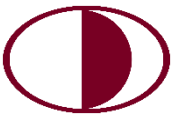

NEAR EAST UNIVERSITY

INSTITUTE OF GRADUATE STUDIES

BANKING AND FINANCE PROGRAM

DETERMINANTS OF LENDING BEHAVIOR OF BANKS: A CASE STUDY ON COMMERCIAL BANKS OF TURKEY

NESHAN KHALID SALEEM

MASTER'S THESIS

NICOSIA

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THESIS SUPERVISOR

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ACCEPTANCE/APPROVAL

We as the jury members certify the “DETERMINANTS OF LENDING BEHAVIOR OF BANKS: A CASE STUDY ON COMMERCIAL BANKS OF TURKEY” prepared by the Neshan Khalid Saleem defended on 27/01/2021 has been found satisfactory for the award of degree of Master

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DECLARATION

I Neshan Khalid Saleem, hereby declare that this dissertation entitled 'DETERMINANTS OF LENDING BEHAVIOR OF BANKS: A CASE STUDY ON COMMERCIAL BANKS OF TURKEY' has been prepared myself under the guidance and supervision of "Turgut Tursoy" in partial fulfilment of the Near East University, Graduate School of Social Sciences regulations and does not to the best of my knowledge breach and Law of Copyrights and has been tested for plagiarism and a copy of the result can be found in the Thesis.

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DEDICATION

This thesis is dedicated to my parents, for their endless love, support and encouragement, wholeheartedly dedicated to my beloved parents who have been my source of inspiration and gave me strength when I thought of giving up, who continually provide their moral, spiritual, emotional, and financial support.

This thesis is dedicated to my father, Khalid Saleem, who dedicate all his life to me and spent all his life to make me a better person, intellectually and personality and he did not only raise and nature me but also texted himself dearly over the years for my direction and intellectual development. I want to dedicate this thesis to you for everything that you have done for me. And to my mother, Nehari Hasan, has been a source of motivation and strength during moments of despair and discouragement. Her motherly care and support have been shown in incredible ways recently.

To my brothers, sisters, relatives, mentor, friends, and classmates who shared their words of advice and encouragement to finish this study.

Also dedicate this project thesis to my friends who have supported me throughout the process. I will always appreciate their support and all the things they have done.

And lastly, I dedicated this thesis to the almighty God, thank you for guidance, strength, power of mind, protection and skills and for giving me healthy life.

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First of all, I would like to express my gratitude to almighty Allah to enabling me to complete this thesis on ((Determinants of lending behavior of banks: a case study on commercial banks of Turkey)), I thank my God for providing me with everything that I required in completing this thesis.

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ABSTRACT

DETERMINANTS OF LENDING BEHAVIOR OF BANKS: A CASE STUDY ON COMMERCIAL BANKS OF TURKEY

The purpose of this paper was to examine and evaluate the effectiveness of the central tendency of the lending behavior of commercial banks and the variables that affects the lending behavior of commercial banks in Turkey. Five variables influencing bank lending activity has been selected and analyzed. The panel FMOLS and DOLS and the Demiterscu and Hurlin causality are used for fifteen commercial banks in Turkey from 1996-2017. The analysis suggested that credit risk has a negative impact on loans; this means that an increase in credit risk will decline the lending behavior of banks. Likewise, both economic growth and monetary policy rate have negative consequences on lending. Thus, an increase in both GDP and interest rate decreases the bank lending, this suggests that the transmission mechanism of the central bank of Turkey is effective in increase the lending rate of banks. The negative relationship between monetary policy rate and bank lending can be attributed to the proper monetary transmission effect. Contrarily, capital adequacy and non-performing loans are positively connected to lending. Thus, an increase in both will increase the lending behavior of the banks by 1.33% and 0.65% respectively. In summary, all the selected explanatory variables are determinants of lending behavior of banks in Turkey.

Keywords: loans and advances, credit risk, monetary policy rate, non-performing loans, GDP, FMOLS, DOLS, DH causality, Turkey

ÖZ

BANKALARIN KREDİ VERME DAVRANIŞININ BELİRLEYİCİLERİ: TÜRKİYE TİCARİ BANKALAR ÜZERİNE BİR ÖRNEK ARAŞTIRMA

Bu yazının amacı, Türkiye'deki ticari bankaların kredi verme davranışının merkezi eğiliminin ve ticari bankaların kredi verme davranışını etkileyen değişkenlerin etkinliğini incelemek ve değerlendirmektir. Banka kredilendirme faaliyetini etkileyen beş değişken seçilmiş ve analiz edilmiştir. FMOLS ve DOLS paneli ile Demiterscu ve Hurlin nedenselliği, 1996-2017 yılları arasında Türkiye'deki on beş ticari banka için kullanılmıştır. Analiz, kredi riskinin krediler üzerinde olumsuz bir etkisi olduğunu öne sürdü; bu, kredi riskindeki artışın bankaların kredi verme davranışını azaltacağı anlamına gelir. Aynı şekilde, hem ekonomik büyüme hem de para politikası faizinin kredi verme üzerinde olumsuz sonuçları vardır. Dolayısıyla hem GSYİH hem de faiz oranındaki artış banka kredilerini düşürmekte, bu da Türkiye merkez bankasının aktarım mekanizmasının bankaların borç verme oranlarının artmasında etkili olduğunu göstermektedir. Para politikası faizi ile banka kredileri arasındaki negatif ilişki, uygun parasal aktarım etkisine bağlanabilir. Aksine, sermaye yeterliliği ve tahsili gecikmiş krediler, kredilendirme ile pozitif bir şekilde bağlantılıdır. Böylelikle her ikisindeki artış, bankaların kredi verme davranışını sırasıyla% 1,33 ve% 0,65 artıracaktır. Özetle, seçilen tüm açıklayıcı değişkenler Türkiye'deki bankaların kredi verme davranışının belirleyicileridir.

Anahtar Kelimeler: krediler ve avanslar, kredi riski, para politikası oranı, takipteki krediler, GSYİH, FMOLS, DOLS, DH nedenselliği, Türkiye

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LIST OF ABBREVIATION

DOLS	Dynamic Ordinary Least Square
FMOLS	Fully Modified Least Square
GDP	Gross Domestic Product
NPL	Non-Performing Loans

CHAPTER ONE

INTRODUCTION

1.1 Background

In cultures and societies, since before the creation of wealth, there were always those who control capital in abundance of their urgent needs, surplus economic unit, or whose present ownership will not fund their economic activity deficit economic unit. Recognition by the surplus economic unit that its surplus could be used productively to cover the deficiencies faced by deficit economic entity has led to the creation of a finance system. This arrangement was originally formed by lenders (surplus units) as well as the deficit unit of the lender needing to look for themselves rather than work directly with them. Related funding (Hassan et al., 2016). Indirect funding involves the collection of deposits from different individuals, government and business by banks for loans to the deficit unit; the payment of the loan is rendered to the lender that is also able to refund the withdrawal of the excess component. Loan that can be short, medium or long-term is one of the services that banks offer to customers. In many other words, banks grant loans and advances to individuals; original business and governments to encourage them to engage in investment and development practices as a means of supporting business growth, in particular, or of contributing to the economic development of a country in general. Thus, the

lending activities of banks generate economic growth through provision of capital for real investment (Güls & Kara, 2019)”

As per Maria et al. (2020), "loaning is undeniably the core of banking industry. Its administration therefore requires tremendous competence and flexibility on the side of the management of banks. Whereas a bank is irreversibly dedicated to paying interest on deposits generated from either a variety of sources, the ability to articulate creditable avenues where deposit funds may be put to produce fair income; retaining liquidity and ensuring stability needs a high degree of realistic policy formulation and implementation. Banks are the most important entities for the distribution of capital, production and financial resources.

As a consequence, certain positions make them an essential phenomenon for economic development and growth. In performing its duties, it should be recognized that banks have the capacity, reach and ability to mobilize and allocate financial capital to investment spending. Consequently, regardless of the sources of income generation or the state's financial policies, commercial banks will be involved in providing loans and advances to its various clients, keeping in mind the three principles governing their operations, namely profitability, liquidity and solvency. That being said, the decision of commercial banks to lend loans is affected by several factors, such as the amount of deposits, the interest rate, the cash reserve criteria and the liquidity ratio, to name a few (Vinh, 2018).

In addition, the banking sector is a vital component of the financial system in emerging regions helping to promote capital accumulation and economic processes. This can be done by effective financial securitization. Banks raise money from excess investment groups to reduce financial costs. Banks often turn liquid assets including deposits into illiquid assets like loans (No et al., 2017). This world changing mechanism of bank operation is best affected by a range of variables, namely macroeconomic, banking Pee industry-level dynamics (Journal & Cucinelli, 2015). According to Ç, (2020), "credit is the largest single revenue asset in the portfolio of most banks. This describes why banks expend huge resources on forecasting, tracking and controlling credit quality. This is, of course, a phenomenon that has a huge effect on the lending actions of banks as vast resources are included. Sarpong-kumankoma & Osei (2020) although investigating factors that influence interest rates, the amount of lending volume, and the establishment of guarantees in the bank's loan decision, says: banks must be cautious with their lending pricing decisions, as banks could not pay loan rates which are too low since interest income would not be sufficient to cover the cost of deposits and general expenses.

Furthermore, costing so high a loan rate can also generate an undesirable option and a moral hazard for borrowers. Research become essential since banks in Turkey also need recognize the determinants of lending activity in order to handle their large assets in term of loans and advances. In order for banks to maintain their key goals of liquidity, profitability and solvency, lending must be controlled efficiently and the banks should act in such a manner as to attract and retain potential customers. This research was intended to provide insight into best practice and conduct in lending.

Especially to the researcher's knowledge in Turkey, no empirical study has been carried out so far on the determinants of the conduct of commercial bank lending. The purpose of this paper was to monitor the accuracy of the common determinants of the lending of commercial banks and how they influence the lending of commercial banks in Turkey. The thesis is divided into five parts; following this introduction, the literature review as chapter 2, third chapter is the method of the research, whereas the interpretation of the data and the conclusion form the last two chapters.

1.2 Statement of Research problem

Financial institutions seem to be the most essential funding, deployment and distribution entities for financial capital. As a result, these roles make them an essential entity of economic development and growth. In conducting this function, it should be recognized that banks have had the opportunities, scope and potential to mobilize financial resources and allocate them to direct investment (Hassan et al., 2016).

Banking is currently so vulnerable so more of their revenue (profits) would be produced from lending (loan) to its clients (Jermias & Yigit, 2019). This process of credit formation exposes banks to high credit risk, which contributes to losses. Thus, without knowing the determinants of lending conduct, good bank performance or benefit would be inconceivable.

Commercial bank loans to enterprises and non - banking financial institutions have often served a significant and vital role in the economy. These loans offer individuals and companies a chance to grow and improve their companies, which in turn would increase production and jobs.

Increased production and jobs would result in an improvement in welfare for a nation or region. While there are many other variables that may lead to an increase in welfare, commercial bank lending is one of the most significant factors leading to growth. An example of an significant commercial bank loan is mortgage payments, which help individuals paying for a house by providing loans, and in exchange they have to pay interest on the mortgage they are issued. That being said, there will always be a chance of default on the part of the creditors.

The economic crisis that took the world by surprise in 2007 is an indication as to how unmanaged loans may have catastrophic consequences. The financial crisis caused by the mortgage loans in the United States has culminated in a given bank on the rest of the globe, with catastrophic effects on the economies of the world. The effect of the crisis has created fear across banks that they should be very cautious about their loans. As an example, in the United States, lenders are stated to have enough funds to make loans, but seemingly not eager to do it at all. The failure or inability of commercial banks to provide loans would therefore have a negative effect on the production and jobs of the region or nation and thus would lead to a decrease in development and growth. That's the realization of the value of commercial bank loans to a nation or area that fuels the aims of this study.

Consequently, regardless of the sources of income generation or the state's financial policies, commercial banks will be involved in providing loans and advances to their various clients, keeping in mind the three principles governing their operations, namely profitability, liquidity, and solvency.

That being said, the decision of commercial banks to lend loans is affected by a variety of indicators, such as the amount of deposits, the amount of domestic and foreign investment, the interest rate, the cash reserve criteria and the liquidity ratio, to name a very few (Apak & Atay, 2014).

In addition, the banking sector is a vital financial intermediary in developing nations capable of promoting wealth creation and economic processes. This can be done by effective financial intermediaries. Banks raise funds through surplus investment classes to reduce financial costs. Banks often turn liquid assets including deposits into risky investments such as loans (Kara, 2016). This transformational phase of bank operation is best affected by a number of variables, such as macroeconomic, bank level and specific industry attributes (Gunes & Yildirim, 2016).

The key profit-making task of financial institutions is to make loans to its customers. In the allocation of funds for the loan portfolio, the primary goal of bank management is to gain revenue while at the same time satisfying the credit needs of its group (Maria et al., 2020). Lending is at the core of the industry. Loans are the primary commodity, accounting for 50-75 per cent of the total sum at most banks, producing the biggest share of operating profits, and reflecting higher exposure to risk for banks (Mkhaiber & Werner, 2021).

The lending of commercial banks has played a significant role in fuelling industrialization in every economy by facilitating the mobilization of capital that oils the wheels of economic development. And these excellently-functioning banks promote technical advances by discovering and supporting businessmen who are considered to have a better chance of successfully introducing creative goods and manufacturing processes. However, the option of such public policies for controlling banking operations is adversely affected by the sound and viable functioning of commercial banks. This requires a rigidly

controlled interest rate system, Guided credit, unpaid reserve conditions and a regulation of liquidity management measures; the amount of cash in the bank vault often determines the ability to issue advances. Since, in many instances, checks have to be paid in cash, they can store a sufficient amount of cash to satisfy customer demand (Vinh, 2018).

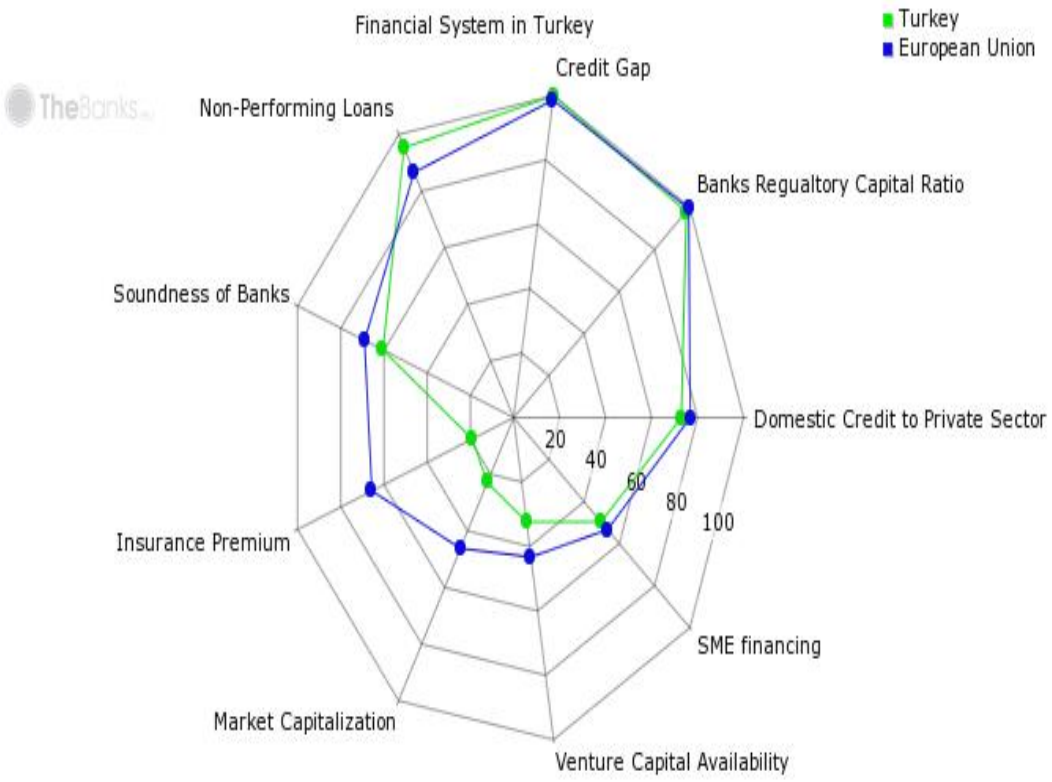

FIGURE 1: FINANCIAL DEVELOPMENT IN TURKEY: SOURCE WEF

In particular, the banking sector in Europe and Turkey is a strategic center of the banking industry. Loan decisions by lenders could not be ignored, since they are the primary suppliers of loans to states, corporate bodies and individuals as a whole. Current literature offers no empirical evidence of bank lending activity in developed economies such as Turkey. In an emerging market such as Thailand, (Dincer et al., 2011) argues that lenders regard risk and relationship factors in any bank lending policies. This work is expected to replace this void and also to find proof of the determinants of bank lending activity in Turkey. Specifically, it examines the effects on bank lending activity of specific and macroeconomic factors.

Especially in the knowledge of the researcher in Turkey, no empirical study has been carried out so far on the determinants of the conduct of commercial bank lending. The goal of this study was therefore to add to the current literature and provides some data on the determinants of the lending activity of the commercial bank.

1.3 Research Objective

1.3.1 General objective

The main objective of the study was to investigate the influence of specific bank and macroeconomic conditions on the lending activities of commercial banks in Turkey.

1.3.2 Specific Objectives

In view of the above-mentioned issue and the general goal, the researcher discussed the following basic research objectives:

1. Examining the impact of GDP, credit risk, and capital adequacy ratio on lending behavior of Turkish commercial banks;
2. Analyzing the significance of bank specific determinants of lending behavior of Turkey commercial banks;
3. Examining the impact of lending interest rate, cash reserve requirement ratio, economic growth, and inflation on lending behavior of Turkish commercial banks; and
4. Analyzing the significance of macroeconomic determinants of lending behavior of Turkish commercial banks.

1.4 Scope of the study

The focus of the analysis was restricted to checking the efficacy of the common determinants of the lending activity of commercial banks and how it affects the lending of commercial banks to fifteen commercial banks under study from 1990 to 2019.

1.5 Significance of the study

Banks are one of the contributors to the nation's progress by lending capital to investors and the business sector. Lending does have a very essential role for commercial banks. Its contribution to the asset and revenue ratio in the banking sector is very high. Major determinant of borrowing activity would also enable us boost lending efficiency.

It would also help management of banks to make them realize of and offer proper attention to factors that influence lending. The results of this study will be significant for understanding the actions and patterns of commercial banks in the distribution of loans and loans to the economy.

In addition, the study would make a significant contribution to existing knowledge on determinants of commercial bank lending activity in the Turkish context. This, in turn, leads to some well-being of the banking sector of the economy and society as a whole. Commercial banks, regulatory agencies, the country's academic workers and the community as a whole would perhaps be the key beneficiaries of this report.

Finally, this research will also be used as a framework for any potential analysis that needs to be discussed on the framework of certain other issues that have not been mentioned in this report.

1.6 Research Questions

1. What some of the indicators that affect bank's lending behavior in Turkey?
2. Do bank specific indicators affect bank lending behavior in Turkey?
3. Which macroeconomic variables influences bank's lending behavior in Turkey?

1.7 Hypothesis of the Study

H1: Credit risk did not have a positive impact on bank lending

H2: Capital adequacy does not have a negative relationship with bank lending

H3:Non-performing loans have a positive consequence on bank lending in Turkey.

H4: economic growth increase bank's lending rate in Turkey

H5: the monetary transmission mechanism in Turkey is effective in affecting bank lending.

"1.8 Structure of the study"

This thesis has been structured in five chapters. Chapter one included a quick background to the entire thesis. Chapter two identified the analysis of published studies. Chapter three presented a detailed summary of the methods used in the thesis.

Chapter 4 includes the introduction, review and interpretation of the results. Finally, the last chapter concluded the overall work of the study and made the necessary suggestions on the basis of the results.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter explores the relationship banking theory that can be applied to long-term lending decisions by banks and the empiric analysis of long-term lending literature. The variables in study have been checked and a conceptual structure has been developed for the linking of the research variables.

2.2 Theoretical Basis

There are several ideas that have already been presented in the field of credit evaluation and management by various authors. The thesis identifies four theories: the theory of the portfolio of credit risk management, the theory of loan pricing and the theory of the delegated monitoring of borrowers.

2.2.1 Theory of Delegated Monitoring of Borrowers

The monitoring of borrowers by banks concerns the collection of information during the loan evaluation process and the post-credit disbursement process. It includes verifying if the borrower has complied with the bank's lending conditions, verifying the borrower's creditworthiness and post-deal supervision to ensure that all the agreements are complied with. In situations whereby banks run consumer transaction accounts, they appear to provide privileged knowledge in terms of cash flows and expenditure. This privileged knowledge is useful in the case of small and medium-sized businesses (Okay, 2020).

Financial productivity in the banking sector has been highlighted as a prerequisite for economic development.

This describes why there is a great deal of focus on continuing research in this area. It is further told by the transition in the banking sector, which is marked by strong competition. Technological advancement and financial reform have driven local banking to a new age of rivalry, where major banks have diversified their activities to remain competitive with the emerging trend (Fulford, 2015). Since then, the banks have also seen technological advancement offer a variety of opportunities for creating new non-traditional banking products and expanding their distribution networks, such as the Internet and cell phone financial services. This has contributed to a decreased investment in branch facilities.

2.2.2 Portfolio Theory to Credit Risk Management

The Current Portfolio Theory (MPT) has been used effectively by commercial banks to market credit management risk from the 1980s onwards. In controlling their market risk exposure and the interest rate paid, most commercial banks have adopted Value At Risk (VAR) models. Unfortunately, considering the listing of credit risk by banks as their key obstacle, the practicality of current credit risk portfolio theory has trailed (Sefer et al., 2014).

Commercial banks understand the effect that credit concentration can have on their financial performance, which can be detrimental if not well handled. It has prompted the majority of commercial banks to apply quantitative methods to credit risk measurement, but accurate data has been the key obstacle to this.

Major steps have also been taken by the banking industry to establish methods that can be used in assessing credit risk. In an attempt to effectively pass risk that they do not want to bear while at the same time safeguarding consumer relationships, banks have also resorted to credit derivatives. Thus, the progress that has been made in credit risk management over the past few years in a portfolio sense has accelerated these two emerging problems.

The standard approach originally applied by banks was the asset-by-asset approach to credit risk management. This approach included the evaluation of the quality of the loan book and other credit exposures from time to time, the use of credit risk ratings and a thorough assessment of the results of this study to measure the potential losses of the loan portfolio. The investment strategy is rooted in a sound credit analysis and in the bank's existing credit risk rating system. Credit risk rating systems and routine credit review allow management to identify developments in the portfolio in a timely manner. Depend on the results of the organization's problems in the identification of loans, the credit risk rating system and the analysis of loans, the management may adjust its portfolio strategy or simply enhance the monitoring of loans in a reasonable timeframe.

The key drawback of the asset-by-asset strategy is the inability to include a detailed view of the credit risk portfolio, where the word risk refers to the probability that actual losses will surpass the anticipated losses. The key drawback of the asset-by-asset strategy is the inability to define and quantify concentration risk. Systematic risk is the higher risk that arises from increased exposure to a single lender, related lenders or a specific industry. Commercial banks therefore augment this approach with a quantitative review of credit portfolio using various credit models.

2.3 Previous Study

Loan is the provision of money (loan loan) from one party to another. The responsible party does not automatically repay the first party by creating a loan, and instead arranges either to repay or repay those assets at a later date. Banks serve as commercial banks, gathering funds from savers in the form of deposits, and then offering loans to customers. Both banks and borrowers benefit from these roles.

“One of the essential components of any commercial bank is to provide a loan to the company. Banks raise money by those who have surplus money and loan it to those in need money for various purposes. The intermediary feature of banks therefore plays a vital role in economic activity. In their U.S. analysis using a firm development model, Athavale et al. (undated) categorized various theories linked to bank roles. The very first theory assigns banks a specific role in the management of asymmetric information, which means that banks enable the financial system to resolve asymmetric information by screening, contracting and tracking borrowers. The second theory, monetary theory, assigns banks a special role in the development of money and the transmission of fiscal policy. In addition, the banks displayed ability and willingness to lend”

“The willingness of banks depends on the project's incentives and the moral rectitude of borrowers, whereas the capacity of banks to lend depends on the adequacy of bank resources and monetary policy. Financial institutions offer deposits from customers and use these funds to offer loans to other customers or to invest in other assets that will produce a return greater than the sum the bank pays to the depositor (McCarthy et al., 2010). It implies that deposits made by customers are the primary source of bank loans and therefore the rise or guarantee of deposits directly has a beneficial impact on lending. The key profit-making task of commercial banks is to make loans to its customers.

In the allocation of funds to the loan portfolio, the main objective of banking system is to gain revenue while at the same time satisfying the credit requirements of its group (Reed and Gill, 1989)"

"Lending is at the core of the industry. Loans are the dominant commodity, accounting for 50-75 per cent of the total sum at most banks, producing the largest share of operating profits, and reflecting higher risk exposure for banks (Cioran, 2014). Bacha et al. (2014) addressed the utility of commercial banks after evaluating various performance assessment approaches and risks in Romania. The bank is the center of credit for every country's economy. In turn, the credit was discovered to be the mechanism that put into motion the financial flows that decide the development and economic development of a country. As a consequence, any efficiency in the operations of financial institutions has unique consequences for any country's economy as a whole. Loan is the main asset of financial institutions. McCarthy et al. (2010) identified that for most of the 10 largest U.S. banks in 2007 and 2008, loans were the largest asset preceded by investment. Their research centered largely on the size and proportion of investments and loans of the 10 biggest banks. They also showed that bank bailouts and financial crisis could alter the outcome of the crisis of 2009"

"Baran and Smiljanic (2008) used survey method to research the impact of tight monetary policy and bank funding on small and medium-sized enterprises (SMEs) and large companies in Croatia. This study revealed that currency depreciation had a substantial effect on the monetary policy of commercial banks towards SMEs and large companies. According to the report, the impact on small and medium-sized businesses was more important than on large corporations. One can recognize according to the above analysis that monetary policy, which is vulnerable to contraction policy, affects more banks that are less liquid. Reducing the availability of loans indirectly affects the return on

bonds and impacts larger, medium and smaller businesses. In evaluating the effects of liquidity constraints on U.S. banks, Webb (2000) suggested that in a financial environment where businesses are predominantly financed by bank debt, banks are primarily financed by demand deposits. There could be a knock-on impact where the liquidity demand of depositors means that a bank, faced with a lack of money, cannot lend to its financial institutions”

In this report, Webb (2000) suggested that the issue of bank liquidity was partially resolved by shortages on deposit. The study did not examine the position of deposit insurance to be a remedy. Cadet (2009) also looked at the connection between monetary policy and banking weakness in developing economies using a benefit maximizing model in the banking sector.

“Cadet (2009) observed that government bonds being one of the alternative sources of profit in developing nations, tight monetary policy aggravated bank failure. Increase interest rate directly increased asymmetrical information. In order to overcome this information, an efficient bank should therefore reduce its loan portfolio. On this basis, Cadet (2009) recommended to the policy makers of the central banks that they should be very concerned about the adverse effects of strengthening the monitoring policy (banks failure). Financial system enforced to strengthen the market price may weaken the banking industry if the interest rate increase is not moderate (Cadet, 2009). When monetary policy becomes restrictive, banks need to reduce or stop new lending because of declining reserves and therefore deposits. Mostly just the origin of the loans is the depositor's own fund. When deposit is reduced, it is not fully interchangeable for other financing options such as bond issuance, equity sales and CDs due to credit market imperfections. There are contrary opinions that clarify the contraction of the monitoring policy may not have an effect on the reserve and thus on the loan. A research performed in the United States of America by Oliner and Rudebusch (1996) using Kashyap, Stein and Wilcox

(KSW) (1993) analysis style showed that monetary contractions did not constrain the availability of financial loans in relation to the supply of non-bank loans. Finally, they concluded that there was a very poor relationship between the strategy of reducing bank reserves and bank lending”

Banks use other sources such as shares, equity and CDs to solve liquidity issues. Matz (2010) clarified that holding highly marketable securities is a hedge that can be used when liquidity issues arise before other reserves of liquidity have been reached. The whole argument posed in the paragraphs above is from the point of view of the lender (banker). If one sees the problem on the part of the borrowers, businesses should brace themselves when the monetary policy of the borrowers is stringent.

Cumming and Nel (2005) using a pattern study analyzed lending activity preliminary findings on the potential effect of Basel III in Europe. This research shows that the introduction of the Basel Accord of 1988 improved the capital adequacy ratio by increasing additional capital to counter the introduction of the national agreement, which would limit bank lending and contribute to economic recession. Checked bank loan supply changes by separating the bank according to the size of the asset and the U.S. capital coverage ratio using the bank model. Isiksal et al. (2019) argued that the size of bank assets and bank capital had an impact on banks' ability to raise funds and sustain credit growth throughout contraction policy. A research performed in Austria on the impact of fiscal policy adjustments on bank lending using modeling has shown that the smallest average bank size shows the strongest lending response when the interest rate is changed.

“A further research by conducted in the United States on bank supply shifts found that young banks are most receptive to fiscal policy. Large time deposits by small banks are not receptive to the policy. This underpinned their assumption that small banks were unable to raise different options for financing loans during contraction policy (Basurto & Ghosh, 2001). Bank health is evaluated by financial performance and non-performance loans (NPLs). As a result, banks with capital adequacy problems and a high rate of NPLs are reducing lending. Fukunaga et al. (2019) investigated the effects of weakening the financial condition of banks in Japan and demonstrated that regulatory capital adequacy and the ratio of non-performing loans had an opposite effect on lending”

“The goal of the study was to test the determinants of the lending behavior of commercial banks and how it affects the lending behavior of commercial banks in Nigeria. The framework used is calculated using the Nigerian Commercial Banks Loan Advance (LOA) and other determinants or variables such as their deposit volume (Vd), investment portfolio (Ip), interest rate (Ir), cash reserve requirements ratio (Rr) and their liquidity ratio (Lr) for the period 1980-2005. The model assumes that there is a structural relationship between the dependent variable and the defined relationship between the independent variable. From the regression study, the model was found to be important and its estimators turned out to be expected, and it was found that commercial bank deposits had the greatest effect on their lending actions”

“Semuel & Nurina, (2015) explores the determinants of the lending activity of commercial banks in Nigeria: a co-integration study between 1975 and 2010. The study is based on secondary and a series of econometric techniques to explain the long-term relationship between Commercial Bank and its lending actions over the research period. In addition, the study explores the extent of commercial banks' loan advances in Nigeria and also discusses the different

determinants of commercial banks' lending behavior in Nigerian. In addition, the model used is calculated using Nigerian Commercial Bank Loan and Advance (LOA) and other determinants such as Deposit Volume (Vd), annual current exchange rate of naira to dollar (Fx) for the period of thirty-seven (37) years, Investment Portfolio (Ip), Interest rate (lending rate) (Ir), Gross domestic product at current market price (Gdp) and Cash Reserve Requirements Rate (CRR) for the span of thirty-seven (37) years (Rr). Therefore, the model outcome shows that there is a significant relationship between loan and the progress achieved, Yearly total exchange rate from naira to dollar, Gross domestic product at market price and cash reserve requirement ratio excluding investment portfolio and interest rate (lending rate) which have a negative relationship. The finding has also shown that there is a long-term relationship between Loan and Advance and all the explanatory variables in the model, and this shows that the commercial bank has a great deal of effect on its lending conduct"

"Nguyen et al. (2017) empirically explores the factors that explain bank lending to companies in a variety of financial environments and growing world challenges. The growth of bank credit to the private sector is used as a dependent variable, while the growth of foreign liabilities, the growth of domestic deposits, the rate of the money market, M2 as a percentage of GDP, real economic growth, inflation and the exchange rate are defined as the key explanatory variable for the conduct of bank credit. With the main emphasis on the supply side, this analysis uses the ARDL econometric approach using annual data from the period 1971 to 2008 for Pakistan. Empirical findings reveal that foreign liabilities, domestic deposits, economic development, exchange rate and economic improvement have a major impact on the domestic lending in Pakistan especially in the longer term. While the rate of inflation and the rate of the money market does not impact private credit.

Furthermore, in the short term, the local deposit does not have an effect on private credit. The explanation may be that the banks do not issue an instant loan from the amount currently deposited by the bank customers. Results also suggest that the financial stability and profitability of banks play a major and critical role in the lending process”

“A good economic situation calculated by GDP, as a driving factor for banks, has a systematically important effect on the issuance of more private credit to companies. Results also suggest that the long-term relationship is stable and any short-term imbalance would be temporary and fixed over a period of time with a high speed of 53.5 per cent per year. This analysis does not differentiate statistically between the conduct of bank credit during the non-financial period (1971-1989) and the financial reforms periods (1990-2008) in Pakistan”

2.3.1 Gaps in Earlier Study

In consistent with the theory and empirical analysis alluded to above, lending activity is essential to the banking industry, as lending is undoubtedly the heart of banking business. It also confirmed that bank lending could be influenced by numerous factors, such as bank specific and macroeconomic factors, while this study concentrated on some of the bank's specific and macroeconomic factors influencing the lending activity of Turkish commercial banks.

Much of the research examined in this analysis centered on developing countries in the banking sector. While these forms of research have been performed in developed countries, limited literature has been available for this research.

To the researchers' knowledge, no empiric studies have been done on determinants of commercial bank lending activity in Turkey, and the previous related studies have concentrated only on performance rather than determinants.

"Since the banking sector is at a growth phase with the launch of new banks and the exclusion of an active secondary stock exchange in the country, it is vital to notify the important determinants of the lending behavior of the banks by conducting an empiric investigation of the already developed banks. As a result, this study filled the gap by placing more emphasis on the bank's real and macro - economic factors influencing the lending activity of Turkey's commercial bank"

2.4 Conceptual Framework

This framework demonstrates the link between the two researches variables involved in this research. It is categorized in the theory of money supply. Seven & Yetkiner (2016) indicates that the level of the budget deficit is essentially determined by the requirements for the reserve ratio, additional capital (volume of deposits) and interest rates. These determinants, taken together can decide the potential of supportable funds.

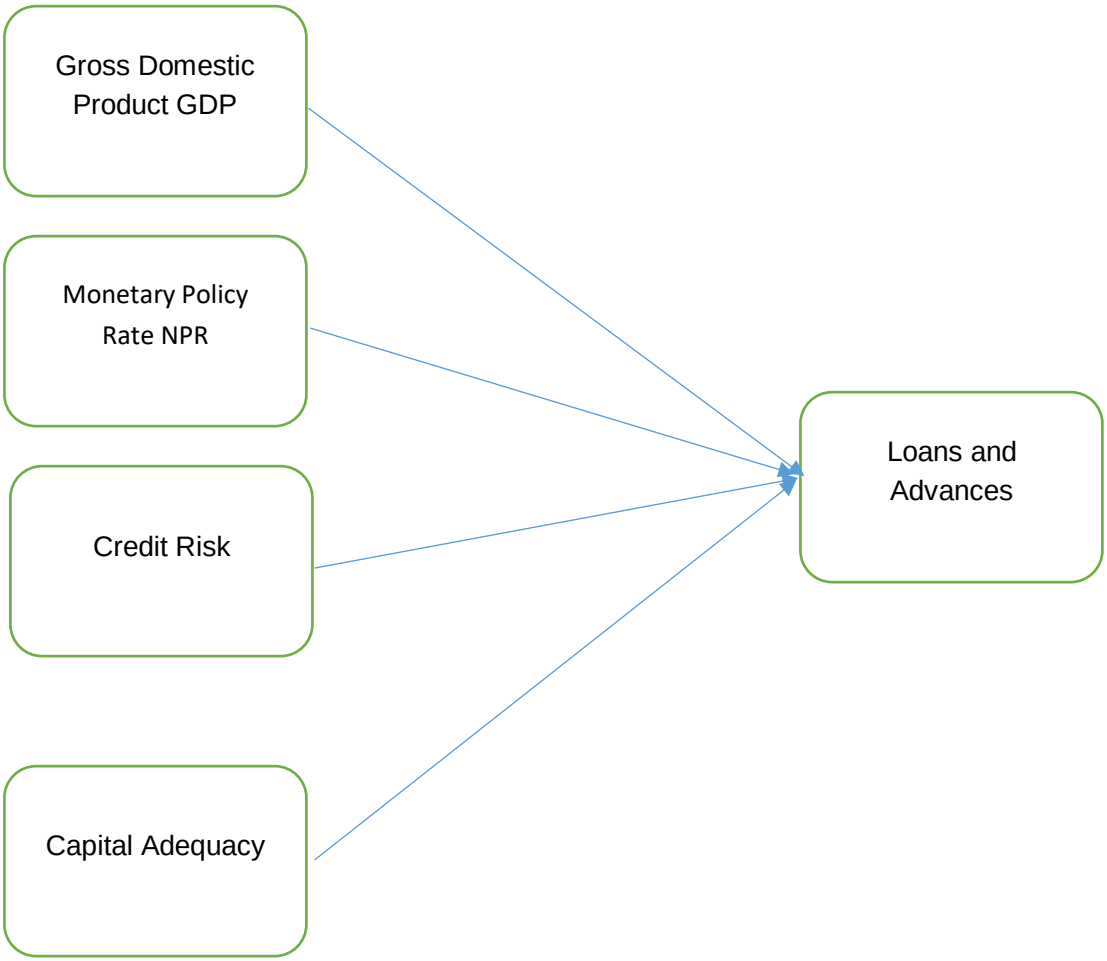

FIGURE 2: CONCEPTUAL FRAMEWORK

According “to(Branson, 2004) in the Money Supply Theory, the adjustment in the Reserve Rate is used by the Federal Reserve System as an open, well-publicized step to dramatically change the effective reserve, as opposed to the usual, more constant change created by financial markets.

Thus, shifts in the reserve ratio indicate a significant shift in the monetary policy of the Federal Reserve System. Branson (2004) also states that in general, banks generate deposits for which no interest is paid; In addition to making loans for which interest is earned. Deposits are generated during the lending process; a loan is attributed to the borrower's account. The incentive to increase deposits thus lies in the possibility of making profitable loans. When the demand for loans from potential borrowers falls, banks may not create deposits up to the full limit that the reserves would assist. Thus, they could have excess reserves on hand from time to time.

From the other hand, whenever the demand for loans is especially high, banks will borrow resources at the commercial banks to help the production of additional deposits that will accompany the increase in loans. This level of flexibility for banks to retain extra cash or to borrow reserves makes the supply of money responsive; to that large extend, to the loan required and the interest rate.

“Whenever the demand for loans is strong and interest rates are high, banks can tighten excess reserves and expand borrowing at the discount window, increase lending at the discounted widow, increase the money supply backed by a certain amount of un-borrowed reserves provided by the Federal Reserve System. As a result, the money supply itself would have a favorable elasticity with regard to the rate of interest, reducing the tendency of the Liquidity Preference Supply Of money (LM) curve. This theory will thus contain guidelines on how the interest rate plays a part, among other factors in deciding the supply of credit to selected banks in Turkey”.

2.5 Definition of Variables

2.5.1 Loan and advance

The word loan refers to the number borrowed by one person from that other person. The amount is in the context of the loan and applies to the amount paid to the lender. From the lender's viewpoint, thus it is lending, and from the bank's point of view, it is lending. Loan can be viewed as a loan given where the money is disbursed and its repayment is made at a future date. It's the lender's debt. When issuing loans, credit is issued for a particular reason and for a fixed duration. Interest is charged on the loan at agreed rate and intervals of payment.

“Advance, from the other hand, is a credit facility provided to the bank. Banks grant innovations largely for short-term reasons, such as the purchase of products sold and the execution of other short-term trading obligations. There's also a concept of debt in the loan, while an advance is the facility used by the lender. As with loans, though, advances are also to be repaid. Thus, the credit facility-repayable in installments over a period of time is known as a loan, while the payment process can be repaid within one year to proxy loan and advance, Log of loan and advance was used”

2.5.2 Gross Domestic Product GDP

“That is the pace at which the Gross Domestic Product of any country shifts as years go by. This is the most vital indicator of how healthy the economy is and tests the pace at which country is growing. A favorable rate of GDP growth means that the economy is expanding. This will encourage borrowers to be eligible to claim more bank loans at lower interest rates for investment purposes. As a result, personal income, companies and employment will also develop or increase. On the other extreme, if the GDP growth rate is weak, several companies will not be investing in better acquisitions and new workers

will not be employed because financial institutions will not be able to lend to businesses or investors for risk of high default risk. The growth rate of GDP is driven by four elements of the Gross Domestic Product, such as demand, business expenditure, government expenditure and net exports”

“A good economic position calculated by GDP, as a driving factor for banks, has a statistically important effect on the issuance of more private credit to companies. Strong economic conditions generate more demand for goods and services, which contribute to more investment in different industries, thereby growing both per capita income and savings. Together these factors encourage banks to issue more private credit (kashif and mohammed 2008). In a latest study, Guo and Stepanyan (2011) indicated that domestic and foreign financing is positively linked to credit growth. Better economic growth would lead to higher credit growth”

Rising GDP growth enhances banks' ability to make loans available to borrowers or investors, as they would be able to fulfill their financial commitments at lower rates without even a propensity to default. A strong relation is therefore required between GDP growth and the lending activity of the banks.

2.5.3 Interest Rate

Bank rate “Loan price or rate of interest is one of the main principles in the decision-making phase. Banks may charge loan rates which are too small because retained earnings will not be sufficient to compensate for deposit costs, administrative expenditures and financial losses from non-performing loan portfolios. They may charge a loan rate that is too huge, since they will not be capable of maintaining a banking relationship with lenders. Investors should consider moral hazard issues, since it is very hard to predict the type of the borrower at the start of the financial relationship.

If banks set rates very large, they may create issues with asymmetric details, as high-risk borrowers are likely to accept these high rates. Whenever these borrowers receive loans, they may create moral hazard acts or so-called moral hazards as they are likely to carry out extremely dangerous investments. It is characteristic of Stiglitz's 2001 reasoning that in some cases, we do not think that the interest rate set by the banks is proportionate to the risk of the lenders. The model of the neoclassical credit market postulates that the conditions of the loans are transparent to the market. If collateral and other restrictions (covenants) remain constant, the interest rate is the only price mechanism”.

With growing access to credit and consumer supply, the interest rate is rising, and vice versa. It is often presumed that the greater the failure risk of the borrower, the higher the interest rate (Gambacorta et al., 2014). Increased supply of money due to low interest rates could ultimately lead to financial crisis. In order to increase lending rates, the Federal Reserve also must change the interest rate. Financial institutions, in turn, must raise their rates and as a result, lending is reduced as credit seems costly.

Low interest rates lower borrowing costs, which result in higher investment activity and a profitable purchasing of consumer goods. Expectations that economic growth will improve could also lead banks to ease lending policies, which in turn will allow businesses and households to raise spending. In a low-interest-rate setting, shares are becoming more affordable to purchase, raising household financial assets. This can also lead to higher consumer spending and make an expenditure project for businesses.

Higher interest rates also appear to cause currency depreciation. The banking system must also compensate for the depreciation by raising the Central Bank Rate (CBR) in order to make the lending rates higher and therefore making the loans unappealing (Ozsuca, 2012). However, the primary issue of the empirical analysis is that banks react fairly uniformly to monetary policy shocks, and this may also have implications for their risk-taking and performance, as in the context of loans. The uniformity behavior of banking originally comes from either the various characteristics of their balance sheets.

Theory on the banking system describes evaluation methods that function through the financial performance of banks, the level of liquidity and/or scale, and argues that such Processes can play a significant role in changing government borrowing as policy changes in interest rates (Amidu & Systems, 2019). According to Kenneth and Collins (2011), rates of interest are the rate of return on investment and the amount of money lent. It is linked to the amount and demand of capital. Long-term interest rates shall be charged to the lender of impeccable financial viability for a loan of unspecified length.

In Turkey, these would be expressed in long-term bond interest rates. On the other hand, short-term interest rates are implied by government bonds. Short-term rates are, on net, lower than long-term rates, but also have higher fluctuations. Darryl (1969) further defines interest rates only as price on use of money, and if fast money creation leads to increased supply and inflation, it also leads to rising rates.

“The task of the Central Bank under the Interest Rate Instrument is to set a short-term official interest rate, indicating the price at which it will make liquidity available to the financial system as a lender of the last resort. This rate is called the Central Bank Rate in Turkey. This rate is expressed in the CBK overdraft rates of Kenneth and Collins (2011). CBK controls interest rates paid by banks via interest rate ceilings (81.5%). The interest rate decisions of the banks are implemented by the Board of Directors, managing directors and credit risk management committees who formulate interest rate policies Kenneth and Collins (2011)”

2.5.4 Credit Risk Ratio

“Credit risk ratio Risk refers to the risk of default on loans which arises when borrowers fail to make the necessary payment or are unable to meet their loan repayment or money borrowed. This risk emerges from conventional lending (commercial lending that involves financial protection agreements and loan obligations) and transactions involving such as securities. Credit risk depends on internal and external factors. Examples of some external factors include; competition and market conditions, interest rates, legislation and regulatory changes, exchange rates and technological advancement”

“Country risk is one form of credit risk among several that typically emerges from the social, economic and political climate in which borrowers or their countries live. The calculation of the credit risk ratio to be used in this analysis is the Loan Loss Reserve/Gross Loan Reserve, which is the loan loss reserve indicated as a percentage of total loans. A negative relationship is expected between the credit risk ratio and the lending ratio of banks, since the more borrowers struggle to repay their financial commitments, the more banks are unwilling to lend or give out loans”

2.5.4 Capital Adequacy

Capital Adequacy Ratio (CAR) is the capital ratio of a bank to its risk-weighted assets and its current liabilities. Central banks and banking institutions are eager to discourage retail banks from taking over leverage and being unprofitable in the process.

The CAR will eventually have an effect on all forms of organizations because at the end of the day the banks will look at the ratio and say well the capital to the risk-weighted assets, so we need to make sure that we are above the basic threshold. The higher you get the ratio, the better it looks from an outside viewpoint.

As capital adequacy ratios minimize the Bank's appetite for those riskier assets with greater risk calculation on the financial statements, they will eventually have to remove some of these and this will lead to higher funding costs for organizations.

The CAR has become more of a problem for fund managers and thus when running the amount of funds that they are, it is important that they maintain adequate resources to cover any losses within the fund. So it's an industry-wide thing, and if you're a bank, as well as an investment bank, you've got to have the risk capital refund set aside. It goes back to Basel III. So if we look at a bank now they're going to have very little appetite for non-operating capital in their books because of what happened in the past with the economic meltdown. So for non-operating money, they aim to minimize it as much as possible, but they still need to keep a certain amount accessible from the point of view of risk restitution. It is however an exposure, so tracking these categories of balances and liquidity elements is very important to everyone

CHAPTER THREE

METHODOLOGY

3.1 Research Approach

“Quantitative approaches have been used to fulfill the overall purpose of the analysis and to address research questions and to develop theories under it. According to Loose (1993), quantitative (deductive) analysis requires the creation of a theoretical and conceptual framework prior to its examination by means of empirical analysis. Deductive or quantitative analysis traditionally starts by reviewing the literature in order to define a single selected problem/information gap leading to the isolation of the main research question(s) in which current knowledge might be inadequate (the discrepancies between existing hypotheses or facts may be detected, the inconsistencies to be addressed or the new contexts for the application of previous studies) (Sutrisna 2009). The aim of using quantitative method in this study is thus to extend the previous findings in the context of Turkey. As per (Creswell, 2009), there's many two main survey methods in quantitative approaches, such as survey and experimental”

“Amongst these quantitative method approaches for the investigation; the survey was used in this analysis. Fowler (1984, p. 12, quoted in Yesegat 2009) noted that perhaps the strengths of the survey methods arising from their widespread use included the importance of statistical sampling, consistent calculation, and the ability to collect information that was not routinely available elsewhere or in the form required for analysis. The aim of qualitative research for the author is to project his or her results to the wider population via an objective method”

“Data collected, mostly through samples administered to a sample or subset of the population as a whole, allow the researcher to generalize or making conclusions. Findings are analyzed to assess the likelihood that the results of the survey will be repeated in the broader population. Conclusions are drawn from data obtained and statistical research steps (Maria et al., 2020). The aim is to quantify and evaluate the causal relationship between variables within a value-free context (Ibicioglu & Kapusuzoglu, 2012). In this analysis, it was possible to analyze the connection here between loan and advance and the main business's specific and macroeconomic factors influencing the lending activity of commercial banks in Turkey by creating a causality relationship. This in essence, made it possible to prove the idea in the form of Turkey”

3.2 Data Collection

Only secondary data were used in the analysis. Conducting effective data collection tools can allow researchers to incorporate strengths and to adjust some of the inadequacies of any data source in order to reduce the possibility of an insignificant inference. Consistent and accurate analysis shows that research performed using effective data collection methods improves the legitimacy and value of research results (Yurdakul, 2014). Structured text review was therefore used for this research to gather the knowledge necessary

to correct the objectives of the report. Data were obtained from the audited financial statements (balance sheet and income statement) of each commercial bank included in the study and from various journals and publications of the Turkish central bank for macro-economic data from 1990to 2019.

3.3 The Study Sample

According to Apak et al. (2016) sampling is a “method of choosing units (e.g. people or organization) from a population of interest so that by studying that sample we may fairly generalize our results back to the population from which they were chosen”.

The survey entails a sample 15 banks from Turkey.

A non-probability sampling system is conducted on this thesis that is purposive method, whereby firms are chosen on certain criterion pertaining to the topic, which entails financial might, profitability and size.

TABLE 1: VARIANCE MEASUREMENT

	Variable	Measure	Notation	expectation
Dependent variable	Loans	Total loans issued by the banks	LLAD	
explanatory variables	Economic growth	GDP	LGDP	+/-

	Monetary policy rate	3 months treasury bills rate	LMPR	-
	Capital aequacy ratio		LCAR	+/-
	Credit risk	Reserve for loan losses to total loans.	LCRE	-/+
	Non-performing loans	NPL total by the total amount of outstanding loans in the bank's portfolio.	LNPL	$-/_{+}$

3.4 Model Specification:

3.4.1 Stationarity Test

The reason of stationarity is to certify that the achieved findings are not false. As stated by Dickey & Fuller (1979) that the when a model as a unit root it assert that the variables are nonstationary. Therefore, analyses are made to check the presence or absence of stationarity. The assessment of the FMOLS necessitates that the indicators be either serene of stationary and nonstationary variables at levels, however none of the variables should not be integrated at 2 order (Pesaran et al., 2001). Thus, employed breitung (2000) to test the order of integration. The main characteristics of these techniques are that they are primarily run at levels: 1st difference, then 2nd difference and either at constant with no trend, or at constant with trend.

3.4.2 Long-run estimation

Once the stationarity between all the variables are confirmed the cointegration technique of Johansen (1988) and “Phillips and Ouliaris” (1990) are engaged to evade counterfeit analysis. Successively the long-run relationships between all variables are determined by means of a “single vector cointegration procedure”. The “Fully Modified OLS” of Phillips & Hansen (1990) is engaged in this thesis. The method has the feature of accomplishing asymptotic efficiency by considering the occurrence of serial correlation and to pannier the endogeneity issues amid the explanatory variables. For robustness of the analysis the Dynamic OLS established by stock and Watson (1993) is employed. Model expression:

$$LLAD = \beta_{0i} + \beta_{1i} GDP + \beta_{2i} MPR + \beta_{3i} CAR + \beta_{4i} LCRE + \beta_{5i} LNPL + e_{it};$$

Where, LLAD is log of loan, GDP is economic growth, MPR is monetary policy rate, CAR is capital adequacy ratio, LCRE is log of credit risk, LNPL log of non-performing loan and ε is the error term.

3.4.3 Data presentation and analysis

Statistical analyzes were carried out by using following methods to test the stated model: first, “descriptive statistics of the variables (both dependent and independent) were measured over the sample period. This is consistent with Malhotra (2007)”, which notes that the use of descriptive statistical methods enables the researcher to imagine the current situation and allows for relevant details. Correlation analyzes were then performed between dependent and independent variables. Finally, a holistic view to fixed effect regression, with all of its assumptions, was used. Data was obtained from various sources and analyzed using the E - views software program.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Descriptive Statistic

"The descriptive statistics for the dependent and independent variables are presented below. The dependent variables are loan and advance measured by Log of loan and advance. The remaining are the independent variables such as: capital adequacy ratio, monetary policy rate, credit risk, gross domestic product and non-performing loans. The table below present the descriptive statistics of the dependent and independent variables"

TABLE 2: DESCRIPTIVE STATISTIC

	LLAD	LGDP	LCRE	LCAR	LMPR	LNPL
Mean	2.828504	7.587699	-1.458800	6.555139	34.50840	0.552650
Median	2.832299	7.219304	-1.423361	6.358163	3.883000	0.587687
Maximum	5.077323	10.54095	-0.377656	9.193126	5382.000	2.293313
Minimum	-2.314992	5.346449	-2.852102	4.812745	-0.107000	-2.156755
Std. Dev.	0.747316	1.192511	0.503297	0.921418	392.4792	0.744671
Skewness	-1.453865	0.745262	-0.243937	0.990414	12.65469	-0.812993
Kurtosis	11.19399	2.904956	3.200381	3.775758	162.3344	4.556441

Jarque-Bera	1004.801	29.64965	3.697396	60.15114	345955.7	67.34005
Probability	0.000000	0.000000	0.157442	0.000000	0.000000	0.000000
Sum	902.2927	2420.476	-465.3572	2091.089	11008.18	176.2952
Sum Sq. Dev.	177.5970	452.2225	80.55175	269.9858	48984692	176.3423

Loan and advance were highly distributed from its mean value (i.e. 2.828504)

with a standard deviation of 0.747. Top and minimum values were respectively 5.0773 and-2.3149. The maximum value of Turkey's commercial bank and the minimum value were several privately held commercial banks in Turkey, such as AKBank and Ziraat Bank. Among the bank's unique independent variables, GDP was extremely distributed from its mean value (i.e. 7.5876) with a standard deviation of 1.1925. Maximum and minimum values were respectively 10.540 and 5.346.

The maximum value of Turkey's commercial bank and the minimum value were several privately held commercial banks in Turkey, such as AKBank and Ziraat Bank. As far as the scope of Turkey's commercial bank is concerned, some banks account for more than 100 percent. The mean value of the loan amount was 74.9 per cent, which indicates that the biggest chunk of the asset is funded by loans from customers with maximum and minimum values of 87.2 per cent and 52 per cent respectively.

“The standard deviation for deposit volume was 7.49 per cent, revealing a high dispersion to the average by many banks in Turkey. The mean value of credit risk was -1,458, which was above the requirement of Turkey’s central bank prior to January 2012. Standard deviations of 0.503 indicate no dispersion of assets to non-performing loans from the average for commercial banks in Turkey. The gross and minimum values for non-performing loans were 2.293 and-2.156 respectively. The remaining independent variables were macroeconomic factors that could influence banks' lending activity over time”

The average real GDP growth rate was 9.2%, reflecting the average real growth rate of the country's economy over the last 13 years. The highest growth of the country was registered in 2005 and the lowest was recorded in 2003.

“In the last thirteen years, the country's overall inflation rate has averaged more than just the real GDP. Maximum inflation was recorded in 2009 (i.e. 36.4%) and the lowest inflation was registered in 2002. Such macroeconomic variables linked to the interest rate of the lending interest rate. The mean value of the lending interest rate over the period under review was 11.4% with the maximum and minimum values for the years 2009 and 2010. There was very little variance of the reserve requirement margin to its mean value over the periods under review with a value of 0.8 per cent of the standard deviation”

TABLE 3 MULTICOLLINEARITY

Correlation Probability	LNPL	LCAR	LCRE	LGDP	LMPR
LNPL	1.000000 -----				
LCAR	-0.303368 0.0000	1.000000 -----			
LCRE	-0.466148 0.0000	0.211523 0.0001	1.000000 -----		
LGDP	-0.153653 0.0060	0.749311 0.0000	0.079731 0.1554	1.000000 -----	
LMPR	0.007364 0.8958	-0.016614 0.7675	-0.010490 0.8519	-0.025015 0.6562	1.000000 -----

"This assumption concerns the nature of the relationship between both the independent variable. If an explanatory variable is the same linear combination of the other independent variables, then we conclude that the model struggles from complete collinearity and so can be calculated by OLS (Brooks 2008). Multicollinearity occurs in which there is a significant, but not complete, correlation between two or more independent variables (Cameron and Trivedi 2009; Wooldridge 2006). However according Churchill and Iacobucci (2005), whenever there is multicollinearity, there may be a reduction in the amount of knowledge on the impact of explanatory variables on explanatory variable. As a result, many of the explanatory variables may be assumed not to be linked to the explanatory variable when they actually exist. This presumption makes it possible for independent variables to be correlated; they obviously cannot be completely associated. If we have not allowed any association between the independent variables, then multiple regressions would not be very useful for econometric analysis"

“However how much association induces multicollinearity is not well established. Although Hair et al (2006) suggest that the coefficient of correlation below 0.9 does not cause serious problems with multicollinearity. Malhotra (2007) reported that there is a multicollinearity problem when the coefficient of correlation between variables is higher than 0.75. Kennedy (2008) indicates that any linear relationship above 0.7 could trigger a severe problem of multicollinearity leading to inaccurate estimate and less accurate resurrection. This suggests that there is no coherent statement regarding the degree of association that induces multicollinearity. According to Gujarati (2004), the traditional statistical approach used to assess data for multicollinearity is the study of the independent variable correlations (CC); condition index (CI) and inflation factor variance (VIF). Therefore, the correlation matrix in this analysis was calculated for seven of the independent variables shown below in the table. The results of the following correlation matrix indicate that the highest correlation between gross domestic product GDP and capital accuracy ratio CAR is 0.7. Since there is no association above 0.7, 0.75 and 0.9 according to Kennedy (2008), Malhotra (2007) and Hair et al (2006) accordingly, we can infer in this analysis that there is no issue with multicollinearity”

4.2 Unit Root Result

The unit root results in Table 3 and 4 of Breitung and ADF Fisher showed the variables have unit roots at I(0) and are nonstationary. However, at first difference, they are stationary and hence the assumption of a unit root is abandoned. (LLAD, LGDP, LCRE, LCAR, LMPR and LNPL are all significant at1%).

TABLE 4: UNIT ROOT TEST OF BREITUNG

Variables	Level intercept & Trend		First Difference	
	T-statistics	P Values	T-statistics	P Values
LLAD	-1.06081	0.1444	-3.5619	0.0002***
LGDP	0.17162	0.5681	-4.00115	0.0000***
LCRE	1.7728	0.9619	-1.82051	0.0343**
LCAR	-0.7368	0.2306	-2.0003	0.0227**
LMPR	-0.9532	0.1702	-1.8754	0.0304**
LNPL	0.3219	0.6263	-2.5264	0.0058***

TABLE 5: KAO COINTEGRATION

ADF	**t-Statistic**	**Prob.**
	-1.826037	0.0339
Residual variance	0.084625	
HAC variance	0.075159	

The kao cointegration test highlighted that the variables in the series are cointegrated in the long term hence; the p value is less than 5% significance level, therefore, the null inertia of no cointegration is discarded.

TABLE 6: PARWISE DUMITRESCU HURLIN PANEL CAUSALITY TESTS LAGS2

Null Hypothesis:	W-Stat.	Zbar-Stat.	Prob.
LGDP does not homogeneously cause LLAD	7.75998	7.63289	2.E-14
LLAD does not homogeneously cause LGDP	2.94377	0.86303	0.3881
LCRE does not homogeneously cause LGDP	3.27428	1.38919	0.1648
LGDP does not homogeneously cause LCRE	2.86943	0.80733	0.4195
LCAR does not homogeneously cause LGDP	4.74483	3.50267	0.0005
LGDP does not homogeneously cause LCAR	7.43018	7.36206	2.E-13
LMPR does not homogeneously cause LGDP	4.61627	3.31790	0.0009
LGDP does not homogeneously cause LMPR	5.76462	4.96831	7.E-07
LNPL does not homogeneously cause LGDP	2.70706	0.53029	0.5959
LGDP does not homogeneously cause LNPL	4.16500	2.57963	0.0099

Table 5 showed the Dumitrescu and Hurlin Causality. The analysis suggested that LGDP causes loans and advances and not the opposite, this means that there is a unidirectional causation moving from economic growth to loan and advances. Similarly, a one-way causal relationship moving from capital adequacy to loans and advances is found. Furthermore, a one-way causal relationship was found running from non-performing loans to loans and advances. However, a feedback causal association between credit risk and loan and advances was found. Likewise, bidirectional causation between monetary policy rate and loan and advances was found.

TABLE 7: PANEL DYNAMIC LEAST SQUARES (DOLS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCRE	-0.378663	0.200935	-1.884508	0.0678
LCAR	1.333962	0.224271	5.947980	0.0000
LGDP	-0.743470	0.189278	-3.927915	0.0004
LMPR	-0.251248	0.086417	-2.907377	0.0063
LNPL	0.648066	0.112432	5.764067	0.0000
R-squared	0.978428	Mean dependent var		2.889653
Adjusted R-squared	0.855778	S.D. dependent var		0.639601
S.E. of regression	0.242899	Sum squared resid		2.064989
Long-run variance	0.009808			

The analysis suggested that credit risk has a negative impact on loans, this means that an increase in credit risk will hinder the banks in granting loans to customers, that is 1% increase in credit risk will reduce loans issued to customers by 0.38%. Likewise, both economic growth and monetary policy rate have negative consequences on lending. Thus, an increase in both GDP and interest rate decreases the bank lending by 0.74% and 0.25% respectively. The negative relationship between monetary policy rate and bank lending can be attributed to an improper monetary transmission effect. Contrarily, capital adequacy and non-performing loans are positively connected to lending. Thus, an increase in both will increase the lending behavior of the banks by 1.33% and 0.65% respectively.

TABLE 8: PANEL MODIFIED LEAST SQUARES (FMOLS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCRE	-0.290789	0.029471	-9.866910	0.0000
LCAR	0.348416	0.020578	16.93144	0.0000
LGDP	-0.049757	0.017977	-2.767751	0.0060
LMPR	-6.14E-05	3.45E-05	-1.778005	0.0764
LNPL	0.829592	0.023728	34.96292	0.0000
R-squared	0.415132	Mean dependent var		2.844116
Adjusted R-squared	0.407120	S.D. dependent var		0.711137
S.E. of regression	0.547566	Sum squared resid		87.54998
Long-run variance	0.057342			

The analysis suggested that credit risk has a negative impact on loans, this means that an increase in credit risk will hinder the banks in granting loans to customers, that is 1% increase in credit risk will reduce loans issued to customers by 0.29%. This results supports and accept the null hypothesis (H1) of the study which indicates that credit risk did not have a positive relationship with lending. Likewise, both economic growth and monetary policy rate have negative consequences on lending. Thus, an increase in both GDP and interest rate decreases the bank lending by 0.05% and 0.14% respectively. The negative relationship between monetary policy rate and bank lending can be attributed to an improper monetary transmission effect. The findings debunk the null hypotheses (H4 and 5) that both economic growth and monetary policy rate increases lending rate. Therefore, the alternative hypotheses are accepted. Contrarily, capital adequacy and non-performing loans are positively connected to lending. Thus, an increase in both will increase the lending behavior of the banks by 1.34% and 0.83% respectively. We accept the null hypothesis (H2) suggesting a positive association between capital adequacy and lending.

4.3 Discussion

“Coefficient indicators of real GDP growth rate indicate the positive effect of real GDP growth rate on banks by loans and advances. The positive effect of real GDP growth rate on banks through loans and advances was based on the argument that a good economic situation calculated by GDP as a motivating factor for banks has a positive significant influence on the issuance of more portfolio investment to companies”

“Healthy economic conditions generate more demand for goods and services, which contribute to more investment in various industries, thereby growing both per capita income and savings. Together these factors convince banks to grant more private credit (Fukunaga et al., 2019). Unexpectedly, however the findings suggest that the actual gross domestic product has a positive coefficient but is not important and was contrary to expectations. It may mean that bank borrowers' perceptions do not based on the present stage of business operations, which supports Gunes & Yildirim (2016) observations”

The vector coefficient value (i.e.-0.049757) suggested a percentage increase/decrease in the real GDP growth rate, which resulted in (i.e. 0.03 per cent) an increase/decrease in the lending and advance role of commercial banks in Turkey. There is positive and significant relationship between GDP and bank loan and advance).

CHAPTER FIVE

CONCLUSION

“Loan and advance is the largest single revenue asset in the portfolio of most banks, as described in the literature section. The purpose of this paper was to examine and evaluate the effectiveness of the central tendency of the lending behavior of commercial banks and how it affects the lending behavior of commercial banks in Turkey. Seven variables influencing bank lending activity have been selected and analyzed. The data from the panel was used for the survey in commercial banks in Turkey from 1990-2019. Data was interpreted using descriptive statistics. A structured correlation and regression analysis for loans and advances has been performed. The models were checked for classical linear regression model assumptions before performing OLS regression. The models comply with the CLRM assumptions. Fixed Effect Model/FEM was used on the basis of convenience. Six factors influencing banks' loans and advances have been selected and evaluated. From number of eligible independent variable, almost all of them proved to be statistically significant with the only exception of gross Domestic product (GDP)”

“The findings of the models allow us to draw the following conclusions. Deposit volume, bank size, cash reserve requirement and inflation rate have a significant and positive effect on bank loans and advances, whereas liquidity ratios and interest rates have a negative and significant effect on loans and advances. Typically, the findings of this study have not rejected four

assumptions that indicate the relationship between bank loan and advance and deposit amount, bank size, liquidity ratio, and interest rate, while the two assumptions that indicate the relationship between bank loan and advance and reserve fund requirement and inflation rate have been rejected" GDP growth rate had an insignificant impact on bank lending and advancement in Turkey. The study found a relationship between the conduct of bank lending and the collection of macroeconomics factors and the characteristics of the bank stage.

"Larger banks tend to be in a stronger position to lend more so than others. This may be due to ample capital to cushion lending. Commercial banks reign supreme in the banking system as a result of their share of overall assets and deposits liabilities. Their overall loans and advances, a main part of total loans to the private sector, are still on the rise despite the major constraints placed by government legislation, institutional constraints and other macro-economic factors. However, both government and commercial banks should be aware of the fact that the climate in which they function is an important factor in the success and actions of the bank. Where the climate is favorable and welcoming, efficiency is improved, and good lending conduct is assured. But when the climate is unpredictable and severe, the efficiency of the bank suffers. It dictates, therefore that steps should be taken by commercial banks to implement the much more easily feasible policies and effective credit management in any case."

Based on the findings of the study, the following suggestions were recommended:

- Commercial banks should work out how to attract and keep more deposits so as to further boost their lending efficiency. It is important for financial institutions to develop their systems and expertise in the control of liquidity, assets and liabilities.
- There must be stronger collaboration and coordination between commercial banks and regulating authorities to ensure that the influence of regulatory actions on commercial banks is taken into consideration at the policy-making level.
- Commercial banks should ensure proper planning, including budgeting, assessments and benefits. Critical, practical and detailed strategic and financial strategies should be formulated. This would allow them to be better placed to reap the positive impact of monetary policy such as improvements in GDP and inflation.
- Banks must aim to balance their loan pricing decisions as much as possible. It will allow them to meet the expense of lending and at the same time, to maintain a strong banking relationship with their borrowers.
- More research needs to be conducted on the impact on bank lending activity and its effect on financial performance in Turkey including regulatory factors and other specific and macroeconomic conditions.

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APPENDIX

Appendix 1

“Covariance Analysis: Ordinary
Date: 11/28/20 Time: 11:08
Sample: 1990 2019
Included observations: 319
Balanced sample (listwise missing value deletion)

Correlation Probability	LNPL	LCAR	LCRE	LGDP	LMPR
LNPL	1.000000 -----				
LCAR	-0.303368 0.0000	1.000000 -----			
LCRE	-0.466148 0.0000	0.211523 0.0001	1.000000 -----		
LGDP	-0.153653 0.0060	0.749311 0.0000	0.079731 0.1554	1.000000 -----	
LMPR	0.007364 0.8958	-0.016614 0.7675	-0.010490 0.8519	-0.025015 0.6562	1.000000 -----

Appendix 2

Kao Residual Cointegration Test

Series: LLAD LGDP LCRE LCAR LMPR LNPL

Date: 11/28/20 Time: 11:03

Sample: 1990 2019

Included observations: 33

Null Hypothesis: No cointegration

Trend assumption: No deterministic trend

User-specified lag length: 1

Newey-West automatic bandwidth selection and Bartlett kernel

	t-Statistic	Prob.
ADF	-1.826037	0.0339
Residual variance	0.084625	
HAC variance	0.075159	

Appendix 3

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RESID)
Method: Least Squares
Date: 11/28/20 Time: 11:03
Sample (adjusted): 1990 2019
Included observations: 277 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-0.247140	0.056211	-4.396675	0.0000
D(RESID(-1))	-0.077061	0.078616	-0.980223	0.3278

		Mean dependent var	-0.026599
R-squared	0.077863		
Adjusted R-squared	0.074510	S.D. dependent var	0.283385
S.E. of regression	0.272623	Akaike info criterion	0.245743
Sum squared resid	20.43897	Schwarz criterion	0.271909
Log likelihood	-32.03544	Hannan-Quinn criter.	0.256242
Durbin-Watson stat	0.922566		

Appendix 4

Dependent Variable: LLAD
Method: Panel Dynamic Least Squares (DOLS)
Date: 11/18/20 Time: 09:30
Sample (adjusted): 1990 2019
Periods included: 19
Cross-sections included: 13
Total panel (unbalanced) observations: 235
Panel method: Pooled estimation
Fixed leads and lags specification (lead=1, lag=1)
Coefficient covariance computed using default method
Long-run variance (Bartlett kernel, Newey-West fixed bandwidth) used for
coefficient covariances

Warning: one more cross-section have been dropped due to estimation errors

Variable	Coefficiet	Std. Error	t-Statistic	Prob.
LCRE	-0.378663	0.200935	-1.884508	0.0678
LCAR	1.333962	0.224271	5.947980	0.0000
LGDP	-0.743470	0.189278	-3.927915	0.0004
LMPR	-0.251248	0.086417	-2.907377	0.0063
LNPL	0.648066	0.112432	5.764067	0.0000

		Mean dependent var	2.889653
R-squared	0.978428		
Adjusted R-squared	0.855778	S.D. dependent var	0.639601
S.E. of regression	0.242899	Sum squared resid	2.064989
Long-run variance	0.009808		

Appendix5

Dependent Variable: LLAD
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 11/18/20 Time: 09:33
Sample (adjusted): 1990 2019
Periods included: 21
Cross-sections included: 15
Total panel (unbalanced) observations: 297
Panel method: Pooled estimation
First-stage residuals use heterogeneous long-run coefficients
Coefficient covariance computed using default method
Long-run covariance estimates (Bartlett kernel, Newey-West fixed
bandwidth)

Variable	Coefficiet	Std. Error	t-Statistic	Prob.
LCRE	-0.290789	0.029471	-9.866910	0.0000
LCAR	0.348416	0.020578	16.93144	0.0000
LGDP	-0.049757	0.017977	-2.767751	0.0060
LMPR	-6.14E-05	3.45E-05	-1.778005	0.0764
LNPL	0.829592	0.023728	34.96292	0.0000

		Mean dependent var	2.844116
R-squared	0.415132		
Adjusted R-squared	0.407120	S.D. dependent var	0.711137
S.E. of regression	0.547566	Sum squared resid	87.54998
Long-run variance	0.057342		

Appendix 6

Pairwise Dumitrescu Hurlin Panel Causality Tests
Date: 11/28/20 Time: 11:05
Sample: 1990 2019
Lags: 2

Null Hypothesis:	W-Stat.	Zbar-Stat.	Prob.
LGDP does not homogeneously cause LLAD	7.75998	7.63289	2.E-14
LLAD does not homogeneously cause LGDP	2.94377	0.86303	0.3881
LCRE does not homogeneously cause LLAD	6.03524	5.20852	2.E-07
LLAD does not homogeneously cause LCRE	3.78096	2.03981	0.0414
LCAR does not homogeneously cause LLAD	4.47225	3.01152	0.0026
LLAD does not homogeneously cause LCAR	2.83776	0.71401	0.4752
LMPR does not homogeneously cause LLAD	3.57494	1.75021	0.0801
LLAD does not homogeneously cause LMPR	4.86950	3.56990	0.0004

LNPL does not homogeneously cause LLAD	4.24592	2.69338	0.0071
LLAD does not homogeneously cause LNPL	2.62609	0.41648	0.6771
LCRE does not homogeneously cause LGDP	3.27428	1.38919	0.1648
LGDP does not homogeneously cause LCRE	2.86943	0.80733	0.4195
LCAR does not homogeneously cause LGDP	4.74483	3.50267	0.0005
LGDP does not homogeneously cause LCAR	7.43018	7.36206	2.E-13
LMPR does not homogeneously cause LGDP	4.61627	3.31790	0.0009
LGDP does not homogeneously cause LMPR	5.76462	4.96831	7.E-07
LNPL does not homogeneously cause LGDP	2.70706	0.53029	0.5959
LGDP does not homogeneously cause LNPL	4.16500	2.57963	0.0099
LCAR does not homogeneously cause LCRE	3.02324	1.02838	0.3038
LCRE does not homogeneously cause LCAR	3.31075	1.44160	0.1494

LMPR does not homogeneously cause LCRE	2.75105	0.63719	0.5240
LCRE does not homogeneously cause LMPR	4.26561	2.81392	0.0049
LNPL does not homogeneously cause LCRE	3.53916	1.69993	0.0891
LCRE does not homogeneously cause LNPL	9.94719	10.7073	0.0000
LMPR does not homogeneously cause LCAR	3.99976	2.43185	0.0150
LCAR does not homogeneously cause LMPR	4.65340	3.37126	0.0007
LNPL does not homogeneously cause LCAR	4.81568	3.49425	0.0005
LCAR does not homogeneously cause LNPL	4.59808	3.18838	0.0014“
LNPL does not homogeneously cause LMPR	2.35088	0.02963	0.9764
LMPR does not homogeneously cause LNPL	4.59520	3.18434	0.0015

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ETHICS COMMITEE APPROVAL

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ETHICS LETTER

TO GRADUATE SCHOOL OF SOCIAL SCİENCES

1- ***REFERENCE:*** Neshan Khalid Saleem *(*20194250*)*

I would like to inform you that the above candidate is one of our postgraduate students in the Department of Banking and Finance. He has taken his thesis under my supervision and the thesis titled: DETERMINANTS OF LENDING BEHAVIOR OF BANKS: ACASE STUDY ON COMMERCIAL BANKS OF TURKEY

. The data used in his study was obtained from World Bank Database.

Please do not hesitate to contact me if you have any further queries or questions.

Assoc. Prof. Dr. Turgut Tursoy

Sincerely yours,

Assoc Prof .Dr Turgut. Tursoy
Head of Department of Banking and Finance,
Faculty of Economics and Administrative Sciences,