

ALPER ÜNALAN

THE IMPACT OF BANKING MARKET STRUCTURE ON SMEs

Bilkent University 2025

THE IMPACT OF BANKING MARKET STRUCTURE
ON SME DEVELOPMENT: EVIDENCE FROM
TÜRKİYE

A Master's Thesis

by
ALPER ÜNALAN

Department of
Management
İhsan Doğramacı Bilkent University
Ankara
August 2025

To My Family



THE IMPACT OF BANKING MARKET STRUCTURE ON
SME DEVELOPMENT: EVIDENCE FROM TÜRKİYE

The Graduate School of Economics and Social Sciences
of
İhsan Doğramacı Bilkent University

by

ALPER ÜNALAN

In Partial Fulfillment of the Requirements for the Degree of
MASTER OF SCIENCE IN BUSINESS ADMINISTRATION

THE DEPARTMENT OF
MANAGEMENT
İHSAN DOĞRAMACI BİLKENT UNIVERSITY
ANKARA

August 2025

THE IMPACT OF BANKING MARKET STRUCTURE ON SME
DEVELOPMENT: EVIDENCE FROM TÜRKİYE
By Alper Ünalın

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Science in Business Administration

Ayşe Başak Tanyeri Günsür
Advisor

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Science in Business Administration.

Süheyla Özyıldırım
Examining Committee Member

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Science Business Administration.

İlkay Şendeniz Yüncü
Examining Committee Member

Approval of the Graduate School of Economics and Social Sciences

Refet S. Gürkaynak
Director

ABSTRACT

THE IMPACT OF BANKING MARKET STRUCTURE ON SME DEVELOPMENT: EVIDENCE FROM TÜRKİYE

Ünalın, Alper

M.S., Department of Management

Advisor: Assoc. Prof. Dr. Ayşe Başak Tanyeri Günsür

August 2025

This thesis examines the influence of local banking structures on the opening, closing, and performance of small and medium enterprises (SMEs) in Türkiye. Specifically, it investigates the roles of state-owned, foreign, and domestic banks in facilitating the creation, growth, and survival of SMEs. The research draws on annual data from 2008 to 2022, combining banking statistics, firm performance indicators, and macroeconomic measures. The findings show that state-owned banks are particularly important in fostering the creation of new SMEs, as they provide favorable financing conditions. They also play a stabilizing role during economic downturns by supporting profitability when private banks may reduce lending. Domestic banks are linked to stronger sales growth, underscoring their role in SME expansion. By contrast, foreign banks have a weaker influence, particularly on

profitability, and appear less supportive of smaller, locally oriented firms. These results highlight the crucial role of state-owned and domestic banks in promoting SME development, especially under conditions of economic uncertainty.

Keywords: Banking market structure, SMEs, Firm entry and exit, Firm Performance



ÖZET

BANKACILIK PİYASASI YAPISININ KOBİ GELİŞİMİ ÜZERİNDEKİ ETKİSİ: TÜRKİYE ÖRNEĞİ

Ünalan, Alper

Yüksek Lisans, İşletme Bölümü

Tez Danışmanı: Doç. Dr. Ayşe Başak Tanyeri Günsür

Ağustos 2025

Bu tez, yerel bankacılık yapılarının küçük ve orta ölçekli işletmelerin (KOBİ’lerin) açılış, kapanış ve performansları üzerindeki etkilerini incelemektedir. Özellikle devlet bankaları, yabancı bankalar ve yerli özel bankaların KOBİ’lerin kurulması, büyümesi ve hayatta kalmasına nasıl katkıda bulunduğu araştırılmaktadır. Çalışma, 2008–2022 yılları arasındaki yıllık verileri kullanarak bankacılık istatistiklerini, firma performans göstergelerini ve makroekonomik ölçütleri bir araya getirmektedir. Bulgular, devlet bankalarının yeni KOBİ’lerin kurulmasında özellikle önemli olduğunu, uygun finansman koşulları sağlayarak girişimciliği teşvik ettiklerini göstermektedir. Ayrıca devlet bankaları, özel bankaların kredi vermeyi azalttığı dönemlerde kârlılığını destekleyerek ekonomik durgunluklarda istikrar sağlayıcı bir rol üstlenmektedir. Yerli özel bankalar ise daha yüksek borçlanma düzeyleri ve güçlü satış büyümesi ile ilişkilendirilmekte, bu da KOBİ genişlemesini destekleyen rollerini ortaya koymaktadır. Buna karşılık, yabancı bankaların özellikle kârlılık üzerinde daha zayıf bir etkisi bulunmakta ve küçük, yerel işletmeleri desteklemede

daha sınırlı kaldıkları gör÷lmektedir. Bu sonuçlar, özellikle ekonomik belirsizlik dönemlerinde devlet ve yerli özel bankaların KOBİ gelişiminde kritik bir rol oynadığını vurgulamaktadır.

Anahtar Kelimeler: Bankacılık piyasası yapısı, KOBİ'ler, Firma giriş ve çıkışı, Borç finansmanı



ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to all those who have supported me throughout the course of my master's degree and the writing of this thesis.

I am grateful to my thesis advisor, Assoc. Prof. Başak Tanyeri Günsür, for her guidance and support throughout this process. Her encouragement, and thoughtful feedback have been invaluable in helping me complete this work, and I greatly appreciate the time she dedicated to my progress.

I also wish to thank the members of my thesis committee, Assoc. Prof. İlkey Şendeniz Yüncü and Assoc. Prof. Süheyla Özyıldırım, for their time and commitment to this thesis. Their willingness to contribute their expertise and to evaluate my work is sincerely appreciated.

I am grateful to the Republic of Türkiye Ministry of Industry and Technology and its staff for granting me access to the data that made this thesis possible and for their warm hospitality throughout the process.

I also acknowledge that I used ChatGPT and Grammarly to do a grammar-check on the main body text of this work. I have used assistance from ChatGPT in writing the statistical code used in this thesis.

I am sincerely grateful to my colleagues and staff members at Bilkent University's Faculty of Business Administration. I especially appreciate the companionship and intellectual exchange of my colleagues, Utku Çitli and Tunahan Tayar; their support made the completion of this thesis possible.

I am especially grateful to my partner, Begüm Orhan, whose unwavering support and encouragement have been invaluable throughout this journey.

Lastly, I am deeply appreciative of my family, and in particular my sister İlke Özlem Ünalın, for their continuous support, patience, and understanding. Their encouragement and belief in me, especially during the most challenging moments, have been a source of resilience and motivation.

TABLE OF CONTENTS

ABSTRACT	i
ÖZET	iii
TABLE OF CONTENTS	vii
LIST OF TABLES	x
LIST OF FIGURES	xii
CHAPTER 1	1
INTRODUCTION	1
CHAPTER 2	4
LITERATURE REVIEW	4
2.1 The Role of Bank Ownership in SME Financing	4
2.1.1 State-Owned Banks and Politicized Credit Allocation	4
2.1.2 Role of Relationship Lending in SME Financing	5
2.1.3 Foreign-Owned Banks and Market Integration	6
2.2 Impact of Financial Constraints on Entrepreneurship and SME Activity	8
2.3 Pecking Order Theory	10
2.4 Information Asymmetry and SME Financing	11

2.5 Institutional and Market-Level Enablers of SME Finance	12
2.5.1 Legal and Regulatory Frameworks	12
2.5.2 Financial Market Depth and Infrastructure	13
CHAPTER 3.....	14
INSTITUTIONAL FEATURES OF THE TURKISH BANKING SYSTEM	14
3.1 Banking sector classifications	14
3.2 Banks based on operation.....	15
3.3 Banks based on capital sources	17
CHAPTER 4.....	25
HYPOTHESIS DEVELOPMENT.....	25
CHAPTER 5.....	31
DATA AND METHODOLOGY	31
5.1 Bank Branch Data	31
5.2 Data used on the firm entry and exit models.....	33
5.3 Financial Statement Data	36
5.4 Methodology	45
5.4.1 Negative binomial regression.....	46
5.4.2 Fixed Effects Regressions	48
5.4.3 National Slowdown Interaction.....	50
CHAPTER 6.....	53
RESULTS.....	53

6.1 Empirical findings on bank branch shares and new firm creation	53
6.2 Empirical findings on bank branch shares and firm exit.....	59
6.4 Robustness checks.....	68
CHAPTER 7.....	73
CONCLUSION	73
APPENDIX	82
Appendix A: Data sources and variables for the new firm model	82
Appendix B: Fixed Effects for OLS regression	84
Appendix C: Fixed Effects for OLS regression (foreign).....	86

LIST OF TABLES

Table 1: Bank branch numbers in Türkiye, 2022 vs 2010	19
Table 2: Change in banking sector characteristics in Türkiye (2010-2022)	22
Table 3: Variable definitions for the entry/exit models	35
Table 4: Descriptive statistics for variables used in the firm entry model.	36
Table 5: Description of variables for the performance models	39
Table 6: Descriptive statistics for the performance variables	43
Table 7: Correlation matrix for the performance model variables	44
Table 8: OLS Estimates of the Impact of Bank Branch Shares on Firm Entry	54
Table 9: Negative Binomial Estimates of Bank Branch Shares on Firm Openings...	57
Table 10: OLS Estimates of the Impact of Bank Branch Shares on Firm Exits	60
Table 11: Negative Binomial Estimates of Bank Branch Shares on Firm Exits	62
Table 12: Local banking market structures and SME financial cost.....	63
Table 13: Local banking market structures and SME tangible assets growth.....	64
Table 14: Local banking market structures and SME sales growth.	67
Table 15: Local banking market structures and SME return on sales.....	68
Table 16: Bank branch shares on performance in slowdown periods	70

Table 17: Bank branch shares, national slowdown periods and profitability..... 71



LIST OF FIGURES

Figure 1: Average Bank Branch Shares by Type in a Given City	23
Figure 2: Total deposits by year and bank type (per capita)	23
Figure 3: Credit by year and bank type (per capita).....	24
Figure 4: New vs. Closed Firms in Türkiye (2010-2022).....	34

CHAPTER 1

INTRODUCTION

This thesis investigates how local banking structures influence the opening, closing, and performance of small and medium enterprises (SMEs) in Turkish counties.

Using annual data on banking structures and firm performance, the study compares the roles of state-owned, foreign, and domestic banks in supporting the creation of new SMEs, fostering their growth, and affecting their closure. Performance is assessed through operational and financial outcomes, including profitability, efficiency, solvency, and capacity for growth. Understanding the dynamics between SMEs and banks is particularly important in emerging economies, where banks serve as the primary source of financing due to the underdevelopment of equity markets.

SMEs are a critical driver of employment and economic growth in emerging economies, including Türkiye, where they account for approximately 72% of total employment and more than half of total sales (World Bank, 2020). Despite their significance, SMEs face substantial barriers to financing, receiving only a quarter of total bank credit, despite contributing far more to the economy (Alicioğlu & Küçükkocaoğlu, 2022). This financing gap impedes the formation of new businesses and the growth of existing ones, making access to finance a key determinant of firm

survival and expansion (Beck et al., 2007). This thesis focuses on how the composition of the banking sector, specifically the presence of state-owned, foreign, and domestic private banks, affects the opening, closing, and performance of SMEs. Banks are the main source of external financing for SMEs, which typically lack access to bond or equity markets. Therefore, local banking conditions directly influence entrepreneurial activity, with well-targeted credit fueling firm creation and expansion. In contrast, credit shortages or poor allocation may result in firm closures. The type of bank operating in a region could also affect the credit conditions for SMEs, as state-owned, foreign, and domestic banks may have different lending behaviors. This study examines these differences in the context of Türkiye from 2007 to 2022, a period marked by financial liberalization, SME growth, and macroeconomic volatility.

Using district-level data from the Ministry of Industry, Entrepreneur Information System (EIS), and the Union of Chambers and Commodity Exchanges of Türkiye (UCCE), this study analyzes 1,111,150 firm-year observations from 81 cities between 2008 and 2022. Banking data from the Banking Regulation and Supervision Agency (BRSA) and the Banks Association of Türkiye (BAT) provide insights into the market shares of domestic, foreign, and state-owned banks, as well as new bank branch openings.

The results indicate that during periods of economic downturn, state-owned banks positively influence SME profitability, highlighting their stabilizing role. Foreign banks, have a weaker impact compared to domestic banks and show a negative relationship with profitability, particularly during slowdowns. Furthermore, the

presence of domestic banks is linked to higher sales growth, whereas foreign banks have a less consistent effect on firm expansion. These findings suggest that domestic banks play a crucial role in supporting SME growth, while state-owned banks provide stability, particularly in challenging economic conditions. Foreign banks, on the other hand, appear to be less supportive of smaller, local businesses, especially during economic downturns.

The remainder of this paper is structured as follows: Chapter 2 reviews the theoretical and empirical literature on SME financing and bank ownership structures. Chapter 3 outlines the background and institutional features of the Turkish banking system. Chapter 4 describes the data sources, variable construction, and sample selection procedures. Chapter 5 presents the empirical strategy and hypothesis development. Chapter 6 presents the main results and discusses their economic significance. Chapter 7 concludes with a summary of key findings, policy implications, and suggestions for future research.

CHAPTER 2

LITERATURE REVIEW

2.1 The Role of Bank Ownership in SME Financing

2.1.1 State-Owned Banks and Politicized Credit Allocation

State-owned banks (SOBs) often act as counter-cyclical lenders, scaling up credit during economic downturns. In developing economies like Türkiye, these banks play a stabilizing role by providing favorable loans to SMEs, especially after financial crises (De Luna-Martinez and Vicente, 2012). They help mitigate credit constraints when equity markets remain underdeveloped (Beck, Demirgüç-Kunt, & Levine, 2007). However, SOBs face criticism for inefficiency and politically motivated lending. La Porta et al. (2002) and Dinc (2005) show that state-owned banks increase lending in election years, suggesting political objectives often influence their credit allocation. In Türkiye, these banks sometimes favor firms with political ties, potentially crowding out more deserving SMEs (Özyıldırım and Önder, 2011). Önder and Özyıldırım (2013) also find that state-owned banks in Türkiye have a significantly higher share in the credit market during crisis and election years, with their credit provision positively associated with local growth, especially during

crises, although politically motivated lending in election years does not yield significant growth benefits. This study examines how state-owned banks impact the formation and growth of SMEs during economic slowdowns (H4).

2.1.2 Role of Relationship Lending in SME Financing

Relationship lending plays a crucial role in small business financing, especially in economies where firms lack transparency. This type of lending relies on long-term relationships between banks and borrowers, allowing lenders to gather soft information that is not typically available through formal financial statements. This relational data helps banks assess creditworthiness, manage loan terms, and make more informed lending decisions. Studies by Petersen and Rajan (1994) demonstrate that these relationships increase credit availability, particularly for small businesses, which are often more opaque and harder to assess using only traditional financial indicators. As the length of a relationship with a bank increases, interest rates tend to decrease, and collateral requirements become less stringent, making credit more accessible for borrowers.

The relationship's impact on loan terms and availability is especially significant for smaller banks. Research by Berger and Udell (1995) highlights that small banks, which prioritize relationship lending, tend to offer more favorable terms to their long-term clients. In contrast, large banks, which rely more on quantitative measures and standardized processes, are less likely to lend to small firms or to offer favorable terms. The advantages of relationship lending are most evident in situations where borrowers are relatively new or lack robust financial documentation. In such cases,

smaller banks use their intimate knowledge of the borrower to offer credit, a practice that is less prevalent among large, impersonal financial institutions.

However, the effectiveness of relationship lending can diminish when multiple lenders are involved. Multiple banking relationships reduce the value of any single lender-borrower connection, as shown in studies by Petersen and Rajan (1994) and Thakor (1996). These studies indicate that the benefits of relationship lending decline when borrowers split their credit needs across various financial institutions, as it becomes harder for any single bank to gather and utilize soft information about the borrower.

In addition to these dynamics, the growth of technology and deregulation has influenced the practice of relationship lending. The rise of credit-scoring models and the deregulation of the banking industry have allowed larger banks to reduce the cost of lending to small businesses, closing the gap in performance between large and small banks (Berger et al., 2003). While smaller banks have historically had an advantage in providing relationship-based loans, this advantage may diminish as the industry becomes more competitive, and technology reduces the informational asymmetries that relationship lending once helped to overcome.

2.1.3 Foreign-Owned Banks and Market Integration

Foreign-owned banks promote financial development by introducing competition and superior lending technologies (Van Horen, 2007). Initially, they focus on large and transparent firms due to limited local knowledge (Berger et al., 2001), but gradually expand SME lending as small firms become more transparent (de Haas et

al., 2005). Under the right conditions, foreign banks ease financing constraints and boost firm performance in transition economies (Bruno et al., 2014).

Berger and Udell (2006) suggest that foreign banks, due to their cost-of-funds advantages and the superior information technologies they bring, can overcome some of the barriers faced by SMEs in developing economies. They assert that the market presence of foreign-owned banks, as part of a more diversified financial infrastructure, contributes significantly to improved credit access for SMEs, particularly in regions with underdeveloped local financial institutions. However, foreign banks typically engage in "cherry-picking," favoring more transparent firms and excluding informationally opaque SMEs, a practice identified by Stiglitz (2000) and Detragiache et al. (2008). On the other hand, as Boustanifar (2014) notes, foreign banks may also lend to opaque firms under certain conditions where their cost advantages are significant. Similarly, Hasan et al. (2017) highlight that foreign-owned banks can ease financing constraints for SMEs in emerging economies, but they may prioritize larger, more transparent firms, potentially excluding smaller, more opaque SMEs from credit access.

Recent evidence from Türkiye refines this view. Drawing on a comprehensive firm–bank dataset, Ongena and Şendeniz-Yüncü (2011) find that older and smaller firms are more likely to work with large domestic private banks, while foreign banks concentrate on younger, larger, and more diversified firms located mainly in Istanbul and the Marmara region. State banks tend to serve smaller, diversified firms that maintain multiple banking relationships, and Islamic banks primarily engage younger, more transparent manufacturing firms. These patterns indicate that in

emerging markets such as Türkiye, ownership structure and regional dynamics can be more important than bank size alone in shaping SME–bank matches (Ongena and Şendeniz-Yüncü, 2011).

2.2 Impact of Financial Constraints on Entrepreneurship and SME Activity

Financial constraints significantly influence entrepreneurial entry, particularly in environments where access to capital is limited. According to Evans and Jovanovic (1989), entrepreneurs often rely on their personal wealth to finance new ventures, with liquidity constraints impeding their ability to invest beyond a certain threshold. This limitation becomes particularly relevant for SMEs, where lower wealth levels are directly correlated with limited business opportunities. The impact of wealth on investment decisions is compounded by financial market imperfections, which amplify the role of wealth in determining entrepreneurial success. As Greenwood & Jovanovic (1990) show, financial intermediaries play a critical role in alleviating these constraints by pooling resources and facilitating access to higher-return investment opportunities. However, the cost of joining these intermediaries can be prohibitive at low levels of financial development, leading to slow growth and persistent inequality.

The relationship between wealth and entrepreneurial opportunities can foster persistent income inequality. According to Mookherjee & Ray (2003) financial market frictions, such as adverse selection and moral hazard, exacerbate the divide between wealthy and poorer potential entrepreneurs. The fixed costs associated with starting a business are often too high for individuals from poorer backgrounds to overcome, thus limiting their ability to initiate high-return entrepreneurial projects.

This is particularly evident in developing economies, where financial systems are less developed, and the wealthy have a distinct advantage in accessing capital. As Banerjee & Newman (1993) highlight, financial constraints often trap the poor in low-return self-employment, reinforcing a cycle of low growth and high inequality.

Moreover, the initial distribution of wealth plays a crucial role in shaping the opportunities available to entrepreneurs. Aghion & Bolton (1997) argue that credit constraints, stemming from imperfect financial markets, limit the potential for talented individuals from disadvantaged backgrounds to start businesses, reducing overall economic efficiency. This is further emphasized by the theory of financial frictions, which suggests that without access to external finance, the most talented individuals are prevented from pursuing entrepreneurial ventures. As a result, the lack of entrepreneurship due to financial constraints reduces innovation and impedes economic development. Piketty (1997) and Bardhan et al. (2000) also point out that the combination of financial constraints and non-convexities in the entrepreneurship process can lead to persistent poverty traps, where individuals are unable to break out of low-income cycles due to the inability to secure financing.

Additionally, Armington and Acs (2002) show that regional economic factors, such as industry intensity, population growth, and income growth, play a key role in firm formation. These factors create local advantages that reduce financial constraints, helping entrepreneurs access capital. The study highlights the importance of regional spillovers, like labor market density and knowledge exchange, in improving access to finance. Therefore, the financial environment in specific regions significantly

impacts the financial constraints faced by entrepreneurs, especially in SME formation.

2.3 Pecking Order Theory

The Pecking Order Theory (POT), introduced by Myers and Majluf in 1984, provides a framework for understanding the financing choices of small and medium-sized enterprises (SMEs), particularly in relation to information asymmetry between businesses and external lenders. According to POT, firms follow a hierarchical order in choosing their sources of finance, primarily based on the availability of internal resources, followed by debt, and finally, equity (Myers & Majluf, 1984). The theory suggests that companies prefer using internal funds first because these resources are not subject to external scrutiny or additional costs, making them the cheapest form of finance. When internal funds are insufficient, firms turn to debt, which is still more attractive than issuing new equity due to the associated costs and the potential dilution of ownership.

This hierarchical financing preference is particularly relevant for SMEs, which often face greater challenges in securing external financing due to their limited access to financial markets and the higher risks associated with their operations (McNamara et al., 2017). Studies have shown that SMEs tend to rely heavily on retained earnings to finance their operations, as it avoids the costly and intrusive processes of seeking external capital (Hogan & Hutson, 2005). Debt is considered the next preferred option, as it is generally cheaper than equity and allows firms to maintain control. Equity financing, which is seen as the last resort due to its higher cost and potential

for ownership dilution, is typically only considered when other options are exhausted (Myers & Majluf, 1984).

The pecking order is particularly evident in firms with high information asymmetry, where managers have more information about the company's prospects than external investors. In such cases, issuing equity can lead to adverse selection, where investors might undervalue the firm based on the perceived risks, thus making debt financing more attractive (Martinez et al., 2019). As SMEs' financial position improves, information asymmetry decreases, making it easier for them to access cheaper external financing, although they continue to prefer debt over equity (Sogorb-Mira & Lopez-Gracia, 2003). This approach has been widely supported in empirical studies, with many findings indicating that SMEs primarily follow the pecking order when making financing decisions (Frank & Goyal, 2003).

2.4 Information Asymmetry and SME Financing

Information asymmetry is a significant challenge in SME financing, as banks often have less information about a firm's financial health than its managers. This imbalance increases borrowing costs and limits credit access, particularly for SMEs that are opaque and hard to evaluate (Berger, Klapper, & Udell, 2001). Banks face the challenge of generating relevant information about SMEs, which incurs upfront costs but leads to better risk assessments, loan terms, and reduced collateral needs (Fredriksson & Moro, 2014; Lehmann & Neuberger, 2001). For SMEs, disclosing sensitive business data comes with the risk of exposing competitive advantages but can result in better financing terms (Binks & Ennew, 1996; Zecchini & Ventura, 2009).

Several factors affect the information banks can gather. Market characteristics, such as financial system concentration, help banks improve their information-gathering capacity (Neuberger, Pederagnana, & R  thke-D  ppner, 2008). Additionally, banks that are geographically distant from SMEs may rely more on hard information, which is less available for smaller firms (Alessandrini, Presibitero, & Zazzaro, 2009). Strong, long-term relationships between SMEs and banks facilitate better information flow, improving the bank's ability to assess risk and adjust loan terms (Elsas, 2005), although such relationships may also lead to hold-up costs for SMEs (Greenbaum, Kanatas, & Venezia, 1989).

Better information quality increases credit availability and reduces borrowing costs. Van Caneghem and Van Campenhout (2012) indicate that high-quality financial statements help SMEs secure better terms, while audited financial data can lower interest rates (Blackwell, Noland, & Winters, 1998).

2.5 Institutional and Market-Level Enablers of SME Finance

2.5.1 Legal and Regulatory Frameworks

Financial intermediation depends heavily on legal and regulatory frameworks. Kerr and Nanda (2011) note that well-designed laws foster confidence among lenders and depositors. Deregulation in the U.S. banking sector boosted new firm entry, particularly among small firms (Black and Strahan, 2002; Kerr and Nanda, 2009). These changes helped banks process information efficiently and expand geographically. In Germany, Prantl (2012) finds that entry regulations, such as the

German Limited Liability Company Law and the Trade and Crafts Code, reduced new firm formation, particularly in East Germany.

2.5.2 Financial Market Depth and Infrastructure

Deep financial markets enable faster sectoral development, especially in industries dependent on external finance (Rajan and Zingales, 1998). Fisman and Love (2003) show that startups struggle in regions lacking developed financial infrastructure. Comin and Nanda (2019) demonstrate that bank development speeds up capital-intensive technology adoption. Inadequate financial depth also affects advanced economies. Berkowitz and White (2004) find that stronger bankruptcy protection reduces startup credit access. Guiso et al. (2004) show that deep capital markets promote firm entry and growth but emphasize that local intermediaries remain crucial for overcoming asymmetries.

CHAPTER 3

INSTITUTIONAL FEATURES OF THE TURKISH BANKING SYSTEM

This chapter reviews the literature on how banking structures influence SME financing and performance. It examines the role of state-owned banks as counter-cyclical lenders, the importance of relationship lending in overcoming information asymmetries, and the effects of foreign bank entry on credit access. The discussion also considers financial constraints, theoretical perspectives such as the Pecking Order Theory, and institutional factors that shape SME activity in emerging economies.

3.1 Banking sector classifications

Banking Regulation and Supervision Agency (BRSA) datastore classifies banks in two ways: i) according to sources of capital, ii) areas of operation. Capital-based classifications include public, private, and foreign capital banks, while operational classifications include central banks, deposit banks, development and investment banks, and participation banks. BRSA relies on Articles 3 and 4 of the Banking Law No. 5411. According to this law, banks operating in Türkiye are categorized as

deposit banks, participation banks, and development banks, with the law focusing on their activities rather than distinguishing between private or public capital or domestic and foreign ownership.¹ The classification is based on the specific regulations of each type of bank, and licenses are granted according to these classifications.

3.2 Banks based on operation

A deposit bank is defined as an institution that operates by accepting deposits and providing loans, including branches of foreign institutions that operate under this category within Türkiye. Deposit banks, which are the most common form of banking institutions in Türkiye, are engaged in collecting deposits and providing loans. These banks are responsible for a wide range of financial services, including managing savings, offering credit, and trading in capital markets. Deposit banks are crucial for financing the national economy, supporting both individuals and businesses.

A participation bank, on the other hand, is an institution that raises funds primarily through special non-interest bearing deposit account and participation accounts and provides loans, also including branches of foreign institutions operating in Türkiye under this classification. Participation banks operate under the principles of Islamic finance, which prohibits the payment or receipt of interest. Instead, these banks engage in profit and loss sharing arrangements, offering a Sharia-compliant

¹ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=5411&MevzuatTur=1&MevzuatTertip=5>

alternative to conventional banking. Participation banks raise funds through participation accounts and use these funds to finance trade, industry, and real estate projects. In Türkiye, there are six participation banks, and these institutions play a complementary role in the Turkish banking system, offering financial services that cater to a specific segment of the population while supporting the broader economy. Lastly, a development and investment bank is an institution that operates without accepting deposits or participation funds; instead, its primary activity is lending, or it performs duties assigned by special laws. This category also includes branches of foreign institutions operating in Türkiye.² Participation banks occupy a complementary and increasingly significant position within Türkiye's financial system. Although their market share is smaller than that of deposit banks, their profit-and-loss sharing model broadens access to finance for firms and individuals seeking Sharia-compliant products. Ongena and Şendeniz-Yüncü (2011) note that participation banks help diversify the banking landscape and enhance financial inclusion by serving segments of the economy that may be underserved by conventional institutions. Their presence supports SME financing, introduces alternative risk-sharing mechanisms, and contributes to the resilience and depth of the Turkish banking sector.

² Türkiye Bankacılık Kanunu'nun (Kanun No. 5411) 3. maddesine göre: "Mevduat bankası: Bu Kanuna göre kendi nam ve hesabına mevduat kabul etmek ve kredi kullandırmak esas olmak üzere faaliyet gösteren kuruluşlar ile yurt dışında kurulu bu nitelikteki kuruluşların Türkiye'deki şubelerini, Katılım bankası: Bu Kanuna göre özel cari ve katılma hesapları yoluyla fon toplamak ve kredi kullandırmak esas olmak üzere faaliyet gösteren kuruluşlar ile yurt dışında kurulu bu nitelikteki kuruluşların Türkiye'deki şubelerini, Kalkınma ve yatırım bankası: Bu Kanuna göre mevduat veya katılım fonu kabul etme dışında; kredi kullandırmak esas olmak üzere faaliyet gösteren ve/veya özel kanunlarla kendilerine verilen görevleri yerine getiren kuruluşlar ile yurt dışında kurulu bu nitelikteki kuruluşların Türkiye'deki şubelerini ifade eder."

(Bankacılık Kanunu, Kanun No. 5411, 19/10/2005, Resmî Gazete, 1 Kasım 2005, Sayı: 25983 (Mükerrer)).

Participation banks in Türkiye have recorded steady double-digit growth since the early 2000s, with their share of total banking assets reaching 5.1 percent by 2012. Their rapid expansion in assets, deposits, and loans reflects rising demand for interest-free financial services and supportive regulatory measures such as sovereign sukuk issuance. By channeling idle funds into productive sectors and offering Sharia-compliant alternatives, they have become an increasingly important part of the Turkish financial system (Aysan, Dolgun, and Turhan, 2013).

Development and investment banks focus on providing long-term financing for large projects and investments, particularly in the areas of infrastructure and industry. These banks are instrumental in fostering economic development by channeling savings into productive investments. In Türkiye, the first development bank, Türkiye Kalkınma Bankası (Development Bank of Türkiye), was established in 1975. Today, there are 14 development and investment banks operating in the country, with 63 domestic branches.

3.3 Banks based on capital sources

Banks can be classified into public, private, and foreign capital banks based on their capital structures. According to the Banking Sector Research Report, published by the Ministry of Treasury and Finance (2020)³, a state bank is defined as a bank whose capital is more than 50% owned by governments or public institutions and

³ <https://ms.hmb.gov.tr/uploads/2020/12/BANKALAR-sektor-arastirma-raporu-2020.pdf>

whose management and supervision are controlled by representatives of these institutions or government-appointed officials. State deposit banks include Türkiye Cumhuriyeti Ziraat Bankası A.Ş., Türkiye Halk Bankası A.Ş., and Türkiye Vakıflar Bankası T.A.O.

Domestic banks are privately owned institutions in which there is no government ownership, and they are controlled by Turkish individuals or firms. They operate as commercial, deposit, or investment banks. In 2022, there were 9 domestic deposit banks with a total of 3,468 branches, compared to 4,555 branches in 2010, reflecting a decline over the period. In addition, there were 7 domestic development and investment banks, which operated 24 branches in 2022, up from 14 in 2010.

Foreign banks are wholly owned by foreign individuals or entities. These may be subsidiaries directly established in Türkiye or branches of parent companies located abroad. As of 2022, there were 21 foreign deposit banks with 2,337 branches, an increase from 2,085 branches in 2010. In contrast, the number of foreign banks with only branch operations declined sharply, from 25 in 2010 to 7 in 2022, suggesting consolidation or retrenchment of purely branch-based operations. Furthermore, foreign development and investment banks numbered 4 in 2022, maintaining a stable presence compared to 5 in 2010.

The state banking sector remains significant. In 2022, there were 3 state-owned deposit banks with 3,710 branches, a substantial rise from 2,718 in 2010. Likewise, state-owned development and investment banks expanded their footprint, operating 71 branches in 2022 compared to 41 in 2010.

Table 1 provides a comprehensive overview of these patterns, presenting the evolution of bank branch numbers in Türkiye between 2010 and 2022, disaggregated by ownership structure and bank type.

Table 1: Bank branch numbers in Türkiye, 2022 vs 2010

Banks/Year	2022	2010
State deposit banks	3710	2718
Türkiye Cumhuriyeti Ziraat Bankası A.Ş.	1733	1379
Türkiye Halk Bankası A.Ş.	1032	705
Türkiye Vakıflar Bankası T.A.O.	945	634
Domestic deposit banks	3468	4555
Adabank A.Ş.*	0	1
Akbank T.A.Ş.	710	912
Alternatif Bank A.Ş.*	0	53
Anadolubank A.Ş.	116	86
Fibabanka A.Ş.	44	0
Şekerbank T.A.Ş.	238	260
Tekstil Bankası A.Ş.*	0	44
Turkish Bank A.Ş.	6	21
Türk Ekonomi Bankası A.Ş.	444	331
Türkiye Garanti Bankası A.Ş.*	0	853
Türkiye İş Bankası A.Ş.	1110	1127
Yapı ve Kredi Bankası A.Ş.	800	867
Banks under the Savings Deposit Insurance Fund	3	1
Adabank A.Ş.*	1	0
Birleşik Fon Bankası A.Ş.	1	1
Türk Ticaret Bankası A.Ş.	1	0
Foreign deposit banks	2337	2085
Alternatifbank A.Ş.*	33	0
Arap Türk Bankası A.Ş.	7	6
Bank of China Turkey A.Ş.	1	0
Burgan Bank A.Ş.	32	0

Citibank A.Ş.	3	37
Denizbank A.Ş.	670	499
Deutsche Bank A.Ş.	1	1
Eurobank Tekfen A.Ş.**	0	54
Finans Bank A.Ş.	0	502
Fortis Bank A.Ş.**	0	269
HSBC Bank A.Ş.	70	329
ICBC Turkey Bank A.Ş.	39	0
ING Bank A.Ş.	148	318
Millennium Bank A.Ş.* **	0	18
MUFG Bank Turkey A.Ş.	1	0
Odea Bank A.Ş.	48	0
QNB Finansbank A.Ş.	435	0
Rabobank A.Ş.	1	0
Turkland Bank A.Ş.	12	27
Türkiye Garanti Bankası A.Ş.*	829	0
Foreign banks with branches in Türkiye	7	25
Bank Mellat	3	3
Habib Bank Limited	1	1
Intesa Sanpaolo S.p.A.	1	0
JPMorgan Chase Bank N.A.	1	1
Société Générale (SA)	1	16
The Royal Bank of Scotland N.V.**	0	3
WestLB AG**	0	1
State-owned development and investment banks	71	41
İller Bankası A.Ş.	19	19
Türk Eximbank	23	2
Türkiye Kalkınma ve Yatırım Bankası A.Ş.	1	1
Domestic development and investment banks	24	14
Aktif Yatırım Bankası A.Ş.	13	6
D Yatırım Bankası A.Ş.	1	0
Destek Yatırım Bankası A.Ş.	1	0
Diler Yatırım Bankası A.Ş.	1	1

Golden Global Yatırım Bankası A.Ş.	1	0
GSD Yatırım Bankası A.Ş.	3	1
İMKB Takas ve Saklama Bankası A.Ş.	0	1
İstanbul Takas ve Saklama Bankası A.Ş.	1	0
Nurol Yatırım Bankası A.Ş.	1	2
Türkiye Sınai Kalkınma Bankası A.Ş.	2	3
Foreign development and investment banks	4	5
Bank of America Yatırım Bank A.Ş.	1	0
BankPozitif Kredi ve Kalkınma Bankası A.Ş.	1	2
Credit Agricole Yatırım Bankası Türk A.Ş.	0	1
Merrill Lynch Yatırım Bank A.Ş.	0	1
Pasha Yatırım Bankası A.Ş.*	1	0
Standard Chartered Yatırım Bankası Türk A.Ş.	1	0
Taib Yatırım Bank A.Ş.	0	1

Between 2010 and 2022, the structure of the Turkish banking sector experienced significant transformations across domestic, foreign, and state-owned banks. In Panel A, which reports 2010 figures in real terms (million TL, 2003 prices), domestic banks held total assets of 253,530 and extended 118,632 in credits. Foreign banks reported 77,146 in assets and 46,615 in credits, while state-owned banks held 157,326 in assets and provided 64,452 in credits.

By 2022 (Panel B), after adjusting nominal values with Consumer Price Index (2003=100) figures obtained from TURKSTAT, all categories of banks expanded considerably. Domestic banks increased their total assets to 412,118 million TL and credits to 208.14 million TL. Foreign banks reached 346,983 million TL in assets and 173.60 million TL in credits. State-owned banks showed the largest expansion, with assets rising to 582,644 million TL and credits to 331.53 million TL.

Table 2: Change in banking sector characteristics in Türkiye (2010-2022)

<i>Panel A: Banking sector characteristics 2010 (million TL)</i>			
	Number of branches	Total Assets	Credits
Domestic	4741	253,530	118,632
Foreign	2523	77,146	46,615
State	2744	157,326	64,452
<i>Panel B: Banking sector characteristics 2022 (million TL)</i>			
	Number of branches	Total Assets	Credits
Domestic	3490	412,118	208.140
Foreign	3312	346,983	173.600
State	4161	582,644	331.530

Figure 1. illustrates the change in the average shares of privately owned, state-owned and foreign-owned banks in a city.

In 2010, foreign and state banks were around 40% in a given city while foreign banks were almost 20%. However, between 2010 and 2016, domestic banks' share declined as foreign banks' share rose, almost converging completely in 2022 with 25% for foreign banks and 27% for domestic banks.

In contrast, state banks' share experienced a consistent upward trajectory throughout the period, rising from 42.14% in 2010 to 47.33% in 2022.

Figure 2. and **Figure 3.** illustrate the changes in total deposits and credit per capita over the years for each bank type. The trends depicted in both graphs reveal a strikingly similar pattern, with state-owned banks consistently leading in both categories. Starting in 2015, state-owned banks begin to significantly diverge from both foreign-owned and domestically-owned banks, with this gap continuing to widen throughout the sample period. This indicates a growing dominance of state-owned banks in terms of deposits and credit allocation per capita.

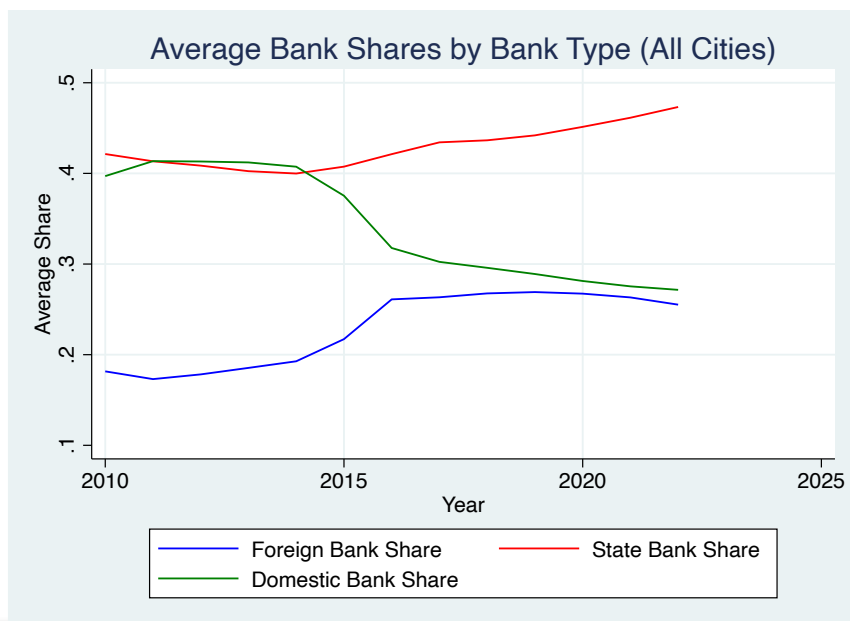


Figure 1: Average Bank Branch Shares by Type in a Given City

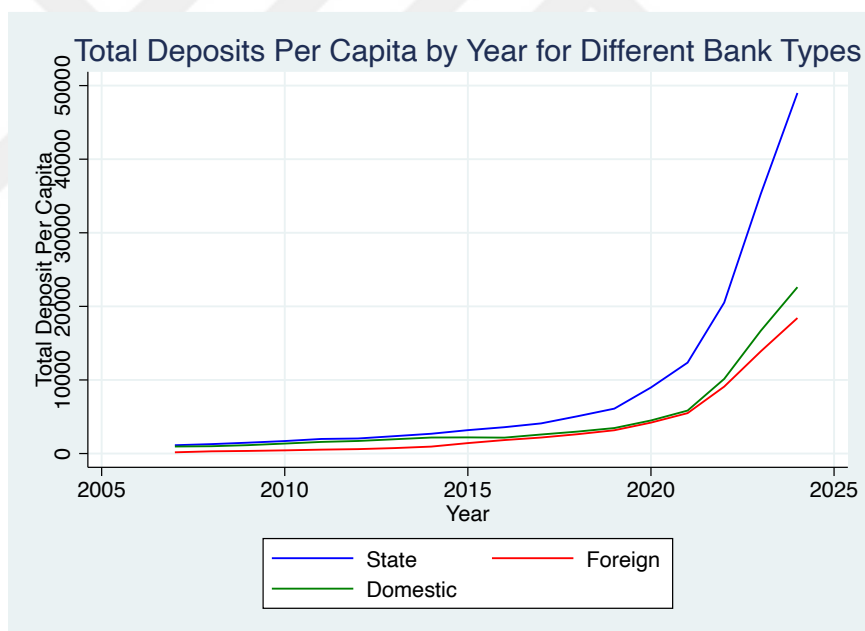


Figure 2: Total deposits by year and bank type (per capita)

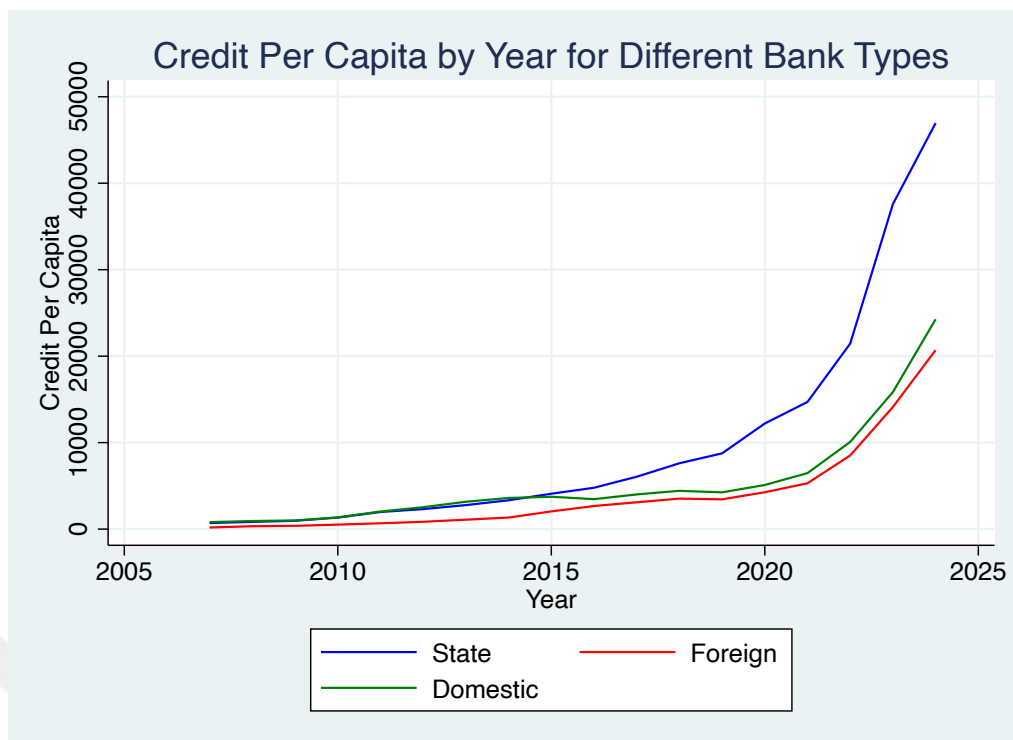


Figure 3: Credit by year and bank type (per capita)

CHAPTER 4

HYPOTHESIS DEVELOPMENT

In this section, I define the main hypotheses of the thesis and explain how they are tested. The analysis focuses on the role of local banking structures in shaping SME activity in Türkiye. In particular, the study examines how state-owned, foreign-owned, and domestic private banks influence the creation, closure, and performance of SMEs. The hypotheses are developed from the existing literature on bank ownership, relationship lending, and financial constraints, and are evaluated through the empirical strategy outlined in the following chapter.

Bank credit plays a pivotal role in the survival and growth of SMEs, especially in emerging economies like Türkiye, where capital markets are less developed. Access to finance directly influences a firm's ability to invest, expand, and whether economic downturns (Berger and Udell, 2006). The structure of the banking sector, in terms of the types of banks operating in a given region, can have a profound effect on the credit conditions faced by SMEs. State-owned, foreign, and domestic private banks may provide differing levels of support based on their unique objectives and business models.

State-owned banks (SOBs) are often positioned as counter-cyclical lenders, increasing credit availability during economic downturns. In emerging economies like Türkiye, SOBs play a crucial role in stabilizing the economy and providing financing to SMEs when private banks may be more risk-averse. SOBs tend to focus on supporting the local economy and may be more inclined to offer loans to SMEs that are underserved by other banks. However, while SOBs can facilitate firm creation by offering favorable loan conditions (Dong et al., 2016), they also face criticism for politically motivated lending, which may skew the allocation of credit (Dinc, 2005). Despite these concerns, I hypothesize that the presence of SOBs in local banking markets creates an environment conducive to new firm formation, particularly in underbanked regions where access to finance is more constrained. Research by Alıcıoğlu & Küçükkoçaoğlu (2022), demonstrates that state-owned banks play a critical role in providing liquidity during economic slowdowns, facilitating SME creation by filling the credit gap left by private banks. Similarly, De Luna-Martinez and Vicente (2012) emphasize the stabilizing role of SOBs, particularly in times of crisis, by continuing to lend when private sector banks withdraw. These findings supports that the presence of SOBs in local banking markets is crucial for new SME formation, especially in regions with limited access to financing. Therefore, I hypothesize:

H1: The presence of state-owned banks in local banking markets positively impacts the creation of new SMEs.

Domestic private banks are crucial players in SME financing, particularly in emerging markets where they have established strong ties with local firms. These banks engage in relationship lending, utilizing soft information to assess the creditworthiness of SMEs, which is often crucial for smaller, less transparent firms (Berger and Udell, 2002). Given their deep knowledge of local markets and businesses, domestic banks are more likely to support SMEs with favorable loan terms. This relationship lending model enables them to overcome information asymmetries that can limit the ability of SMEs to access finance. I posit that domestic private banks, due to their close ties with local economies, will have a positive impact on the creation and growth of SMEs, particularly in urban areas with a higher concentration of such banks. The advantages of relationship lending are particularly evident in situations where borrowers are new or lack robust financial documentation. Research by Petersen and Rajan (1994) and Berger and Udell (1995) suggests that domestic private banks are more likely to provide favorable loan terms due to their long-term relationships with borrowers. Furthermore, the effectiveness of these relationships is particularly relevant in economies like Türkiye, where smaller businesses may lack access to transparent financial data. This aligns with the findings of Berger et al. (2001), who suggest that the deep knowledge of domestic private banks about local firms enables them to mitigate information asymmetries that hinder SME financing. Additionally, Berger and Udell (2002) highlights that domestic banks' deep-rooted relationships with SMEs enhance their ability to provide tailored financing solutions, which supports the hypothesis that domestic private banks play a crucial role in SME growth. Therefore, my second hypothesis is:

H2: Presence of domestic private banks positively influence the growth of SMEs.

The presence of foreign-owned banks in local markets can lead to a more competitive banking environment; however, their lending behavior often focuses on larger, more transparent firms, leaving SMEs with limited access to credit (Stiglitz, 2000). The lending model employed by foreign banks, which typically relies more on hard information and focuses on larger loans, may not align with the needs of smaller, younger firms (Berger et al., 2001). Additionally, foreign banks may be more risk-averse during economic downturns, further constraining SME access to finance (Bruno et al., 2014). Consequently, I hypothesize that foreign-owned banks, especially those with a dominant market share, may negatively affect SME growth prospects, as they are less likely to provide the tailored financial services needed by SMEs to thrive. Research by Detragiache et al. (2008) supports this hypothesis, showing that foreign-owned banks often engage in "cherry-picking," focusing on larger, more transparent firms and leaving SMEs underserved. Moreover, Boustanifar (2014) suggests that foreign banks may offer credit to SMEs under certain conditions, but this is typically reserved for more financially transparent firms, which limits the growth potential for smaller, less transparent SMEs. In a similar vein, Hasan et al. (2017) highlight that while foreign banks can ease financing constraints in some emerging economies, they tend to prioritize larger firms, leaving SMEs at a disadvantage in accessing credit. In line with this literature, I hypothesize:

H3: Foreign-owned banks' dominance in local banking markets negatively affects the growth and profitability of SMEs.

In periods of economic slowdown, the stabilizing role of state-owned banks and the relationship lending model of domestic private banks become even more critical for SMEs. Research suggests that small banks, particularly state-owned ones, are more resilient during economic crises, as they continue to lend when larger banks reduce their exposure to SMEs (Beck et al., 2011). The positive effects of domestic private banks are likely to be amplified in downturns when SMEs face greater challenges in accessing credit from other sources. Foreign banks, on the other hand, may reduce their lending during such periods, exacerbating financing constraints for SMEs (Degryse and Van Cayseele, 2000). I propose that the positive impact of domestic private banks on SME financing and growth is more pronounced during periods of economic downturn, as these banks are more likely to continue lending to SMEs despite challenging conditions. Beck et al. (2011) support this hypothesis by showing that state-owned banks tend to be more resilient during economic crises, continuing to provide liquidity when larger financial institutions scale back their operations. This makes SOBs particularly important for SME survival during downturns. Similarly, Degryse and Van Cayseele (2000) emphasize that foreign banks, which rely heavily on larger firms, tend to reduce their lending during economic slowdowns, further constraining the already limited financing options available to SMEs. The findings of these studies suggest that the presence of state-owned and domestic private banks in local markets plays a critical role in ensuring the continuity and growth of SMEs during times of economic hardship. Lastly, I hypothesize:

H4: The impact of banking market structure on SME performance is stronger during periods of economic downturns, particularly for state-owned and domestic private banks.



CHAPTER 5

DATA AND METHODOLOGY

This chapter develops the study's hypotheses by examining how local banking structures influence SMEs in Türkiye. I show how state-owned, domestic private, and foreign banks impact SME creation, growth, and survival through their distinct lending models, and I present four testable hypotheses with special focus on economic downturns.

5.1 Bank Branch Data

The Banks Association of Türkiye (BAT) classifies banks based on ownership into three categories: foreign, domestic, or state-owned. All banks used in the analysis include deposit, development and investment, and participation banks.

Banking Regulation and Supervision Agency (BRSA) reports the number of bank branches for domestic deposit banks foreign deposit banks, state-owned deposit banks, participation banks, and investment banks for all ownership types across 81 Turkish provinces. I compile the number of bank branches for domestic banks,

foreign banks, state-owned banks across 81 Turkish provinces annually using the year-end branch numbers from 2010 to 2022. The final sample covers 81 provinces for 13 years, totaling 1053 province years.

I define the variables for *State Branch Share*, *Domestic Branch Share*, *Foreign Branch Share* and *Participation Branch Share* in province p at year t as follows:

Foreign Branch Share $_{p,t}$ = Number of Branches of Foreign banks $_{p,t}$ / (Number of Branches of State-Owned banks $_{p,t}$ + Number of Branches of Domestic banks $_{p,t}$ + Number of Branches of Foreign banks $_{p,t}$)

State Branch Share $_{p,t}$ = Number of Branches of State-Owned banks $_{p,t}$ / (Number of Branches of State-Owned banks $_{p,t}$ + Number of Branches of Domestic banks $_{p,t}$ + Number of Branches of Foreign banks $_{p,t}$)

Domestic Branch Share $_{p,t}$ = Number of Branches of Domestic banks $_{p,t}$ / (Number of Branches of State-Owned banks $_{p,t}$ + Number of Branches of Domestic banks $_{p,t}$ + Number of Branches of Foreign banks $_{p,t}$)

Here, banks are classified by ownership as state-owned, domestic private, or foreign.

The operational types of banks (deposit, participation, and development and investment) are embedded within these ownership categories rather than treated separately. Participation banks and development and investment banks are therefore counted under their respective owners, whether state, domestic, or foreign. After aggregating branch numbers by ownership for each province and year, I calculate the branch shares based on these ownership classifications.

5.2 Data used on the firm entry and exit models

To analyze the relationship between bank branch shares and firm entry and exit, I calculated the branch share for each bank type across the provinces. I compiled the number of bank branches for domestic banks, foreign banks, state-owned banks, and participation banks across 81 Turkish provinces annually from 2010 to 2022.

Data on firm entry and exit came from the Union of Chambers and Commodity Exchanges of Türkiye (UCCE), which provides monthly reports at the province level from 2010 to 2022. This dataset covers all 81 provinces and provides monthly observations. I aggregated the monthly data to obtain annual figures at the province level. The final sample covers 13 years, from 2010 to 2022, resulting in 1,053 city-year observations.

Firm entry and exit models are based on officially registered commercial companies recorded by the Union of Chambers and Commodity Exchanges of Türkiye. These are incorporated businesses that have gained legal personality under the Turkish Commercial Code, such as joint stock, limited liability, and similar corporate forms. Focusing on these firms ensures the analysis reflects activity within the formal corporate sector that is most directly linked to bank–firm relationships and access to credit. This measure does not include sole proprietorships or cooperatives, which are tracked separately, so the results emphasize the dynamics of incorporated businesses rather than informal or cooperative enterprises.⁴

⁴ According to the Union of Chambers and Commodity Exchanges of Türkiye’s official metadata on company statistics: [Kurulan/Kapanan Şirket İstatistikleri Metaverisi](#).

Figure 4. This graph shows the annual number of new and closed firms in Türkiye from 2010 to 2022. New firm creation rose steadily over the period, reaching nearly 150,000 in 2022, while closures remained comparatively low and stable. The persistent gap between entries and exits underscores the overall expansion of the corporate sector. *Source: Union of Chambers and Commodity Exchanges of Türkiye (UCCE).*



Figure 4: New vs. Closed Firms in Türkiye (2010-2022)

For the control variables, I sourced population (POPUL) data from TURKSTAT, which reports annual figures at the city level for 2010-2022. I also included data on total deposits and total credits for each city on a quarterly basis, obtained from BRSA. For these variables, I used the value from the last quarter of each year as the representative figure for the following year. I also adjust for inflation using year end CPI values. I take the natural logarithm of credit and deposit variables. I also controlled for educational attainment in each province by using annual average years of education, sourced from TURKSTAT (2011-2022). Additionally, I accounted for firm density in each province, which I calculated by dividing the number of active

firms by the land area of the province, using data from UCCE and the Directorate General for Mapping. I also controlled for real GDP (chain-linked volume), sourcing data from TURKSTAT on an annual and province basis. All independent variables are lagged by one year.

Table 3: Variable definitions for the entry/exit models

Variable	Definition	Source
New firms	Number of newly registered incorporated companies in a province within a year (count)	UCCE
Closed firms	Number of incorporated companies that ceased operations in a province within a year (count)	UCCE
Bank branch shares	Share of bank branches in a province, calculated separately for domestic, foreign, state-owned, and participation banks (percentage of total branches)	BRSA
Total credit	Total credit volume in a province at year-end, lagged by one year and adjusted for inflation (million TL)	BRSA
Total deposits	Total deposit volume in a province at year-end, lagged by one year and adjusted for inflation (million TL)	BRSA
GDP	Real GDP for each province, chain-linked volume, lagged by one year (thousand TL)	TURKSTAT
Population	Year-end population of a province (persons)	TURKSTAT
Education	Average years of schooling among the provincial population, lagged by one year (years)	TURKSTAT
Firm density	Active firms per square kilometer in a province (ratio)	UCCE, Directorate General for Mapping

Table 3 presents the variables used in the firm entry and exit models, providing their definitions, measurement units, and data sources. The variables include firm dynamics such as new and closed companies, as well as provincial characteristics like banking structure, economic conditions, demographics, and education that may influence entry and exit behavior. This overview clarifies how each factor was measured for the empirical analysis.

Table 4: Descriptive statistics for variables used in the firm entry model.

	Mean	Median	St. dev.	P5	P25	P75	P95
NEW.FIRMS	924.37	194	3,650.84	29	93	505	2,910
CLOSED.FIRMS	176.06	31	817.88	3	14	79	395
GDP	36,675	25,061	35,670	9,769	16,410	41,269	113,436
TOT.CRED	79,746.83	17,404.57	321,046.70	2,947.53	8,803.61	42,092.45	227,072.70
TOT.DEP	70,737.93	12,100.84	333,467.90	2,238.46	5,881.73	31,501.63	155,393.60
EDUC	7.70	7.70	0.95	6.00	7.10	8.40	9.10
FIRM.DENS	0.12	0.03	0.64	0.00	0.01	0.06	0.31
POPUL	984,366	527,863	1,771,529	142,490	283,496	1,041,979	2,619,832

In **Table 4**, I report the descriptive statistics for the variables I used in the firm entry and exit model. The sources of these variables are reported in the appendix.

5.3 Financial Statement Data

I collected annual firm-level data from the Entrepreneur Information System (EIS), compiled by Republic of Türkiye Ministry of Industry and Technology, covering all 81 provinces and for 14 yeears, from 2009-2022. This dataset provides detailed

balance sheet information on firms, including performance metrics such as profitability, financial costs, and sales growth. The industry classifications used in EIS follow the Statistical Classification of Economic Activities in the European Community (NACE Rev. 2).

To align with the 2023 definition of SMEs, as established by the Ministry of Industry and Technology, I excluded firms with more than 250 employees or revenues exceeding 500,000,000 Turkish Lira (TL). The final sample includes 1,111,150 firms across 14 years, from 2009 to 2022, resulting in a total of 2,222,499 firm-years.

Table 5. includes a variety of variables across three main categories that I have collected on province-level and annually for 2008-2022: SME Characteristics which are firm-year, Bank Branch Market Structure, and Local Environment. Firm-level control variables include ASSETS.GR (%), representing the growth rate of total assets in constant prices, and CASH, which measures the ratio of cash and cash equivalents to total assets. COLLAT refers to the ratio of tangible fixed assets to total assets. Other important variables include EBIT.A and EBIT.S, which represent operating profit or loss relative to total assets and sales, respectively. EQUITY measures shareholders' equity to total liabilities. Additionally, variables like FIXA (fixed assets ratio), and LNA (natural logarithm of total assets) reflect firm size and asset structure. LT.LIAB represents the ratio of non-current liabilities to total liabilities, and REC is the ratio of receivables to total assets while TAT reflects asset turnover.

Dependent variables include ROS (gross profit to sales), SALES.GR (%) (sales growth), which are used to assess profitability and business performance. Finally,

FIN.COST financial expenses as a proportion of average assets, while financial expenses cover not only interest expenses but also commissions, borrowing-related exchange rate differences, and costs associated with leasing and debt securities.⁵

TAG captures the growth rate of tangible fixed assets.



⁵https://www.kgk.gov.tr/Portalv2Uploads/files/Duyurular/v2/TFRS/EK2_Finansal%20Raporlama%20Standartlar%C4%B1na%20Uygun%20Hesap%20Plan%C4%B1%20Tasla%C4%9F%C4%B1.pdf

Table 5: Description of variables for the performance models

A. SME Characteristic	Variable Description	EIS Description
ASSETS.GR (%)	Growth rate of total assets in constant prices.	122. Aktif Toplamı
CASH	Ratio of cash and cash equivalents to total assets.	3. Kasa / 122 Aktif Toplamı
COLLAT	Ratio of tangible fixed assets to total assets.	84. Maddi Duran Varlıklar / 122. Aktif Toplamı
EBIT.A	Operating profit or loss to total assets.	253. Faaliyet Karı veya Zararı / 122. Aktif Toplamı
EBIT.S	Operating profit or loss to sales.	253. Faaliyet Karı veya Zararı / 242. Net Satışlar
EQUITY	Ratio of shareholders' equity to total liabilities.	208. Öz Kaynaklar / 173. Uzun Vadeli Yabancı Kaynaklar + 123. Kısa Vadeli Yabancı Kaynaklar
FIN.COST	Financial expenses to average assets per year.	273. Finansman Giderleri / 122. Aktif Toplamı
FIXA	Ratio of fixed assets to total assets.	57. Duran Varlıklar / 122. Aktif Toplamı
TAG (%)	Growth rate of tangible fixed assets in constant prices.	84. Maddi Duran Varlıklar
LNA	Natural logarithm of total assets in constant prices.	122. Aktif Toplamı
LT.LIAB	Ratio of non-current liabilities to total liabilities.	275. Uzun Vadeli Borçlanma Giderleri / 173. Uzun Vadeli Yabancı Kaynaklar + 123. Kısa Vadeli Yabancı Kaynaklar
REC	Ratio of receivables to total assets.	14. Ticari Alacaklar / 122. Aktif Toplamı
ROS	Gross profit or loss to sales.	230. Dönem Net Karı (Zararı) / 242. Net Satışlar

A. SME Characteristic cont'd	Variable Description	EIS Description
SALES.GR (%)	Growth rate of sales in constant prices.	242. Net Satışlar: Growth rate of total sales in constant prices.
TAT	Ratio of sales to total assets.	242. Net Satışlar / 122 Aktif Toplamı: Sales-to-total-assets ratio, indicating business efficiency.
B. Bank branch market structure	Variable Description	Source
FGN.SHARE	Share of branches of foreign-owned banks in a province	BAT
STATE.SHARE	Share of branches of state-owned banks in a province	BAT
DOM.SHARE	Share of branches of domestic-owned banks in a province	BAT
C. Local Environment	Variable Description	Source
GDP.GROWTH (%)	Annual GDP growth rate.	TURKSTAT
POP.DENS	Population in a given city divided by the land mass of the city.	Land mass from Directorate General for Mapping, Population from TURKSTAT

For the firm performance models, I calculated bank shares differently than in the firm entry/exit models. Instead of relying only on year-end branch numbers, I averaged the quarterly branch data within each year to obtain a representative annual presence of each bank type in each city. This approach smooths out within-year fluctuations in branch numbers and provides a more accurate measure of the average availability of domestic, foreign, and state-owned banks in the local market.

The bank branch market structure category includes the variables FGN.SHARE, STATE.SHARE, and DOM.SHARE, which I calculated differently from the new firm model. I obtained the quarterly bank branch data and calculated the average number of branches for each bank type (foreign, state, and domestic) to derive the respective shares, which serve as proxies for the presence of each type of bank in a given city and year. I source this data from BAT.

The Local Environment section includes macroeconomic indicators such as GDP.GROWTH (%) and POP.DENS (population density). I sourced population density from TURKSTAT and the Directorate General for Mapping, where population density is calculated by dividing the total population by land area.

To account for national economic slowdowns, I used real GDP growth rates from TURKSTAT. I defined a national slowdown as years when GDP growth below 3%, and also tested an alternative specification with a 5% threshold.

Table 6. provides descriptive statistics for firm-level financial characteristics and banking market variables from 2008 to 2022. Panel A describes the financial characteristics of SMEs, including variables such as cash ratios, equity, and profitability measures. The table reports the mean, median, standard deviation, and key percentiles for each variable. Panel B focuses on the banking market, showing the distribution of bank branch shares across foreign, state, and domestic-owned banks in cities. It also includes the number of branches by bank type.

Table 7. presents the correlation matrix for the performance variables used in the analysis. The table illustrates the relationships between various financial and operational metrics of SMEs.

Table 6: Descriptive statistics for the performance variables

Panel A. SME financial characteristics (2008-2022)							
	Mean	Median	St. dev.	5 th perc.	25 th perc.	75 th perc.	95 th perc.
CASH	2.97%	0.46%	7.56%	0.01%	0.13%	1.70%	16.87%
COLLAT	20.43%	13.17%	20.35%	0.77%	4.91%	29.70%	65.90%
EBIT_A	4.94%	3.73%	9.11%	-7.90%	1.00%	8.24%	21.40%
EBIT_S	3.34%	3.44%	14.40%	-12.90%	1.07%	7.38%	19.70%
EQUITY	70.48%	38.13%	89.24%	-1.49%	15.81%	88.10%	271.69%
FIXA	25.09%	17.45%	22.89%	1.22%	6.81%	37.72%	74.41%
SALES_GR	5.48%	17.48%	34.68%	-40.99%	-31.27%	37.92%	49.87%
TAG	4.62%	14.33%	35.11%	-39.61%	-32.93%	36.50%	53.37%
ASSETS_GR	9.93%	25.15%	32.64%	-37.05%	-27.70%	38.83%	48.44%
LNA	12.141	12.004	1.441	9.9987	11.114	13.048	14.756
LT_LIAB	15.21%	0.84%	23.42%	0.00%	0.00%	23.48%	69.94%
REC	24.14%	18.58%	22.82%	0.00%	4.64%	37.75%	69.17%
ROS	20.25%	15.13%	19.53%	1.98%	8.45%	25.39%	59.83%
TAT	131.74%	103.87%	105.97%	21.09%	60.31%	169.44%	345.01%
FIN_COST	1.38%	0.66%	1.78%	0.00%	0.01%	2.09%	5.21%
Panel B. Bank characteristics by type (2008-2022)							
	Mean	Median	St. dev.	Min	5 th perc.	95 th perc.	Max
<i>Share of branches of a given bank type in all branches in a city</i>							
Foreign	22.5%	22.8%	5.1%	0.0%	14.1%	29.5%	35.4%
State	43.7%	43.5%	10.9%	21.6%	27.7%	63.8%	76.2%
Domestic	33.7%	34.5%	7.5%	10.1%	20.5%	43.6%	46.2%
<i>Number of branches of a given bank type in a city</i>							
Foreign	38.1	11	127.9485	0	2	117	1113
State	43.1	23	86.21778	4	8	108	682
Domestic	53.7	16	159.0448	1	2	168	1350

Table 7: Correlation matrix for the performance model variables

	TAG	EBIT.A	EBIT.S	LT.LIAB	REC	FIXA	FIN COST	COLLAT	EQUITY	SALES.GR	ROS	ASSETS GR	TAT	LNA	CASH
TAG	1														
EBIT.A	-0.0339	1													
EBIT.S	-0.0231	0.1905	1												
LT.LIAB	-0.0013	-0.0064	-0.009	1											
REC	-0.0222	0.0336	0.0382	0.0282	1										
FIXA	-0.0226	-0.004	-0.0172	0.0481	0.0439	1									
FIN.COST	-0.0034	-0.0845	-0.027	0.0247	0.0138	0.1044	1								
COLLAT	-0.0729	0.0232	0.0121	-0.0068	0.0235	0.0415	0.1369	1							
EQUITY	-0.0031	-0.011	-0.014	0.0382	0.056	0.0434	0.005	0.0113	1						
SALES.GR	0.267	-0.0168	-0.0397	0.0121	0.0284	-0.0026	0.0044	-0.0199	0.0136	1					
ROS	-0.0295	0.3297	0.7752	-0.0144	0.0473	-0.0134	-0.0643	0.0061	-0.0217	-0.0469	1				
ASSETS.GR	0.2123	0.004	-0.0031	0.0115	0.0166	0.0007	-0.0011	-0.0129	0.0098	0.2928	-0.0011	1			
TAT	0.0221	-0.3015	0.027	-0.0116	0.0215	0.0032	0.0859	0.0818	0.0024	0.0168	0.0201	-0.0071	1		
LNA	-0.0447	0.0667	0.0225	0.0602	0.1377	0.2071	0.0126	-0.0852	0.039	0.0293	0.0477	0.0761	-0.1265	1	
CASH	0.0134	-0.0212	-0.0039	-0.0081	-0.0772	-0.0421	0.0106	0.0435	-0.0263	-0.0086	-0.004	-0.0286	0.0602	-0.2606	1

5.4 Methodology

This study follows Hasan et al. (2017), who investigate the role of local banking market structures, particularly the presence of foreign and cooperative banks, in SME financing and performance within an emerging economy. Their framework provides a valuable benchmark for the Turkish case, where the relevant banking structures differ, comprising state-owned, domestic private, and foreign banks. By adapting their methodology to this context, the present study situates firm outcomes within the broader landscape of local financial market conditions in Türkiye.

My analysis is similar to Hasan et al. (2017) in that it employs firm fixed effects to control for unobserved heterogeneity, ensuring that time-invariant firm-specific characteristics are accounted for. However, this paper extends the scope beyond SME financing to a richer set of firm-level performance indicators, including financial costs, tangible asset growth, and return on sales. Moreover, while Hasan et al. do not incorporate count models, I employ negative binomial regressions to analyze firm entry and exit dynamics. This allows the study to address the overdispersion inherent in count data on firm creation and closure, thereby providing a more accurate estimation framework for entrepreneurial activity.

A further difference concerns the level of geographic aggregation. Whereas Hasan et al. exploit district-level variation, my analysis is conducted at the province level. While this limits the ability to capture highly localized heterogeneity within provinces, it also ensures full country coverage and aligns more closely with administrative and economic

boundaries that are meaningful for policy analysis. The provincial perspective thus balances methodological feasibility with relevance to nationwide economic patterns.

5.4.1 Negative binomial regression

To assess the relationship of shares of bank types on new branch openings, I employ negative binomial regression. This model is appropriate as the dependent variables (e.g., number of firm openings or closures) are count data that exhibits overdispersion. The negative binomial model provides a more flexible approach than the Poisson model by allowing for overdispersion, where variance exceeds the mean. I regress new firm openings and closures on bank branch shares, tangible assets growth and local control variables on year t and province p . I estimate the following equation:

$$COUNT_{pt} = \alpha_i + \beta_1 Share_{pt} + \beta_2 TotalDep_{pt-1} + \beta_3 TotalCred_{pt-1} + \beta_4 POPUL_{pt} + \beta_5 FirmDens_{pt} + \beta_6 GDP_{pt-1} + \beta_7 EDUC_{pt-1} + \gamma_p + \lambda_t + \varepsilon_t \quad (1)$$

Dependent variable $COUNT_{pm}$ is the new firm openings, increase in firm density, firm closures, and more specific outcomes like opening or closure of cooperative firms and sole proprietorships in province p and year t . I cover all 81 provinces for 2010-2022, resulting in 1053 city-year observations.

New firm openings include all types of firms, including sole proprietorships, cooperatives, and other business entities such as limited and joint-stock companies. These

are firms that have been registered and begun their operations within a given year t , as recorded in the Türkiye Commerce Registry Gazette.

Firm closures refer to firms of any type (sole proprietorships, cooperatives, limited companies, etc.) that have ceased operations and have been deregistered in the Türkiye Commerce Registry Gazette. This includes firms that go through liquidation or those that voluntarily cease operations.

Independent variable $Share_{pt}$ includes the number shares of state, foreign and domestic branches for province p and year t . γ_p is the province level fixed effects while λ_t is the year fixed effects. $TotalDep_{pt-1}$, and $TotalCred_{pt-1}$ represent the real lagged values of total deposits and total credit in province p and time t , respectively. These lagged variables account for the impact of the previous year's financial conditions on the current year's new firm openings, acknowledging that credit availability may have a delayed effect on entrepreneurial activity. Similarly, GDP_{pt-1} and $EDUC_{pt-1}$ capture the lagged effects of economic conditions and educational levels, as economic performance and human capital typically influence entrepreneurial activity with a time lag.

$FirmDens_{pt}$ reflects the firm density in province p and time t , indicating the level of competition and market saturation, which may affect the entry of new firms.

With the same specification, I also employ ordinary least squares regression as a robustness check. The results are reported alongside the main findings in the study to allow a direct comparison with the negative binomial estimates.

5.4.2 Ordinary Least Squares (OLS)

As a robustness check, I estimate the same specification using ordinary least squares (OLS) regression. While the negative binomial model is more suitable for overdispersed count data, OLS provides a useful benchmark and allows the coefficients to be interpreted as marginal effects in a linear framework. This complementary approach helps assess whether the main findings are sensitive to the distributional assumptions embedded in the count model.

The OLS specification takes the following form:

$$Y_{pt} = \alpha_i + \beta_1 Share_{pt} + \beta_2 TotalDep_{pt-1} + \beta_3 TotalCred_{pt-1} + \beta_4 POPUL_{pt} + \beta_5 FirmDens_{pt} + \beta_6 GDP_{pt-1} + \beta_7 EDUC_{pt-1} + \gamma_p + \lambda_t + \varepsilon_t \quad (2)$$

Here, the dependent variable Y_{pt} is defined as the number of new firm openings, and firm closures.

The explanatory variables are the same as those used in the negative binomial specification: branch shares of state-owned, foreign, and domestic banks; lagged values of total deposits and total credit; lagged GDP and education levels; contemporaneous population and firm density; and province (γ_p) and year (λ_t) fixed effects.

5.4.2 Fixed Effects Regressions

I employ firm fixed effects to assess the impact of bank branch shares on firm performance. Firm fixed effects account for unobserved heterogeneity at the firm level,

controlling for any time-invariant factors specific to each firm. I regress firm performance variables on bank branch shares with firm fixed effects. My fixed effects specification is as follows:

$$PER_{it} = \alpha_i + \beta_1 Share_{pt} + \beta_2 Controls_{it,it-1} + \beta_3 BranchDens_{pt} \quad (3)$$

$$+ \gamma_z + \lambda_t + \varepsilon_t$$

Where the dependent variable PER_{it} is the given performance variable of a firm i in time t . Firm performance variables include inancial cost (FIN_COST) tangible assets growth (TAN_ASSETS_GR), sales growth (SALES_GR) and return on sales (ROS). The independent variables include α_i , the firm fixed effects, which control for unobserved, time-invariant characteristics that may vary across firms but remain constant over time.

$Share_{pt}$, the key independent variables are the shares of bank types state, foreign and domestic for province p and year t . I also run a fixed effects model in which I substitute the key independent variable, the share of a given bank type, with the per capita shares of total deposits and credits.

$Controls_{it,it-1}$ is a set of firm-specific variables for period t or $t-1$ in a city or a district where the firm i is domiciled. Specifically, assets growth (ASSETS.GR), cash (CASH), collateral (COLLAT), operating profit or loss to total assets and total sales (EBIT.A), (EBIT.S), equity (EQUITY), natural logarithm of total assets (LNA), long-term liability (LT.LIAB), receivables (REC), gross profit or loss to sales (ROS).

$BranchDens_{pt}$ is added to control for local banking conditions in city p and time t . γ_z is a province or district level fixed effects, changing based on the model. Province or district fixed effects absorb any time-invariant trends across cities and districts. λ_t is the yearly and monthly fixed effects that controls for time-varying but city-invariant unobserved factors. I cluster the standard errors by city or district depending on the model.

I use a similar specification when assessing the impact of new branch openings on firm performance variables. I swap the independent variable $Share_{it}$ with new branch openings of the given bank type, which are more granular due to being on the district level rather than being on city level. I also include time dummy variables.

While shares are a good proxy for the presence of the given bank type in a province, it may not perfectly capture variations regarding the branch size and activity. Credit volumes and loan quality may also play a role in the ownership structure and firm entry and performance, introducing a limitation.

5.4.3 National Slowdown Interaction

In this study, I investigate the impact of local banking market structures on firm dynamics, while considering the role of macroeconomic factors that could influence these dynamics. To do this, I employ a national slowdown model, where I examine the relationship between bank shares and firm outcomes, specifically in the context of periods when the Turkish economy experiences slower growth.

The central component of this model is the interaction between each type of bank share (foreign, domestic, and state-owned) and a national slowdown dummy. The national slowdown dummy takes a value of 1 when Türkiye's GDP growth is below 3% in a given year and 0 otherwise. This dummy variable captures periods of economic stagnation or downturns, which might affect firms' performance or their behavior in relation to banking market structures. I regress performance variables on bank branch shares. The model specification for this analysis is as follows:

$$PER_{it} = \alpha_i + \beta_1 Share_{it} + \beta_3 (Share_{it} \times NationalSlowdown_t) + \beta_2 Controls_{it} + \beta_3 Local_{zt} + \gamma_z + \lambda_t + \varepsilon_t \quad (4)$$

Where the dependent variable PER_{it} is the tangible assets growth (TAG), financial cost (FIN.COST) and return on sales (ROS) for firm i and year t . Independent variables include the interaction term between the bank share variables and the national slowdown dummy in time t $Share_{it} \times NationalSlowdown_t$, and $Controls_{it}$ are the control variables for firm i and year t . Firm control variables include The variable TAT (asset turnover) measures the efficiency with which a firm utilizes its assets to generate revenue. LNA (the natural logarithm of total assets) serves as a size measure for the firm. The variable LT.LIAB (long-term liabilities) reflects the firm's capital structure, while REC (receivables) represents the proportion of assets tied up in receivables. FIXA (fixed assets) indicates the proportion of a firm's assets invested in long-term physical assets, and ASSETS.GR (asset growth) measures the growth rate of the firm's assets. All firm-level control variables, except for LNA, were lagged by one period to address potential endogeneity and to ensure that the effects of these variables are observed with a time

delay, thus allowing for a more accurate analysis of how past firm performance and structure influence current outcomes. Province-year control variables include the branch density (BRANCH.DENS), capturing economic and banking market conditions unique to each province and year. This analysis allows me to explore H4, whether the effect of different bank market structures on firm dynamics differs significantly during periods of low economic growth. I hypothesize that the relationship between bank share types and firm outcomes may be more pronounced during periods of economic slowdown, as firms might become more sensitive to changes in local banking conditions in the face of broader economic challenges.

CHAPTER 6

RESULTS

This chapter discusses the results from testing the hypotheses introduced in Chapter 4.

6.1 Empirical findings on bank branch shares and new firm creation

I estimate equation (2) ordinary least squares (OLS) regressions to examine the effect of foreign, state, and domestic bank branch shares on firm entry and exit. For each bank type, I present results from two specifications: a baseline model including only city and year fixed effects, and an extended model that adds control variables such as population density, total deposits, total credit, firm density, GDP, and education level. I report the results in **Table 8**.

Specifications (1)–(3) include only one branch share variable at a time, while specifications (4)–(6) add a full set of control variables, population density, total deposits, total credit, firm density, GDP per capita, and education along with city and year fixed effects. Lagging the explanatory variables reduces the sample by one year in Models (1)–(3). Since the education variable is only available from 2011, lagging it further eliminates that year, leaving 891 observations in Models (4)–(6).

Table 8: OLS Estimates of the Impact of Bank Branch Shares on Firm Entry

	(1)	(2)	(3)	(4)	(5)	(6)
FGN.SHARE	-1012.81 (664.1)			34.78 (193.6)		
STAT.SHARE		5164.14*** (1371.1)			187.82 (298.9)	
DOM.SHARE			-5510.32*** (1745.6)			-261.55 (353.1)
POP.DENS				12.53* (6.705)	12.45* (6.825)	12.41* (6.829)
TOT.DEP				0.0085*** (0.0012)	0.0085*** (0.0012)	0.0085*** (0.0012)
TOT.CRED				0.0020 (0.0016)	0.0020 (0.0016)	0.0020 (0.0016)
FIRM.DENS				1186.4 (784.5)	1191.0 (788.8)	1193.5 (789.3)
GDP				-0.0069* (0.0040)	-0.0069* (0.0040)	-0.0068 (0.0042)
EDUC				-102.7** (47.28)	-96.28** (49.01)	-103.6** (45.96)
Constant	1480.3*** (147.4)	-203.6 (477.7)	4032.3*** (845.8)	-723.7 (917.6)	-803.4 (831.5)	-558.9 (1071.6)
City FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	972	972	972	891	891	891
Adjusted R2	0.867	0.868	0.868	0.994	0.994	0.994

Note: *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are shown in parentheses.

The results indicate that state bank branch share is positively and significantly associated with new firm formation in both the bivariate and full-control models. In contrast, domestic bank branch share exhibits a significant negative relationship with new firm formation across both specifications. The effect of foreign bank branch share is statistically insignificant without controls, and turns small and insignificant when controls are added.

Among control variables, population density and total deposits show consistent positive associations with firm entry, with the deposit coefficient being highly significant. Education is negatively associated with new firm creation, while GDP per capita shows a small, marginally significant negative effect in some models. Total credit and firm density are statistically insignificant.

The results largely support H1. In the negative binomial models for entry counts, the state-owned bank share is positive and statistically significant (about 0.75 and 0.72; Table 9), implying more SOB presence is linked to more new firms. In OLS, the large positive bivariate effect fades to insignificance once controls are added (Table 8), so some of the raw correlation reflects provincial factors. Since entry is count data and the negative binomial is the better fit, the weight of evidence favors H1, with the caveat that effect size depends on specification.

I estimate equation (1) to assess the impact of bank branch shares on firm creation using negative binomial regression and report the results in **Table 9**.

Across specifications, foreign bank branch share is negatively associated with firm creation. The effect is statistically significant at the 5% level, suggesting that a higher presence of foreign banks reduces the number of new firm openings in a province. This finding is consistent with the view that foreign banks may primarily serve larger or more established clients, thereby crowding out credit access for new entrants.

By contrast, state bank branch share enters positively and significantly at the 1% and 5% levels, indicating that state banks are more conducive to firm entry. This aligns with the traditional role of state-owned banks in supporting broader access to credit, particularly for politically or socially targeted groups, and may suggest that state banks ease constraints for new firms.

The effect of domestic bank share is negative but statistically insignificant across both baseline and controlled specifications, implying that their presence does not exert a systematic influence on new firm creation once other factors are accounted for.

Turning to the control variables, the signs are broadly in line with economic expectations. Population density is positive but insignificant, consistent with the idea that denser markets may host more firms but do not mechanically increase entry rates once other

Table 9: Negative Binomial Estimates of Bank Branch Shares on Firm Openings

	(1)	(2)	(3)	(4)	(5)	(6)
FGN.SHARE	-0.470** (0.228)			-0.547** (0.262)		
STAT.SHARE		0.751*** (0.235)			0.721** (0.310)	
DOM.SHARE			-0.276 (0.259)			-0.064 (0.301)
POP.DENSITY				0.0009 (0.0005)	0.0007 (0.0005)	0.0009 (0.0005)
TOT.DEP				0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)
TOT.CRED				-0.0000*** (0.0000)	-0.0000*** (0.0000)	-0.0000*** (0.0000)
FIRM.DENS				0.0401 (0.0500)	0.0520 (0.0490)	0.0419 (0.0506)
GDP				0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)
EDUC				0.152*** (0.0439)	0.156*** (0.0441)	0.137*** (0.0449)
Constant	7.201*** (0.0559)	6.889*** (0.0687)	7.237*** (0.132)	5.522*** (0.328)	5.217*** (0.346)	5.559*** (0.374)
lnalpha	-4.264*** (0.0928)	-4.276*** (0.0931)	-4.264*** (0.0942)	-4.406*** (0.107)	-4.412*** (0.108)	-4.401*** (0.108)
City FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	972	972	972	891	891	891
Log	-4850.1	-4846.3	-4852.1	-4419.4	-4418.0	-4422.5
Pseudo	0.341	0.342	0.341	0.347	0.347	0.347
AIC	9888.1	9880.7	9892.1	9034.8	9032.0	9040.9
BIC	10346.8	10339.3	10350.8	9504.5	9501.7	9510.6
Overdispersion	0.0141	0.0139	0.0141	0.0122	0.0121	0.0123

Note: *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are shown in parentheses. ≈ 0.0000 (values < 0.0001 rounded to four decimals)

factors are controlled for. Total deposits are insignificant, whereas total credit volume is negative and significant at the 1% level, suggesting that higher aggregate credit levels are associated with fewer new firm openings, possibly reflecting tighter allocation of funds toward established firms. Firm density is positive but insignificant, which may reflect that competition effects offset potential clustering advantages. GDP per capita exhibits a positive and highly significant effect, supporting the expectation that stronger local economic conditions stimulate new firm creation. Similarly, education is positive and strongly significant, highlighting the importance of human capital in facilitating entrepreneurial activity.

The negative relationship between foreign branch share and firm entry suggests foreign banks focus on larger clients. This contrasts with studies showing foreign banks can expand credit and support young firms (Giannetti and Ongena, 2009). The difference likely reflects my measure, province-level branch shares and the limited local presence of foreign banks in Türkiye.

Education variable shows mixed effects. In OLS models it is negatively related to firm entry, but in the count models it becomes positive and significant. This contrast may reflect that highly educated provinces attract stable, skill-intensive jobs, which can lower raw entry rates, while at the same time providing human capital that supports opportunity-driven entrepreneurship.

6.2 Empirical findings on bank branch shares and firm exit

I estimate the OLS regression in equation (2) to examine how the lagged shares of foreign, state, and domestic bank branches affect firm exits. Baseline models include city and year fixed effects, while extended models add controls for population density, total deposits, total credit, firm density, GDP per capita, and education. I report the results in **Table 10**.

State bank share exhibits the opposite pattern. In the simple specification, state banks are positively associated with firm entry, with an additional unit of share corresponding to roughly 250 more firms (column 2). This effect is significant at the 10 percent level, consistent with the notion that state banks may expand credit access to new entrants. Yet, as with foreign banks, the coefficient becomes statistically insignificant once controls are included (column 5), suggesting that the apparent positive association is explained by correlated provincial factors.

Domestic private bank share does not show a systematic relationship with firm creation. The estimated coefficients are negative across specifications (columns 3 and 6), implying a possible adverse effect, but they are not statistically significant. Thus, there is no evidence that the presence of private domestic banks materially influences the rate of new firm entry.

Turning to the control variables, several results are economically meaningful.

Table 10: OLS Estimates of the Impact of Bank Branch Shares on Firm Exits

	(1)	(2)	(3)	(4)	(5)	(6)
FGN.SHARE _{t-1}	-135.7* (76.67)			34.78 (193.6)		
STAT.SHARE _{t-1}		250.2* (137.8)			187.8 (298.9)	
DOM.SHARE _{t-1}			-151.0 (153.4)			-261.5 (353.1)
POP.DENS _{t-1}				0.827 (0.887)	0.804 (0.895)	0.832 (0.887)
TOT.DEP _{t-1}				0.0041*** (0.0003)	0.0041*** (0.0003)	0.0041*** (0.0003)
TOT.CRED _{t-1}				-0.0020*** (0.0002)	-0.0020*** (0.0002)	-0.0020*** (0.0002)
FIRM.DENS _{t-1}				-580.5*** (160.9)	-579.2*** (161.0)	-580.7*** (160.9)
GDP _{t-1}				-0.0000 (0.0004)	-0.0000 (0.0004)	-0.0000 (0.0005)
EDUC _{t-1}				20.81*** (6.556)	20.20*** (6.460)	18.95*** (6.401)
Constant	290.2*** (21.34)	190.1*** (50.76)	337.1*** (72.78)	-13.00 (122.0)	-30.15 (116.6)	-17.18 (125.3)
City FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	972	972	972	891	891	891
Adjusted R2	0.867	0.868	0.868	0.994	0.994	0.994

Note: *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are shown in parentheses. ≈0.0000 (values <0.0001 rounded to four decimals)

Deposit mobilization is consistently positive and highly significant, indicating that local financial depth supports new firm creation. In contrast, outstanding credit is negatively

and significantly associated with entry, which may reflect the preferential allocation of loans to incumbents. Firm density is strongly negative, suggesting that crowded markets deter new entrants, while higher education levels exert a positive and significant effect, underscoring the role of human capital in fostering entrepreneurship.

I estimate the equation (1) using negative binomial regression and report the results in **Table 11.**

A higher share of state-owned banks is positively and significantly associated with firm closures, with coefficients around 1.67–1.70 ($p < 0.01$). This finding suggests that provinces with greater state banking presence experience elevated firm exit rates, consistent with the possibility that state banks' lending practices may distort competitive pressures. In contrast, domestic private banks exhibit the opposite effect: their branch share is negatively and significantly related to firm exits implying that private domestic banks contribute to firm survival, potentially through more efficient credit allocation and relationship-based lending. By comparison, the effect of foreign bank share is statistically insignificant across specifications, indicating that foreign bank presence does not exert a systematic influence on firm exits once controls are introduced.

For the control variables, estimates largely conform to economic intuition. Population density enters positively and significantly, suggesting that firm exits are more frequent in more densely populated provinces where competitive pressures are stronger. Total credit

Table 11: Negative Binomial Estimates of Bank Branch Shares on Firm Exits

	(1)	(2)	(3)	(4)	(5)	(6)
FGN.SHARE _{t-1}	-0.0888 (0.420)			0.0683 (0.427)		
STAT.SHARE _{t-1}		1.673*** (0.454)			1.703*** (0.502)	
DOM.SHARE _{t-1}			-1.39*** (0.358)			-1.426*** (0.398)
POP.DENSt-1				0.0041*** (0.0009)	0.0037*** (0.0009)	0.0037*** (0.0009)
TOT.DEPT-1				0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)
TOT.CREDt-1				-0.0000 (0.0000)	-0.0000** (0.0000)	-0.0000** (0.0000)
FIRM.DENSt-1				-0.202*** (0.0683)	-0.185*** (0.0642)	-0.185*** (0.0652)
GDPt-1				0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)
EDUCt-1				0.242*** (0.0742)	0.278*** (0.0745)	0.244*** (0.0749)
Constant	5.573*** (0.111)	5.105*** (0.146)	6.261*** (0.192)	3.262*** (0.550)	2.603*** (0.578)	4.055*** (0.578)
lnalpha	-3.80*** (0.113)	-3.82*** (0.113)	-3.83*** (0.114)	-3.922*** (0.120)	-3.954*** (0.121)	-3.958*** (0.122)
City FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	972	972	972	891	891	891
Log Lik.	-3544.4	-3535.6	-3537.6	-3218.5	-3211.7	-3212.5
Pseudo R2	0.369	0.370	0.370	0.375	0.376	0.376
AIC	7276.8	7259.3	7263.1	6633.1	6619.4	6620.9
BIC	7735.4	7718.0	7721.8	7102.7	7089.0	7090.6
Overdispersion	0.0223	0.0217	0.0215	0.0198	0.0192	0.0191

Note: *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are shown in parentheses. ≈0.0000 (values <0.0001 rounded to four decimals)

is negatively associated with firm exits and statistically significant, consistent with greater credit supply reducing the likelihood of firm closures. Firm density is strongly negative and significant, supporting the idea that agglomeration economies enhance firm survival prospects. Education levels are positively related to exits, which may reflect more dynamic business environments in better-educated provinces with both higher entry and exit. In contrast, GDP per capita and total deposits show no robust effects on exits, suggesting that general economic size or liquidity conditions alone do not determine firm survival once other factors are controlled for.

6.3 Empirical findings on bank branch shares and firm performance

The results in **Table 12**. suggest that the local banking structure, particularly the share of state-owned, domestic, and foreign banks, has minimal impact on financial costs (FIN_COST).

Table 12: Local banking market structures and SME financial cost.

Explanatory/ dependent variable	Local banking structures measured at the city level		
	(1) FIN_COST	(2) FIN_COST	(3) FIN_COST
STAT.SHARE	0.0005 (0.0006)		
DOM.SHARE		0.0001 (0.0007)	
FGN.SHARE			-0.0000 (0.0009)
Intercept	-0.0178*** (0.0005)	-0.0177*** (0.0005)	-0.0176 (0.0005)
Observations	1137333	1137333	1137333
R-squared	0.68	0.68	0.68

State-owned bank share (STAT_SHARE), domestic bank share (DOM_SHARE), and foreign bank share (FGN_SHARE) do not show statistically significant effects, indicating that the concentration of different bank types does not directly influence the financial costs incurred by firms.

In **Table 13**, I represent results regarding tangible assets growth and bank shares. Results indicate that the local banking structure has a limited impact on tangible assets growth (TAG). State-owned bank share (STAT.SHARE) does not show a statistically significant relationship with tangible asset growth, with a coefficient of -0.0143. This suggests that the presence of state-owned banks in a city does not directly influence firms' investment in tangible assets. Domestic bank share (DOM.SHARE) shows a significant negative effect on tangible asset growth, with a coefficient of -0.0487.

Table 13: Fixed Effects Regression of Local Banking Market Structures on SME Tangible Assets Growth

Explanatory/ dependent variable	Local banking structures measured at the city level		
	(1) TAG	(2) TAG	(3) TAG
STAT.SHARE	-0.0143 (0.0159)		
DOM.SHARE		-0.0486** (0.0170)	
FGN.SHARE			0.0002 (0.0219)
Constant	-0.7385*** (0.0134)	-0.7246*** (0.0140)	-0.7432 (0.0138)
Observations	1137333	1137333	1137333
R-squared	0.51	0.51	0.51

Note: *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are shown in parentheses.

This implies that areas with a higher concentration of domestic bank branches are associated with lower rates of tangible asset growth for firms. The negative relationship could suggest that domestic banks might prioritize other forms of financing or have more conservative lending practices that limit firms' ability to invest in physical assets. Therefore, I reject H2 for tangible assets growth, as indicated by the significant negative relationship between domestic bank share (DOM.SHARE) and tangible asset growth (TAG).

I obtain different signs for H2 because the two “growth” measures capture different margins. Sales growth reflects short-term expansion financed by working capital, whereas tangible-asset growth is capex-intensive and typically needs longer-maturity loans. Domestic banks may ease operating finance (lifting sales) but remain conservative on investment lending, producing lower tangible-asset growth. Timing also matters: sales respond quickly, while capex adjusts with lags, so a negative TAG coefficient can coexist with a positive sales effect.

Foreign bank share (FGN.SHARE) does not appear to have a significant effect on tangible asset growth, with a coefficient of 0.0002. This result suggests that the presence of foreign banks in a city does not have a noticeable impact on firms' investment in tangible assets.

In **Table 14**, I assess the relationship between bank shares and sales growth. The results show that local banking structures have varying impacts on sales growth (SALES_GR).

State-owned bank share (STAT_SHARE) does not exhibit a statistically significant relationship with sales growth, as indicated by the coefficient of 0.0130. This suggests that the presence of state-owned banks in a city does not substantially influence the sales growth of firms in that area.

In contrast, domestic bank share (DOM_SHARE) has a significant positive effect on sales growth, with a coefficient of 0.1037. This indicates that areas with a higher concentration of domestic bank branches are associated with higher sales growth for firms. Domestic banks may be more likely to support local businesses through financing that encourages expansion, leading to higher sales growth. Thus, H2 considering positive impact of domestic bank share on sales growth, which is a proxy for SME growth, is confirmed.

Foreign bank share (FGN_SHARE) shows a negative relationship with sales growth, with a coefficient of -0.1813, though it is not statistically significant. This suggests that the presence of foreign banks may not foster sales growth for firms in the regions where they dominate, potentially due to different lending practices or a focus on larger firms.

Table 14: Fixed Effects Regression of Local Banking Market Structures on SME Sales Growth

Explanatory/ dependent variable	Local banking structures measured at the city level		
	(1)	(2)	(3)
	SALES_GR	SALES_GR	SALES_GR
STAT.SHARE	0.0130 (0.0163)		
DOM.SHARE		0.1036*** (0.0174)	
FGN.SHARE			-0.1812 (0.0225)
Intercept	-0.3662*** (0.0137)	-0.4016*** (0.0143)	-0.3119 (0.0141)
Observations	1137333	1137333	1137333
R-squared	0.47	0.47	0.47

Note: *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are shown in parentheses.

Similarly, domestic bank share (DOM_SHARE) also has an insignificant effect on ROS, with a coefficient of -0.0062. This indicates that the concentration of domestic bank branches in a city does not meaningfully influence the profitability of firms measured by return on sales.

Lastly, In **Table 15**. I look at the profitability of firms, namely return on sales (ROS). State-owned bank share (STAT_SHARE) does not show a statistically significant effect on return on sales, with a coefficient of 0.0062.

Table 15: Fixed Effects Regression of Local Banking Market Structures on SME Return on Sales

Explanatory/ dependent variable	Local banking structures measured at the city level		
	(1) ROS	(2) ROS	(3) ROS
STAT_SHARE	0.0062 (0.0055)		
DOM_SHARE		-0.0062 (0.0058)	
FGN_SHARE			-0.0016 (0.0075)
Intercept	0.2003*** (0.0046)	0.2047*** (0.0048)	0.2028 (0.0048)
Observations	1137333	1137333	1137333
R-squared	0.79	0.79	0.79
Note: *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are shown in parentheses.			

This suggests that the presence of state-owned banks in a city does not have a notable impact on the profitability of firms in terms of return on sales.

Foreign bank share (FGN_SHARE) has a slightly negative, though insignificant, relationship with ROS, with a coefficient of -0.0017. This result suggests that foreign banks do not significantly affect the return on sales of firms in the regions they dominate, possibly due to differences in lending practices or focus on larger firms.

6.4 Robustness checks

I incorporate a national slowdown dummy to explore how periods of slower economic growth, specifically when Türkiye experienced GDP growth below 3%, might influence

the relationship between firm performance and bank shares. This allows me to assess whether the economic environment moderates the effect of local banking structures on firm performance. By focusing on periods of national economic downturns, I examine whether these conditions exacerbate or mitigate the influence of bank shares on firms' financial outcomes, offering further insight into the dynamics of the banking-firm relationship under varying macroeconomic conditions.

In **Table 16**, I present the fixed effects regression with national slowdown interactions, estimating equation (4). The dependent variables are tangible assets growth and financial cost.

For tangible asset growth, the introduction of the slowdown dummy enhances the significance of the interaction between state-owned bank share and the slowdown, showing a significant positive effect. In contrast, the main effect of state-owned bank share, which was not significant in the simple share model, becomes meaningful when accounting for economic slowdowns.

The effect of foreign bank share also changes, with its interaction with the slowdown showing a significant negative impact, suggesting that foreign banks reduce support for tangible asset growth during downturns, a relationship not apparent in the simple share models.

In the financial cost models, the significance of domestic bank share increases when the national slowdown dummy is included.

Table 16: Fixed Effects Regression of Bank Branch Shares on SME Performance During Economic Slowdowns

Explanatory/ dependent variable	Local banking structures measured at the city level					
	(1)	(2)	(3)	(4)	(5)	(6)
	TAG	TAG	TAG	FIN.COST	FIN.COST	FIN.COST
STAT.SHARE	-0.0227 (0.0160)			0.0005 (0.0006)		
STAT.SHARE x NATIONAL SLOWDOWN	0.0521*** (0.0091)			0.0001 (0.0003)		
DOM.SHARE		-0.0451** (0.017165)			-0.0003 (0.0007)	
DOM.SHARE x NATIONAL.SLOWDOWN		-0.0275 (0.0177)			0.0041*** (0.000746)	
FGN.SHARE			0.0193 (0.0221)			0.0004 (0.0009)
FGN.SHARE x NATIONAL.SLOWDOWN			-0.084*** (0.0136)			-0.002*** (0.0005)
Constant	-0.74287*** (0.0134)	-0.724*** (0.0140)	-0.746*** (0.0138)	-0.017*** (0.0005)	-0.01782*** (0.0005)	-0.017*** (0.0005)
Observations	1137333	1137333	1137333	1137333	1137333	1137333
R-squared	0.51	0.51	0.51	0.68	0.68	0.68

Note: *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are shown in parentheses.

The interaction between domestic bank share and the slowdown becomes statistically significant, suggesting that domestic banks help lower financial costs during slowdowns, which was not observed in the original model. The introduction of the slowdown dummy also makes foreign bank share significant in reducing financial costs.

For return on sales, the inclusion of the national slowdown dummy strengthens the significance of the interaction term for state-owned bank share, indicating that these banks positively affect profitability during slowdowns.

Table 17: Fixed Effects Regression of Bank Branch Shares and National Slowdown Periods on SME Profitability

Explanatory/ dependent variable	Local banking structures measured at the city level		
	1 ROS	2 ROS	3 ROS
STAT.SHARE	0.0046 (0.0055)		
STAT.SHARE x NATIONAL.SLOWDOWN	0.0098** (0.0031)		
DOM.SHARE		-0.0053 (0.0059)	
DOM.SHARE x NATIONAL.SLOWDOWN		-0.0066 (0.0061)	
FGN.SHARE			0.0022 (0.0076)
FGN.SHARE x NATIONAL.SLOWDOWN			-0.0172*** (0.0047)
Constant	0.1995*** (0.0046)	0.2048*** (0.0048)	0.2022*** (0.0048)
Observations	1137333	1137333	1137333
R-squared	0.79	0.79	0.79

Note: *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are shown in parentheses.

However, the main effect of foreign bank share becomes significantly negative during slowdowns, showing that foreign banks' influence on profitability is less favorable in such periods, a relationship not captured in the simple share model.

Hypothesis 4 (H4), suggests that the impact of banking market structure on SME performance is stronger during periods of economic downturns, is partly supported by the results in **Table 17**.

The interaction term between state-owned bank share and the national slowdown is positive and statistically significant, with a coefficient of 0.0099, indicating that state-owned banks positively affect SME profitability during economic downturns.

The interaction between foreign bank share and the national slowdown is negative and statistically significant with a coefficient of -0.0173, indicating that foreign banks reduce profitability during slowdown.

CHAPTER 7

CONCLUSION

The evidence presented in this study indicates that the structure of local banking markets has important consequences for the formation, survival, and performance of small and medium-sized enterprises in Türkiye. State-owned banks consistently promote firm entry and offer counter-cyclical stability, particularly during downturns, when their presence is associated with higher profitability and sustained investment. Domestic private banks are linked to lower firm exit and stronger sales-driven expansion, reflecting their reliance on relationship lending and close integration with local business networks. Foreign banks appear less engaged with SMEs, often favoring larger and more transparent firms, and their presence is associated with pro-cyclical behavior that constrains profitability and tangible investment during economic slowdowns. These results suggest that state and domestic private banks play complementary roles in SME development, while foreign banks provide balance-sheet depth without delivering consistent benefits for smaller firms.

Nevertheless, several limitations must be acknowledged. The analysis is conducted at the provincial level, which may mask significant heterogeneity within provinces, particularly between urban districts with dense banking networks and peripheral districts with limited branch coverage. The reliance on aggregated banking and firm-level indicators restricts the ability to account for variation in lending conditions across districts, industries, and firm types. Moreover, issues of endogeneity remain, since banks may locate branches and allocate credit in response to unobservable local conditions correlated with SME dynamics. Although lagged controls and fixed effects reduce these concerns, more granular data and quasi-experimental designs would be necessary to fully disentangle causality.

Future research would benefit from district-level data on branch openings, loan contracts, and firm-bank relationships, which would enable closer alignment between the geographic reach of banks and SME financing outcomes. Loan-level datasets including approval rates, collateral requirements, interest margins, and maturities would help clarify the mechanisms through which different types of banks interact with SMEs. Combining such micro-level information with natural experiments—such as credit guarantee schemes, policy-driven bank expansions, or branch reassignments—would also help identify causal channels more clearly. A further line of inquiry lies in exploring the heterogeneity of effects across industries and firm size classes, as smaller and less

transparent enterprises are likely to be more sensitive to differences in bank business models.

The policy implications of these findings extend to emerging economies more broadly. State-owned banks should be preserved as stabilizing lenders but governed by transparent and rules-based mandates to limit distortions from politically motivated credit allocation. Domestic banks should be supported in expanding their relationship lending capacity through improvements in credit registries, collateral frameworks, and legal infrastructures. Foreign banks can play a role in diversifying local markets but should be integrated into SME financing through co-lending structures, credit guarantees, and regulatory incentives that encourage engagement with smaller firms. At the macro level, counter-cyclical policy tools are necessary to prevent sharp credit contractions for SMEs during downturns, as these firms form the backbone of employment and innovation in emerging economies.

Finally, the sustainability dimension of SME financing requires stronger attention. The transition to low-carbon growth depends not only on large-scale investment but also on the ability of smaller enterprises to adopt energy-efficient technologies, sustainable production methods, and climate-resilient practices. Banking systems can contribute by linking credit provision to environmental performance, embedding sustainability-linked loan products into SME finance, and expanding green guarantee schemes. Integrating these mechanisms into the financial infrastructure would ensure that SME financing

simultaneously supports inclusive growth, macroeconomic stability, and long-term ecological resilience.



REFERENCES

- Aghion, P., & Bolton, P. (1997). A theory of trickle-down growth and development. *The Review of Economic Studies*, 64(2), 151–172.
- Alıcıoğlu, Y., & Küçükkocaoğlu, G. (2022). Impact of banking sector credits on net SME formation in Turkey. *Verimlilik Dergisi*, 2, 345–364.
- Alessandrini, P., Presbitero, A., & Zazzaro, A. (2009). Global banking and local markets: A national perspective. *Cambridge Journal of Regions, Economy and Society*, 2(2), 173–192.
- Armington, C., & Acs, Z. J. (2002). The determinants of regional variation in new firm formation. *Regional Studies*, 36(1), 33–45.
- Aysan, A. F., Dolgun, M. H., & Turhan, M. I. (2013). Assessment of the Participation Banks and Their Role in Financial Inclusion in Turkey. *Emerging Markets Finance and Trade*, 49(sup5), 99–111.
- Banerjee, A. V., & Newman, A. F. (1993). Occupational choice and the process of development. *Journal of Political Economy*, 101(2), 274–298.
- Bardhan, P. K., & Mookherjee, D. (2000). Capture and governance at local and national levels. *American Economic Review*, 90(2), 135–139.
- Beck, T. (2007). Financing constraints of SMEs in developing countries: Evidence, determinants and solutions. In *Financing innovation-oriented businesses to promote entrepreneurship*.
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. *Journal of Economic Growth*, 12(1), 27–49. <https://doi.org/10.1007/s10887-007-9010-6>
- Beck, T., Demirgüç-Kunt, A., & Pería, M. S. M. (2011). Bank financing for SMEs: Evidence across countries and bank ownership types. *Journal of Financial Services Research*, 39(1), 35–54.
- Berger, A. N., & DeYoung, R. (2001). The effects of geographic expansion on bank efficiency. *Journal of Financial Services Research*, 19(2), 163–184.
- Berger, A. N., & Mester, L. J. (2003). Explaining the dramatic changes in performance of US banks: Technological change, deregulation, and dynamic changes in competition. *Journal of Financial Intermediation*, 12(1), 57–95.

- Berger, A. N., & Udell, G. F. (1995). Relationship lending and lines of credit in small firm finance. *The Journal of Business*, 68(3), 351–381.
- Berger, A. N., & Udell, G. F. (2002). Small business credit availability and relationship lending: The importance of bank organisational structure. *The economic journal*, 112(477), F32-F53.
- Berger, A. N., & Udell, G. F. (2006). A more complete conceptual framework for SME finance. *Journal of Banking & Finance*, 30(11), 2945–2966.
- Berger, A. N., Klapper, L. F., & Udell, G. F. (2001). The ability of banks to lend to informationally opaque small business. *Journal of Banking & Finance*, 25(12), 2127–2167.
- Berkowitz, J., & White, M. J. (2004). Bankruptcy and small firms' access to credit. *The RAND Journal of Economics*, 35(1), 69–84. <https://doi.org/10.2307/1593730>
- Binks, M., & Ennew, C. (1996). The impact of service quality and service characteristics on customer retention: Small business and their banks in the UK. *British Journal of Management*, 7(3), 219–230.
- Black, S. E., & Strahan, P. E. (2002). Entrepreneurship and bank credit availability. *The Journal of Finance*, 57(6), 2807–2833.
- Blackwell, D. W., Noland, T. R., & Winters, D. B. (1998). The value of auditor assurance: Evidence from loan pricing. *Journal of Accounting Research*, 36(1), 57–70.
- Boustanifar, H. (2014). Information acquisition, foreign bank entry, and credit allocation. *The Quarterly Review of Economics and Finance*, 54(3), 324–336.
- Bruno, V., & Hauswald, R. (2014). The real effect of foreign banks. *Review of Finance*, 18(5), 1683–1716. <https://doi.org/10.1093/rof/rft041>
- Caneghem, T., & Campenhout, G. (2012). Quantity and quality of information and SME financial structure. *Small Business Economics*, 39(2), 341–358.
- Comin, D., & Nanda, R. (2019). Financial development and technology diffusion. *IMF Economic Review*, 67(2), 395–419.
- De Haas, R., & Naaborg, I. (2005). Foreign banks in transition economies: Small business lending and internal capital markets. *International Finance*, 8(4), 545–575.
- Dong, Y., Firth, M., Hou, W., & Yang, W. (2016). Evaluating the performance of Chinese commercial banks: A comparative analysis of different types of banks. *European Journal of Operational Research*, 252(1), 280-295.

- de Luna-Martinez, J., & Vicente, C. L. (2012). Global survey of development banks (Policy Research Working Paper No. 5969). World Bank.
- Degryse, H., & Van Cayseele, P. (2000). Relationship lending within a bank-based system: Evidence from European small business data. *Journal of Financial Intermediation*, 9(1), 90–109. <https://doi.org/10.1006/jfin.1999.0278>
- Detragiache, E., Tressel, T., & Gupta, P. (2008). Foreign banks in poor countries: Theory and evidence. *The Journal of Finance*, 63(5), 2123–2160. <https://doi.org/10.1111/j.1540-6261.2008.01392.x>
- Dinç, I. S. (2005). Politicians and banks: Political influences on government-owned banks in emerging markets. *Journal of Financial Economics*, 77(2), 453–479.
- Elsas, R. (2005). Empirical determinants of relationship lending. *Journal of Financial Intermediation*, 14(1), 32–57.
- ERBD (European Bank for Reconstruction and Development). (2022). *An assessment of the SME sector in Türkiye: Recommendation of a data-based methodology*. London: EBRD.
- Evans, D. S., & Jovanovic, B. (1989). An estimated model of entrepreneurial choice under liquidity constraints. *Journal of Political Economy*, 97(4), 808–827.
- Fisman, R., & Love, I. (2003). Trade credit, financial intermediary development, and industry growth. *The Journal of Finance*, 58(1), 353–374.
- Frank, M. Z., & Goyal, V. K. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics*, 67(2), 217–248.
- Fredriksson, A., & Moro, A. (2014). Bank–SME relationships and banks’ risk-adjusted profitability. *Journal of Banking & Finance*, 41, 67–77.
- Giannetti, M., & Ongena, S. (2009). Financial integration and firm performance: Evidence from foreign bank entry in emerging markets. *Review of Finance*, 13(2), 181–223.
- Greenbaum, S. I., Kanatas, G., & Venezia, I. (1989). Equilibrium loan pricing under the bank-client relationship. *Journal of Banking & Finance*, 13(2), 221–235.
- Greenwood, J., & Jovanovic, B. (1990). Financial development, growth, and the distribution of income. *Journal of Political Economy*, 98(5), 1076–1107.
- Guiso, L., Sapienza, P., & Zingales, L. (2004). The role of social capital in financial development. *American Economic Review*, 94(3), 526–556.

Hasan, I., Jackowicz, K., Kowalewski, O., & Kozłowski, Ł. (2017). Do local banking market structures matter for SME financing and performance? New evidence from an emerging economy. *Journal of Banking & Finance*, 79, 142–158.

Hogan, T., & Hutson, E. (2005). What factors determine the use of venture capital? Evidence from the Irish software sector. *Venture Capital*, 7(3), 259–283.

Kerr, W. R., & Nanda, R. (2009). Democratizing entry: Banking deregulations, financing constraints, and entrepreneurship. *Journal of Financial Economics*, 94(1), 124–149.

Kerr, W. R., & Nanda, R. (2010). Banking deregulations, financing constraints, and firm entry size. *Journal of the European Economic Association*, 8(2/3), 582–593.

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2002). Government ownership of banks. *The Journal of Finance*, 57(1), 265–301.

Lehmann, E., & Neuberger, D. (2001). Do lending relationships matter? Evidence from bank survey data in Germany. *Journal of Economic Behavior & Organization*, 45(4), 339–359.

Martinez, L. B., Scherger, V., & Guercio, M. B. (2019). SMEs' capital structure: Trade-off or pecking order theory? A systematic review. *Journal of Small Business and Enterprise Development*, 26(1), 105–132.

Mc Namara, A., Murro, P., & O'Donohoe, S. (2017). Countries' lending infrastructure and capital structure determination: The case of European SMEs. *Journal of Corporate Finance*, 43, 122–138.

Mookherjee, D., & Ray, D. (2003). Persistent inequality. *The Review of Economic Studies*, 70(2), 369–393.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221.

Neuberger, D., Pedergnana, M., & Rähke-Döppner, S. (2008). Concentration of banking relationships in Switzerland: The result of firm structure or banking market structure? *Journal of Financial Services Research*, 33(2), 101–126.

Ongena, S., & Şendeniz-Yüncü, İ. (2011). Which firms engage small, foreign, or state banks? And who goes Islamic? Evidence from Turkey. *Journal of Banking & Finance*, 35(12), 3213–3224.

Önder, Z., & Özyıldırım, S. (2011). Political connection, bank credits and growth: Evidence from Turkey. *The World Economy*, 34(6), 1042–1065.
<https://doi.org/10.1111/j.1467-9701.2011.01342.x>

Önder, Z., & Özyıldırım, S. (2013). Role of bank credit on local growth: Do politics and crisis matter?. *Journal of Financial Stability*, 9(1), 13-25.

Petersen, M. A., & Rajan, R. G. (1994). The benefits of lending relationships: Evidence from small business data. *The Journal of Finance*, 49(1), 3–37.

Piketty, T. (1997). The dynamics of the wealth distribution and the interest rate with credit rationing. *The Review of Economic Studies*, 64(2), 173–189.

Prantl, S. (2012). The impact of firm entry regulation on long-living entrants. *Small Business Economics*, 39(1), 61–76.

Rajan, R. G., & Zingales, L. (1998). Financial dependence and growth. *The American Economic Review*, 88(3), 559–586.

Sogorb-Mira, F., & Lopez-Gracia, J. (2003). Pecking order versus trade-off: An empirical approach to the SME capital structure. SSRN 393160.

Stiglitz, J. E. (2000). Two principles for the next round or, how to bring developing countries in from the cold. *The World Economy*, 23(4), 437–454.

Thakor, A. V. (1996). Capital requirements, monetary policy, and aggregate bank lending: Theory and empirical evidence. *The Journal of Finance*, 51(1), 279–324.

Van Horen, N. (2007). Foreign banking in developing countries: Origin matters. *Emerging Markets Review*, 8(2), 81–105.

World Bank. (2011). *Turkey – Improving conditions for SME growth: Finance and innovation*. Washington, DC: World Bank. <https://hdl.handle.net/10986/12211>

Zecchini, S., & Ventura, M. (2009). The impact of public guarantees on credit to SMEs. *Small Business Economics*, 32(2), 191–206.

APPENDIX

Appendix A: Data sources and variables for the new firm model

Data Source	Variable	Description	Time Span	Link
Banking Regulation and Supervision Agency (BRSA)	Number of bank branches	Quarterly data on the number of bank branches by ownership type across 81 provinces in Türkiye. Only year-end numbers are used for the analysis.	2008Q1-2022Q4	https://www.bddk.org.tr/BultenFinTurk
TURKSTAT	Population	Yearly population estimates for each province in Türkiye, based on the Address-Based Population Registration System (ABPRS).	2010-2022	https://data.tuik.gov.tr/Search/Search?text=il%20n%C3%BCfus
TURKSTAT	Education	Average completed education duration for the population aged 25 and over in each province in Türkiye.	2011-2022	https://biruni.tuik.gov.tr/medas/?kn=130&locale=tr
Banking Regulation and Supervision Agency (BRSA)	Total credits	Quarterly total of cash loans and non-performing loans for each province in Türkiye. Only year-end numbers are used for the analysis.	2010-2022	https://www.bddk.org.tr/BultenFinTurk
TURKSTAT	GDP (Gross Domestic Product)	Yearly Gross Domestic Product (GDP), Value (2009 Base Year), in Thousand Turkish Lira (TL) Chain-linked Volume	2010-2022	https://biruni.tuik.gov.tr/medas/?kn=116&locale=tr
General Directorate of Mapping	Land	Land area of every province in Türkiye (square kilometer)	-	https://www.harita.gov.tr/il-ve-ilce-yuzolcumleri
Union of Chambers and Commodity Exchanges of Turkey (UCCE)	New Firm Openings	Monthly number of newly established businesses across various types, including limited companies, joint stock companies, cooperatives, and individual commercial enterprises across provinces in Türkiye.	2010-2022	https://www.tobb.org.tr/BilgiErisimMudurlugu/Sayfalar/KurulanKapananSirketistatistikleri.php

**Banking Regulation
and Supervision
Agency (BRSA)**

Total
deposits

the total amount of deposits and participation funds reported by
banks operating in Türkiye, broken down by province.

2010-
2022

<https://www.bddk.org.tr/BultenFinTurk>

Appendix B: Province Fixed Effects OLS regression: foreign bank share on firm entry

Variable	Coefficient	std err	t	P> t	[95% conf. interval]	
FGN.SHARE	-1012.759	664.1027	-1.53	0.128	-2316.171	290.6533
ADİYAMAN	-1398.944	115.0134	-12.16	0.000	-1624.677	-1173.211
AFYONKARAHİSAR	-1319.015	110.256	-11.96	0.000	-1535.411	-1102.62
AKSARAY	-1304.576	96.80113	-13.48	0.000	-1494.564	-1114.588
AMASYA	-1461.549	116.7138	-12.52	0.000	-1690.62	-1232.479
ANKARA	6486.985	554.9883	11.69	0.000	5397.728	7576.242
ANTALYA	1861.657	378.8617	4.91	0.000	1118.078	2605.237
ARDAHAN	-1629.039	127.0391	-12.82	0.000	-1878.374	-1379.704
ARTVİN	-1654.148	161.5239	-10.24	0.000	-1971.165	-1337.13
AYDIN	-938.2784	77.61776	-12.09	0.000	-1090.616	-785.9407
AĞRI	-1508.997	114.3663	-13.19	0.000	-1733.46	-1284.534
BALIKESİR	-1066.036	76.64201	-13.91	0.000	-1216.459	-915.6137
BARTIN	-1558.514	129.9559	-11.99	0.000	-1813.574	-1303.454
BATMAN	-1220.438	92.97407	-13.13	0.000	-1402.915	-1037.961
BAYBURT	-1649.155	136.3191	-12.10	0.000	-1916.704	-1381.606
BOLU	-1456.736	116.6927	-12.48	0.000	-1685.765	-1227.707
BURDUR	-1455.292	115.2625	-12.63	0.000	-1681.514	-1229.07
BURSA	1335.34	212.4885	6.28	0.000	918.2963	1752.384
BİLECİK	-1489.607	117.2815	-12.70	0.000	-1719.791	-1259.422
BİNGÖL	-1516.627	123.541	-12.28	0.000	-1759.096	-1274.157
BİTLİS	-1552.864	133.2029	-11.66	0.000	-1814.297	-1291.432
DENİZLİ	-886.5987	71.56032	-12.39	0.000	-1027.048	-746.1497
DÜZCE	-1316.216	105.5534	-12.47	0.000	-1523.382	-1109.05
DİYARBAKIR	-632.6196	70.77495	-8.94	0.000	-771.5272	-493.7119
EDİRNE	-1361.097	109.2647	-12.46	0.000	-1575.547	-1146.647
ELAZIĞ	-1345.886	119.3642	-11.28	0.000	-1580.158	-1111.613
ERZURUM	-1422.62	122.6448	-11.60	0.000	-1663.331	-1181.909
ERZİNCAN	-1497.683	125.2748	-11.96	0.000	-1743.556	-1251.81
ESKİŞEHİR	-1021.906	88.28662	-11.57	0.000	-1195.183	-848.6286
GAZİANTEP	280.0508	139.8701	2.00	0.046	5.532347	554.5692
GÜMÜŞHANE	-1669.218	154.7148	-10.79	0.000	-1972.871	-1365.564
GİRESUN	-1519.106	129.0568	-11.77	0.000	-1772.402	-1265.811
HAKKARİ	-1607.45	134.4459	-11.96	0.000	-1871.322	-1343.577
HATAY	-595.6152	73.46958	-8.11	0.000	-739.8114	-451.4189
ISPARTA	-1358.895	111.1663	-12.22	0.000	-1577.078	-1140.713
İĞDIR	-1549.832	113.4742	-13.66	0.000	-1772.544	-1327.12
KAHRAMANMARAŞ	-1089.96	89.47913	-12.18	0.000	-1265.578	-914.3428

KARABÜK	-1490.447	121.2181	-12.30	0.000	-1728.358	-1252.537
KARAMAN	-1434.774	125.6646	-11.42	0.000	-1681.412	-1188.136
KARS	-1517.436	110.869	-13.69	0.000	-1735.035	-1299.838
KASTAMONU	-1555.397	139.8335	-11.12	0.000	-1829.843	-1280.95
KAYSERİ	-469.4247	69.84338	-6.72	0.000	-606.504	-332.3455
KIRIKKALE	-1480.017	122.1511	-12.12	0.000	-1719.759	-1240.276
KIRKLARELİ	-1442.321	119.4219	-12.08	0.000	-1676.706	-1207.936
KİRŞEHİR	-1505.335	118.0728	-12.75	0.000	-1737.073	-1273.598
KOCAELİ	178.3764	104.4212	1.71	0.088	-26.56756	383.3204
KONYA	-2.711815	118.161	-0.02	0.982	-234.6225	229.1988
KÜTAHYA	-1409.341	112.1534	-12.57	0.000	-1629.46	-1189.221
KİLİS	-1523.04	111.7006	-13.64	0.000	-1742.271	-1303.809
MALATYA	-1246.888	99.7904	-12.50	0.000	-1442.744	-1051.033
MANİSA	-976.1722	81.12796	-12.03	0.000	-1135.399	-816.9451
MARDİN	-1079.365	76.57964	-14.09	0.000	-1229.665	-929.0644
MERSİN	218.8949	146.369	1.50	0.135	-68.37851	506.1684
MUĞLA	-589.4656	75.84445	-7.77	0.000	-738.323	-440.6083
MUŞ	-1527.22	111.9267	-13.64	0.000	-1746.894	-1307.545
NEVŞEHİR	-1369.914	107.0259	-12.80	0.000	-1579.97	-1159.858
NİĞDE	-1438.72	106.2829	-13.54	0.000	-1647.318	-1230.122
ORDU	-1382.795	115.35	-11.99	0.000	-1609.188	-1156.401
OSMANİYE	-1360.472	115.1382	-11.82	0.000	-1586.45	-1134.495
RİZE	-1479.663	120.036	-12.33	0.000	-1715.253	-1244.072
SAKARYA	-939.6979	70.03321	-13.42	0.000	-1077.15	-802.2461
SAMSUN	-989.4358	78.78999	-12.56	0.000	-1144.074	-834.7973
SİNOP	-1668.576	162.592	-10.26	0.000	-1987.69	-1349.462
SİVAS	-1399.937	121.5584	-11.52	0.000	-1638.516	-1161.358
SIİRT	-1442.135	113.5497	-12.70	0.000	-1664.995	-1219.275
TEKİRDAĞ	-867.4393	71.63649	-12.11	0.000	-1008.038	-726.8407
TOKAT	-1448.616	118.0092	-12.28	0.000	-1680.229	-1217.004
TRABZON	-1196.668	102.293	-11.70	0.000	-1397.435	-995.9011
TUNCELİ	-1646.924	146.9266	-11.21	0.000	-1935.292	-1358.556
UŞAK	-1378.672	105.338	-13.09	0.000	-1585.415	-1171.928
VAN	-1215.864	94.82352	-12.82	0.000	-1401.971	-1029.758
YALOVA	-1293.184	96.60405	-13.39	0.000	-1482.785	-1103.582
YOZGAT	-1535.29	132.4996	-11.59	0.000	-1795.342	-1275.237
ZONGULDAK	-1418.016	113.3344	-12.51	0.000	-1640.454	-1195.578
ÇANAKKALE	-1335.562	102.5574	-13.02	0.000	-1536.848	-1134.276
ÇANKIRI	-1592.147	137.6101	-11.57	0.000	-1862.229	-1322.064
ÇORUM	-1414.365	121.9474	-11.60	0.000	-1653.707	-1175.023

İSTANBUL	29127.6	3407.989	8.55	0.000	22438.86	35816.35
İZMİR	3088.403	398.275	7.75	0.000	2306.722	3870.084
ŞANLIURFA	-624.0728	77.24842	-8.08	0.000	-775.6857	-472.4599
ŞIRNAK	-1389.234	106.1176	-13.09	0.000	-1597.507	-1180.961
Year Fixed Effects						
2012	-186.2988	238.0869	-0.78	0.434	-653.584	280.9863
2013	-52.6925	201.243	-0.26	0.794	-447.6654	342.2804
2014	58.76878	172.9687	0.34	0.734	-280.711	398.2486
2015	175.941	158.1032	1.11	0.266	-134.3628	486.2448
2016	209.366	183.4128	1.14	0.254	-150.6122	569.3443
2017	320.4559	173.3771	1.85	0.065	-19.82549	660.7372
2018	479.5473	178.8882	2.68	0.007	128.4494	830.6451
2019	466.1483	186.0698	2.51	0.012	100.9553	831.3413
2020	679.0032	215.1021	3.16	0.002	256.8295	1101.177
2021	778.5705	250.1263	3.11	0.002	287.656	1269.485
2022	1150.168	402.3326	2.86	0.004	360.5236	1939.813
_cons	1480.301	147.4286	10.04	0.000	1190.947	1769.654

Appendix C: Province Fixed Effects OLS regression: state bank share on firm entry

Variable	Coefficient	std. Err.	t	P> t	[95% conf. interval]	
STAT.SHARE	187.7709	298.9458	0.63	0.530	-399.0477	774.5895
POP.DENS	12.44674	6.824682	1.82	0.069	-.9498414	25.84331
TOT.DEP	.0000858	.0000125	6.88	0.000	.0000613	.0001103
TOT.CRED	.0000204	.0000164	1.24	0.216	-.0000119	.0000526
FIRM.DENS	1191.028	788.8473	1.51	0.131	-357.4478	2739.503
GDP	-.0069886	.0040923	-1.71	0.088	-.0150217	.0010444
EDUC	-96.28432	49.00586	-1.96	0.050	-192.4809	-.0877865
Province Fixed Effects						
ADIYAMAN	297.0174	505.8898	0.59	0.557	-696.0241	1290.059
AFYONKARAHİSAR	761.6712	747.3195	1.02	0.308	-705.287	2228.629
AKSARAY	746.1544	750.1973	0.99	0.320	-726.4529	2218.762
AMASYA	647.3693	687.3117	0.94	0.347	-701.7962	1996.535
ANKARA	-1483.984	788.2035	-1.88	0.060	-3031.196	63.22813
ANTALYA	1712.254	430.1784	3.98	0.000	867.8313	2556.677

ARDAHAN	973.6554	987.0037	0.99	0.324	-963.7934	2911.104
ARTVİN	1166.795	994.8571	1.17	0.241	-786.0698	3119.66
AYDIN	-201.1411	219.0986	-0.92	0.359	-631.2229	228.9408
AĞRI	514.9362	695.2885	0.74	0.459	-849.8873	1879.76
BALIKESİR	378.1791	535.887	0.71	0.481	-673.7456	1430.104
BARTIN	206.9725	528.9969	0.39	0.696	-831.4272	1245.372
BATMAN	-208.3581	235.2768	-0.89	0.376	-670.1971	253.4808
BAYBURT	1022.032	960.963	1.06	0.288	-864.2999	2908.364
BOLU	1061.227	921.7656	1.15	0.250	-748.1619	2870.616
BURDUR	956.3628	876.8494	1.09	0.276	-764.8574	2677.583
BURSA	-771.5999	654.2518	-1.18	0.239	-2055.87	512.6703
BİLECİK	908.5864	819.0939	1.11	0.268	-699.2622	2516.435
BİNGÖL	841.7408	876.7465	0.96	0.337	-879.2774	2562.759
BİTLİS	704.8363	808.9915	0.87	0.384	-883.1817	2292.854
DENİZLİ	440.4686	533.2986	0.83	0.409	-606.3753	1487.312
DÜZCE	-408.3552	192.8523	-2.12	0.035	-786.9164	-29.79389
DİYARBAKIR	435.8076	318.9614	1.37	0.172	-190.3009	1061.916
EDİRNE	581.1103	648.9195	0.90	0.371	-692.6928	1854.913
ELAZIĞ	625.0195	694.5476	0.90	0.368	-738.3496	1988.389
ERZURUM	946.1455	896.5726	1.06	0.292	-813.7906	2706.082
ERZİNCAN	1188.829	1017.602	1.17	0.243	-808.6843	3186.342
ESKİŞEHİR	892.1117	758.2614	1.18	0.240	-596.325	2380.548
GAZİANTEP	-1428.465	858.7034	-1.66	0.097	-3114.066	257.1352
GÜMÜŞHANE	1008.047	965.4847	1.04	0.297	-887.1608	2903.255
GİRESUN	455.3312	668.1313	0.68	0.496	-856.1837	1766.846
HAKKARİ	772.9985	847.9183	0.91	0.362	-891.4313	2437.428
HATAY	-2012.974	832.8133	-2.42	0.016	-3647.753	-378.1951
ISPARTA	856.9942	803.1733	1.07	0.286	-719.6029	2433.591
İĞDIR	591.3105	703.9198	0.84	0.401	-790.4558	1973.077
KAHRAMANMARAŞ	555.3554	535.5289	1.04	0.300	-495.8664	1606.577
KARABÜK	646.6439	732.18	0.88	0.377	-790.5962	2083.884
KARAMAN	1068.809	940.0851	1.14	0.256	-776.5405	2914.158
KARS	868.6676	863.5189	1.01	0.315	-826.3854	2563.721
KASTAMONU	889.6358	920.9507	0.97	0.334	-918.1537	2697.425
KAYSERİ	921.3088	568.6535	1.62	0.106	-194.9353	2037.553
KIRIKKALE	713.1626	741.7599	0.96	0.337	-742.8823	2169.208
KIRKLARELİ	834.1896	779.7021	1.07	0.285	-696.3344	2364.714
KİRŞEHİR	897.6411	868.7032	1.03	0.302	-807.5885	2602.871
KOCAELİ	-4974.796	2288.208	-2.17	0.030	-9466.456	-483.1357
KONYA	1459.358	703.6296	2.07	0.038	78.16156	2840.555
KÜTAHYA	753.5219	765.2171	0.98	0.325	-748.5686	2255.612

KİLİS	124.2153	462.649	0.27	0.788	-783.9462	1032.377
MALATYA	668.0154	663.746	1.01	0.315	-634.8914	1970.922
MANİSA	144.7558	373.4821	0.39	0.698	-588.3747	877.8863
MARDİN	392.321	453.318	0.87	0.387	-497.5241	1282.166
MERSİN	1050.638	380.353	2.76	0.006	304.0203	1797.256
MUĞLA	869.8014	635.7229	1.37	0.172	-378.0972	2117.7
MUŞ	575.6383	765.7089	0.75	0.452	-927.4177	2078.694
NEVŞEHİR	764.3502	729.6562	1.05	0.295	-667.9357	2196.636
NİĞDE	757.2397	748.3828	1.01	0.312	-711.8058	2226.285
ORDU	-349.3827	249.4058	-1.40	0.162	-838.9563	140.191
OSMANİYE	-546.4941	124.7445	-4.38	0.000	-791.3626	-301.6257
RİZE	273.4626	528.2585	0.52	0.605	-763.4877	1310.413
SAKARYA	-869.9964	264.0577	-3.29	0.001	-1388.331	-351.6618
SAMSUN	-207.5463	189.3636	-1.10	0.273	-579.2596	164.167
SİNOP	776.9427	849.0125	0.92	0.360	-889.6349	2443.52
SİVAS	1079.845	968.552	1.11	0.265	-821.3836	2981.074
SİİRT	511.0659	675.7931	0.76	0.450	-815.4889	1837.621
TEKİRDAĞ	-152.3278	179.7769	-0.85	0.397	-505.2227	200.567
TOKAT	547.3767	644.901	0.85	0.396	-718.5381	1813.292
TRABZON	-733.6944	129.7966	-5.65	0.000	-988.4799	-478.9088
TUNCELİ	1236.895	1130.219	1.09	0.274	-981.6804	3455.471
UŞAK	586.663	671.3203	0.87	0.382	-731.112	1904.438
VAN	724.452	679.8601	1.07	0.287	-610.0863	2058.99
YALOVA	-2451.386	844.4692	-2.90	0.004	-4109.045	-793.7265
YOZGAT	867.0007	866.6897	1.00	0.317	-834.2765	2568.278
ZONGULDAK	-1035.278	179.5201	-5.77	0.000	-1387.669	-682.8874
ÇANAKKALE	858.2151	782.0457	1.10	0.273	-676.9093	2393.339
ÇANKIRI	1003.999	960.4711	1.05	0.296	-881.3673	2889.365
ÇORUM	770.9019	794.459	0.97	0.332	-788.5892	2330.393
İSTANBUL	-33029.17	15096.24	-2.19	0.029	-62662.49	-3395.86
İZMİR	-1706.911	1195.794	-1.43	0.154	-4054.207	640.3845
ŞANLIURFA	580.0079	349.8381	1.66	0.098	-106.7103	1266.726
ŞIRNAK	422.6803	613.618	0.69	0.491	-781.8272	1627.188

Year Fixed Effects

2013	153.3152	47.12808	3.25	0.001	60.80467	245.8257
2014	172.1295	48.03799	3.58	0.000	77.8329	266.4262
2015	248.5805	56.09034	4.43	0.000	138.4774	358.6836
2016	155.643	67.28501	2.31	0.021	23.56522	287.7208
2017	236.883	67.89353	3.49	0.001	103.6107	370.1553
2018	341.0457	86.90336	3.92	0.000	170.4579	511.6335
2019	288.2066	99.99539	2.88	0.004	91.91965	484.4935

2020	511.6899	131.4366	3.89	0.000	253.6851	769.6947
2021	470.7002	157.2048	2.99	0.003	162.1134	779.2869
2022	649.8951	220.8055	2.94	0.003	216.4628	1083.327
Constant	-803.3932	831.4931	-0.97	0.334	-2435.581	828.7945

