The Role of Banks' Lending Standards in Determining Creditworthiness of Firms: Evidence from Turkish Banks

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ABSTRACT

This study investigates the interplay between bank lending standards and credit scoring behavior of Turkish banks to SMEs. A Logistic Regression Model has been used by employing CBRT bank and firm-level micro data for the 2017Q1 – 2024Q2 period. First, one of the primary findings of the study shows that easing lending standards supported by excess liquidity conditions of banks significantly contributes to increasing probability of getting a better credit score. Second, we find that this relationship is stronger with the public banks as compared to private banks. Third, the results show that one of the important determinants of the probability of better credit score in addition to lending standards is the 'spread' between CBRT Average Funding Rate and Fed Funds Rate. A number of recent studies have shown that the presence of higher dependence on volatile capital flows in emerging markets may compromise the effectiveness of domestic monetary policy in ensuring financial stability. Third, during 2018 currency crisis, banks seem to adopt more risk-averse lending strategies. Finally, firm-level analysis suggests that banks tend to give higher scores to relatively larger firms during easing lending standards.

Key words: *Banks' Lending Standards, Credit Score, Logistic Regression, SMEs*

JEL Codes: G32, C25

1. INTRODUCTION

Banks play a pivotal role in contributing to the overall productivity of the economy by allocating credits to productive firms and projects. However, a significant challenge banks face lies in accurately assessing firms' creditworthiness, particularly in the case of small and medium-sized enterprises (SMEs), primarily due to SMEs' incomplete or imprecise financial information submissions. To avoid potential instability in credit markets stemming from riskier portfolios and financial vulnerabilities of applicants, banks must effectively perform their critical role in guaranteeing that the applicant borrowers satisfy the required creditworthiness.

The typical process of the approval of credits involves assigning credit scores (ratings) and determination of other conditions of loans. It is also well documented that banks follow softening and/or tightening of 'lending standards', linked to their liquidity conditions, competition with the other banks and overall macroeconomic conditions. (Jimenez et al., 2012). However, how these lending standards may impact the assignment of credit scores has not been

studied in this area of research. In this study, we develop an Unbalanced Panel Logit Regression Model to analyze this relationship. In particular, we hypothesize that during easing lending standards, banks may tend to give better scores to credit applicant firms which may cause instability in the credit markets. Furthermore, excess liquidity positions of the banks may cause increase in their risk-taking behavior towards determining the creditworthiness of the applicant firm. A number of other empirical studies, however, have studied the determinants of bank lending standards. These studies have found evidence that changes in lending standards can be compatible with the business cycles.

One aspect of these findings highlights that bank lending is closely related to bank capital (Faccia et al., 2024; Bedayo et al., 2020). The second aspect is related to changes in the risk appetite of banks that are shifting from higher to lower-risk credits, specifically during times of recession (Bassett et al., 2014; Swarbrick, 2023; Maddaloni et al., 2008; Ciccarelli et al., 2015). Finally, banks lend more easily in good times and tighten their standards in turbulent times (Chen et al., 2021; Berlin, 2009). This behavior implies that the loans provided during times when banks ease their lending standards might lead to an erosion in the overall quality of bank's credit portfolios.

Having access to Central Bank of The Republic of Türkiye (CBRT) database which includes bank-level "Bank Loan Tendency Survey" data that document the lending standards of all banks operating in Türkiye and "Credit Information Survey" documenting the credit scores assigned by these banks in the survey to the applicant firms, gives us a distinct opportunity to integrate these two surveys and examine linkages between banks' credit scores and lending standards.

In short, one of the primary concerns of our study is to develop a core model to investigate how lending standards may impact the assignment of the credit scores by the banks to SMEs in Türkiye. To the best of our knowledge, such a comprehensive empirical modeling in terms of the data coverage, i.e. detailed credit information about banks and firms, has not been carried out in the earlier literature.

To explore the core relationship between banks' credit scoring behavior and their lending standards, we also examine how ownership status of banks and size of the credit recipient firm may have bearing on this relationship. In addition, we also include a variable that may capture the overall monetary policy stances of the related central banks.[1]

The rest of the study is organized as follows: Section 2 reviews the literature, Section 3 explains the methodology and empirical model, Section 4 describes the data, Section 5 discusses the estimation results, and Section 6 concludes the paper.

2. LITERATURE REVIEW

Bank lending standards are a multifaceted topic examined from various perspectives, ranging from the risk-taking behavior of individual banks to the macroeconomic effects of these standards. Existing studies on bank lending standards might be categorized into three main groups.

The first group of studies explores the impact of bank lending standards and credit supply on firm-level credit dynamics. For instance, Ricci et al. (2023) analyzed the impact of idiosyncratic

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[1] In the second phase of the study, we shall be integrating another database of the balance sheets and income statements of credit recipient firms in addition to other macroeconomic variables in the model to enhance the scope of our work.

shocks to bank lending standards on firm credit. They found that negative shocks significantly reduce the probability of approving new loan applications and increase the likelihood of disruptions in bank-firm relationships. Moreover, they showed that changes in lending standards substantially affect aggregate credit and production, especially during periods of heightened uncertainty. Similarly, Khwaja and Mian (2008) examined the distributional consequences of liquidity shocks to bank lending conditions, found that such shocks disproportionately affect small firms with weaker relationships, as opposed to large firms that can mitigate the impact due to stronger ties with banks.

Amiti and Weinstein (2018) and Bofondi et al. (2018) also provide empirical evidence, linking bank lending conditions to firm credit. Amiti and Weinstein (2018) documented the significant impact of financial shocks on firms' borrowing and investment behavior. Bofondi et al. (2018) analyzed credit supply patterns in Italy following the 2011 European crisis, revealing that domestic banks that are more adversely affected by the crisis than foreign banks, were less likely to extend new loans. Castro et al. (2022) investigated the influence of lending standards on bank behavior, finding that a one-standard-deviation increase in lending standards leads to a 3.13 percentage point decline in the growth of commercial and investment loans in the subsequent period. Becker and Ivashina (2014) studied the cyclical relationship between lending standards and corporate finance decisions of firms, showing that firms shift from loans to bonds during periods of tight credit conditions and monetary policy. Altavilla et al. (2019) emphasized that adverse shocks to credit supply, such as tightened lending standards, result in prolonged credit contraction and larger lending spreads, which ultimately drive firms to substitute bank loans with debt securities. Chen et al. (2021), utilizing micro data and a model incorporating credit frictions, demonstrated that variations in lending standards account for significant changes in bank loans and aggregate output. In contrast to studies focusing on firm credit, Vojtech et al. (2020) examined mortgage loans and found that tightened mortgage lending standards led to a one percentage point increase in loan denial rates and a five percent reduction in credit issuance.

The second group of studies examines the role of lending standards in monetary transmission mechanisms and broader macroeconomic outcomes. Cavallo et al. (2024) utilized data from the Federal Reserve's Senior Loan Officer Opinion Survey and extended the methodology developed by Bassett et al. (2014) to explore the relationship between lending standards and macroeconomic activity. Bassett et al. (2014) created a credit supply indicator and showed that tightened lending standards led to significant declines in output and bank lending capacity. Swarbrick (2023) introduced a model incorporating informational frictions in loan approval processes, finding that loan risk amplifies the effects of credit-driven risks on macroeconomic activity. Lown and Morgan (2006) highlighted that tightened lending standards can lead to monetary policy easing as a compensatory measure to offset reduced credit volumes and economic activity.

Conversely, Cunningham (2006) found no significant relationship between lending standards and credit extension. Ciccarelli et al. (2015) explored the role of bank lending channel in monetary transmission, concluding that monetary policy shocks influence output and inflation more profoundly through credit channel dynamics. They also noted that tighter mortgage lending standards in the US and limitations on firm loans in the Euro Area significantly contributed to output declines. Maddaloni and Peydro (2011) investigated the effects of low short-term and long-term interest rates on banks' lending standards, finding that low short-term policy rates relax lending standards, intensifying the effects of monetary policy easing and potentially precipitating financial crises.

The third group of studies focuses on the factors that influence bank lending standards, particularly the effects of monetary policies and economic conditions. Jimenez et al. (2012), Dell'Ariccia et al. (2013) and Saurina and Jimenez (2006) found significant effects of monetary policy and the business cycles on bank lending standards. Dell'Ariccia and Marquez (2006) examined the relationship between the information structure of credit markets and banks' lending standards. It was found that as information asymmetry decreases in the market, banks can ease their lending standards which leads to expansion in credit volumes, yet with erosion in credit portfolio quality.

Other studies, such as Rodano et al. (2017), Kashyap and Stein (2000), and Bedayo et al. (2020), examined the procyclicality of banks' credit risk portfolios, considering factors such as capitalization rates, liquidity positions, and size. Maddaloni et al. (2008) investigated the impact of monetary policy on banks' risk-taking behavior, showing that lower policy rates lead to easing credit standards, particularly for riskier loans. Altunbaş et al. (2007) explored the relationship between securitization levels and lending standards, finding that higher securitization levels significantly eased lending standards, especially during economic expansions. These studies underscore the critical interplay between monetary policy, macroeconomic conditions, and banks' lending behavior.

By situating itself within the first group of studies to some extent, this paper outspreads the existing literature by providing novel insights into how changes in bank lending standards may influence the probability of the determination of credit score by the banks as "resilient" or "vulnerable" and therefore offering implications for both bank-specific behavior and macroeconomic policy considerations.

First, easing credit standards caused by excess liquidity position may increase the probability of getting a better credit score by the firm. Xiaoling (2007) states that excess liquidity position of banks is directly linked to excess reserves held by the commercial banks in the central banks, giving expanding lending capacity of the commercial banks.

Second, the monetary policy stance of the central bank may also impact banks' behavior in assigning credit scores and subsequently the probability of assigning a particular credit score. However, in the aftermath of 2008 financial crisis in the USA, Federal Reserve Bank of USA implemented an unorthodox monetary policy in 2011. It caused US policy rates to touch zero bound and gave excess liquidity to US financial institutions. The spillover effects of these surges in the capital inflows (bonds and equity markets) into emerging markets, created concerns of exchange rate risks and high inflation given the short-term and volatile nature of these flows (Park et al., 2016). Many central banks in the emerging markets, including Türkiye, implemented new monetary policy framework (Akçelik et al., 2015). In our modelling approach, instead of directly employing the CBRT policy rate, we also considered the spread between the CBRT policy rates and Federal Reserve Funding Rate as a determinant of banks' behavior in assigning the credit scores during varying credit conditions. A decrease in the spread during tightening of monetary policy of Federal Reserve may raise expectations of reversals of non-residents' portfolio investments and exchange rate risks.

Third, we also incorporated other hypotheses into the model, such as, whether underlying behavioral relationship between lending standards and probability of assigned credit scores is varying based on ownership status (public vs. private) of banks. Yağlı and Topcu (2023) examines the determinants of internal and external factors affecting credit risks in Türkiye.

They found that both internal and external factors have significant effects on credit risks and impact of these factors on credit risks varies notably across ownership status of the banks.

Finally, as the period that we analyze covers the 2018 currency crisis period, we also examine how the currency crisis of 2018 may impact the relationship between lending standards and the probability of credit scores. A priori expectation is that during the crisis, we may see a more conservative approach during easing lending standards.

3. METHODOLOGY AND EMPIRICAL MODEL

This study utilizes Logistic Regression (LR) for unbalanced panel data, an analytical technique suited for cases where the dependent variable is categorical. It estimates the occurring probability of an incident based on given explanatory variables. It employs maximum likelihood estimation (MLE) to determine the probability of category assignment, offering flexibility by not requiring predictor variables to adhere to linearity, normal distribution, or homoscedasticity assumptions.

The general form of the LR equation can be written as follows:

$$logit(p_i) = ln\frac{p_i}{1 - p_i} = \ln\left(e^{\beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} \dots + \beta_k x_{ik} + \varepsilon_i}\right) \tag{1}$$

where p_i is the probability of success for the binary outcome variable, and $x_{i1}, x_{i2} \dots, x_{ik}$ are the values of the explanatory variables of the model (Allison, 2012).

To examine and test the statistical significance of the core relationship between credit scores of the recipient firms and bank lending standard, we develop Unbalanced Panel Logit Regression Model.

In our model specification, the dependent variable "$Score$" is given by the banks to a credit recipient firm, and is defined as a binary variable. "$Score$" takes the value of "1" if the firm is assessed as "resilient" (financially strong) and "0" if it is assessed as "vulnerable" (financially weak). So, a "$Score$" of "1" corresponds to the probability of success (p_i) and "0" corresponds to the probability of failure ($1 - p_i$).

In this framework, our model is specified as follows[2]:

$$
\begin{aligned}
Score_{ijt} = {} & \beta_0 + \beta_1(easing)_{it} + \beta_2(easing * liquidity)_{it} + \beta_3(spread) \\
& + \beta_4(easing * public)_{it} + \beta_5(easing * crisis)_{it} \\
& + \beta_6(easing * medium)_{it} + D_{1t} + D_{2t} + \varepsilon_{it}
\end{aligned} \tag{2}
$$

Where:

The subscripts 'i', 'j' and 't' refer to the ith bank, j^{th} firm and time 't', respectively. "D_{1t}" and "D_{2t}" are the bank fixed effects and time fixed effects respectively.

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[2] In our ongoing work, we plan to expand the model to include some measures of financial standing of the firms based on their balance sheet statements. However, this requires integrating balance sheet data into the databases of bank credit scores and lending standard survey. By integrating the financial performance based on balance sheets of the firms, the scope of the current work can be expanded further.

Dependent Variable

"*Score*": Equals "1" for the firms categorized as "resilient" by the banks, "0" otherwise.

Independent Variables

"*easing*": Equals "1" during banks' easing lending standards, "0" otherwise;

"*liquidity*": Equals "1" if easing stance is supported by liquidity position, "0" otherwise;

"*public*": Equals "1" if it is public bank, "0" otherwise;

"*medium*": Equals "1" if the firm is medium-size, "0" otherwise.

"*spread*": It is the difference between CBRT Average Funding Rate and Fed Funds Rate;

"*crisis*": Equals "1" during the currency crisis period i.e. 2018Q3-2019Q4, "0" otherwise.

The logit model in equation (2) is a non-linear estimation framework, in which both the dependent and independent variables are categorical. Therefore, the coefficients need to be interpreted accordingly.

For this kind of logit models, one of the categories is considered as benchmark category, and the coefficients show "log-odds" change with respect to benchmark category. Specifically, the coefficients of the categorical variables on the right-hand side of the model estimate the probability of a firm being classified as category "0" (Vulnerable) compared to the baseline category "1" (Resilient). For example, a negative coefficient of a categorical variable is to be interpreted as having a lower probability of credit recipient firm getting a credit score of being vulnerable (Category "0") relative to resilient (Category "1") and vice versa. It may also be interpreted as having a better chance of being categorized as resilient and vice versa.

4. DATA

This study utilizes comprehensive micro data encompassing firm and bank-level information, sourced from the CBRT database. The database allows integrating firm and bank-level information from different sources such as survey/questionnaire forms via unique firm/bank id numbers. Our sample is established by integrating bank/firm level information from two different survey/questionnaire forms. The first group of data covers detailed information aggregated by the Banking Regulation and Supervision Agency (BRSA) from individual banks on a monthly basis. This dataset includes valuable information on loans allocated by banks such as credit amount, maturity, interest rate, collateral etc. and borrower firms, such as their financial scores given by banks and firm-specific characteristics (e.g., sector, size, legal status, etc.). The second group of data covers responses of banks to CBRT Bank Loan Tendency Survey, which shows bank-level easing-tightening modes of banks and underlying reasons for their attitudes reflected in their quarterly lending standards. In addition, we have information on bank types[3] and relevant macro-financial variables, including the CBRT Average Funding Rate and the Federal Funds Rate, which serve as proxies for domestic and global financial conditions, respectively.

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[3] Private Commercial, Private Participation, Public Commercial, Public Participation, Foreign Commercial

As the format and coverage of the Bank Loan Tendency Survey has been updated and revised in 2017, in order to compile a consistent set of data for our analyses, we employed the quarterly observations from 2017Q1 to 2024Q2, utilizing an unbalanced panel data structure. The sample comprises 169,516 firms (145,478 small and 24,038 medium-sized firms) across nine different sectors[4] and 19 banks. Overall, there are more than 30,000 observations available on the average, for each quarter to estimate the model.

The selection of banks and firms in the sample was designed to allow for an in-depth analysis of the relationship between banks' scoring behavior and their lending standard practices. To serve for this purpose, firms that received only one financial score from a single bank in a given quarter were included in the sample. This approach minimizes potential confounding effects stemming from differences in interest rates, collateral requirements, or internal assessment criteria across banks. Moreover, the analysis focuses on SMEs from nine sectors, collectively contributing to more than 70% of gross value added in the entire economy. The criteria for inclusion also required firms to have at least 10 employees and to have received loans exceeding 25,000 TL during the observation period. The final dataset contains 1,071,403 observations that meet these conditions.

Focusing on SMEs, the study aims to illuminate the dynamics of credit allocation and scoring within a segment of the economy that plays a pivotal role in economic growth and job creation. SMEs often face unique challenges in accessing credit due to agency problems, higher risk of default, high collateral requirements and insufficient or non-existence of credit histories (Beck et al., 2006) and are particularly sensitive to changes in bank lending standards. The inclusion of firm characteristics further enriches the analysis, allowing for nuanced insights into how lending practices vary across different economic contexts.

Table 2 (see Appendix) provides a comprehensive summary of the variables used in the study, including their definitions and sources.

5. DISCUSSION OF RESULTS

The results based on our empirical specification of the logit model in (2) are reported in Table 1 below. In our formulation of the logit model, as opposed to a standard linear regression model, all estimated coefficients are interpreted as the probability of getting a credit score under different lending standards and other categorical variables such as size of the firm, crisis period and ownership status of the banks. The overall results of the model are largely consistent with our a priori expectations.

First, the estimated coefficient of the interactive dummy variable of lending standards and liquidity situation of the bank turned out to be negative and statistically significant. It shows that, the log-odds of category "0" i.e. being classified as "vulnerable firm" by the banks, is 0.523[5] unit lower compared to baseline category i.e. being classified as "resilient firm" during the periods in which easing lending standards of banks is supported by their liquidity positions. This result suggests that easing lending standards supported by excess liquidity position of banks significantly causes decrease in the probability of banks' giving lower score to the credit

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[4] A: Agriculture, C: Manufacturing, F: Construction, G: Trade, H: Transportation and Storage, I: Accommodation and Food Services, L: Real Estate, P: Education, Q: Human Health and Social Work
[5] In other terms, the probability of being classified as "vulnerable firm" by banks during easing lending standards is $e^{-0,523} = 0,59$ times lower compared to benchmark category i.e. being classified as "resilient firm".

applicant firms. However, we did not find statistically significant results for a direct relationship between bank's lending standards and their credit scoring behavior.

Score	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
1				**Base Outcome**			
0							
Spread	-0.022	0.000	-43.28	0.000	-0.023	-0.021	***
easing	-0.008	0.015	-0.54	0.589	-0.038	0.022	
*easing*liquidity*	-0.523	0.021	-25.41	0.000	-0.563	-0.482	***
*easing*public*	-0.204	0.028	-7.35	0.000	-0.259	-0.150	***
*easing*crisis*	0.204	0.022	9.36	0.000	0.161	0.246	***
*easing*medium*	-0.312	0.020	-15.32	0.000	-0.352	-0.272	***
cons	1.065	0.029	36.36	0.000	1.008	1.123	***

Mean dependent var		0.733	SD dependent var	0.442
Pseudo r-squared		0.070	Number of obs.	1071403.000
Chi-square		31537.956	Prob > chi2	0.000
Akaike crit. (AIC)		1156353.256	Bayesian crit. (BIC)	1156983.134

Notes: *** *p<0.01, ** p<0.05, * p<0.1 (indicates p-values at different significance level)*
Table 1: Estimation results for equation (2) (Score = 1 Base Outcome)

Second, the results of the interaction of lending standards with the dummy variable of public banks show that the coefficient is negative and statistically significant. It suggests that the log-odds of category "0" is 0,204 unit lower compared to baseline category "1" if the bank in easing mode is a public bank. To put it more clearly, the probability of being classified as "resilient firm" compared to being classified as "vulnerable" by a public bank during easing mode in its lending standards is higher compared to private banks. Public banks, as opposed to private banks, may have other considerations in lending credits to the firms. The probability of getting a better categorization during easing lending standards is further complemented for the public banks.

Third, as the 2018 currency crisis period is also included in the sample of our study, we included a dummy variable in the model to see if banks' behavior is impacted by the crisis. The positive coefficient of the crisis interaction term shows that the log-odds of category "0" is 0,204 unit higher compared to baseline category "1" during 2018 currency crisis times in which banks in easing mode in their lending standards. In other words, we may conclude that banks are more risk averse during the crisis period.

Fourth, we see that the size of the firm, which is categorized as small and medium, also has an impact on the relationship between lending standards and credit scores. The interaction term for easing lending standards of banks and size of the firm has negative significant coefficient. In short, larger (medium-size) firms are likely to get better scores during easing lending standards compared to small firms.

Finally, one of our right-hand side variables is a quantitative variable, capturing the monetary policy stances of the relevant central banks. We find significant negative relationship between spread i.e. CBRT Weighted Average Funding Cost and Federal Funds Rates' difference and credit scoring behavior of banks. It has been shown that increase in the spread can cause FX

inflows into the portfolio investments by the non-resident. This provides FX liquidity in the domestic FOREX markets and reduces the chances of excessive depreciation of Turkish Lira. The estimated coefficient refers that for each one unit increase in the spread, the log-odds of being categorized as "vulnerable firm" declines by 0,022. It suggests that the increase in the spread, increases the probability of getting a categorization of financially resilient firm. In other words, we may interpret that banks during times with increase in spread, may tend to lend out easier/more credits to the firms.

6. CONCLUSION

Having an exclusive excess to two comprehensive CBRT databases, bank-level "Bank Loan Tendency Survey" and bank and firm-level "Credit Information Survey", provided a unique opportunity to carry out this study. The study developed a core model in studying relationship between bank lending standards and banks categorization of credit recipient firms as "financially resilient firms", and "financially vulnerable firms", by employing unbalanced panel logit regression model. One of the central theses tested was if banks during easing lending standards are more likely to issue the credit to the financially vulnerable firms. One of the main results of the study reveals that banks tend to assign better scores to firms during easing lending standards that are supported by their liquidity position. One of the policy implications of the result is that easing lending standards, during excess liquidity positions of the banks, may erode the overall quality of bank's credit portfolios with increasing risks of credit default.

The core model was further expanded to draw additional conclusions:

First, it has been found that the ownership status of banks may also impact banks' scoring behavior. Public banks exhibit a higher tendency to assign better scores to financially vulnerable firms during easing lending standards. This may reflect differences in risk perceptions and strategic objectives between public and private banks.

Second, the sample period also included the year 2018, Turkish lira lost significant value against USD during the second half of this year. It has been found that banks tend to make more cautious assessments of credit seeking firms during the crisis period. This result is in line with our a priori expectations.

Third, the size of the firm also seems to impact the scoring behavior of banks. Based on our estimation results, probability of getting more favorable assessment during easing lending standards is higher for medium-size enterprises.

Finally, we employed the spread between CBRT Average Funding Rates and Fed Funds Rate as a proxy to the monetary policy stance of the relevant central banks. We found that higher spread may contribute to the tendency of banks to be more favorable in their credit assessments. As indicated earlier, significant stocks of non-resident FX liabilities pertaining to portfolio investments in Türkiye, are subject to quick reversals with changes in the monetary policy stance of the Federal Reserve Bank. The increase in spread helps in managing these reversals to keep stability in the financial markets of Türkiye. The result shows that irrespective of the lending standards of the banks, banks seem to assign better categorization of the credit recipient firms, due to their expectations of stability in the financial markets.

The scope of this work can be expanded by integrating financial positions of firms based on their balance sheets and income statements. However, we think the current work provides

sufficient support to our primary thesis about banks' lenient credit assessments during easing lending standards if they are particularly supported by their liquidity position.

APPENDIX

Variable Category	Indicator Name	Definition	Source	Representation	Data Type/ Unit of Measure
Dependent Variable	Score	Credit score of firms given by banks.	CBRT	*Score*	Categorical (1 or 0)
Independent Variables	CBRT Average Funding Rate CBRT_AFR)	Weighted average interest rate calculated by considering funding volumes and corresponding interest rates i.e. one-week repo rate (policy rate) and overnight lending rate.	CBRT EVDS	cbrt_afr	Continuous (Percent)
	Fed Funds Rate (FFR)	The rate at which US banks charge each other for lending their cash surplus overnight.	St. Louis FED (FRED)	*ffr*	Continuous (Percent)
	Easing Dummy	Refers to the situation where banks eased their lending standards over the past three months.	CBRT	*easing*	Categorical (1 or 0)
	Liquidity Position Dummy	Refers to the situation where liquidity position of banks contributed to easing lending standards (either positive or negative)	CBRT	*liquidity*	Categorical (1 or 0)
	Public Bank Dummy	It is "1" for public banks, "0" otherwise.	CBRT	*public*	Categorical (1 or 0)
	Crisis Dummy	It is "1" for the 2018Q3-2019Q4 period, "0" otherwise	CBRT	*crisis*	Categorical (1 or 0)
	Firm Size Dummy	It is "1" for medium-size firms, "0" otherwise.	CBRT	*medium*	Categorical (1 or 0)

Table 2: Data Description and Sources

The details of the variables included in the model are as follows:

"*Score*" (**Dependent Variable**): It is a categorization of firms by BRSA corresponding to the internal assessment of banks which is obtained via the "Credit Information Form" circulated by BRSA on a monthly basis. Banks assign this score to each credit applicant firm as part of the loan approval procedure available in the banking sector. It is a type of internal assessment that shows firms' overall financial resilience/vulnerability. There are six different categories[6] in original form, yet we reclassified the categories as category "1" which corresponds to "financially resilient firms", and as category "0" which corresponds to "financially vulnerable firms". Thus, the samples had two scores/categories (1 and 0).

"*spread*": It is the interest rate differential between CBRT Average Funding Rate[7] and FED Funds Rate[8]. We took the spread between CBRT Average Funding Rates and Fed Funds Rates as a proxy for the monetary policy stance of the central banks to address financial stability concerns. The increase in 'spread' can cause net inflows of foreign currency (FX) by the non-residents' portfolio investments in Türkiye, stabilizing exchange rates. We expect that higher spreads may lead to positive expectations by banks on financial stability and therefore may tend to assign better scores to expand credit.

"*easing*" (**Easing Dummy**): It is derived from Bank Loan Tendency Survey (BLTS) conducted and published quarterly by CBRT which aims to provide information about the bank loans to non-financial corporates and households to monitor the factors affecting credit standards, loan demand and supply as well as realized or expected changes in the loan demand and the factors causing these changes. This variable is basically derived from banks' response to the question: ***"Over the past three months, how have your bank's credit standards as applied to the approval of loans or credit lines to enterprises changed?"***. It refers to the credit standards of the particular bank that have been eased over the past three months. It takes the value of "1" if the bank's credit conditions have eased over the past quarter, otherwise, it takes "0".

"$easing * liquidity$" (**Interaction Term for Easing Because of Banks' Liquidity Condition**): It corresponds to the situation in which the variable takes the value of "1" if the overall stance of the bank is in easing mode and the liquidity condition of the bank positively contributed to the easing stance of the bank, otherwise, it takes "0".

"$easing * public$" (**Interaction Term for Easing Dummy and Public Bank Dummy**): It corresponds to the situation in which the dummy variable takes the value of "1" if the bank in easing mode is a public bank, otherwise, it takes "0".

"$easing * crisis$" (**Interaction Term for Easing Dummy and Currency Crisis Period Dummy**): It corresponds to the situation in which the variable takes the value of "1" if the bank is in easing mode during the currency crisis period (2018Q3-2019Q4), otherwise, it takes "0".

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[6] Score 1: Applicant has very strong financial status, Score 2: Applicant has good financial status, Score 3: Applicant has medium and long-term financial risks, Score 4: Applicant has short-term financial risks, Score 5: Applicant has defaulted, 6: Applicant is not rated.

[7] CBRT_AFC is the weighted average interest rate calculated by considering CBRT funding volumes and corresponding interest rates i.e. one-week repo rate (policy rate) and overnight lending rate. It serves as a proxy for domestic financial conditions, reflecting the monetary policy stance of the CBRT.

[8] Fed Funds Rate (FFR) refers to the rate at which U.S. banks lend surplus cash reserves to one another overnight. Given its influence on international liquidity and capital flows, this variable is employed as a proxy for global financial conditions.

"*easing* ∗ *medium*" (Interaction Term for Easing Dummy and Firm-Size Dummy): It corresponds to the situation in which the variable takes the value of "1" if the firm accessed credit during easing times of banks is medium-size, otherwise, it takes "0".

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