- McGuinness, G., & Hogan, T. (2016). Bank credit and trade credit: Evidence from SMEs over the financial crisis. *International Small Business Journal*, 34(4), 412-445.
- McGuinness, G., Hogan, T., & Powell, R. (2018). European trade credit use and SME survival. *Journal of Corporate Finance*, 49, 81-103.
- Miller, E. M. (1977). Risk, uncertainty, and divergence of opinion. *The Journal of finance*, 32(4), 1151-1168.
- Miller, L. T., & Park, C. S. (2002). Decision making under uncertainty—real options to the rescue?. *The engineering economist*, 47(2), 105-150.
- Mina, A., Lahr, H., & Hughes, A. (2013). The demand and supply of external finance for innovative firms. *Industrial and Corporate Change*, 22(4), 869-901.
- Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American economic review*, 48(3), 261-297.
- Moore, A. (2017). Measuring economic uncertainty and its effects. *Economic Record*, 93(303), 550-575.
- Morgan, P. J., & Pontines, V. (2018). Financial stability and financial inclusion: The case of SME lending. *The Singapore Economic Review*, 63(01), 111-124.
- Mueller, P., Tahbaz-Salehi, A., & Vedolin, A. (2017). Exchange rates and monetary policy uncertainty. *The Journal of Finance*, 72(3), 1213-1252.
- Mugaloglu, E., Polat, A. Y., Tekin, H., & Kılıç, E. (2022). Assessing the impact of Covid-19 pandemic in Turkey with a novel economic uncertainty index. *Journal of Economic Studies*, 49(5), 821-832.
- Munir, Q., Kok, S. C., Teplova, T., & Li, T. (2017). Powerful CEOs, debt financing, and leasing in Chinese SMEs: Evidence from threshold model. *The North American Journal of Economics and Finance*, 42, 487-503.

- Myers, S. C., 1984. The capital structure puzzle. *Journal of Finance* 39, 574–592.
- Nassr, I. K., & Wehinger, G. (2016). Opportunities and limitations of public equity markets for SMEs. *OECD Journal: Financial Market Trends*, 2015(1), 49-84.
- Ndlovu, G., & Toerien, F. (2020). The distributional impact of access to finance on poverty: evidence from selected countries in Sub-Saharan Africa. *Research in International Business and Finance*, 52, 101190.
- Neuberger, D., & Rätthke-Döppner, S. (2013). Leasing by small enterprises. *Applied Financial Economics*, 23(7), 535-549.
- Nguyen, N. H., & Phan, H. V. (2017). Policy uncertainty and mergers and acquisitions. *Journal of Financial and Quantitative Analysis*, 52(2), 613-644.
- Nguyen, T. V., Le, N. T. B., & Freeman, N. J. (2006). Trust and uncertainty: A study of bank lending to private SMEs in Vietnam. *Asia Pacific Business Review*, 12(4), 547-568.
- OECD (2010). *Facilitating Access to Finance: Discussion Paper on Credit Guarantee Schemes*. Paris: OECD Publishing.
- OECD (2020). *Financing SMEs and Entrepreneurs 2020: An OECD Scoreboard*. Paris: OECD Publishing. <https://doi.org/10.1787/061fe03d-en>.
- OECD (2021). “Country Profiles”, in *OECD SME and Entrepreneurship Outlook 2021*. Paris: OECD Publishing.
- OECD, (2005). *OECD SME and Entrepreneurship Outlook: 2005*. Paris: OECD Publishing.
- OECD, (2024). *Financing SMEs and Entrepreneurs 2024: An OECD Scoreboard*. Paris: OECD Publishing. <https://doi.org/10.1787/fa521246-en>.
- Ozili, P. K. (2021). Financial inclusion research around the world: A review. *Forum for social economics*, 50(4), 457-479.
- Öztürk, B., & Mrkaic, M. M. (2014). SMEs’ access to finance in the euro area: what helps or hampers?. International Monetary Fund.
- Pastor, L. & Veronesi, P. (2013). “Political uncertainty and risk premia”, *Journal of Financial Economics*, 110, 520-545.
- Phan, H. V., Nguyen, N. H., Nguyen, H. T., & Hegde, S. (2019). Policy uncertainty and firm cash holdings. *Journal of Business Research*, 95, 71-82.

- Pinkovetskaia, I. S., Nikitina, I. N., & Gromova, T. V. (2018). The role of small and medium entrepreneurship in the economy of Russia. *Montenegrin Journal of Economics*, 14(3), 177-188.
- Popov, A., & Udell, G. F. (2012). Cross-border banking, credit access, and the financial crisis. *Journal of international economics*, 87(1), 147-161.
- Prange, C., & Zhao, Y. (2018). Strategies for Internationalisation: How Chinese SMEs Deal with Distance and Market Entry Speed. Dominguez, N., & Mayrhofer, U., Eds., *Key Success Factors of SME Internationalisation: A Cross-Country Perspective*. Emerald Publishing Limited:205-224.
- Psillaki, M., & Eleftheriou, K. (2015). Trade credit, bank credit, and flight to quality: evidence from French SME s. *Journal of Small Business Management*, 53(4), 1219-1240.
- Rahman, A., Rahman, M. T., & Belas, J. (2017). Determinants of SME finance: evidence from three central European countries. *Review of economic perspectives*, 17(3), 263-285.
- Rao, P., Kumar, S., Chavan, M., & Lim, W. M. (2023). A systematic literature review on SME financing: Trends and future directions. *Journal of Small Business Management*, 61(3), 1247-1277.
- Ribeiro-Soriano, D. (2017). Small business and entrepreneurship: their role in economic and social development. *Entrepreneurship & Regional Development*, 29(1-2), 1-3.
- Rossi, M. (2014). Capital structure of small and medium enterprises: the Italian case. *International journal of globalisation and small business*, 6(2), 130-144.
- Rostamkalaei, A. (2017). Discouraged borrowers aftermath of financial crisis: a UK study. *Journal of Small Business and Enterprise Development*, 24(2), 394-410.
- Sahinoz, S., & Erdogan Cosar, E. (2018). Economic policy uncertainty and economic activity in Turkey. *Applied Economics Letters*, 25(21), 1517-1520.
- Salam, A. (2013). Effects of lease finance on performance of SMEs in Bangladesh. *International Journal of Science and Research*, 2(12), 367-370.
- Salgotra, A. K., Kandari, P., & Bahuguna, U. (2021). Does access to finance eradicate poverty? A case study of Mudra beneficiaries. *The Journal of Asian Finance, Economics and Business*, 8(1), 637-646.
- Santos, A., & Cincera, M. (2022). Determinants of financing constraints. *Small Business Economics*, 58(3), 1427-1439.
- Sardo, F., & Serrasqueiro, Z. (2017). Does dynamic trade-off theory explain Portuguese SME capital structure decisions? *Journal of Small Business and Enterprise Development*, 24(3), 485–502.

- Savignac, F. (2008). Impact of financial constraints on innovation: What can be learned from a direct measure?. *Econ. Innov. New Techn.*, 17(6), 553-569.
- Şenel, S., & Alatli, B. (2014). Lojistik regresyon analizinin kullanıldığı makaleler üzerine bir inceleme. *Journal of Measurement and Evaluation in Education and Psychology*, 5(1), 35-52.
- Serrasqueiro, Z. S., Armada, M. R., & Nunes, P. M. (2011). Pecking Order Theory versus Trade-Off Theory: Are service SMEs' capital structure decisions different? *Service Business*, 5(4), 381-409.
- Serrasqueiro, Z., & Caetano, A. (2015). Trade-Off Theory versus Pecking Order Theory: Capital structure decisions in a peripheral region of Portugal. *Journal of Business Economics and Management*, 16(2), 445-466.
- Serrasqueiro, Z., Leitão, J., & Smallbone, D. (2021). Small-and medium-sized enterprises (SME) growth and financing sources: Before and after the financial crisis. *Journal of Management & Organization*, 27(1), 6-21.
- Shneor, R., Zhao, L., & Flåten, B. T. (2020). Introduction: from fundamentals to advances in crowdfunding research and practice. Shneor, R., Zhao, L., & Flåten, B. T., Eds., *Advances in Crowdfunding: Research and Practice*, Springer Nature: 1-18.
- Soufani, K. (2001). The role of factoring in financing UK SMEs: A supply side analysis. *Journal of Small Business and Enterprise Development*, 8(1), 37-46.
- Su, Z., Fang, T., & Yin, L. (2019). Understanding stock market volatility: What is the role of US uncertainty?. *The North American Journal of Economics and Finance*, 48, 582-590.
- Summers, B., & Wilson, N. (2000). Trade credit management and the decision to use factoring: an empirical study. *Journal of Business Finance & Accounting*, 27(1-2), 37-68.
- Svirydzhenka, K. (2016). *Introducing a new broad-based index of financial development*. International Monetary Fund.
- Tabash, M. I., Farooq, U., Ashfaq, K., & Tiwari, A. K. (2022). Economic policy uncertainty and financing structure: A new panel data evidence from selected Asian economies. *Research in International Business and Finance*, 60, 101574.
- Tajaddini, R., & Gholipour, H. F. (2020). Economic policy uncertainty, R&D expenditures and innovation outputs. *Journal of Economic Studies*, 48(2), 413-427.

- TCMB (2023, 1 July). Sektör Bilançoları İstatistikleri. Retrieved from <https://www.tcmb.gov.tr/wps/wcm/connect/TR/TCMB+TR/Main+Menu/Istatistikler/Reel+Sektor+Istatistikleri/Sektor+Bilancolari/Sektor+Bilanco+Verileri>
- TOBB (2021, 1 August). Türkiye'nin KOBİ'leri Bülteni Retrieved from <https://www.tobb.org.tr/KobiArastirma/Sayfalar/TRninKOBileriBulteni.php>
- TOBB (2022, 1 September). Türkiye'nin KOBİ'leri Bülteni. Retrieved from <https://www.tobb.org.tr/KobiArastirma/Sayfalar/TRninKOBileriBulteni.php>
- Tran, D.V. (2020). "Policy uncertainty and bank lending", *Economics Bulletin*, Vol. 40 No. 2, pp. 952-977.
- Tran, Q. T. (2021). Economic policy uncertainty and cost of debt financing: international evidence. *The North American Journal of Economics and Finance*, 57, 101419.
- Trigeorgis, L., & Reuer, J. J. (2017). Real options theory in strategic management. *Strategic management journal*, 38(1), 42-63.
- Troise, C., Battisti, E., Christofi, M., van Vulpen, N. J., & Tarba, S. (2023). How can SMEs use crowdfunding platforms to internationalize? The role of equity and reward crowdfunding. *Management International Review*, 63(1), 117-159.
- Tsuruta, D. (2015). Bank loan availability and trade credit for small businesses during the financial crisis. *The quarterly review of economics and finance*, 55, 40-52.
- Tukey, J. W. (1977). *Exploratory data analysis*. Reading, MA: Addison-wesley.
- Tversky, A., & Fox, C. R. (1995). Weighing risk and uncertainty. *Psychological review*, 102(2), 269.
- U.S. Small Business Administration (2021, 15 June). 2020 Small Business Profile. Retrieved from <https://cdn.advocacy.sba.gov/wp-content/uploads/2020/06/04144224/2020-Small-Business-Economic-Profile-US.pdf>
- Vermoesen, V., Deloof, M., & Laveren, E. (2013). Long-term debt maturity and financing constraints of SMEs during the global financial crisis. *Small Business Economics*, 41(2), 433-448.
- Wagner, J. (2014). Credit constraints and exports: a survey of empirical studies using firm-level data. *Industrial and Corporate Change*, 23(6), 1477-1492.
- Waisman, M., Ye, P., & Zhu, Y. (2015). The effect of political uncertainty on the cost of corporate debt. *Journal of Financial Stability*, 16, 106-117.

- Westerhuis, G. (2016). Commercial Banking: The Changing Interaction Between Banks, Markets, Industry and State. Youssef Cassis, Catherine Schenk, and Richard Grossman, eds., *Oxford Handbook of Banking and Financial History*. Oxford University Press: 110-132.
- Whited, T. M., & Wu, G. (2006). Financial constraints risk. *The review of financial studies*, 19(2), 531-559.
- Wurgler, J. (2000). Financial markets and the allocation of capital. *Journal of financial economics*, 58(1-2), 187-214.
- Yao, Z., & Liu, Y. (2023). How COVID-19 impacts the financing in SMEs: Evidence from private firms. *Economic Analysis and Policy*, 79, 1046-1056.
- Yazdanfar, D., Öhman, P., & Homayoun, S. (2019). Financial crisis and SME capital structure: Swedish empirical evidence. *Journal of economic studies*, 46(4), 925-941.
- Zhang, G., Han, J., Pan, Z., & Huang, H. (2015). Economic policy uncertainty and capital structure choice: Evidence from China. *Economic Systems*, 39(3), 439-457.
- Zhang, L., & Xia, W. (2014). Integrating small and medium-sized enterprises into global trade flows: the case of China. Jansen, M., Jallab, M, S., & Smeets, M. (Ed), *Connecting to Global Markets*, WTO iLibrary: 41-53.
- Zubair, S., Kabir, R., & Huang, X. (2020). Does the financial crisis change the effect of financing on investment? Evidence from private SMEs. *Journal of business research*, 110, 456-463.

APPENDICES

APPENDIX A SAFE DATA QUESTIONNAIRE*

D1 Employee number
• from 1 employee to 9 employees: 1 • from 10 employees to 49 employees: 2 • from 50 employees to 249 employees: 3 • 250 employees or more: 4 • [DK/NA] 9
D2 Legal Status
• an-autonomous profit-oriented enterprises: 2 • subsidiary of another enterprises: 4 • a branch of another enterprises: 5
D4 Annual turnover
• up to €500,000 5 • more than €500,000 and up to €1 million 6 • more than €1 million and up to €2 million 7 • more than €2 million and up to €10 million 2 • more than €10 million and up to €50 million 3 • more than €50 million 4 • [DK/NA] 9
D5 Firm Age
• 10 years or more 1 • 5 years or more, but less than 10 years 2 • 2 years or more, but less than 5 years 3 • less than 2 years 4
D6 Largest stakeholder
• one owner only, that is yourself or another natural person 5 • family or entrepreneurs [READ IF NECESSARY: more than one owner] 2 • other enterprises or business associates 3 • public shareholders, as your enterprise is listed on the stock market 1 • venture capital enterprises or business angels [individual investors providing capital or know-how to young innovative enterprises] 4 • other 7
D7_rec Exporting rate
• 0% – my enterprise did not export any goods and services last year 1 • less than 25% 2 • between 25% and 50% 3

* The survey is more comprehensive and has more questions. Only questions in the analysis are presented in the appendix A.

- over 50% 4
- [DK] 9

Q7A. Have you applied for the following types of financing in the past six months?

- Applied 1
- Did not apply because of possible rejection 2
- Did not apply because of sufficient internal funds 3
- Did not apply for other reasons 4

(d) Credit line, bank overdraft or credit card overdraft

(a) Bank loans (excluding overdraft and credit lines)

(b) Trade credit

(c) Other external financing [READ IF NECESSARY: for example, loans from a related company, shareholders or family and friends, leasing, factoring, grants, subordinated debt instruments, participating loans, peer-to-peer lending, crowdfunding, and issuance of equity and debt securities]

Q7B. If you applied and tried to negotiate for this type of financing over the past six months, what was the outcome? Please provide a separate answer in each case.

- Received everything 1
- Received 75% and above 5
- Received below 75% 6
- Refused because the cost was too high 3
- Was rejected 4
- Application is still pending 8
- [DK] 9

(d) Credit line, bank overdraft or credit card overdraft

(a) Bank loans (excluding overdraft and credit lines)

(b) Trade credit

(c) Other external financing [READ IF NECESSARY: for example, loans from a related company, shareholders or family and friends, leasing, factoring, grants, subordinated debt instruments, participating loans, peer-to-peer lending, crowdfunding, and issuance of equity and debt securities]

q1_a. During the past 12 months have you introduced...?

a. a new or significantly improved product or service to the market

- Yes: 1
- No: 2
- DK/NA: 9

APPENDIX B
COUNTRY LIST FOR SAFE DATASET

COUNTRY	NUMBER OF OBSERVATIONS (BANK LOANS)	NUMBER OF OBSERVATIONS (TRADE CREDIT)
1. Austria (AT)	1,185	506
2. Belgium (BE)	1,874	670
3. Bulgaria (BG)	345	183
4. Czechia (CZ)	426	154
5. Germany (DE)	2,572	786
6. Denmark (DK)	197	121
7. Spain (ES)	3,972	3,357
8. Finland (FI)	984	688
9. France (FR)	5,111	1,055
10. Greece (GR)	1,355	1,226
11. Croatia (HR)	331	52
12. Hungary (HU)	311	117
13. Ireland (IE)	815	1,608
14. Italy (IT)	4,812	3,304
15. Lithuania (LT)	271	169
16. Latvia (LV)	112	46
17. Netherlands (NL)	920	719
18. Poland (PL)	931	1,704
19. Portugal (PT)	1,405	1,291
20. Romania (RO)	323	479
21. Sweden (SE)	306	109
22. Slovenia (SI)	255	61
23. Slovakia (SK)	710	773
24. Turkey (TR)	568	615
25. United Kingdom (UK)	639	1,783
TOTAL	30,730	21,576

APPENDIX C: COUNTRY CLASSIFICATIONS IN THE SAFE DATASET

Panel A: The MSCI Classification*

Developed	Austria, Belgium, Germany, Denmark, Spain, Finland, France, Ireland, Italy, Netherlands, Portugal, Sweden, United Kingdom
Emerging	Czechia, Greece, Hungary, Poland, Turkey,
Standalone	Bulgaria
Frontier	Croatia, Romania, Slovenia

Panel B: Geographical Classification

Western Europe	Austria, Belgium, Germany, France, Netherlands
Southern Europe	Spain, Greece, Croatia, Italy, Portugal, Slovenia, Turkey
Northern Europe	Denmark, Finland, Ireland, Lithuania, Latvia, Sweden, United Kingdom
Eastern Europe	Bulgaria, Czechia, Hungary, Poland, Romania, Slovakia

Panel C: Welfare Classification

Continental Europe	Austria, Belgium, Germany, France, Netherlands
Southern Europe	Spain, Greece, Italy, Portugal, Turkey
Nordic Europe	Denmark, Finland, Sweden,
Central and Eastern Europe	Bulgaria, Czechia, Croatia, Hungary, Lithuania, Latvia, Poland, Romania, Slovenia, Slovakia
English Speaking Countries	Ireland, United Kingdom

*Note: Some countries included in the analysis are not classified by the MSCI.

APPENDIX D: Descriptive Statistics for Sub-Groups

Panel A: Micro Firms						
Variables	N	Mean	Median	SD	Min	Max
TotalLev	2,725,485	61.998	66.507	25.511	7.380	99.360
ShortLev	2,725,485	57.323	59.922	26.431	0.002	99.360
LongLev	2,725,485	4.674	0.000	13.267	0.000	99.237
FindebtR	2,725,485	6.320	0.000	13.607	0.000	85.137
TradecrR	2,725,485	25.862	16.721	26.811	0.000	97.850
UncTurkey	2,725,485	33.149	31.800	12.941	17.500	72.200
UncGlo	2,725,485	10.072	10.069	0.265	9.729	10.613
Size	2,725,485	5.427	5.549	1.103	0.001	14.464
Current	2,725,485	188.164	131.187	155.347	9.701	874.988
ROA	2,725,485	4.247	2.188	12.755	-44.760	58.819
Tangibility	2,725,485	18.138	8.726	22.482	0.000	99.969
Export	2,725,485	5.271	0.000	20.153	0.000	100.000
Panel B: Small Firms						
Variables	N	Mean	Median	SD	Min	Max
TotalLev	1,916,241	68.426	74.337	23.389	7.381	99.360
ShortLev	1,916,241	59.979	63.348	25.699	0.010	99.360
LongLev	1,916,241	8.447	0.000	16.094	0.000	99.099
FindebtR	1,916,241	12.266	3.647	17.273	0.000	85.139
TradecrR	1,916,241	29.631	22.861	25.696	0.000	97.850
UncTurkey	1,916,241	35.832	32.100	14.129	17.500	72.200
UncGlo	1,916,241	10.065	10.069	0.248	9.729	10.613
Size	1,916,241	7.319	7.345	0.937	0.064	15.421
Current	1,916,241	168.669	123.335	131.312	9.700	874.993
ROA	1,916,241	3.986	1.824	9.393	-44.759	58.819
Tangibility	1,916,241	18.055	9.948	20.737	0.000	99.996
Export	1,916,241	7.493	0.000	22.528	0.000	100.000
Panel C: Middle Firms						
Variables	N	Mean	Median	SD	Min	Max
TotalLev	495,138	67.932	73.367	22.963	7.381	99.360
ShortLev	495,138	56.353	57.589	25.168	0.005	99.360
LongLev	495,138	11.580	2.156	17.184	0.000	98.637
FindebtR	495,138	18.039	11.007	19.709	0.000	85.135
TradecrR	495,138	26.465	20.036	23.089	0.000	97.850
UncTurkey	495,138	36.441	32.100	14.259	17.500	72.200
UncGlo	495,138	10.056	10.069	0.243	9.729	10.613
Size	495,138	8.941	9.019	1.031	0.269	16.179
Current	495,138	167.815	126.444	124.114	9.702	874.989
ROA	495,138	4.040	1.803	9.027	-44.759	58.820
Tangibility	495,138	20.067	13.005	20.746	0.000	99.995
Export	495,138	10.638	0.000	24.879	0.000	100.000
Panel D: Large Firms						
Variables	N	Mean	Median	SD	Min	Max
TotalLev	128,269	65.132	69.855	23.095	7.386	99.359
ShortLev	128,269	49.420	48.410	24.684	0.003	99.359
LongLev	128,269	15.712	7.778	19.214	0.000	98.809
FindebtR	128,269	23.325	18.382	21.953	0.000	85.137
TradecrR	128,269	20.960	14.596	20.090	0.000	97.840
UncTurkey	128,269	36.756	33.100	14.250	17.500	72.200
UncGlo	128,269	10.052	10.034	0.239	9.729	10.613
Size	128,269	10.881	10.815	1.399	0.998	19.048
Current	128,269	172.964	132.021	126.791	9.703	874.906
ROA	128,269	4.456	2.222	9.548	-44.687	58.768
Tangibility	128,269	22.399	15.917	21.775	0.000	99.385
Export	128,269	14.961	0.066	27.169	0.000	100.000

APPENDIX E: Correlation Matrixes for Sub-Groups

Matrix of correlations for Micro Firms

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) UncTurkey	1.000						
(2) UncGlo	0.087	1.000					
(3) Size	-0.076	0.069	1.000				
(4) Current	0.001	-0.022	-0.122	1.000			
(5) ROA	0.003	0.001	-0.053	0.165	1.000		
(6) Tangibility	0.009	-0.012	-0.043	-0.227	-0.043	1.000	
(7) Export	-0.008	0.025	0.041	0.008	0.057	-0.059	1.000

Matrix of correlations for Small Firms

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) UncTurkey	1.000						
(2) UncGlo	0.084	1.000					
(3) Size	-0.106	0.114	1.000				
(4) Current	-0.021	-0.004	-0.037	1.000			
(5) ROA	-0.024	0.008	-0.090	0.220	1.000		
(6) Tangibility	0.004	-0.004	-0.071	-0.149	-0.042	1.000	
(7) Export	-0.027	0.020	0.111	-0.005	0.049	-0.020	1.000

Matrix of correlations for Middle-Sized Firms

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) UncTurkey	1.000						
(2) UncGlo	0.124	1.000					
(3) Size	-0.080	0.088	1.000				
(4) Current	-0.035	0.013	0.011	1.000			
(5) ROA	-0.046	0.038	-0.076	0.267	1.000		
(6) Tangibility	0.002	0.000	-0.013	-0.122	-0.061	1.000	
(7) Export	-0.033	0.012	0.147	0.023	0.062	-0.035	1.000

Matrix of correlations for Large Firms

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) UncTurkey	1.000						
(2) UncGlo	0.145	1.000					
(3) Size	-0.075	0.061	1.000				
(4) Current	-0.024	0.011	0.035	1.000			
(5) ROA	-0.066	0.052	0.000	0.309	1.000		
(6) Tangibility	0.013	-0.022	0.031	-0.111	-0.109	1.000	
(7) Export	-0.042	0.009	0.162	0.041	0.085	-0.036	1.000

APPENDIX F: Model Selection Using Hausman Test for Sub-Groups

Panel A: Micro Firms	
Dependent Variable: Total Leverage	
chi2(21) = 142128.24	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Short-Term Leverage	
chi2(21) = 128234.25	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Long-Term Leverage	
chi2(21) = 8371.98	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Financial Debt Ratio	
chi2(21) = 6531.22	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Trade Credit Ratio	
chi2(21) = 38461.69	Prob>chi2= 0.000 (H ₀ rejected)
Panel B: Small Firms	
Dependent Variable: Total Leverage	
chi2(20) = 78767.50	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Short-Term Leverage	
chi2(21) = 104080.18	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Long-Term Leverage	
chi2(21) = 12440.21	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Financial Debt Ratio	
chi2(21) = 6400.41	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Trade Credit Ratio	
chi2(21) = 33374.27	Prob>chi2= 0.000 (H ₀ rejected)
Panel C: Middle-Sized Firms	
Dependent Variable: Total Leverage	
chi2(19) = 22688.26	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Short-Term Leverage	
chi2(20) = 11621.67	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Long-Term Leverage	
chi2(20) = 5077.72	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Financial Debt Ratio	
chi2(20) = 2270.14	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Trade Credit Ratio	
chi2(20) = 7538.90	Prob>chi2= 0.000 (H ₀ rejected)
Panel D: Large Firms	
Dependent Variable: Total Leverage	
chi2(19) = 4082.77	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Short-Term Leverage	
chi2(20) = 2484.22	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Long-Term Leverage	
chi2(20) = 1704.97	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Financial Debt Ratio	
chi2(20) = 1700.45	Prob>chi2= 0.000 (H ₀ rejected)
Dependent Variable: Trade Credit Ratio	
chi2(19) = 2996.23	Prob>chi2= 0.000 (H ₀ rejected)

APPENDIX G: Assumption Tests for Models

Panel A: The Main Sample			
Dependent Variables	Test for Heteroskedasticity	Test for Autocorrelation	
		Durbin-Watson	LBI
Total Leverage	Prob>chi2= 0.000	0.9893	1.50665
Short-Term Leverage	Prob>chi2= 0.000	1.1206	1.6119
Long-Term Leverage	Prob>chi2= 0.000	1.0550	1.5082
Financial Debt Ratio	Prob>chi2= 0.000	1.0440	1.4561
Trade Credit Ratio	Prob>chi2= 0.000	1.1857	1.6687
Panel B: Micro Firms			
Dependent Variables	Test for Heteroskedasticity	Test for Auto Correlation	
		Durbin-Watson	LBI
Total Leverage	Prob>chi2= 0.000	1.0335	1.7101
Short-Term Leverage	Prob>chi2= 0.000	1.1277	1.7854
Long-Term Leverage	Prob>chi2= 0.000	1.0817	1.7243
Financial Debt Ratio	Prob>chi2= 0.000	1.1285	1.7147
Trade Credit Ratio	Prob>chi2= 0.000	1.1920	1.8293
Panel C: Small Firms			
Dependent Variables	Test for Heteroskedasticity	Test for Auto Correlation	
		Durbin-Watson	LBI
Total Leverage	Prob>chi2= 0.000	0.9655	1.5635
Short-Term Leverage	Prob>chi2= 0.000	1.1193	1.6941
Long-Term Leverage	Prob>chi2= 0.000	1.0682	1.6288
Financial Debt Ratio	Prob>chi2= 0.000	1.0467	1.5839
Trade Credit Ratio	Prob>chi2= 0.000	1.1591	1.7528
Panel D: Middle-Sized Firms			
Dependent Variables	Test for Heteroskedasticity	Test for Auto Correlation	
		Durbin-Watson	LBI
Total Leverage	Prob>chi2= 0.000	0.9466	1.5360
Short-Term Leverage	Prob>chi2= 0.000	1.1222	1.6988
Long-Term Leverage	Prob>chi2= 0.000	1.0495	1.6213
Financial Debt Ratio	Prob>chi2= 0.000	0.9713	1.5326
Trade Credit Ratio	Prob>chi2= 0.000	1.1351	1.7561
Panel E: Large Firms			
Dependent Variables	Test for Heteroskedasticity	Test for Auto Correlation	
		Durbin-Watson	LBI
Total Leverage	Prob>chi2= 0.000	0.8496	1.3686
Short-Term Leverage	Prob>chi2= 0.000	1.0585	1.5676
Long-Term Leverage	Prob>chi2= 0.000	0.9429	1.4413
Financial Debt Ratio	Prob>chi2= 0.000	0.8570	1.3387
Trade Credit Ratio	Prob>chi2= 0.000	1.0618	1.5883