

DETERMINANTS OF GRANTING LOANS IN PRIVATE COMMERCIAL BANKS IN TURKEY

Türkiye'de Özel Ticari Bankalar Kredilerinin Belirleyicileri

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ABSTRACT

Private commercial banks constitute a large part of total assets in the banking system in Turkey. Credit is one of the main functions of banking institutions. If banks are not effective in lending behavior, this will be a flaw in the economic growth and a more serious financial stability. In this context, we have studied some of the internal and external determinants of bank credit by using data obtained From all private commercial banks operating in Turkey in the period (2010-2017) for quarterly data. The results showed that there is an inverse correlation between the inflation rate and granting of loans rate, while the other factors such as the rate of liquidity, the volume of deposits, the size of the gross domestic product and the interest rate, their relationship with the variable is positive, and showed that there was no effect between the size of the banks and granting of loans rate.

Keywords: Credit Rate, Gross Domestic Product, Liquidity, Inflation rate.

ÖZET

Türkiye'de özel ticari bankalar, bankacılık sistemindeki toplam varlıkların büyük bir bölümünü oluşturmaktadır. Kredi, bankacılık kurumlarının temel işlevlerinden biridir. Bankalar kredi verme davranışlarını etkili olmazlarsa, ekonomik büyümede dengesizliğe yol açacak ayrıca etkisiz ve uygunsuz bankacılık uygulamaları daha ciddi bir finansal istikrarsızlığa yol açabilecektir. Bu kapsamda, 2010-2017 periyodunda, üçer aylık verilerle Türkiye'de faaliyet gösteren tüm özel ticari bankalardan elde edilen verileri kullanarak banka kredisinin iç ve dış belirleyicileri incelenmiştir. Sonuçlar, enflasyon oranı ve kredi verme oranının banka kredi verme davranışı üzerinde negatif etkili olduğunu göstermektedir. Likidite oranı, mevduat hacmi, gayri safi yurtiçi hasıla ve kredi faiz oranı ile banka kredi verme davranışı arasında pozitif bir ilişki olduğu belirlenmiştir. Ayrıca banka büyüklüğü ve kredi verme oranı ile arasında bir etki olmadığını göstermiştir.

Anahtar Kelimeler: Kredi oranı, Gayri Safi Yurt İç Hasılası, Likidite, Enflasyon oranı

1. INTRODUCTION

Bank credit, the loans that bank grant to their customers of businesses and businessmen to execute their projects, is one of the important cycles in economic activity. (Suad, 2014: 68). It is natural that these customers resort to borrowing from banks, which is happening in all countries of the world, and this borrowing is according to certain controls applied by the banking system and monitored by the Central Bank. In most countries of the world, customers borrow money from the banks to finance part of their projects, and the rule is obligating to pay the dues of these banks on time; customers may fail in the settling their debts, as they refrain from paying the bank so the bank is exposed to certain risks and risks may end with its bankruptcy. (Alduri, 2008: 36). This results in a halt to projects and an increase in unemployment and decline savings rates where depositors are reluctant to deposit their money with banks fear of losing. If a customer fails and does not pay his debts to banks in time for adverse market conditions, there is an agreement between the creditor bank and the customer to reschedule his debts in what is known as "floating the customer". (Bin shanab, 2008: 1-3). That is, the foundation of success and obligation to pay and the exception is failing, but if failure and non-payment become the rule, his means there is something is wrong.

Banks are exposed to such risks and are not required to provide loans to their borrowers and take precautionary measures to avoid the risk of non-payment or reduction of loans by setting a set of conditions

for loan applicants that the Bank secures the greatest degree of safety against such risks.(Alhatib, 2005: 210).

Credit analysis is increasingly important as an important tool to reduce the bank's losses due to bad loans and scattered facilities.(Shahin, 1998: 66). Failed loans are a serious problem that the bank faces in its business that leads to freezing an important part of the bank's money as a result of the inability of the customers who received them to pay their installments and benefits and exposes the granting bank to losses that exceed the return of the alternative investment opportunity to a real material loss represented in the loss of debt and its benefits, (Copper, 1984: 22-28), especially if there are not sufficient financial guarantees can be liquidated by selling and get the price to pay the loan granted by the bank to the failed customer as well as the failed debt cause reduction in the turnover of money at the bank. Thus, this leads to reduction the operational capacity of its resources, its profits and increase in its losses.

2. DETERMINANTS FOR GRANTING CREDIT IN BANKS

There are internal and external factors affecting banks in granting loans:

2.1. Bank Deposits: Lending activity becomes possible if banks are able to mobilize sufficient money from their customers. As commercial banks rely on depositors' funds as the primary source of money, (Pham, 2014: 6), this means the increase in total deposits increases the total loan advance proportionately (Guo, et al., 2011: 8).

Lending and deposits are moving together as deposit growth is faster indicating increased demand for loans.

2.2. Liquidity Ratio: Since lending is the main business activity of most commercial banks, the loan portfolio is usually the largest assets and main source of revenue (Bruno, et al., 2014: 13-14). As such it is one of the largest sources of risk to the safety of the bank. Since loans are illiquid assets, the increase in loan volume means an increase in illiquid assets in a bank's assets portfolio, the amount of liquidity held by banks is heavily affected by the demand on loans (Alduri, 2008: 12). Therefore, the Bank tends to maintain more liquid assets (short-term assets) if the demand for loans is weak. (Hadad, et al., 2005: 144) While if demand for loans is high, it tends to keep less liquid assets since long-term loans are usually more profitable.

2.3. Bank Size: It can be expected that the effect will be the size of the bank positively or negatively on the granting of loans, in theory large banks can be more effective in granting loans than small banks. (Djogap, 2012: 110).

2.4. GDP: The strong economic situation of a country's GDP is a motivational factor statistically as most banks are issuing more credit. A strong economic situation also leads to increased demand on goods and services, leading to more investment in different parts and thus an increase per person income as well as savings. (Chodechai, 2004: 86). These combined factors convince banks to issue loans.

2.5. Inflation Rate: The increase in inflation leads to a lower real rate of revenue not only on money, but as well assets in overall. The decline in real revenues increases the severity of credit market contacts. Because these market contacts lead to the rationalization of credit, credit restricting becomes worse as inflation rises. (Timisna, 2014: 25)

2.6. Interest Rate: Monetary contraction and interest rate cut down on indirectly spending by reducing the offer of bank loans. Several studies in a number of countries have shown that monetary policy does not only affect on direct bank lending, by changing deposits, but also indirectly, by changing the revenue of securities.(Getahun, 2014: 33-34)

3. LITERATURE RIVIEW

The following are the studies that were concerned with the subject of the study, which were reviewed and analyzed:

There are multiple studies that inspects the determinants of granting loans.

Sarath and Pham Study (2015) inspects the behavior of lending to Vietnamese banks and they found that, positive impact of economic growth and the negative impact of the ratio of government bonds on bank loans. Also they showed that the growth of deposits and lack of liquidity have an effect impact on the credit

loan in private banks. Mean while the Barajas, et al., (2010) showed that basics at the bank level - loan quality and capital - helped give details the differences in credit growth in Middle East and North Africa countries. Beladi et al., (2018) made a research about the subject of the impact of tax evasion of companies on bank loans in China. The study resulted in that the tax reductions were positively linked to bank loans and loan costs, but were negatively associated with credit terms. The study also explained the economic effects of evasion corporate tax and its effect on the lending behavior of commercial banks in China.

As for the study of Tomak (2103) adopted to analyze the effect of variables (interest rate and rate of inflation, exchange rate and GDP) on lending behavior in Turkey. Tomak used data from 15 private commercial banks and 3 public banks for the period from 2003 to 2012. The results showed that the performance of bank loans depends on their size, inflation rate and total liabilities. The outcome of the study also showed that the performance of private bank loans is better than that of state-owned commercial banks. Also that the results of the Takáts (2010) study concluded that the main determinant of the decline in lending in emerging markets during crises are sudden supply shocks in these markets.

While in the study of Alrawashde (2013), The intent was to investigate the effect of customer borrowers, credit policies and central management of loans on facilities granted by commercial banks in Jordan. This study concluded that all factors are considered important when deciding to grant bank credit, where the credit department must ask the client should conduct an initial and detailed feasibility study. The management should ensure the customer's good financial reputation and follow up the client's financial activities through various studies in the future. Ituwe (2003) study strongly expressed Cash Reserve Ratio is the crucial extremely important of bank lending.

A review of theoretical and empirical literature indicates that most studies on bank lending behavior have been conducted in advanced financial markets. However, there are some studies that have been conducted in the Turkish financial markets. Despite the existence of these studies, it is seen less the main axis around which is the effect of the size of deposits on the behavior of granting loans, the extent of the impact of the interest rate and the differences in the interest rate and its impact on the behavior of the bank. And Is there any impact of the macroeconomic determinants on granting loans in private banks operating in Turkey? This represents a gap in the body of knowledge that this study seeks to explain. Many studies have adopted to use the pre-mentioned determinants, which led us to study this problem in Turkey

4. DATA AND METHODOLOGY

Data were used from all private commercial banks operating in the Turkish (9 banks) marketplace between the period 2010-2017. These data were quarterly and were collected from various sources (TCMB, TÜİK, TBB), by using Eviews 9 software package (Statistic descriptive, Correlation between variables, Unit Root Test and Panel Data Analysis) for analysis and to reach the appropriate results in this study.

5. MODEL AND VARIABLES

In this study, our analysis of independent and dependent variables will be as follows:

5.1. Dependent variables:

The study used one dependent variable: loan grant rate. This variable is the most used in previous studies to gauge the bank's behavior and ability to loan (Maonga, 2014: 21-22, Isaac, 2015: 38-39, Moussa, et al., 2016: 28, Tomak, 2013: 940).

5.2. Independent variables:

5.2.1. Internal Determinants of bank: More exactly, internal factors are bank-specific variables that affect the bank's lending. (Variables such as deposit of volume, liquidity ratio and Size of the bank). (Getahun, 2014: 33-34, Musah et al., 2018: 31-32, Olumuyiwa, et al., 2012: 75-78)

5.2.2. Macro-Economic Relevant determinants: There is a wide range of literature supporting the effect of macroeconomic factors on bank lending decisions such as inflation, gross domestic product, and interest rate (Timsina, 2017: 24-25, Getahun, 2014: 33-35, Isaac, 2015: 39, Jakubik, 2013: 50, Intdraratna, 2013: 210)

The model and variables of the study were determined as follows:

$$Cr = \alpha_0 + \alpha_1 Dep + \alpha_2 Ir + \alpha_3 Liq + \alpha_4 Siz + \alpha_5 Gdp + \alpha_6 Infr + \mu \quad (1)$$

Where

Cr : Credit Rate = Total Credit / Total assets

Dep : Volume of Deposits = Total deposits / Total assets

Ir : Interest Rate = Lending Rate

Liq : Liquidity Ratio = Liquid asset / Total asset

Size : size of the bank = Natural Logarithm of Total Assets

Gdp : Gross Domestic Product = Logarithm of Gross Domestic Product

Infr : Inflation Rate = Rate of Inflation

μ : error term controlling for unit-specific residual in the model

α : intercept of the regression line variables.

7. ANALYSIS OF DESCRIPTIVE STATISTICS

Table 1: Statistic descriptive

Variable	Mean	Sta. D	Min.	Max.	Obs
Cr	0.6074	0.1297	0.2269	0.8736	288
Siz	7.1212	1.1415	4.6973	8.5591	288
Liq	0.1369	0.2813	0.0027	0.9431	288
Dep	0.5688	0.1678	0.0021	0.8315	288
Gdp	5.6838	0.1212	5.5143	5.9490	288
Ir	12.894	2.5495	7.9971	16.586	288
Infr	8.3671	1.6097	4.3500	12.270	288

288=8*4*9 = total number of observations

8= number of years

4=Quarterly

9=number of banks

Among the independent variables of the private banks operating in Turkey, the size of the banks and the Interest rate were most dispersed compared to other variables with a standard deviation of 1.141 and 2.549. It means that observed banks asset are not similar.

Table 2: Correlation between variables

Variable	Cr	Siz	Liq	Dep	Gdp	Ir	Infr
Cr	1						
Siz	0.4941	1					
Liq	0.6826	-0.6704	1				
Dep	0.6980	0.5856	-0.6300	1			
Gdp	0.2100	0.1163	-0.0321	0.0100	1		
Ir	0.2427	0.1174	-0.0296	0.0069	0.6007	1	
Infr	0.0715	0.0485	-0.0299	0.0405	0.2544	0.5264	1

Given the previous correlation table, we find that the correlation between variables is low (0.70 < all the coefficients)

8. The results of regression analysis

The unit root test is used to make sure the stability of time series and to determine the degree of integrity of each series (stability degree). The stability condition is a prerequisite for time series analysis to arrive at sound and logical results. There are many tests and the most important was ADF –Augmented Dickey , Fuller and PP –Philips and Peron , Levin, Lin & Chi and Im, Pesaran and Shin.

Table 3: Unit Root Test Result (Level)

Variable		LEVEL							
		ADF		PP		Levin, Lin & Chu		Im, Pesaran & Shin	
		Īst.	Prob.	Īst.	Prob.	Īst.	Prob.	Īst.	Prob.
Cr	S	29.049	0.047*	70.532	0.000*	-3.986	0.000*	-1.358	0.087**
	S & T	86.433	0.000*	49.230	0.000*	-1.956	0.025*	-0.073	0.470**
Siz	S	10.984	0.895**	39.259	0.002*	-2.199	0.013*	1.257	0.895**
	S & T	21.121	0.273**	26.960	0.079**	-1.845	0.032*	-0.867	0.192**
Liq	S	64.132	0.000*	109.98	0.000*	-60.43	0.000*	-32.22	0.000*
	S & T	305.12	0.000*	416.70	0.000*	-119.8	0.000*	-48.56	0.000*
Dep	S	28.876	0.049*	33.735	0.013*	-0.870	0.192**	-0.326	0.272**
	S & T	27.535	0.069**	38.496	0.003*	-1.407	0.079**	-0.475	0.317**
Gdp	S	1.0825	1.000**	0.943	1.000**	3.060	0.998**	4.697	1.000**
	S & T	2.8024	1.000**	4.539	0.999**	0.364	0.654**	2.892	0.998**
Ir	S	18.049	0.452**	10.573	0.911**	-2.222	0.031*	-0.970	0.165**
	S & T	38.320	0.003*	21.761	0.242**	-2.567	0.005*	-3.332	0.000*
Infr	S	22.259	0.220**	22.498	0.210**	1.123	0.869**	-1.542	0.061**
	S & T	24.110	0.151**	15.433	0.632**	-2.075	0.019**	-1.677	0.046*

Note: S: Fixed, S & T: Fixed And Trend Test

* Significance Levels, Prob < 0.05.

** Significance Levels, Prob > 0.05.

Table 4: Unit Root Test Result (1st Difference)

Variable		1st Difference							
		ADF		PP		Levin, Lin & Chu		Im, Pesaran & Shin	
		Īst.	Prob.	Īst.	Prob.	Īst.	Prob.	Īst.	Prob.
Cr	S	97.524	0.000*	216.17	0.000*	-6.677	0.000*	-7.977	0.000*
	S & T	87.380	0.000*	730.77	0.000*	-6.403	0.000*	-4.849	0.000*
Siz	S	79.327	0.000*	168.66	0.000*	-5.390	0.000*	-6.667	0.000*
	S & T	61.439	0.000*	376.60	0.000*	-4.593	0.000*	0.618	0.000*
Liq	S	166.81	0.000*	254.06	0.000*	-92.507	0.000*	-42.912	0.000*
	S & T	390.15	0.000*	1063.68	0.000*	-76.484	0.000*	-3.227	0.000*
Dep	S	120.63	0.000*	227.00	0.000*	-7.585	0.000*	-8.735	0.000*
	S & T	95.466	0.000*	960.40	0.000*	-5.938	0.000*	-7.402	0.000*
Gdp	S	74.295	0.000*	189.48	0.000*	-6.209	0.000*	-6.424	0.000*
	S & T	54.398	0.000*	165.92	0.000*	-4.930	0.000*	-4.928	0.000*
Ir	S	64.642	0.000*	123.19	0.000*	-8.180	0.000*	-5.653	0.000*
	S & T	40.210	0.002*	88.490	0.000*	-6.918	0.000*	-3.526	0.000*
Infr	S	64.462	0.000*	165.78	0.000*	-7.310	0.000*	-5.638	0.000*
	S & T	45.414	0.000*	156.33	0.000*	-6.784	0.000*	-4.058	0.000*

Note: S: Fixed, S & T: Fixed And Trend Test

* Significance Levels, Probe < 0.05.

Table 3 and 4 shows the result of testing study variables using PP the results of previous tests. It indicates that the table shows that all variables are stable at logarithmic levels with a level of significance of 5%. At the value of the first difference, and thus conclude that that all variables stable at the value of the first difference.

Table 5: Hausman Test Result

Test Summary	Chi-Sq. statistik	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	6	1

Hausman test to choose between the model of static effects and random effects. Housman's statistics were equal to (0.00), followed by square-Chi distribution of class (6) (1) at the 0.05 level, and the appropriate model is the random effects model.

Table 6: Results of Panel Data Analysis

Independent variables		The dependent variable: Cr	
		Random effect model	
C	Coefficient	0.01873	
	P-Değeri	0.9282	
Siz	Coefficient	-0.0246	
	P-Değeri	0.1012	
Liq	Coefficient	0.2762	
	P-Değeri	0.0000*	
Dep	Coefficient	0.2965	
	P-Değeri	0.0000*	
Gdp	Coefficient	0.0950	
	P-Değeri	0.0121*	
Ir	Coefficient	0.0127	
	P-Değeri	0.0000*	
Infr	Coefficient	-0.0085	
	P-Değeri	0.0013*	
Observations		288	
R-Square		0.4082	
Adjusted R-Square		0.3956	
P- (F- statistic)		0.0000	

* Significance Levels, Prob < 0.05.

The random effects model supposes the relationship between the independent variable and the dependent variable is not constant but is random. It can be said that the relationship between the independent variables and the dependent variable is strong,

F Statistical value is observed as significantly. Our independent variables can explain to dependent variable at about %40 level. In addition to the majority of the parameters of the variables are significant and their strong indication is consistent on the economic theory. The model is able to interpret the changes that occur in banking credit and the ability of independent variables to interpret the out coming change in dependent variable. The results of the study can be expressed as follows:

- ✓ We note that there is no Important significance for the dependent variable, the size of the bank (siz), at a significance level of 5%, which imply that there is no effect between the size of banks and the granting of loans rate.
- ✓ As for the independent variables (Liq, Dep, Gdp, Ir) represented by the rate of liquidity, the volume of deposits, the size of the gross domestic product and the interest rate, there is a significant and positive relationship at the level of %5 between these variables and the dependent variable. This relationship was interpreted as P, respectively (0.000,0.000,0.0121,0.000). This is explained by the results of the values of the independent variables respectively (27%, 29%, 9%, 1%). This result consistent with the results of a study by some economists regarding the interest rate and the volume of deposits and their relation to granting loans (Olokoyo, 2011: 61-68).
- ✓ There is an inverse relationship of important significance at level %5 between the following independent variable (Infr) and bank credit.

9. THE RESULTS

The role of banking credit is considered the key to economic growth because of its significant impact on the economy as a whole. Since private commercial banks constitute a large part of total deposits and total assets in the banking system in Turkey, the banking institution, and the study attempted to identify the determinants of lending behavior of private commercial banks operating in Turkey.

This study provided some ideas from the empirical viewpoints examined in this area. The study also used 9 banks in the period from 2010 to 2017 according to the quarterly data of each bank to scrutinize the determinants of bank lending grants in Turkey.

The study demonstrated that there is an inverse correlation between the inflation rate and private sector credit for private commercial banks, while the other factors such as the rate of liquidity, the volume of deposits, the size of the gross domestic product and the interest rate, their relationship with the variable is positive. Finally, the results of the study showed that there was no effect between the size of the banks and granting of loans rate. It means that regulatory institutions should be careful these significantly variables for more bank lending.

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