Turkish Studies - Social Sciences

www.turkishstudies.net/social

eISSN: 2667-5617

Research Article / Araştırma Makalesi

INTERNATIONAL BALKAN UNIVERSITY
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What Explains Firm's Access to Finance in Turkey?

Türkiye'de Frmaların Finansmana Erişiminin Belirleyicileri Nelerdir?

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Abstract: The relationship between the financial sector and private non-financial sector deserves particular attention given the incontestable importance of the private sector as an engine of economic growth and job creation. Notwithstanding this importance, however, the evidence is highly suggestive that Turkish firms are confronted with obstacles in accessing formal financial services. Along these lines, this paper provides new empirical evidence for the determinants of access to finance by the enterprises in Turkey. In particular, the study investigates some enterprise-specific characteristics that may have an impact on a firm's ability in accessing finance to scrutinize whether Turkish firms are credit constrained. The empirical analysis is based on micro level data from the World Bank's Enterprise Survey for the fiscal year 2019. Three different measures of credit constraint are computed; a subjective measure based on perception and two objective measures based on the usage of formal financial services and direct information on credit constraints. Employing both subjective and objective measures of credit provide means for assessing the extent to which and how key determinants among firms' characteristics displays variation between enterprises categorized by alternative credit constraint measures. Overall, the findings of the study reveal that the age of the firm, experience of the current manager, female/foreign participation in ownership and exporter status are found to be significantly associated with the firm's access to finance. Notably, the results display several differences in underlying firm level factors for credit situation among subcategories based on alternative credit indicators. The findings of the study are of remarkable importance for designing policy to improve firms' credit constraints and advance bank-firm connectedness in Turkey.

Structured Abstract: The results of the 2019 World Bank Enterprise Survey demonstrate that access to finance is one of the major obstacles facing enterprises since it has occupied the second highest frequency of all obstacles listed in the survey. Following this statistical evidence, it can be inferred that Turkish enterprises are confronted with obstacles in accessing formal financial services, which in turn could impede their development as they may forgo growth opportunities. Accordingly, determining the factors affecting firms'

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Cite as/ Atıf: Özşuca, E. A. (2020). What explains firm's access to finance in Turkey?, *Turkish Studies - Social*, 15(2), 301-315. https://dx.doi.org/10.29228/TurkishStudies.40109
Received/Geliş: 10 December/Aralık 2019
Checked by plagiarism software
Accepted/Kabul: 25 February/Şubat 2020
Published/Yayın: 29 February/Şubat 2020

access to finance is of significant policy-making interest in order to improve firm-bank connectedness, which could promote faster output and employment increase.

Against this backdrop, this paper aims to provide new empirical evidence for the determinants of firm's access to finance in Turkey by utilizing micro level data from the World Bank's Enterprise Survey for the fiscal year of 2019. More specifically, the study explores some firm-specific characteristics that may have an impact on enterprise's ability in accessing finance to scrutinize whether Turkish firms are credit constrained and/or disconnected from the financial sector. In that respect, the study not only examines the relationship between several enterprise characteristics and credit constraints, but it also investigates the reasons associated with lack of access to credit as perceived by enterprise managers.

This study aims to comprehend the existing literature in two main ways. Firstly, this research is the first to use the most recent 2019 edition of the World Bank's Enterprise Survey as regards to Turkey. Secondly, it deviates from many existing studies by constructing an objective measure of credit-constrained status following the methodology put forward by Kuntchev et al. (2014) besides using two different measures of credit constraints, one of which is a subjective measure based on perception and the other on credit usage. In this manner, this study offers a more comprehensive understanding of how firm characteristics affect different credit constraints in the Turkish context.

Along these lines, the empirical analysis uses the 2019 World Bank Enterprise Survey data set for Turkey. In this firm-level survey, the sample is selected and assigned survey weights so as to be a representative sample of the non-agricultural, formal private sector in Turkey. A three-stage stratified sampling procedure is used in sample selection. The 2019 survey respondents are comprised of 1663 formal firms, which operate in the manufacturing and services sectors, in all the regions of Turkey. Following the recent literature, alternative credit constraint measures are computed and three categories of enterprises have been defined accordingly. This categorization facilitates investigation of possible differences in the underlying factors of access to credit among subgroups. In particular, it provides means for assessing the extent to which and how key determinants among firms' attributes displays variation between different categories of enterprises. Accordingly, three different probit models have been estimated individually for each firm category by adopting several firm characteristics as explanatory variables.

The results of the study display that there are differences in the key determinants of access to finance depending on the adopted credit constraint measure. More specifically, the results using the perception based credit indicator show that exporters, firms with female or foreign ownership, and firms with experienced managers are less likely to perceive access to finance as a major obstacle. Notably, sole proprietorships are more inclined to see credit as a binding constraint, while the legal status of the firm is statistically insignificant in terms of other credit measures. As regards to the use of formal financial services, the key determinants among enterprise characteristics are found to be size, age, experience of the manager, female participation in ownership and exporter status. The findings of the empirical analysis further indicate that the age of the enterprise and foreign ownership are significant determinants of the probability of being credit constrained.

By using evidence-based measures of credit constraints, the results of the study have provided some important insights into the financing of enterprises in Turkey. Concrete efforts need to be undertaken to overcome barriers in obtaining formal finance and hence, to increase firm-bank connectedness in Turkey. Towards this end, the credit guarantee fund scheme, which was revived by the public authorities by early 2017, can be an alternative mechanism for the financing needs of small and medium-sized enterprises, can resolve their problems of access to finance and foster financial inclusion. Moreover, the government could further encourage and support women entrepreneurs, and facilitate their access to finance for the start-up and growth of their businesses. Supporting the firms to focus on export market development could provide improvements in financial access, which may also accompany a scale up in their operations and increase in productivity.

Keywords: Access to credit, Financing constraints, Firms, Turkey

Öz: Özel sektörün iktisadi büyüme ve istihdam yaratmadaki inkar edilemez rolü göz önünde bulundurulduğunda, finansal sektör ile finansal olmayan özel sektör arasındaki ilişkinin incelenmesi önem kazanmaktadır. Ancak bu öneme rağmen, bulgular Türk firmalarının resmi finansal hizmetlere erişim konusunda engellerle karşılaştıklarını ortaya koymaktadır. Bu doğrultuda, bu çalışma Türkiye'deki işletmeler tarafından finansmana erişime ilişkin belirleyicilere yönelik yeni ampirik bulgular sunmaktadır. Türk firmalarının kredi kısıtlamaları olup olmadığını ortaya koymak amacıyla bu araştırma, özellikle firmanın finansmana erişim gücünü etkileyebilecek bazı firma düzeyindeki özellikleri araştırmaktadır. Ampirik analizler, 2019 mali yılı için Dünya Bankası İşletme Anketi'nden alınan mikro seviye verilere dayanmaktadır. Üç farklı kredi kısıtlaması ölçüsü hesaplanmıştır; bunlardan bir tanesi algıya dayalı bir subjektif değişken ve diğer ikisi ise resmi finansal hizmetlerin kullanımına ve kredi kısıtlamalarına ilişkin doğrudan bilgiye dayanan objektif değişkenlerdir. Krediye ilişkin hem subjektif hem objektif değişkenleri kullanmak firma özellikleri arasındaki başlıca belirleyicilerin ne dereceye kadar alternatif kredi kısıtlaması ölçüleri ile sınıflandırılan işletmeler arasında farklılık gösterdiğinin değerlendirilmesini sağlamaktadır. Genel olarak araştırmanın sonuçları firmanın yaşının, mevcut yöneticinin deneyimlerinin, mülkiyette kadın/yabancı katılımının ve ihracatçı durumunun firmanın finansmana erişimiyle önemli derecede bağlantılı olduğunu göstermektedir. Sonuçlar, alternatif kredi göstergelerine bağlı alt kategoriler arasındaki kredi durumuna ilişkin altta yatan firma seviyesindeki faktörlerde bazı değişiklikler olduğunu açıkça ortaya koymuştur. Araştırmanın bulguları, firmaların kredi kısıtlamaları durumunun ve Türkiye'deki banka-firma bağının iyileştirilmesine yönelik politikanın geliştirilmesi bakımından oldukça önemlidir.

Anahtar Kelimeler: Krediye erişim, Finansman kısıtlamaları, Firmalar, Türkiye

Introduction

According to the results of the 2019 World Bank Enterprise Survey, access to finance is one of the major obstacles facing enterprises as it has occupied the second highest frequency of all obstacles listed in the survey. More specifically, among the constraints that firms report as obstacles in their business environment access to finance accounted for 20 percent following the obstacle of tax rates that was reported the most with 24 percent. Considering this statistical evidence, it can be inferred that Turkish firms are confronted with obstacles in accessing formal financial services, which in turn could impede their development as they may forgo growth opportunities. In this context, the interplay between the financial sector and private non-financial sector in Turkey deserves particular attention given the incontestable importance of the private sector as an engine of economic growth. In that respect, determining the factors affecting firms' access to finance is of significant policy-making interest in order to improve firm-bank connectedness, which could promote faster output and employment increase.

Against this background, this paper aims to provide new empirical evidence for the determinants of access to finance by the enterprises in Turkey. In particular, the study investigates some enterprise-specific characteristics that may have an impact on firm's ability in accessing finance to scrutinize whether Turkish firms are credit constrained and/or disconnected from the financial sector. The empirical analysis is based on micro level data from the World Bank's Enterprise Survey for the fiscal year of 2019. The questionnaire not only allows us to examine the relationship between several enterprise characteristics and credit constraints, but also let us examine the reasons associated with lack of access to credit as perceived by firm managers. By using evidence-based measures of credit constraints, the findings of the study could provide some significant insights into the factors that would improve firms' credit constraints and advance bank-firm connectedness in Turkey.

In line with recent literature, alternative credit constraint measures are computed and three categories of enterprises have been defined accordingly. This categorization facilitates investigation of possible differences in the underlying factors of access to credit among subgroups. Particularly, it provides means for assessing the extent to which and how key determinants among firms' attributes displays variation between different categories of enterprises. Along this line, three different probit models have been estimated individually for each firm category by adopting several firm characteristics as explanatory variables.

This study aims to comprehend the existing literature in two main ways. Firstly, this research is the first to use the most recent 2019 edition of the World Bank's Enterprise Survey as regards to Turkey. Secondly, it deviates from many existing studies by constructing an objective measure of credit-constrained status following the methodology put forward by Kuntchev et al. (2014) besides using two different measures of credit constraints, one of which is a subjective measure based on perception and the other on credit usage. In this manner, this study offers a more comprehensive understanding of how firm characteristics affect different credit constraints in the Turkish context.

In the next section, a brief survey of literature which investigates the factors that impact firms' access to finance is provided. The second section describes the data used and descriptive statistics, while the third section displays the econometric model and methodology. In the fourth section, the empirical findings based on probit estimations are presented. The final section provides a summary of the main results and discusses policy implications.

1. Literature Review

A broad and still growing literature has focused on access to and use of financial services by enterprises along several dimensions, while recent data collection efforts on the firm-level enables more comprehensive analysis. One of the important and most extensively analyzed dimensions in the debate of access to finance is the financing constraints of the enterprises. Following the seminal work of Fazzari et al. (1988), a considerable number of scholars have explored the determinants of firms' financial constraints (Ayyagari et al., 2006; Beck et al., 2006; Claessens and Tzioumis, 2006 ; Schiffer and Weder, 2001; Wang, 2016) and their impact on firm performance (Aterido et al., 2011; Beck et al.; 2005; Dinh et al., 2012; Fowowe, 2017) A common finding in most of the research is that enterprises face a range of obstacles, while access to finance features importantly among the different constraints, especially for the small and medium-sized enterprises. Instead of focusing solely on self-reported constraints based on perceptions, a more recent line of literature started to adopt a broader approach, incorporating an objective measure of credit constraint based both on the firm's usage of and ability to obtain new loans following the framework described by Kuntchev et al. (2014) as the basis. Along this line, EBRD/EIB/WB (2016) investigate whether firms in the MENA region are credit constrained, Chavez (2017) examines the impact of credit information on the enterprise's access to finance in 111 countries and Fowawe (2017) explores the role of access to finance on firm growth in African economies.

Many studies are devoted to analyzing the gender differences in the firm's access to credit (Aristei and Gallo, 2016; Asiedu et al., 2013; Aterido et al., 2013; Bellucci et al., 2010; Bruhn, 2009; Hansen and Rand, 2014; Moro et al., 2017; Muravyev et al., 2009; Piresbitero et al., 2014), while the findings of the studies are not yet definitive and provide mixed evidence as regards to the existence of a significant gender gap in the access to financial services. Another group of studies (Abor et al., 2014; Amornkitvikai and Harvie, 2018; Castagnino et al., 2013; Kumarasamy and Singh, 2018) investigate the role of access to financial services in a firm's export performance. The broad consensus in these studies is that a firm's access to finance improves its ability to export.

While a great amount of literature has examined the firm's access to finance on several dimensions, as suggested by the above review, only a very limited research has been directed towards Turkey on this issue.

Yıldırım et al. (2013) investigate several enterprise-level characteristics that influence access to finance using a sample of 970 small and medium-sized firms operating across nine provinces of Mediterranean and Southeast Anatolia regions. Firm's asset size, high and stable sales, legal status and rate of exports are found as significant factors of satisfaction with banking services. In her study, Erdoğan (2015) investigates the enterprise-level determinants of perceiving the access to finance as a major constraint by the small and medium-sized Turkish enterprises for the year 2013. By using cross-sectional data on 250 small and medium-sized firms, the empirical results show that firms who made a loan application in the previous year and those that have audited financial statements are less likely to see access to finance as a major obstacle. Notably, size, age, business group affiliation as well as the share of exports in total sales are found to have no impact on the inclination towards the perception that finance is a binding constraint. Mutluer-Kurul and Tiryaki (2016) use the Business Environment and Enterprise Performance Survey to examine factors related with the credit constrained firms in Turkey. The logistic regression results reveal that firms are more likely to access finance if they are larger, exporter and being independently audited. However, the likelihood of having access to finance decreases for firms having overdue payments. Karacaovalı (2017) assesses the access to finance conditions in Turkey by using the World Bank Enterprise Survey for 2015. The comparative analysis relative to 2013 show that access to finance conditions have aggravated between the two years. Moreover, size, foreign/female ownership, exporter and legal status seem to be significant determinants for indicators of access to finance.

Another strand of literature focuses on the factors affecting firm employment growth in Turkey, but this group of studies do not form the central focus of this paper. For instance, in their analysis of enterprise dynamics in Turkey, Şeker and Correa (2010) examine employment growth of Turkish firms with a particular focus on small and medium-sized firms. The findings of the study reveal that medium-sized enterprises are the lowest growing group among the others. Comparing the results with that of several Eastern European and Central Asian countries, the authors claim that the growth rate of small and medium-sized enterprises is lower than that of several comparator economies in these regions. Another finding of the study is the positive effect of improved access to finance on firm growth rates. Yorulmaz et al. (2019) , using the 2015 World Bank Enterprise Survey data set, analyze the factors that have an impact on the employment increases of Turkish firms. The analysis covers multiple correspondence analysis and logistic regression. The findings reveal that, age, industry, education of the current manager among firm characteristics, and inadequately educated workforce, political instability, tax administration among obstacles, affect employment increases.

2. Data

The data set used in this analysis is drawn from the Enterprise Survey, which is being conducted by the World Bank since 2002 over 150 countries. The survey not only provides detailed information on the characteristics of a firm, including its size, sector, performance measures; but also includes a rich set of information on the experiences of firms through various dimensions and challenges of the business environment in which they operate, such as access to finance, competition, corruption, and infrastructure.

The survey results regarding Turkey have been released in micro data sets for years 2008, 2013 and 2019 in both cross-section and panel data set formats, while the analysis below uses the most recent 2019 Enterprise Survey. In this firm-level survey, the sample is selected and assigned survey weights so as to be a representative sample of the non-agricultural, formal private sector in Turkey. A three-stage stratified sampling procedure is used in sample selection. More specifically, the sample is stratified by industry, establishment size and region. The 2019 survey respondents are comprised of 1663 formal firms, which operate in the manufacturing and services sectors, in all the regions of Turkey.

2.1. Dependent Variables

Subsuming a rich set of information on the financing of firms, the Enterprise Survey allows us to compute various measures of credit constraints. In this respect, three different credit measures have been constructed following the existing empirical literature, while all of these variables have been derived from several questions asked in the survey. Among these variables, the first one is the perception based credit measure (Asiedu et al., 2013; Beck and Demirgüç- Kunt, 2006; Hansen and Rand, 2014). The questionnaire explicitly asks the firm managers and other officers whether access to finance is an obstacle to current operations of the establishment and rates the degree of obstacles faced among categories ranging from 'no constraint' to 'a very severe constraint'. Accordingly, the perception based binary credit variable is defined and coded as one if the enterprise reports that access to finance is either a 'moderate severe', 'major severe' or 'a very severe' obstacle. The second credit variable is based on the use of formal banking services. The Enterprise Survey provides information on the firm's access to an overdraft facility, a line of credit or a loan from a financial institution. Based on this information, a firm is identified as whether it has access to formal financing channel. As regards to the second credit measure, a dummy variable is constructed by taking the value of one if the enterprise is not currently using formal credit (Aterido et al., 2013; Hansen and Rand, 2014; Muravyev et al. 2009). The third credit constraint measure is constructed utilizing information on external finance and credit usage along with direct loan application. The survey includes questions on whether or not the establishment applied for a credit and on the reasons for not applying to formal credit. Following the methodology based on Kuntchev et al. (2014), three categories of enterprises are defined as fully credit constrained, partially credit constrained and not credit constrained. A firm is categorized as fully credit-constrained if it (i) had no source of external financing and (ii) applied for a credit and was denied or (iii) was discouraged applying for loan due to terms and conditions such as complex application procedures, insufficient loan size and maturity, high collateral requirements, unfavorable interest rates, or that they think the loan application would be turned down. Next, partially credit-constrained firm is identified if it (i) had obtained external finance and (ii) did not apply for a formal credit due to unfavorable terms and conditions or (iii) applied for a loan and was rejected. Finally, unconstrained category comprises firms that (i) had sufficient capital and did not applied for a loan from financial institution or (ii) applied for a credit and that application was approved. Towards this end, fully and partially constrained firms are defined as credit constrained in the empirical specification.

In order to classify whether enterprises in the sample are credit constrained, Table 1 portrays the share of firms with respect to each of the three alternative credit measures. While the subjective indicator of access to finance provides a rather similar picture with the second measure, it is quite higher compared to the objective measure of participation in financial markets. In particular, 63 percent of enterprises perceive access to finance as a binding constraint for their operations, whereas 68 percent of firms do not have an overdraft facility and line of credit/loans from a formal financial institution. However, the direct credit constraint measure suggests a higher portion of firms as either being fully or partially credit constrained with 23 percent.

Table 1: Firms Categorized By Alternative Credit Measures

	Frequency	**Percent**
Perceives access to finance as a major obstacle	1046	62.90
Do not have an overdraft facility/line of credit/loan	1133	68.13
Credit-constrained based on information external sources of finance and credit application	386	23.21

Table 2 presents the reasons for a lack of loan application. Out of the 1663 firms in the total sample, 64 percent reported "no need for loan" in regards to not applying for a credit, while the second main reason features "interest rates are not favorable" as 27 percent of all respondents citing unfavorable interest rates for lack of application. Other reasons, such as "application procedures were complex", "collateral requirements were high", were cited by a considerably low number of firms, hence it can be inferred that these reasons were not much of a concern.

Table 2: Reasons for not Applying For a Loan

	Frequency	Percent
No need for a loan	788	64.86
Application procedures were complex	27	2.22
Interest rates were not favorable	328	27.00
Collateral requirements were too high	12	1.00
Size of loan and maturity were insufficient	2	0.16
Did not think it would be approved	7	0.58
Other	37	3.05

Table 3 shows the top five obstacles in the operation of enterprises. As can be seen, the five most significant obstacles perceived by Turkish firms were reported as tax rate, access to finance, political instability, inadequately educated workforce, and competition. Notably, the private sector in Turkey appears to be suffering more from tax administration and access to finance, since 24 and 20 percent of survey respondents respectively chose these as significant barriers among the listed obstacles.

Table 3: Top Five Obstacles for Firms

	Frequency	Percent
Tax administration	400	24.05
Access to finance	339	20.38
Political instability	202	12.15
Inadequately educated workforce	195	11.73
Competition	150	9.02

2.2. Independent Variables

Independent variables selected for the empirical analysis comprise a set of firm characteristics that are well established in literature as potential determinants of a firm's access to finance. In this context, establishment size, firm age, manager experience, female and foreign participation in ownership, direct exporter and legal status are adopted as covariates in the empirical analysis to investigate their potential impact on the probability of being credit constrained.

Among these explanatory variables, *Sme* is a dummy variable indicating small and medium- sized enterprises. In comparison with large firms, smaller firms in general are more likely to experience financing constraints. Size is documented to be a significant determinant for the firm's credit constrained status (Chavez, 2017; Kunchev et al., 2014), Moreover, cross-country evidence displays that small and medium-sized enterprises tend to face more financing and other institutional obstacles when compared to their larger counterparts (Ayyagari et al., 2006; Beck, 2007), while lack of access to finance is pointed out as the most significant constraint in the growth of these firms (Beck et al., 2006; Cole and Dietrich, 2014; Schiffer and Weder, 2001; Wang, 2016). Indeed, especially in developing and emerging economies, access to finance emerges as the most constraining feature of the business environment for small and medium-sized enterprises, which stem from lower levels of institutional development and the reluctance of financial intermediaries in reaching out to these firms.

Following previous literature, *Age* is incorporated into empirical specification as an indicator of enterprise age. It is calculated by subtracting the year of the establishment of the firm from the survey year of 2019. In the literature, it is well documented that age of the enterprise increase the amount of credit extended (Berger and Udell, 1995; Petersen and Rajan, 1994) and that older firms experience less obstacles in accessing finance than younger ones (Chavis et al. 2010, Makler et al., 2013).

As regards to the human capital theory, the educational attainment, skills and experience of the top manager are counted as human assets that are expected to positively impact firm performance. In that regard, these assets could have a significant influence on the firm's ability to access credit. In particular, more experienced managers are deemed to have more exposure to previous banking practice and thereby, more knowledge and understanding about the requirements of banks and how to approach them for credit. Moreover, when providing loans, banks perceive management experience as a signal that the manager has know-how on the banking part and also has the competence to manage the funds. Hence, managers with higher business experience find it easier and have a relatively more advantageous position in terms of accessing finance. Following this line of thought and some previous studies (Brush et al. 2009; Zarook et al., 2013), the variable *Experience* describing the top manager's years of work experience is included.

It is commonly asserted that since financial institutions are biased against women, women entrepreneurs experience many generic problems in accessing financial resources to establish and develop their businesses, which may result in female-run firms to be less likely to be applied for a loan, or more likely to be denied bank credits and discouraged from applying for a bank credit due to anticipated rejection. Notably, it is documented in the still growing literature on gender gap in credit access that firms with female ownership participation are less likely to use formal finance channels (Aterido et al., 2013; Bellucci et al., 2010; Demirgüç-Kunt et al., 2008; Murayyev et al., 2009; Richardson et al., 2004) and that they consider finance as a major obstacle (Bardasi et al., 2007; Demirgüç-Kunt et al., 2008; IFC, 2011). This negative impact could be even more salient in developing countries like Turkey, where social norms and cultural attitudes commonly ascribe a traditional role distribution in society with women taking responsibility of domestic activities and with men focusing on the financial support of the family as the bread-winner. Yet, it is important to note that the evidence regarding this impact of gender in credit availability is far from conclusive since numerous studies report that women face no gender bias as far as formal financial activity is concerned (Bruhn, 2009; Carter and Shaw, 2006; Coleman, 2000; Wilson et al., 2007). In this scope, the *female* dummy variable is incorporated to control for the impact of female ownership participation.

Previous literature asserts that ownership structure is one of the significant determinants of a firm's ability of having access to finance (Beck et al., 2006; Galindo and Schiantarelli, 2002; Harrison and McMillan, 2003; Mertzanis, 2017; Sembenelli and Schiantarelli, 1996). That is to say, ownership structure differentially affects credit provision among enterprises, while foreign owned enterprises tend to display lower financing restrictions compared to domestically owned firms. More specifically, firms with foreign participation are expected to have more privileges in ensuring adequate financing as they usually have greater access, at better terms, to international sources of external funding than purely national firms, and this puts these firms which have foreign ownership in a better position to access finance. Accordingly, due to this selection effect, foreign owned enterprises are expected to face less financing obstacles. Following this line of argument, the variable *foreign*, which is a dummy variable identifying foreign ownership, is included. The variable is set as one if foreign participation in ownership is at least 10 percent.

A vast number of previous research (Beck and Cull, 2014; Cassar, 2004; Coleman and Cohn, 2000; Storey, 1994) reported that legal status of the firm affects its ability to access bank finance. Given the ownership–decision maker distinction and thereby, higher levels of formality, shareholding companies and limited liability corporations finds it easier to establish credit histories and provide sufficient collateral and hence, are expected to have better access and tend to use formal finance than sole proprietorship firms. In a similar vein, when compared to sole proprietorships, these firms are less likely to perceive access to finance as a major constraint. Accordingly, as an indicator of the legal status of the enterprise, the variable *Sole* is defined and takes the value of one if the firm is a sole proprietorship.

Firms engaged in exports are expected to fare better in formal credit markets than non-exporting companies. This could be linked to the fact that these firms have access to alternative sources of finance such as trade credit. Moreover, in most cases, these export oriented businesses have easy access to bank finance since they tend to be well established, productive and hence, considered to be creditworthy by the financial institutions. Competitive pressures on exporters have a positive impact on access to credit through its efficiency and high quality output effects (Ganesh-Kumar et al., 2001). Therefore, exporter enterprises are less likely to face obstacles in accessing financial services and less likely to be credit constrained. Accordingly, a dummy variable of *Exporter* is incorporated and defined as firms with a 10 percent or above share of exports in total sales.

3. Model

In order to explore firm-specific characteristics that may have an impact on a firm's ability to access finance; the following empirical model is constructed:

$$Y_i = \beta_1 + \beta_2\, Sme_i + \beta_3\, Age_i + \beta_4\, Experience_i + \beta_5\, Female_i + \beta_6\, Foreign_i + \beta_7\, Sole_i + \beta_8\, Export_i + \varepsilon_i \qquad (1)$$

As explained above, *Y* is the dependent variable that represents whether firm *i* is credit constrained and it is also a dummy variable. This outcome variable is set as one, otherwise zero, when the firm perceives access to finance as a major obstacle, does not use formal banking services, is fully or partially credit constrained according to each of the three measures of credit constraints. The explanatory variables are several enterprise attributes comprised of both continuous (i.e. *age, experience*) and dummy variables (i.e. *sme, female, foreign, sole, export*). The dependent and independent variables are described in Table 4.

Table 4: Description of the Variables

Variable	Explanation
Credit perception	1 if credit is perceived as a severe obstacle, 0 otherwise
Credit use	1 if there is no line of credit/overdraft facility or a loan, 0 otherwise
Credit constrained	1 if credit constrained status, 0 otherwise
Sme	1 if small and medium-sized enterprise, 0 otherwise
Age	Age of the firm
Experience	Years of experience the current manager of the firm has been working for in the industry
Female	1 if female ownership, 0 otherwise
Foreign	1 if 10% or more is foreign owned, 0 otherwise
Sole	1 if sole proprietorship, 0 otherwise
Export	1 if direct exports are 10% or more of total sales, 0 otherwise

The empirical model (1) is estimated with a probit technique as the outcome variable is a binary variable. Specifically, three probit models are estimated individually for each credit constraint measure in order to analyze the predictive power of various firm-specific characteristics on different dimensions of access to finance.

4. Estimation Results

The marginal effects of the probit estimation results for each of the alternative credit constraint measures are reported in Table 5.

Table 5: Marginal Effect of Probit Regression

	Model 1 *Credit perception*	**Model 2** *Credit use*	**Model 3** *Credit constrained*
Sme	0.0249	0.0634**	0.0022
	(0.0290)	(0.0276)	(0.0257)
Age	0.0001	-0.0001**	-0.0001*
	(0.0001)	(0.0001)	(0.0001)
Experience	-0.0018*	-0.0023**	-0.0006
	(0.0009)	(0.0009)	(0.0008)
Female	-0.1055***	-0.0679**	-0.0103
	(0.0334)	(0.0319)	(0.0301)
Foreign	-0.1101**	0.0352	-0.1834***
	(0.0559)	(0.0325)	(0.0600)
Sole	0.0531*	-0.0366	0.0229
	(0.0330)	(0.0325)	(0.0278)
Export	-0.0551*	-0.1222***	-0.0036
	(0.0306)	(0.0291)	(0.0271)
No of obs.	1663	1663	1663
Pseudo R2	0.1218	0.1191	0.1098

Notes: The values in parenthesis are standard errors.
***,**,* denote statistical significance at 1%, 5% and 10% levels, respectively.

The coefficient estimate of *Sme* is only statistically significant with a positive sign in the second specification. That is to say, using formal financial services is more challenging for small and medium-sized enterprises. Not surprisingly, small and medium-sized enterprises are more likely than large enterprises to be constrained by formal financing channels. This result implies that financial institutions do not sufficiently outreach small and medium-sized firms as reflected by their lower use of formal banking products in Turkey. However, regarding the perception based credit measure and direct credit constraint measure, no significant size impact is detected. Hence, interestingly, the probability of perceiving access to finance as a major constraint and the probability of being credit constrained have no association with the establishment size in Turkey.

Firm age *(Age)* reveals a significantly positive relationship with the use of finance, confirming the previous empirical evidence. Moreover, age of the enterprise turns out to be a significant predictor of the probability of being credit constrained in Turkey. The older the firm, the less likely it is to be constrained by finance. This result implies that older enterprises rely on established reputation and signal more creditworthiness in access to and usage of finance. Whereas, the probability of perceiving access to finance as a significant obstacle has no significant correlation with the age of the firm.

The coefficient of the variable *Experience* is found as statistically significant only for the first specification. This empirical finding suggests that as the working experience of the top manager is increasing, the probability of a firm to perceive access to finance as a severe obstacle is decreasing in Turkey. However, when it comes to the second and third model the estimated coefficients as regards to experience is not significant. In other words, the experience of top managers has no influence on the likelihood of a firm's credit usage and credit constrained status.

The empirical findings of the analysis display that female-owned firms are more likely to use formal bank finance, however no such statistically significant gender impact is found for the fully and partially constrained firms. This result may stem from the Turkish Government's combined efforts with several international organizations to support women entrepreneurs via increased lending through financial intermediaries. The results further show that firms with female ownership participation are also not more likely to perceive access to finance as a significant obstacle.

As can be seen in Table 5, the coefficient on foreign ownership *(Foreign)* is negative and statistically significant for the first and third estimated specifications, whereas it turns out to be statistically insignificant in the second one. This result indicates that firms with foreign participation tend to obtain financing from financial institutions more easily and hence, are less likely to be credit constrained. Unsurprisingly, foreign owned firms are associated with a lower likelihood of perceiving access to finance as a major obstacle in Turkey.

The estimation of the first specification yield the expected positive and significant sign for the *Sole* variable, implying that the sole proprietorship firms are more likely to perceive access to finance as a significant barrier than shareholding companies and limited liability corporations. This result is not surprising given the simpler organizational form of sole proprietorships. However, the coefficient estimates for the *Sole* are statistically insignificant for both the second and third model. Hence, the results posit no significant impact of sole proprietorship on the probability of using formal finance and being financially constrained.

The significantly negative coefficient estimates for the variable *Exporter* for the first and second specifications demonstrate that non-exporters are more likely to discern financing constraints and use finance. In other words, exporters are more likely to perceive access to credit as a severe obstacle and are positively associated with higher degree of using formal financing channels. This result could be attributable to higher creditworthiness of export-oriented companies and their ability to access alternative sources of loans such as trade credits. However, the estimation results as regards to the credit constraint measure based on external finance usage and credit application information do not display a statistically significant relationship for the firm's exporter status.

5. Conclusion

Inadequate access to finance is considered to be a major issue for a number of countries and this paper examines the role of firm-level characteristics in access to finance by using various credit constraint measures. The main data source of this study is the 2019 Enterprise Survey collected by the World Bank. This firm-level survey is conducted through a representative stratified random sample of 1,663 firms operating in the manufacturing and services sectors, covering all the regions in Turkey. Based on survey responses, three different credit constraint measures are computed and alternative models are estimated to elucidate possible differences in underlying factors in access to finance among different credit measures.

Overall, the findings of the study show that there are differences in the key determinants of access to finance depending on the adopted credit constraint measure. More specifically, the results using the perception based credit indicator display that exporters, firms with female or foreign ownership, and firms with experienced managers are less likely to perceive access to finance as a major obstacle. Notably, sole proprietorships are more inclined to see credit as a binding constraint, while the legal status of the firm is statistically insignificant in terms of other credit measures. As regards to the use of formal financial services, the key determinants among enterprise characteristics are found to be size, age, experience of the manager, female participation in ownership and exporter status. The findings of the empirical analysis further indicate that the age of the enterprise and foreign ownership are significant determinants of the probability of being credit constrained.

To conclude, the results of the study have provided some important insights into the financing of enterprises in Turkey. Given the significance of firms' access to finance for their efficiency and growth, concrete efforts need to be undertaken to overcome barriers in obtaining formal finance and hence, to increase firm-bank connectedness in Turkey. Towards this end, the credit guarantee fund scheme, which was revived by the public authorities by early 2017, can be an alternative mechanism for the financing needs of small and medium-sized enterprises, can resolve their problems of access to finance and foster financial inclusion. Moreover, the government could further encourage and support women entrepreneurs, and facilitate their access to finance for the start-up and growth of their businesses. Supporting the firms to focus on export market development could provide improvements in financial access, which may also accompany a scale up in their operations and increase in productivity.

References

Abor, J. Y., Agbloyor, E. K., & Kuipo, R. (2014). Bank finance and export activities of small and medium enterprises. *Review of Development Finance*, 4 (2), 97–103. https://doi.org/10.1016/j.rdf.2014.05.004

Amornkitvikai, Y., & Harvie, C. (2018). Sources of finance and export performance: Evidence from Thai manufacturing SMEs. *The Singapore Economic Review, 63*(1), 83-109. https://doi.org/10.1142/s0217590817440027

Aristei, D., & Gallo, M. (2016). Does gender matter for firms' access to credit? Evidence from international data. *Finance Research Letters*, 18, 67-75. https://doi.org/10.1016/j.frl.2016.04.002

Asiedu, E., Kanyama, I., Ndikumana, L., & Nti-Addae, A. (2013). Access to credit by firms in sub-Saharan Africa: How relevant is gender. *American Economic Review,* 103(3), 293–297. https://doi.org/10.1257/aer.103.3.293

Aterido, R., Beck, T.,& Iacovone, L. (2013). Access to finance in Sub-Saharan Africa: Is there a gender gap?. *World Development,* 47, 102–120. https://doi.org/10.1016/j.worlddev.2013.02.013

Aterido, R., Hallward-Driemeier, M., & Pages, C. (2011). Big constraints to small firms' growth? Business environment and employment growth across firms. *Economic Development and Cultural Change,* 59 (3), 609–647. https://doi.org/10.1596/1813-9450-5032

Ayyagari, M., Demirgüç-Kunt, A., & Maksimovic, V. (2006). How important are financing constraints? The role of finance in the business environment. World Bank Policy Research Working Paper 3820. https://doi.org/10.1596/1813-9450-3820

Bardasi, E,, Blackden, M., & Guzman, J. C. (2007). Gender, entrepreneurship, and competitiveness in Africa. In World Economic Forum, World Bank, and African Development Bank. *Africa Competitiveness Report,* 69–85.

Beck, T. (2007). *Financing constraints of SMEs in developing countries: Evidence, determinants and solutions*. Washington, DC: The World Bank.

Beck, T., & Cull, R. (2014). Small- and medium-sized enterprise finance in Africa. Africa Growth Initiative Working Paper 16.

Beck, T., & Demirgüç-Kunt, A. (2006). Small and medium size enterprises: access to finance as a growth constraint. *Journal of Banking& Finance,* 30 (11), 2931–2943. https://doi.org/10.1016/j.jbankfin.2006.05.009

Beck, T., Demirgüç-Kunt, A., Laeven, L., & Maksimovic, V. (2006). The determinants of financing obstacles. *Journal of International Money and Finance, 25*, 932-952. https://doi.org/10.1016/j.jimonfin.2006.07.005

Beck, T., Demirguc-Kunt, A., & Maksimovic, V. (2005). Financial and legal constraints to growth: does firm size matter?. *The Journal of Finance,* 60 (1), 137–177. https://doi.org/10.1111/j.1540-6261.2005.00727.x

Berger, A.N., & Udell, G.F. (1995). Relationship lending and the lines of credit in small firm finance. *The Journal of Business,* 68 (3), 351–381. https://doi.org/10.1086/296668

Bellucci, A., Borisov, A., & Zazzaro, A. (2010). Does gender matter in bank–firm relationships? Evidence from small business lending. *Journal of Banking& Finance,* 34 (12), 2968–2984. https://doi.org/10.1016/j.jbankfin.2010.07.008

Bruhn, M. (2009). Female-owned firms in Latin America: Characteristics, performance, and obstacles to growth. World Bank Policy Research Working Paper 5122. https://doi.org/10.1596/1813-9450-5122

Brush, C. G., Ceru, D. J., & Blackburn, R. (2009). Pathways to entrepreneurial growth: The influence of management, marketing, and money. *Business Horizons,* 52(5), 481-491. https://doi.org/10.1016/j.bushor.2009.05.003

Carter, S., & Shaw, E. (2006). Women's business ownership: Recent research and policy developments. Small Business Service Researh Report.

Cassar, G. (2004). The financing of business start-ups. *Journal of Business Venturing,* 19(2), 261-283. https://doi.org/10.1016/s0883-9026(03)00029-6

Castagnino, T., D'Amato, L., & Sangiácomo. (2013). How do firms in Argentina get financing to export?. European Central Bank Working Paper Series 1601.

Chavez, E. (2017). Credit information and firms' access to finance: Evidence from a new credit-constrained status measure. DECRG Kuala Lumpur Seminar Series.

Chavis, L., Klapper, L., & Love, I. (2010). International differences in entrepreneurial finance. Age, 1.

Claessens, S., & Tzioumis, K. (2006). Measuring firms' access to finance, Paper presented at Access to Finance: Building Inclusive Financial Systems Conference, 30–31 May, Brookings Institution and World Bank, Washington, DC.

Cole, R.A., & Dietrich, A. (2014). SME credit availability around the world: Evidence from the World Bank's Enterprise Survey. DePaul University. Unpublished.

Coleman, S. (2000). Access to capital and terms of credit: A comparison of men and women-owned businesses. *Journal of Small Business Management,* 38(3), 37–52.

Coleman, S., & Cohn, R. (2000). Small firms use of financial leverage: Evidence from 1993 survey of small business finances. *Journal of Business Entrepreneurship*, 12(3), 81-98.

Demirgüç¸-Kunt, A., Beck, T., & Honohan, P. (2008). *Finance for all? Policies and pitfalls in expanding access.* Washington, DC: World Bank. https://doi.org/10.1596/978-0-8213-7291-3

Dinh, H.T., Mavridis, D.A., & Nguyen, H.B. (2012). The binding constraint on the growth of firms in developing countries. In: Dinh, H.T., & Clarke, G.R.G. (Eds.), Performance of Manufacturing Firms in Africa: An Empirical Analysis. Washington, DC: World Bank. https://doi.org/10.1596/9780821396322_ch04

Erdogan, A. I. (2015). Which SMEs perceive access to finance as an obstacle to their operations?: Evidence from Turkey. *Journal of Economic and Social Development*, 2(2), 13-19.

European Bank for Reconstruction and Development, European Investment Bank, & The World Bank (EBRD/EIB/WB). (2016). What's Holding Back the Private Sector in MENA? Lessons from the Enterprise Survey. https://doi.org/10.1596/24738

Fazzari, S., Hubbard, G., & Petersen, B. (1988). Financing constraints and corporate investment. *Brookings Papers on Economic Activity,* 1, 141-95.

Fowowe, B. (2017). Access to finance and firm performance: Evidence from African countries. *Review of Development Finance*, 7(1), 6–17. https://doi.org/10.1016/j.rdf.2017.01.006

Galindo, A., & Schiantarelli, F. (2002). Credit constraints in Latin America: An overview of the micro evidence. IABD Research Network Working Paper No R-472. https://doi.org/10.2139/ssrn.1814731

Ganesh-Kumar, A., Sen, K., & Vaidya, R.R. (2001). Outward orientation, investment and finance constraints: A study of Indian firms. *The Journal of Development Studies*. 37(4), 133-149. https://doi.org/10.1080/00220380412331322071

Hansen, H., & Rand, J.(2014). Estimates of gender differences in firm's access to credit in Sub-Saharan Africa. *Economics Letters,* 123 (3), 374-377. https://doi.org/10.1016/j.econlet.2014.04.001

Harrison, A., & McMillan, M. (2003). Does direct foreign investment affect domestic firm credit constraints?. *Journal of International Economics,* 61(1), 73-100. https://doi.org/10.1016/s0022-1996(02)00078-8

International Finance Corporation (IFC). (2011). Strengthening access to finance for women-owned SMEs in developing countries.

Karacaovalı, B. (2017). Access to finance in Turkey. *Turkish Economic Review,* 4(1), 1-18.

Kumarasamy, D., & Singh, P. (2018). Access to finance, financial development and firm ability to export: Experience from Asia–Pacific countries. *Asian Economic Journal*, *32*(1), 15-38. https://doi.org/10.1111/asej.12140

Kuntchev, V., Ramalho, R., Rodríguez-Meza, J., & Yang, J.S. (2014). What have we learned from the Enterprise Survey regarding access to finance by SMEs?. World Bank Policy Research Working Paper 6670. https://doi.org/10.1596/1813-9450-6670

Makler, H., Ness, W.L., & Tschoegl, A.E. (2013). Inequalities in firms' access to credit in Latin America. *Global Economic Journal,* 13(3–4), 283–318. https://doi.org/10.1515/gej-2013-0024

Mertzanis, C. (2017). Ownership structure and access to finance in developing countries. *Applied Economics*, 49 (32), 3195-3213. https://doi.org/10.1080/00036846.2016.1257106

Moro, A., Wisniewski, T. P., & Mantovani, G. M. (2017). Does a manager's gender matter when accessing credit? Evidence from European data. *Journal of Banking & Finance*, 80, 119-134. https://doi.org/10.1016/j.jbankfin.2017.04.009

Muravyev, A., Talavera, O.,& Schäfer, D. (2009). Entrepreneurs' gender and financial constraints: Evidence from international data. *Journal of Comparative Economics*, 37 (2), 270–286. https://doi.org/10.1016/j.jce.2008.12.001

Mutluer-Kurul, D., & Tiryaki, S.T. (2016). How credit-constrained are firms in Turkey? A survey-based analysis. *Applied Economics Letters*, 23(6), 420-423. https://doi.org/10.1080/13504851.2015.1078439

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. https://doi.org/10.1111/j.1540-6261.1994.tb04418.x

Presbitero, A.F., Rabellotti, R., & Piras, C. (2014). Barking up the wrong tree? Measuring gender gaps in firm's access to finance. *The Journal of Development Studies,* 50 (10), 1430–1444. https://doi.org/10.1080/00220388.2014.940914

Richardson, P., Howarth, R., & Finnegan, G. (2004). The challenges of growing small businesses: Insights from women entrepreneurs in Africa. IFP/SEED Working Paper No. 47.

Schiffer, M., & Weder, B. (2001). Firm size and the business environment: Worldwide survey results. IFC Discussion Paper No. 43. https://doi.org/10.1596/978-0-8213-5003-4

Sembenelli, A., & Schiantarelli, F. (1996). Form of ownership and financial constraints. World Bank Policy Research Working Paper No. 1629. https://doi.org/10.1596/1813-9450-1629

Storey, D. J (1994). The role of legal status in influencing bank financing and new firm growth. *Applied Economics,* 26 (2), 129-136. https://doi.org/10.1080/00036849400000068

Şeker, M., & Correa, P. G. (2010). Obstacles to growth for small and medium enterprises in Turkey. World Bank Policy Research Working Paper No. 5323. https://doi.org/10.1596/1813-9450-5323

Wang, Y. (2016). What are the biggest obstacles to growth of SMEs in developing countries? An empirical evidence from an enterprise survey. *Borsa Istanbul Review*, 16 (3), 167-176. https://doi.org/10.1016/j.bir.2016.06.001

Wilson, F., Carter, S., Tagg, S., Shaw, E., & Lamz, W. (2007). Bank loan officers' perceptions of business owners: the role of gender. *British Journal of Management*. 18, 154–171. https://doi.org/10.1111/j.1467-8551.2006.00508.x

Yıldırım, H.S., Akci, Y., & Eksi, I.H. (2013). The effect of firm characteristics in accessing credit for SMEs. *Journal of Financial Services Marketing*, 18(1), 40-52. https://doi.org/10.1057/fsm.2012.28

Yorulmaz, Ö., Yakut, S. G., & Esenyel İçen, N. M. (2019). Examining the factors affecting the employment increase of enterprises in Turkey. *Alphanumeric Journal, 7*(1), 71-86. https://doi.org/10.17093/alphanumeric.475155

Zarook, T., Mafizur, M., & Khanam, R. (2013). Management skills and accessing to finance: Evidence from Libya's SMEs. *International Journal of Business and Social Science,* 4 (7), 106-115. https://doi.org/10.5539/ijbm.v8n14p55