

**THE CAUSALITY RELATIONSHIP BETWEEN SECTORAL CREDITS
AND ECONOMIC GROWTH:
A CASE STUDY FOR BANKING IN TURKEY**



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**THE CAUSALITY RELATIONSHIP BETWEEN SECTORAL CREDITS
AND ECONOMIC GROWTH:
A CASE STUDY FOR BANKING IN TURKEY**

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ABSTRACT

THE CAUSALITY RELATIONSHIP BETWEEN SECTORAL CREDITS AND ECONOMIC GROWTH: A CASE STUDY FOR BANKING IN TURKEY

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Economic growth is an important topic for countries in the sense that it has affected gross domestic product, employment and welfare of a country especially it is sustainable and based on reliable grounds. Due to this fact, countries investigate the ways to ensure economic growth and how to make it sustainable.

The banking sector is critical in today's economy because it facilitates financial intermediation or the channeling of funds from savers to investors which means providing a channel for mobilizing savings via deposits and allocating them to investment via loans. A healthy and efficient financial sector promotes savings accumulation and facilitates their allocation to the most productive investments. Banks are the primary financial intermediaries in most of the countries. Recent global experiences have demonstrated that it is difficult to maintain a separation between the real and financial sectors. As the world becomes more integrated and transactions are conducted through financial intermediaries, the financial sector emerges as a determinant of the economy's real side.

In Turkey, banks are main financial intermediaries that support the Turkish financial system. The sector is composed of both state-owned and private bank and banks perform the majority of money and capital market transactions and activities. Banks are the main supporter of the real economy and different segments of the society.

The relationship between bank loans and economic growth has been searched for many years. It has been discussing that the loans that are given by banking sector has an effect on economic growth.

In this study, information about money and banking is given. The history of banking and the role of banking in modern world are mentioned to understand the relationship between different agents of economy and banking sector. It is examined the formation of banking in Turkey by analyzing the banking structure and some important banking ratios in Turkey.

Additionally, the definition of economic growth and types of economic growth are discussed. The history of Turkish economic growth and some important indicators for economic growth is also mentioned.

In the last part of the study, the relationship between 10 sectoral loans and economic growth between 2005 and 2021 in Turkey was examined. The variables that were analyzed were subjected to ADF unit root test first, then cointegration test, Granger causality test were made with stationary series and correlation matrix was formed. In the light of the results, the relationship of the effects of bank loans of 10 sectors on economic growth have been examined.

Key words: Economic Growth, Banking, Loan, Sectoral Loans, Turkish Economic Growth

ÖZ

Sektörel Krediler ve Ekonomik Büyüme Arasındaki Nedensellik İlişkisi: Türkiye Bankacılık Örneği

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Ekonomik büyüme özellikle sürdürülebilir ve sağlam temellere dayanması durumunda ülkelerin gayrisafi milli hasılasını, istihdamı ve refahını etkilemesi sebebiyle ülkeler için önem arz etmektedir. Bu nedenle ülkeler ekonomik büyümeyi sağlamanın yollarını ve bunu sürdürülebilir kılmanın yollarını araştırmaktadır.

Bankacılık sektörü, finansal aracılık işlemleri veya tasarruf sahiplerinden yatırımcılara fon aktarımını kolaylaştırması, yani tasarrufların mevduat yoluyla harekete geçirilmesi ve krediler yoluyla yatırımlara tahsis edilmesi için bir kanal sağlaması nedeniyle günümüz ekonomisinde kritik öneme sahiptir. Sağlıklı ve verimli bir finans sektörü, tasarruf birikimini teşvik eder ve bunların verimli yatırımlara tahsis edilmesini ve yönlendirilmesini kolaylaştırır. Bankalar çoğu ülkede birinci finansal aracı kurumlardır ve son küresel deneyimler, reel ve finansal sektörler arasında bir ayrımı sürdürmenin zor olduğunu göstermiştir. Dünya daha entegre hale geldikçe ve işlemler finansal kurumlar aracılığıyla yürütüldükçe, finans sektörü ekonominin reel yönünün belirleyicisi olarak ortaya çıkmaktadır.

Türkiye'de bankalar, Türk finansal sistemini destekleyen başlıca finansal araçlardır. Sektör hem kamu bankalarından hem de özel bankalardan oluşmakta olup, para ve sermaye piyasası işlem ve faaliyetlerinin çoğunluğunu bankalar gerçekleştirmektedir. Bankalar, reel ekonominin ve toplumun farklı kesimlerinin en büyük finansal aracı kuruluşlarıdır.

Banka kredileri ile ekonomik büyüme arasındaki ilişki uzun yıllardır araştırılmaktadır. Bankacılık sektörü tarafından verilen kredilerin ekonomik büyüme üzerinde etkisi olduğu tartışılmaktadır.

Bu çalışmada para kavramı ve bankacılık hakkında bilgiler verilmektedir. Ekonominin farklı aktörleri ve bankacılık sektörü arasındaki ilişkiyi anlamak için bankacılığın tarihçesinden ve modern dünyada bankacılığın rolünden bahsedilmiştir. Türkiye'deki bankacılık yapısı ve bazı önemli bankacılık oranları analiz edilerek Türkiye'de bankacılığın oluşumu incelenmiştir.

Ek olarak, ekonomik büyümenin tanımı ve ekonomik büyümenin türleri tartışılmıştır. Türkiye'nin ekonomik büyüme tarihi ve ekonomik büyüme için bazı önemli göstergelerden de bahsedilmiştir.

Çalışmanın son bölümünde ise Türkiye'de 2005-2021 yılları arasında 10 sektörel kredi ile ekonomik büyüme arasındaki ilişki incelenmiştir. Analiz edilen değişkenler önce ADF birim kök testi, ardından eşbütünleşme testi, Granger nedensellik testi durağan serilerle yapılmış ve korelasyon matrisi oluşturulmuştur. Elde edilen sonuçlar ışığında 10 sektöre ait banka kredilerinin ekonomik büyüme üzerindeki etkilerinin ilişkisi incelenmiştir.

Anahtar Kelimeler: Ekonomik Büyüme, Bankacılık, Kredi, Sektörel Krediler, Türkiye Ekonomik Büyümesi

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LIST OF ABBREVIATIONS

B.C.	Before Christmas
WWII	World War II
GDP	Gross Domestic Product
TL	Turkish Lira
ATM	Automated Teller Machine
SME	Small Medium Enterprise
FX	Foreign Exchange
NPL	Non-Performing Loan
BRSA	Banking Regulation and Supervision Agency
PPF	Production Possibilities Frontier
USSR	Union of Soviet Socialist Republic
CPI	Consumer Price Index
TUIK	Turkish Statistical Institute

Chapter 1

Introduction

The term “Money” is generally used as a medium of exchange and providing people to obtain their needs via previously determined price. Money has been begun to be used for 5000 years first in Mesopotamia and Egypt in various forms and shapes. An early use of money is in the period of 1683-1647 BC in Mesopotamia where the king guarantees the exchange of coins with a certain amount of corn. Also, in terms of bills in China a promissory note issued by the state were used as a means of payments between other parties (Arvidsson, 2019).

Money has become one of the most important discoveries in the sense that it paves the way for facilitating human lives through four functions that it has. It has four functions and these four functions are.

- As a unit of account, money provides a common standard to measure the total volume of production, income, savings, wealth etc.
- As a medium of exchange, money provides a common medium for the exchange of goods and services, which would otherwise have taken place with barter. This advantage comes under seigniorage, which includes a large reduction in the information cost involved when comparing the relative prices of goods and services within an economy.
- As a store of value, money allows for wealth to be stored and savings to occur.
- Lastly, as a standard of deferred payment, it allows exchanges and payment for goods and payments at different times (Accord et al, 2017).

People pursue their lives much easier in the sense that buying or selling an item does not require to get another item physically or to know people or companies to make economic transactions in a safe way. In addition to this, money makes possible to do business with distant lands easily and safely.

Individuals earn money to cover their daily expenditures such as food, clothes, children’s education, and housing. Additionally, they require funds to cover future costs such as marriage, children's education, house construction, and other social activities. These are substantial costs that can be paid if some money is saved from current earnings. Saving money is also important for retirement and potential illness, when people may be unable to work and make a livelihood.

The importance of saving money also increases the need of safe places where people can deposit their money safely and to be able to reach whenever they need, so that people can preserve their money from robbers. “Banks” are such places where individuals may deposit their savings with the certainty that they would be able to access the funds as needed. Individuals seeking to borrow money for business or other purposes can also obtain loans from banks at a fair interest rate. Furthermore, banks enable businesses to operate in a safer way by providing loans when they need. Banks are the core financial institution to meet businesses’ loan demands.



Chapter 2

Modern Banking And Functions Of Banks

2.1. Modern Definition and The Process of Banking

A bank can be defined in a variety of ways. In short, banks are legal entities that are licensed and regulated, subject to the laws of the chartering jurisdiction and empowered to accept deposit and make loans (Douglas, 2008). It can also be defined as a legal organization that accepts monies from the public that may be withdrawn either immediately or at a specified period and provide loan facilities or invests in other permitted assets.

A bank acts as a financial mediator, generating money by lending money to a borrower and correspondingly establishing a deposit on the bank's balance sheet. A banking system is a collection of entities or a network of institutions that provide financial services to the general public. These institutions oversee the payment system, lending money, accepting deposits and assisting with investments. Lending can be done directly through loaning or indirectly via capital markets (Aithal, 2016).

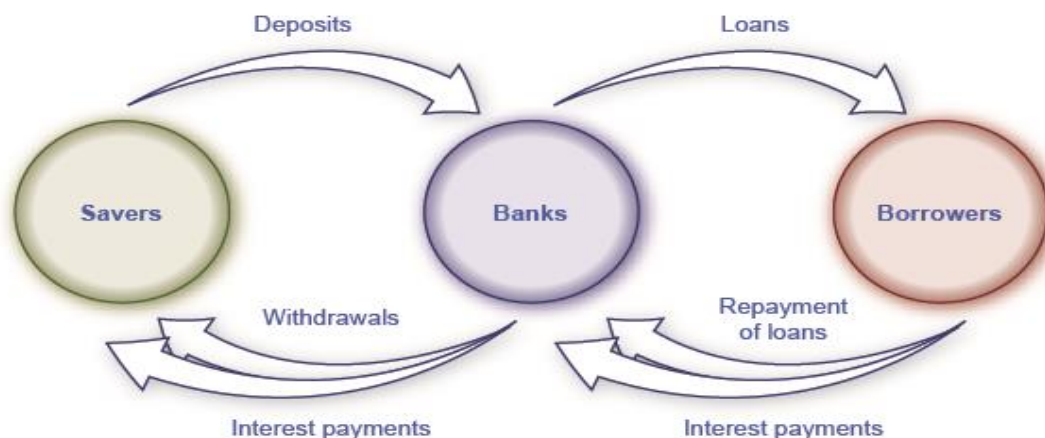


Figure 1. The Process of Banks (BC Campus, 2016)

Banks are institutions that are serving both domestically and internationally. They are the financial intermediaries between people and businesses who have surplus of money and those who want to borrow money. It makes easier for people and businesses to match the demands and act as an intermediary. People who are borrowing or lending money from banks are getting interest.

In modern world, banks and banking activities become so important that there are a lot of international banks that have different branches in different countries and have a role as financial intermediary globally. The technological development also enables banks to connect with people from all over the world with e-banking and their number of customers increase enormously.

2.2. The History and Evolution of Banking

The beginning of banking operations dates to the early ages in which money was not used as a medium of exchange. People who wanted to safeguard their goods from various dangers deposited them to the temples, and clergymen. The clergy not only safeguarded these goods but also lent them to whoever needed them, so it can be said that the first banks in history were temples and the earliest bankers were clergy. In the later periods, rulers took on these responsibilities. In the later periods, the advancement of trade between people and the need to change their goods with the other goods they needed skyrocketed the demand for a means of payment. Factors such as the difficulties and risks that are associated in the transportation of precious metals, the necessity to safeguard mines and the tension between the buyer who prefers credit and the seller who demands payment in advance all led to the creation of banking (Yetiz, 2016).

The history and milestones of banking can be summarized below in the table:

Table 1

The History and Milestones of Banking

First Bank In History	First Banking Laws	The Development Of Banking and Supervision	B. C.	The First Modern Bank	Use Of Banknotes And Cheques	The Certification Of Goldsmith	First Central Bank	The Start Of Modern Banking
3500	2000	1000	0	1609	1637	1640	1694	1907
B.C.3500	Banking records demonstrating priests lending money have been discovered in Sumerian and Babylonian temples.							
B.C.2000	The Eshunna Kingdom enacted the first banking regulations and established a 20% interest rate. Hammurabi's rules established lending, deposit collecting, and commission activities, and credit notes were written in duplicate on clay tablets.							
B.C.1000	The Greeks, Romans, and Egyptians established banking during the First and Middle Ages; while interest was restricted in ancient Egypt, financial rules were initiated in ancient Greece.							
1609	The first modern bank, the Bank of Amsterdam, was established							
1637	The Bank of Venice was established and the use of checks and banknotes began.							
1640	Following the King of England's confiscation of merchants' money, the gold began to be delivered to merchants known as 'goldsmiths' in exchange for certificates.							
1694	The Bank of England (First Central Bank) was established.							
1907	With the establishment of the Federal Reserve Bank (US Federal Reserve), the system matured and gave birth to the current banking system.							

The history of banking can be dated back to the 3500 BC. It has been demonstrated that Sumerian, Babylonian, and ancient Greek cultures developed companies like banks. Also, around 2000 BC, first banking regulations were enacted, and some obligatory rules were written. Banking began to evolve together with the advent of money, the rise of marine and trade. Since the growth of commerce and the acquisition of an international character necessitated the establishment of money-related organizations, money changers emerged initially. As a result, money changers might be considered the forerunners of bankers and banks. But originally, the term "bank" is derived from the Italian word "banco" which means "table, bench" where money changers do their business. When some of these money changers went bankrupt for failing to meet their obligations, the victims broke their banco. That is why, in western languages, those who declare bankruptcy are referred to as "bankrupt", derived from the term "banco". By diversifying their activities, taking deposits as well as conducting transfer operations and giving loans to their clients, their workplaces have been turned into deposit and transfer banks. The development of commerce and commercial capital boosted the institution known as a bank to a critical component of the country's economic life. Also, the industrial revolution accelerated the growth of banking (Aydın, 2006).

The first bank in the modern sense was founded in the Netherlands in 1609 under the name of Amsterdam Bank. During the seventeenth century, Amsterdam, which had benefited from its traders' extensive marine commerce emerged as Europe's primary financial hub. As a result, Dutch banks dominated international commerce and finance. Indeed, the Dutch borrowed large sums to foreign monarchs and governments during the seventeenth and eighteenth centuries. Initially, these loans were virtually solely for the benefit of the lenders; however, additional merchants and rich individuals were eventually persuaded to assist in funding these loans (Roussakis, 1997).

The Bank of Venice was founded in 1637 in Venice. In 1640, the king's confiscation of the merchants' gold bullions undermined the merchants' belief in the state, and merchants began to surrender their money to merchants known as 'goldsmiths' in exchange for a certificate. After a while, goldsmiths issued "goldsmithnotes" which based on golds they held and gave loans to individuals. The fact that these notes circulated in the market for a period resulted in the establishment of the first banknote system.

The foundation of the Bank of England and US Federal Reserve Bank were milestones for modern banking system in the sense that these foundations become a sample to the other countries to build their own banking system. The relationship, role and responsibilities are determined between banks, governments, and central banks.

2.2.1 The history and evolution of banking in Turkey. The historical development of banking in Turkey can be divided in 6 periods which are.

- Ottoman Empire Period (1847-1923)
- National Banks Period (1923-1933)
- Public Banks Period (1933-1945)
- Private Banks Period (1945-1960)
- Planned Period 1960-1980)
- Liberalization Period (Kırbaşı, 2008)

2.2.1.1 Ottoman Empire period (1847-1923). In 1847, the Ottoman Empire formed its first bank. In 1840, the first paper money was introduced to overcome budget shortages. The quantity of this money, termed kaime, was increased dramatically in a short period of time to fulfill the resource demands of the Ottoman Treasury, which had a routine continual deficit in previous years. As a result of persistent international trade deficits, the value of kaimes versus foreign currencies has declined dramatically over the last several years. As a result, it has become more difficult to get resources from outside markets to fund imports. Two Galata bankers helped Ottoman Empire to borrow money and they got the consent of the government to establish a bank to undertake the same purpose. The name of the bank was İstanbul Bank but it operated for a short time. After that, Osmanlı Bankası was established in 1856 by British capital and it was common that banking in Ottoman Empire started with Osmanlı Bankası. Ottoman Empire was in a difficult position both militarily and economically and Osmanlı Bankası helped government to find foreign debt to finance Ottoman Treasury. Later, Osmanlı Bankası had the privilege of printing money (Kazgan, 1997).

The banking operations at that period was mainly being able to find foreign debt for meeting the Ottoman Empire's obligations and mediate to repay the Empire's debt. In 1863, Memleket Sandıkları was established to give agricultural loans to farmers at low interest rates. Memleket Sandıkları was later formed as Ziraat Bankası which became the first state bank.

2.2.1.2 National banks period (1923-1933). After Ottoman Empire collapsed, the founders of Turkish Republic were aware of the country's economic devastating situation, and they wanted to form a developed country in all areas. In 1923, İzmir İktisat Kongresi was held with the participation of government, agriculture, business, and industry. The importance of creating banks was stated by all participants. The governments of the era made several steps to promote banking. Because of the demands for a national commercial bank, İş Bankası was established in 1924. To promote agriculture, Ziraat Bankası was restructured, and its capital was increased. In 1930, Turkish Republic of Central Bank also established with the duty of issuing banknotes, taking measures regarding the stability of Turkish currency, regulating money market and circulation, setting rediscount ratios, acting as treasurer of government (Turkish Central Bank, 2018).

2.2.1.3 Public banks period (1933-1945). Turkey became an agriculture dominated country in 1930s and the encouragement of private sector for industrialization did not work due to the lack of accumulation. The global economic crisis of Great Depression also prevented expected result for economic development. Because of that, the role of state increased, and public economic industrialization strategy adopted by making industrial investments through state's initiatives. The understanding of large capital and advanced technical information required investments could be done by state affected our banking system as well. In this period, Sümerbank (1933), Belediyeler Bankası (1933), Etibank (1935), Denizbank (1937) and Halkbank (1938) were established to finance and operate the state-established initiatives (Yüksel, 2008).

According to the industrial plans which were made at that era, investments mainly made to manufacturing, mining and energy sectors and public banks were used to finance these investments compatible with their establishment purpose.

2.2.1.4 Private banks period (1945-1960). The main distinguishing element of the 1945–1959 period was economic statism as a strategy for industrialization displaced by a program aimed at boosting economic development through private sector support. During the WWII, because of the high food prices and speculation, affluent private sector was formed in Turkey.

Private capital accumulation occurred during this time, most notably driven by agriculture. There was automation, quickly cultivated areas and consecutive planting in agriculture as a result the wealth of private sector increased. Because of the private sector strength, the banking industry's policy shift had an influence on banking sector as well. The era was the development of private banking. During this time, an economic policy emphasizing the private sector and market economy was emphasized but due to the low returns in some sectors such as textile, sugar, iron and steel, private sector did not take part in. In this sectors, significant state investments were made by state.

Between 1945-1959, increasing investments, modern companies, increasing GDP, the growth of cities and population resulted in an increase in the economy's need for money and credit. The rate of return in banking sector grew and banking sector expanded significantly. During this era, Yapı ve Kredi Bankası (1944), Garanti

Bankası (1946), Akbank (1948), Pamukbank (1955) and Türkiye Sınai Kalkınma Bankası (1950) were founded (Yüksel, 2008).

2.2.1.5 Planned period 1960-1980). In 1950s, liberal economy policies that governments followed was abandoned and state's economic interference intensified, and a mixed economic policy was followed. In this era, the main aim of investments was to be able to produce foreign industrial items and achieved import-substitution industrialization. The Turkish economy was administered as a closed economy during the implementation of the import substitution plan to preserve the working sectors. Interest rates and exchange rates were determined by government freely not taking into consideration global markets.

Throughout the projected time, the financial industry remained primarily under the state's control and influence. Interest rates on deposits and bank loans, bank commission rates and credit limitations were decided in accordance with the import substitution policy followed and bank essentials were determined in accordance with the import substitution policy followed. Its purpose has been stated as providing money for investments included in development plans.

During this time, the foundation of a new foreign bank and, unless in very exceptional circumstances, a new commercial bank is prohibited. Governments aimed at securing the distribution of restricted industry resources of existing banks in accordance with the import substitution policy. For banks, there were no risk related with interest and currency rates and private banks were in competition to increase their deposits by increasing their number of branches (Coşar, 2010).

During this time, a total of seven new banks were founded, five for development purposes and two for commercial purposes. T.C. Turizm Bankası (1962), Sınai Yatırım ve Kredi Bankası (1963), Devlet Yatırım Bankası (1964), Türkiye Maden Bankası (1968) and Devlet Sanayi ve İşçi Yatırım Bankası (1976) were the development banks and Amerikan-Türk Dış Ticaret Bankası (1964) and Arap Türk Bankası (1977) were the commercial banks established in this period.

A significant characteristic of this period in terms of banking was majority of private banks evolved into holding companies which means a business, or a commercial capital group held a significant share of a bank's capital. The state also promoted it with the understanding of accelerating private sector investments.

2.2.1.6 Liberalization period. In 1980, the import substitution industrialization approach has been abandoned and a new development policy accepted which focused on open economy, market-oriented approach, manufacturing, and export. The new approach is supported by the reorganization of the economy in accordance with the laws of a free market economy. To facilitate the liberalization and development of financial markets, a flexible exchange rate and a positive real interest policy have been introduced to increase savings for sustaining a stable growth.

The liberalization and free market mechanism made a huge impact on the banking system in the sense that new domestic and foreign banks entered the market and as a result of liberalization in exchange rate and real interest rate policy increased the competition among banking sectors. The structure of banking system changed, and banks restructured themselves from only collecting deposits and taking treasury bills to modern banking instruments. The assets and liabilities of banks diversified, and banks introduced consumer loans, credit cards, foreign currency deposit accounts, leasing, factoring, forfaiting, swap, forward, future, option, automatic teller machines, sales of new products and services, computer systems benefiting from technological innovations and emphasized personnel training. The efficiency of banks increased.

Although there were positive developments in banking sector, it did not last so long. The financing needs of governments increased and after 1989 high inflation and high inflation period started in the economy. The increase in government budget deficit raised the need public demand for financial resources. Rising inflationary pressures resulted in higher real interest rates. In this scenario, TL demand for financial instruments was short term and high interest rates focused. The banks' balance sheets were affected negatively in the sense that there was a growing TL financing costs and because of increasing financing demand. Banks increased their foreign debt and interest, and currency rate risks grew significantly in banks' balance sheet.

After 1994, Turkish economy faced different economic crisis in different years. The reasons behind the crisis were increasing public borrowing demand, political pressure to decrease TL interest rates, people's switch from TL to foreign currencies due to decreasing trust, international decreasing rating of Turkey, political instability. In this situation, banks' balance of sheet also deteriorated and became open to economic crisis.

In 2000, uncontrolled growing interest rates, bank executives using banks for personnel benefit, businessmen who acquired banks to steal bank resources, lacking

supervision over banking sector and executives turned into a banking crisis. Banks whose balance sheet had deteriorated were taken over by the state. Many banks, large and small, were impacted by the banking crisis in 2000 and 2001. Governments started a restructuring process in banking sector and initiated a severe control and monitoring process. Entrepreneurs who plan to enter the business or build a new bank are both financially and morally concerned. For financially fragile banks, regulation authority put pressure on strengthening banking system.

After the crisis, the regulation, supervision and restructuring of banking system provided banking sector in Turkey another dimension and the interest of foreign investors to Turkish banking system increased substantially. The competition and profitability of the system increase, Turkish banks start to follow modern banking principles. The health of system is important in the sense that Turkish banking system has a dominant position in Turkish financial system and sustainable economic growth is also related with the durable banking system.

2.3 The Role and Functions of Banks in The Financial System

Banks are financial institutions that are deeply connected with real sector, individuals, businesses, and governments. The ability of interconnectedness is related with the role and functions of banks for all parts of the society. Banks are like a bridge between two different parts and make connections with each other. I will mention below briefly the roles of banks play in the society.

Banks provide a safe and effective method of storing individual wealth (Douglas, 2008). Banks can accept deposits that are payable at par, either immediately or over time. People want to get interest to the surplus of money they hold and deposit to an institution where their money is under legal guarantee. Banks provide a safe way to protect people's money and prevent to be stolen.

Banks facilitate transfer of value substantially. Especially after using "money" as an instrument for exchange, it becomes an effective instrument for transfer of value. Banks are the facilitator for markets for the exchange of goods and services. People in the world have different jobs and they produce different goods and services. It enables buyers and sellers of goods and services to trade products and services without having to locate at the same place or barter system. With the use of money, the value of a good or service can be easily determined and if people agree on the price, banks become a

mediator for transfer of value using different banking products such as credit card, deposit accounts, checks, electronic transfer, ATM etc. (Yurtsever and Pehlivan, 2016).

Banks facilitate the pooling of funds to finance economic activity in the sense that people deposit their surplus of money to the banks and banks become like a pool of excess money. On the other hand, individuals and businesses also require money for their daily purchases or future such as buying a house, car, school payments, paying debt, daily operations etc. All these individuals and businesses' efforts to finance themselves without a bank can be possible but it is very difficult because they'll search the savers and have to persuade them to finance themselves. Banks give the opportunity by pooling savers' money to lenders to be able access funds easily and be responsible to only one institution to repay debt.

Banks make market-based decisions and facilitate their implementation. Banks collect deposits and pay interest to the savers for their money. Banks also have operational costs and other additional costs to continue its operations because of those banks make careful analysis for their customers and projects to lend. Any trouble of repayment process affects banks' ability to perform and survive. Because of that, banks carefully analyze their customers and make financial and market investigation for them (Vurucu and Arı, 2014).

Banks create wealth by analyzing individuals or businesses carefully and according to the credibility or loan type, banks demand collateral from them. Recognizing the property rights and transform them into an economical vehicle requires a financial intermediary. Banks act as financial intermediary to monetize the asset to facilitate deployment of cash in exchange for credit as a collateral. For instance, when a bank takes an application to a mortgage credit, it first examines credibility of the individual and take house as collateral for the credit, the value of the house should be consistent with the amount of the loan (Parasız, 2011).

Banks are deposit taking organizations that play a critical role in the transmission of monetary policy for governments and central banks. An increase in deposits increases the money circulation in the economy. As Douglas (2008) states the term "Deposit Multiplier" refers to a bank's capacity to convert or multiply funds because of its deposit-taking and lending activities. It is a simplified representation of what occurs when an individual puts \$100 at a bank. The bank can lend out much of its deposits as a loan again and again and the loans also can turn to bank and may lend

out again. Regulators make a regulation for banks here not to lend all the deposits to protect the savers. It is called as reserve requirement ratio which means banks can not lend all the deposits and some of them must be held at the bank. The ratio changes according to countries. Reserve requirement ratio affects how much money can be created via the banking system. The relation between the reserve requirement ratio and the money creation process can be illustrated below.

Table 2

The Banking System Under %10 Reserve Ratio

	Deposits	Loans	Reserves
Bank A	50	45	5
Bank B	45	40,5	4,5
Bank C	40,5	36,45	4,05
Bank D	36,45	32,81	3,64
Bank E	32,81	29,53	3,28
-	-	-	-
Total All Banks	500	450	50

Given that the majority of banking systems use many banks, we may assume that if bank A receives a 50.000 TL increase in its deposit, 10% will be retained as reserves and the remaining 45.000 TL will be lent out and eventually end up at another bank. Assume that a loan of this amount is made to an individual who deposits it in bank B. Bank B will store 10% in cash (4.500 TL) and invest the remainder, which will eventually reach bank C. As a result of this process, the sum of additional deposits can be created is 500.000 TL. An additional 50.000 TL deposits will be ended with 500.000 TL deposits whole in the banking system. The money creation formula can be summarized as.

$$\frac{\text{Deposits}}{\text{Reserve Requirement Ratio}}$$

Banks enabled participation in the global economy. In the past, people used barter system to make exchange their goods but after that money was invented and they started to use money. Although barter system and cash have been used, they have not been sufficient in the sense that people from different places face difficulty in

carrying cash and options to find goods suitable to barter system. Economic transactions are made more efficiently and simply through the banking system.

Banks are corporate professional institutions in the sense that they are usually legally bind to a banking law. The law outlines the terms to found a bank, the qualifications of founders and legal ratios that banks must accomplish. Not all people or corporations can easily form a bank. Generally, a legal apply to legal authority and their acceptance and permission are required. The control process is not only limited with the foundation process but also banks are audited regularly to achieve suitable accounting standards, good evaluation of borrowers, analysis of credit and risk management.



Chapter 3

The Concept of Loan And Banking Sector In Turkey

3.1 Identification of Bank Loans

A loan is a quantity of money borrowed by one or more people or businesses from banks or other financial organizations to manage their finances in the case of scheduled or unanticipated occurrences. Thus, the borrower incurs a debt, which he must repay with interest and within a certain time (Acar and Takan, 2002).

In Turkish Banking Law, loan is defined as “the cash loans and non-cash loans such as letters of guarantee, counter-guarantees, suretyships, avals, endorsements, acceptance loans and commitments bearing such characteristics, bonds and similar capital market instruments that have been purchased, funds lent through making a deposit or other ways, receivables arising from the installment sales of assets; overdue cash loans, accrued but non-collected interests, values of non-cash loans that have been converted to cash, receivables incurred from reverse repurchasing transactions, risks undertaken within the scope of futures and option contracts and other similar contracts, partnership shares and transactions recognized as loan by the Agency shall be considered as loans in the implementation of this Law, irrespective of the accounts they are booked” (Official Gazzette, 2005).

Loans can be for a specific purpose for instance buying a house, a car etc. or it can be an open-ended line of credit for predetermined maximum limit. The term of loan is related with credit, credit comes from Latin word “credere” which means to believe or trust, openly characterizes the whole credit process as an exercise in mutual trust and confidence (National Association of Credit Management, 2009).

The customer chooses the supplier based on its reputation as a reliable source of high-quality goods at an affordable price. If the supplier believes the buyer will follow the contract by paying the invoice according to the specified conditions, the supplier accepts the order and offers the credit necessary to complete the sale. Thus, credit may be accurately defined as the transfer of economic value today, based on trust, in exchange for an anticipated economic value in the future. The seller does not get the money immediately but collects money from the periods which are pre-defined period. Because of the time, trust and confidence become important.

The basic principles of credit analysis can be described as the 5 C's. These are character, capacity, capital, collateral, and conditions (Sangale, Salve and Mulani, 2013). Character refers to a debtor's desire to pay its debts and implies a certain degree of ethics, integrity, trustworthiness, and managerial quality that is offered or made available to the business customer. Examining a customer's business character necessitates that the credit expert gets acquainted with the prior business experience of the individuals who control, manage, or govern over that firm. If a business requesting for business credit is owned by a principle who was participated in a business failure, the credit expert should discover the reason for the loss and then take it into account for credit decision.

Capacity means operating efficiently to run a business and the ability to pay its creditors, banks, workers, and suppliers on time. If a company uses its capacity well, it becomes easy to produce positive cash flow. Credit professionals must understand how the businesses manage huge volume orders, standards, and govern the delivery timeframes. Capacity is a good sign that shows whether a company grow or not, its ability to create positive cash flow and future payment process.

Capital means as businesses how much they invest in their business and how much they have surplus and net worth. Capital refers the amount of wealth available to a business in a variety of forms for the purpose of producing more wealth such as products/inventory purchased for resale, manufactured goods, or the acquisition of permanent and fixed assets such as machinery or buildings. Capital is evaluated by a credit specialist identify the customer's capacity to meet its commitments and mitigate credit risk. The increase in capital is positive for businesses because it increases the ability of repayment. The cash flow of businesses changes according to the firms, sectors they are operating and cycles of cash generating.

Collateral is a guarantee for lenders in the sense that a threat of default of businesses can be recovered with the security that lenders took before. Although trust and business character are the first phase that lenders take into consideration, in some cases lenders demand collateral from borrowers due to decrease the risk of collection of loan in a case of bankruptcy. The security for the repayment of the loan can be equipment, buildings, houses, money, bonds other physical assets that may be seized and sold by the creditor if the business fails on the loan. The most important thing here is that a collateral should be given to a lender in the sense that it should not be a collateral for other lenders which will decrease the potential return.

Conditions are the situations that take place in the economy and affect the business of the borrowers. Natural disasters, a new regulation, national, international, or sectoral economic conditions can be counted as conditions. Conditions are important in the sense that they affect businesses' cash flow, sales turnover, expenditures, and profitability according to the durability and intensity of the situation. The lenders evaluate the degree of businesses' dependence of conditions. Also, for some sectors the effect of conditions is lower than the others because demand side is less volatile than other sectors such as food.

3.1.1 Types of loans. Banks give loans and credits to their customers to obtain interest. Loans are classified by different perspectives. There were many types of loans according to the needs of customers. One classification of loans is unsecured and secured loans.

Unsecured loan is a loan that is based primarily on the borrower's creditworthiness rather than any collateral security. Unsecured loans are those that are received without the borrower providing additional security for the loan. Borrowers must have a good credit history to qualify for an unsecured loan. Personal loans are another term for this sort of borrowing.

Secured loans are those that are backed or secured by collateral to mitigate the risk associated with lending. A mortgaged property is used as security for a loan. Assets used to secure debt, or a debt instrument are also considered security, meaning they may be reclaimed by the lender in the event of a default.

The differences between secured and unsecured loans can be summarized as,

Table 3

Difference between secured and unsecured loans

Secured Loan	Unsecured Loan
Loan against collateral	Security Loan based on individual credit rating
Interest rate are lower than unsecured loan	Interest rate are higher than secured loan
Loans are available for a long tenure	Loan are available for a fixed period
Borrowing limits are higher than unsecured loan	Borrowing limits are lower than unsecured loan
Loan approval process is longer due to paperwork involved work involved	Loan approval process is shorter due to paper

Unsecured loans are like credit cards, personal loans for purchase of daily needs and educational loans, secured loans are like mortgage loans, auto loans etc.

Loans also can be classified according to the term of the loan. This classification focuses on the maturity of the loan and related with the maturity loans are called either short term, medium term, or long-term loans. Short-term loans are loans whose maturity is no longer than 1-year, medium term loans' maturity is between 1-5 years, long-term loans are repaid in a period of longer than 5 years.

Loans can be classified according to their liquidity which means cash or non-cash loans. Cash loans are loans which individuals, businesses or small medium enterprises use and spend for their expenditures. Some examples of cash loans are auto loan, revolving loans, project loans, mortgage loans and consumer loans. Non-cash loans are a letter written by a bank to a government agency, a public enterprise, a natural person or a corporation committing the bank to perform, make or fulfill a specific work, delivery or undertaking within a specified time period and under specified conditions and that if the bank fails to do so, the bank will pay unconditionally the amount due to the party who undertook the work, delivery or undertaking. Some examples of non-cash loans are letter of credit, reference letters and letters of guarantee etc.

In addition to this, loans are also classified according to sectors which are used. For instance, tourism loans, agricultural loans, construction loans and energy loans etc. Governments promote loans to some sectors according to their development plans. A reduction in total agriculture production, support to the export-lead industries, better and planned infrastructure investments sometimes lead governments to support these sectors via credit driven mechanism.

Loans can also be grouped according to borrowers who use them like personnel loans and SME loans. Personnel loans are mortgage loans, auto loans and other daily needs loans. SME loans are related with their commercial activity, and it is used to finance operating expenses.

3.2 The Structure and Transformation of Banking Sector in Turkey

Turkish Banking system has not performed well to the years of 2000s because of the systematic problems of the sector and economy, and it has not functioned as a modern banking understanding. The main mistakes that have been done were,

Independence of central banks was never prioritized or respected. Transfers to the Treasury had been abused in nearly every situation when the yearly budget ran into trouble, with additional budget funding designed to extract larger advances from the Central Bank of Turkey. Treasury consistently drained funds from public banks to cover excessive levels of borrowing needs and irregular redistributions of wealth. This led to the huge increase of the supply of money side, and it led to the high inflation which has become a chronic problem for Turkish economy.

The excessive amount of borrowing needs led to the increase of interest rates which crowded out business and households and diminished the possibility of financial deepening. The skyrocketing rates channeled people and business to Treasury bonds and bills. The banking sector also became the main receiver of the bonds and they moved away from modern banking understanding based on promoting real sector and investments. The credit channel mechanism of banks transferred to the either Treasury bonds or selective companies or holdings although there were more rational projects and investments.

A lack of reform enthusiasm has been followed by unsuccessful efforts to build an economic climate suitable to sustainable growth and price stability. With chronic political instability and never-ending cycles of early elections, short-sighted measures became commonplace. There was practically no possibility of developing a comprehensive medium or long-term stability program.

The deficiencies and inefficiencies in the regulation and supervision led to the absence of control mechanism. It became difficult to discover the anomalies in the sector and prevent to become a systemic risk. The corporate infrastructure and transparency were not achieved in the sector and the governments did not take measures to achieve these. The quality of institutions did not meet European standards and good governance did not become on the top of the agenda.

The predictions and misjudgments of foreign currency regime increased the pressure on the Turkish balance of payment. The insufficient savings led to need for balance of payment financing. Devaluations of Turkish lira occurred many times and the inefficiencies and deficiencies in the economy prevented a proper and regular functioning banking sector environment.

All these mistakes and its consequences made a general reform compulsory. The country's lengthy history of regulated exchange rates came to an end because of the most recent crisis and free floating became unavoidable. Foreign currency risk was

finally delegated to the markets, incentivizing wise investment decisions, and preventing excessive risk-taking. The new economic program aimed for prudent fiscal and monetary policies as well as structural changes, including the establishment of the foundations for an economy well-positioned for sustained low-inflationary growth. The ultimate objective would be to make the economy more robust to adverse shocks, less susceptible to crises, more equal in income distribution, more receptive to international and domestic investment and as a result better equipped to integrate into European frameworks.

The reliance on an overmuch-inflationary macroeconomic environment, extreme risk taking, huge open position, poor regulatory accounting rules, a lack of diversification and illegal lending were problematic sector characteristics. State-owned banks had also huge duty losses and subsidies lending.

February 2001 was the month when the real sector and the financial sector in Turkey saw a significantly unfavorable impact. During this time, mostly as a result of management issues and vulnerabilities in the financial structure of state banks, job losses and a significant shortage in capital were seen. The "Transition to Strong Economy Program" was presented in May of the same year. The battle against inflation, the macro basic manner on several elements such as the economy, public budget balance, and transparency have been mapped out. This difficulty forced the BRSA (Banking Regulation and Supervision Agency) to implement the "Banking Sector Restructuring Program" at the same year (Sekreter, 2018). The restructuring process initiated by the improvement in the financial sector of the economy and the banking system has begun to have a beneficial effect on the recovery process, which providing banks the opportunity of strengthening their balance sheet structure and equity. The reform agenda has had a positive impact on the banking sector.

As of December 2021, Turkish banking system consists of 54 banks which are classified as deposit banks, participation banks, development and investment banks (BDDK, 2022). 34 of 54 banks operate as deposit banks, 8 of 54 banks operate as participation bank and 12 of 54 banks operate as development and investment banks.

According to 2021 December statistics, deposit banks have a proportion of 86% of total assets in banking sector, participation banks have a proportion of 7% of total assets and it is 7% for development, and investment banks (BDDK, 2022). According to bank ownership, state banks accounted for 45% of total assets, private domestic

banks accounted for 30% of total assets, and foreign banks accounted for 25% of total assets. In terms of ownership public banks but generally deposit banks have a substantial role in financing private and public firms.

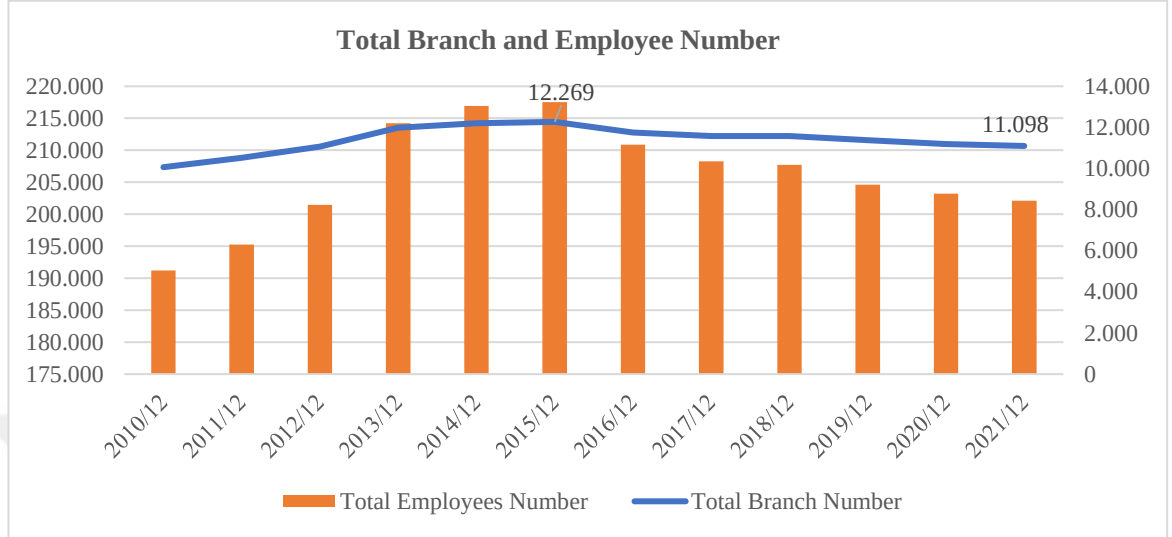


Figure 2. Total branch and employee number (BDDK, 2022).

The number of employees and branch numbers were respectively 191.180 and 10.066 in 2010. The employees of banking sector and branch numbers are increasing until to the year of 2015 but after 2015 both numbers have started to decline. According to the 2021 December statistics, there were 202.136 employees and 11.098 branches. The digitalization of banking transactions is a key reason for decreasing number of employees and branches. Technological developments enable new financial innovations that make financial transactions easy for end users. It becomes easier for people to make financial transactions through mobile banking application rather than going to the branches and because of this, the number of employees and branches are decreasing.

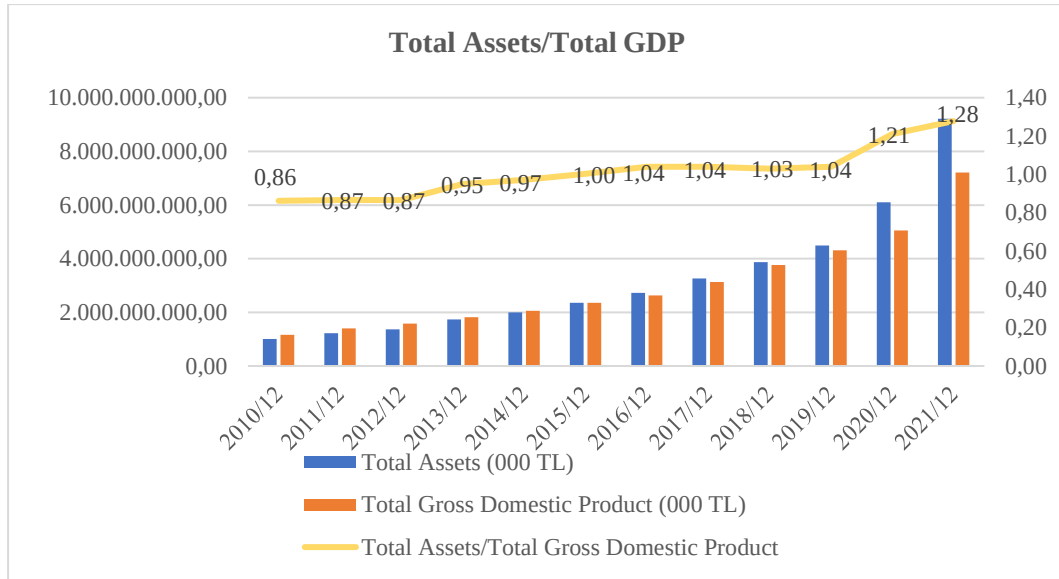


Figure 3. Total Assets/Total GDP (BDDK, 2022).

The ratio between total assets and total gross domestic product of Turkey changes year by year. The tendency of the ratio from 2010 to 2021 has been increasing. In 2020 and in 2021, total assets of the banking sector skyrocketed to 6,1 and 9,2 trillion TL and the ratio increased to 1,21 and 1,28. The main reason behind the difference is because of Covid-19 pandemic that has affected to whole world, Turkey has had a policy of credit expansion policy that increased the volume of total assets rapidly in Turkey. As I mentioned before, deposit banks have 86% of total assets and public banks have 45% of total assets, which means the Turkish banking sector's assets are growing dependently on public banks.

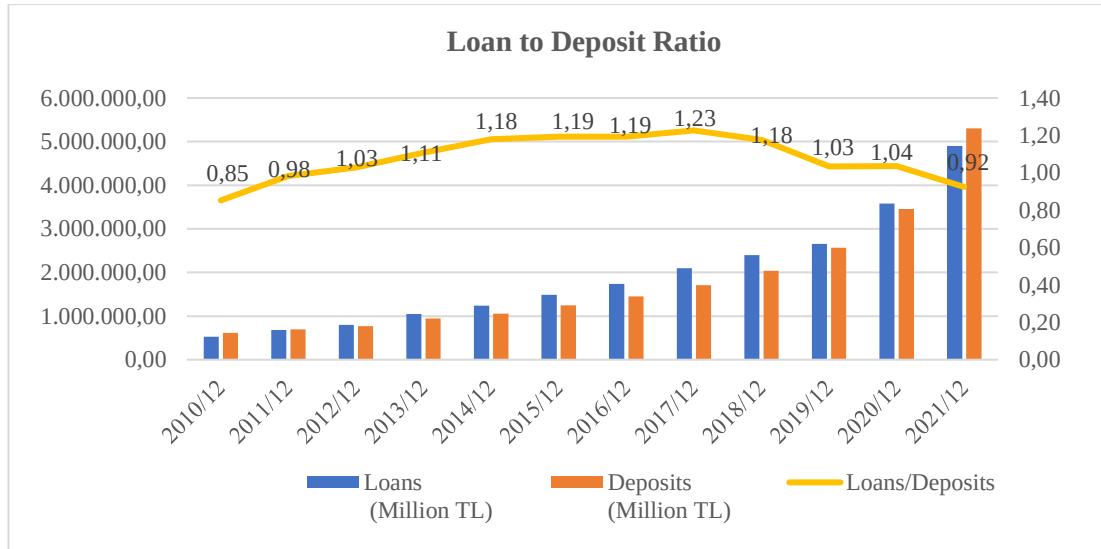


Figure 4. Loan to deposit ratio (BDDK, 2022).

The loan to deposit ratio is significant because it indicates how much money is lent and how much deposits are collected from all sectors of the economy over a certain period. It indicates a bank's ability to cover all its obligation and the banking sector's appetite for lending. If the ratio is excessively high, the bank may lack the liquidity to meet its obligations. In Turkish banking system, loans and deposits are the biggest components of assets and liabilities. Banks must collect deposits to give loan to their customers and from 2010 to 2021, the ratio had an undulating curve and in 2017 it had the highest level which was 1,23. In 2020, the total loans and total deposits were skyrocketing according to previous years. The credit expansion policy related with the Covid-19 pandemic has increased the total loans and deposits. In 2021 both total credit and total deposit increased again however loans/deposit ratio decreased to 0,92.

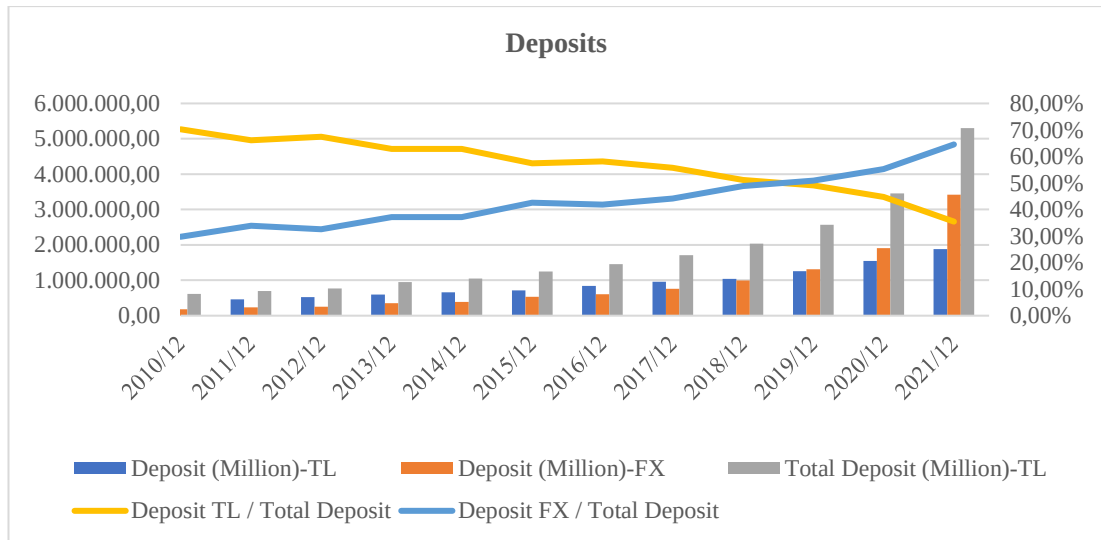


Figure 5. Deposits (BDDK, 2022).

Bank deposits are a frequent way for individuals to fund their accounts. The capacity to offer required funds is reliant on banks' ability to mobilize an acceptable number of deposits and other foreign sources of funding inside an economy. When monies are withdrawn, the bank must pay cash to the customer; however, if funds are not removed, the bank will normally invest or loan the funds to other customers until the depositor makes a withdrawal. Financial institutions provide a mechanism via which savers may deposit funds and borrowers can access them. This guarantees that monies raised are converted efficiently into actual productive capital. Domestic funds provide a low-cost, dependable source of financing, which is critical for developing nations.

As figure 5 illustrates that the proportion of TL deposit of total deposit was 70,26% in 2010 and it has started to decline continuously and the ratio of TL deposit to total deposit became 35,46 % which shows a share of foreign currency-denominated deposits has been increasing year by year. The high share of foreign currency deposits is called “dollarization” which means in other words an uncontrolled process in which an economy prefers foreign currencies over its own currency because of its residents' financial decisions. Dollarization has typically signaled concerns about the stability of money, making monetary policy less effective and difficult. The high level of ratio of dollarization is an alarming warning signal in the sense that financial dollarization can become a source of balance of payments and financial crises in the event of substantial

exchange rate volatility, posing a major danger to macroeconomic and financial stability.

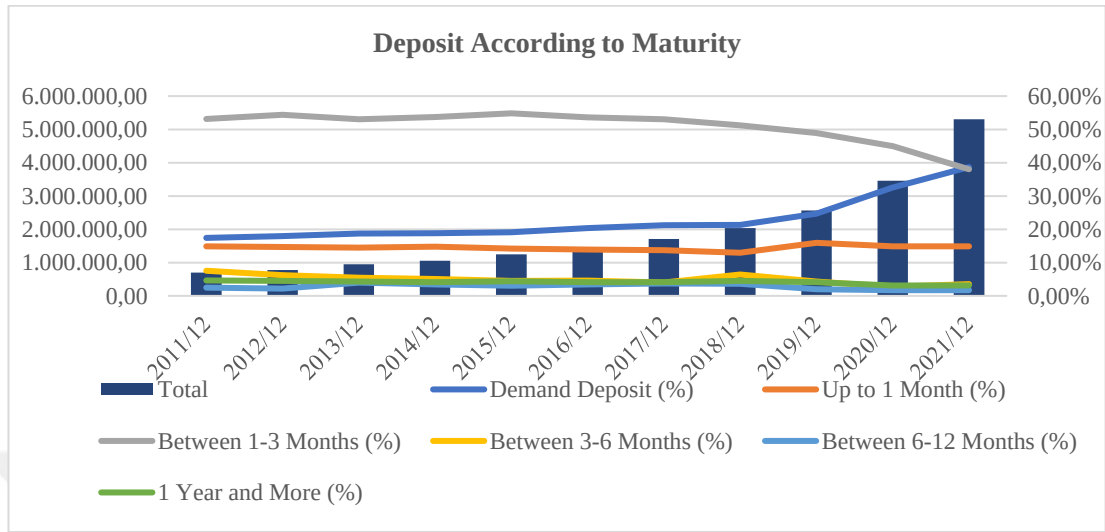


Figure 6.1 Deposit according to maturity (BDDK, 2022).

As figure 6 shows deposits in Turkish banking system has been generally short-term. In 2011, the proportion of demand deposit was 17%, up to 1 month was %15, and between 1-3 months was 53%. In 2020, the proportion of demand deposit became 38%, up to 1 month %15, and between 1-3 months was 38%. In Turkish banking system, there is a risk of maturity mismatch of assets and liabilities. The deposit in banks is mostly the short-term while the loan mostly reflected by medium and long-term loans. The ratio of demand deposit also increases sharply between 2011 and 2021.

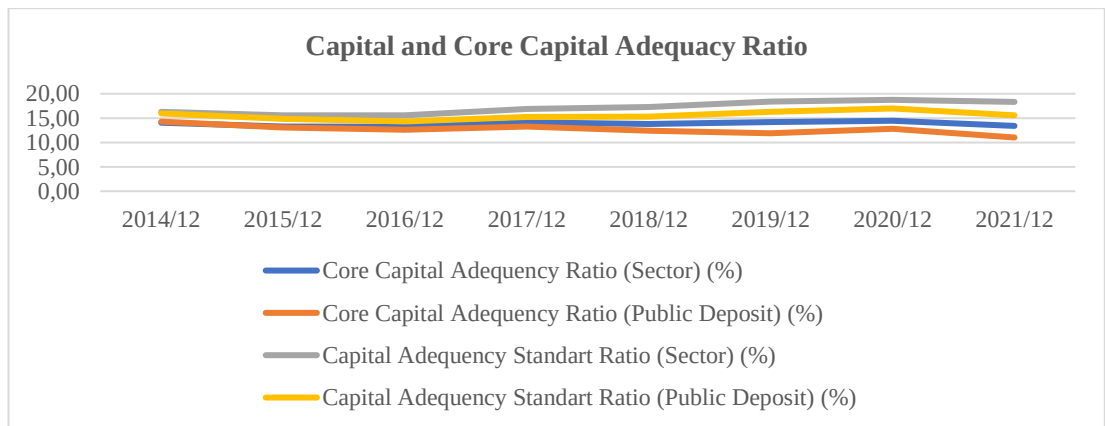


Figure 7. Capital and core capital adequacy ratio (BDDK, 2022)

Capital adequacy ratio is a critical indication for risk and profitability management in banks, which are regarded as the most essential part of the financial system owing to their banking operations. Turkey enacted many restrictions governing banks' capital structure in the aftermath of the financial crisis. Since 2006, it has been intended to strengthen the banking sector by requiring a minimum capital adequacy ratio (12%) over the Basel criteria's norm of 8%. Public banks' core capital and capital adequacy ratios are lower than sector's ratios.

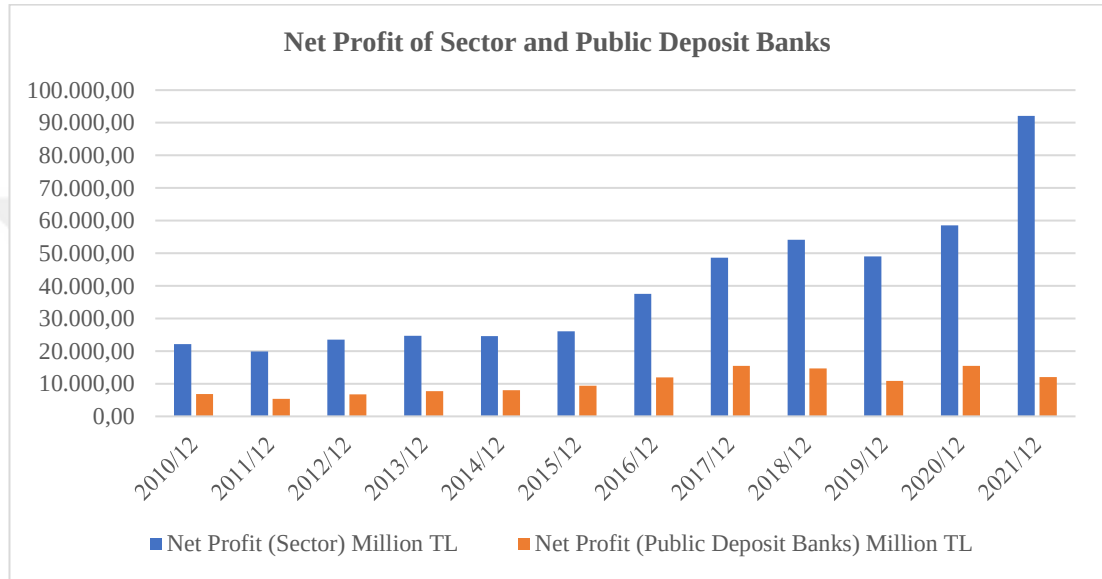


Figure 8. Net profit of sector and public deposit banks (BDDK, 2022)

A bank's profitability must be maintained to function properly in today's competitive financial industry. To earn a profit, low-cost finance sources should be discovered. Profitability is not just an outcome, but also a strategy through which banks may survive in a competitive climate. The administration and practices of a bank are focused on toward increasing profitability. It is critical for investors to regain their investment for operations to continue. Bank profitability enables organic and sustainable expansion while also allowing potential investors to invest more without requiring additional funds from stakeholders. The bank's profit strengthens its capital at the same time. Banks use assets to generate revenue. Credits, stocks, and shares are the bank's assets that generate the most of the bank's revenue. However, a bank must obtain funds from other banks or by selling debt securities to obtain money for credits. Banks cannot monetize all their assets, primarily because they must maintain sufficient liquidity to meet client demands for cash withdrawals (Umarbeyli and Derviş, 2020).

As figure 8 illustrates after the year of 2015, the profitability of Turkish banking system increased until the year of 2019. In 2019, the profitability decreased a little and in 2020 it increased again and in 2021 reached to the number of 92 billion TL. The profitability of public deposit banks increased from the year of 2015 to 2017 but it decreased in 2018 and in 2019. In 2021, the profitability of public deposit banks decreased to the 12 billion TL. The profitability of banking sector is one of the components that show the health of banking sector.

3.3 Sectoral Loan Analysis of Turkey

The position of the banking sector in the financial market has a significant impact on monetary policies that have significant consequences via the loan supply of banks. The role of the banks in the financial sector also related with the share of banking sector in the financial system and in Turkey banks have 86% of total assets of financial sector and it is normal to say that banks impact overall credit volume significantly. Therefore, the secure and effective functioning of the banking system is crucial to the success of the Turkish financial system and economy.

New regulations gave banks a pioneering role in the development of credit markets in the 2000s. The credit channel expanded in response to a reduction in perceived risk; thus, less public debt, lower interest and inflation rates and a longer period of financial stability enabled banks to lend more credit. In Turkey, where the market for private bonds is still developing, bank lending remains the primary source of debt financing (Avcı and Yücel, 2017).

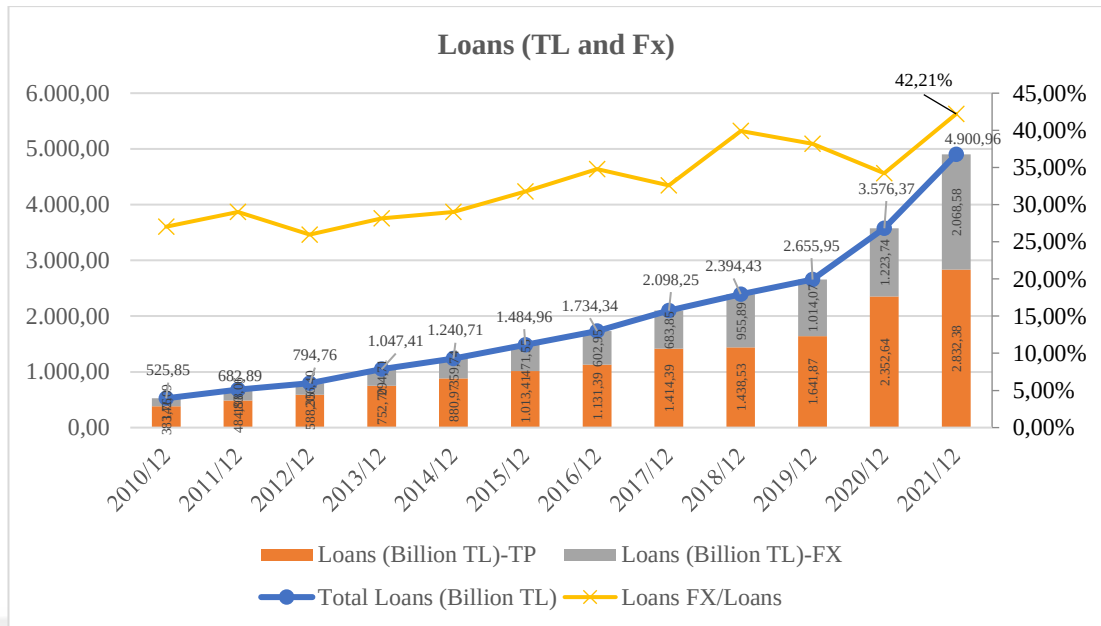


Figure 9. Loans (TL and FX)

The segmentation of loans according to national currency and foreign currency is important in the sense that it shows the probability of the countries' openness to exchange rate depreciation in a real sector crisis. The volatility and deterioration of national currency increases the risk of financial instability and firms which receive foreign currency loans or foreign currency-based loans are affected severely unless they have income as foreign currency. As figure 9 illustrates the bank loans in national currency and foreign currency from since 2010 to 2021. In 2018, the ratio of foreign currency loans was high, and it was 39,92 % of total loans. The Council of Ministers Decree No. 2018/11185 (the Amendment Decree), which amends Decree 32 on the Protection of the Turkish Currency's Value, prohibits Turkish borrowers from acquiring FX-Indexed Loans and restricts the availability of FX Loans given by domestic and international lenders (Decree of the Council of Ministers, 2018). The Central Bank of Republic of Turkey published "The Capital Movements Circular" to provide additional information to the Amendment Decree. Turkish individuals are no longer eligible to get FX Loans or FX-Indexed Loans according to Amendment Decree. In the case of legal entities, the Amendment Decree forbids FX-Indexed Loans and restricts the extension of FX Loans to those legal businesses that generate foreign currency income. If a firm has not generated foreign currency income, it has not got FX loans or FX-Indexed Loans. Related with this policy, the ratio of FX loans/ Total

loans has started to decline from the highest level of %39,92 to 34,22% in 2020 but in 2021 it increased again and reached the ratio of 42,21

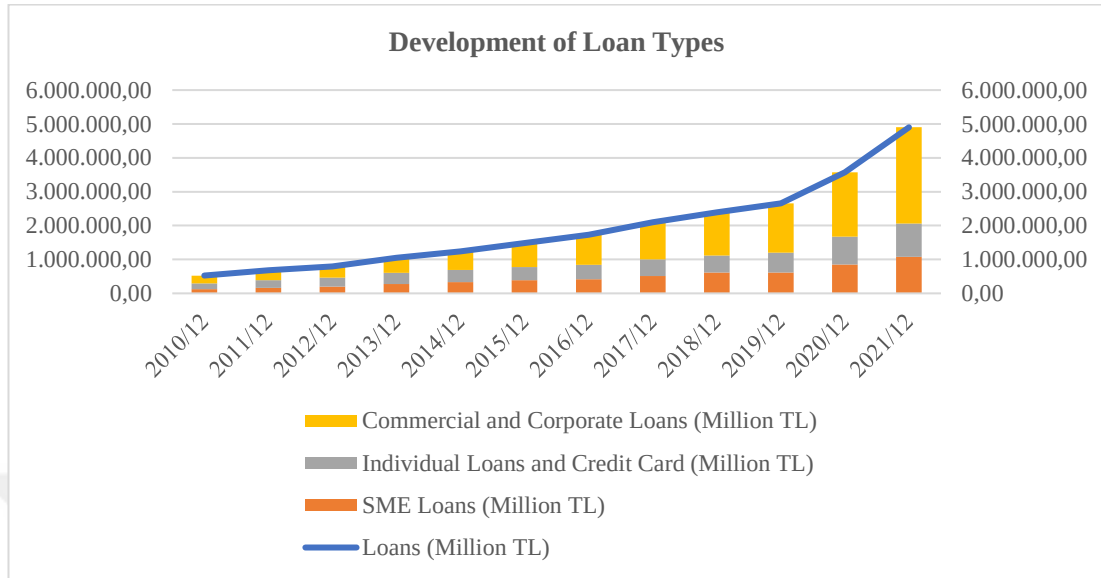


Figure 10. Development of loan types (BDDK, 2022)

As figure 10 illustrates the total loan volume of Turkey has been approximately 4,90 trillion TL and commercial and corporate loans has had the biggest portion which is approximately 2,84 trillion TL. The segmentation of loans according to loan types shows how much resources have been channeled to different segments of the economy. The total volume of loans has been increasing from 2010 to 2021, especially in 2020 and 2021 which it has had increasing acceleration. The commercial and corporate loans became the group that benefiting the most from the loan increase. The total volume of loans from 2019 to 2021 increased significantly due to the policy of credit expansion policy during Covid-19 pandemic period.

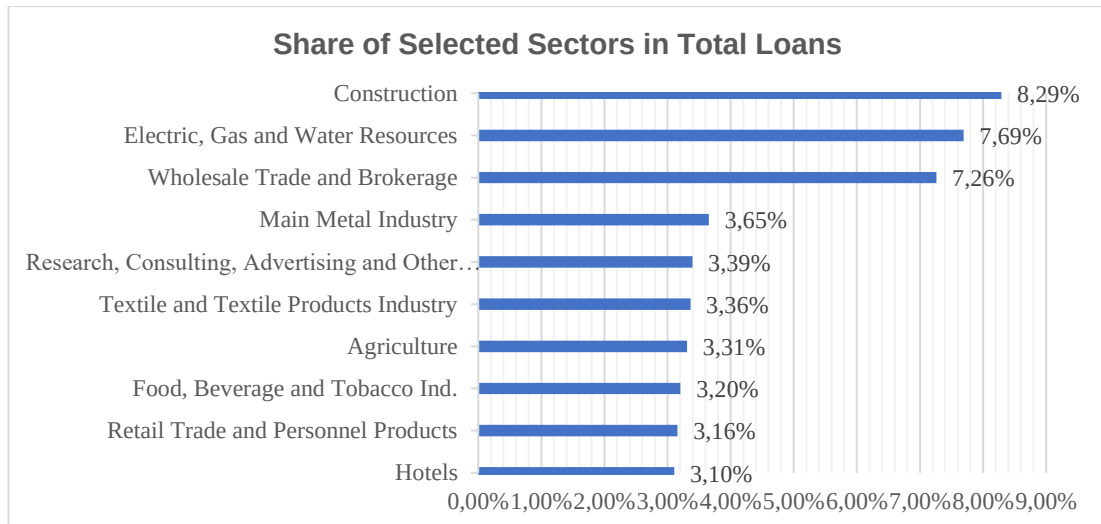


Figure 11. Share of Selected Sectors in Total Loans (BDDK,2022)

As figure 11 shows the share of selected sectors in total loans. The total volume of ten sectors is 46,43% which means these ten sectors have taken 46,43% of the total cash loan volume. It shows that how loans are channeled to the sectors and the density of total volume. Construction has had the biggest portion of total loans and its ratio has been 8,29%. The second and third sectors have been electric, gas and water resources and wholesale trade and brokerage. Construction describes the activities involved in the design, construction, and maintenance of buildings, infrastructure, industrial facilities, and associated functions. Construction sector is important in the sense that it becomes an engine to generate infrastructural investments. The building industry is widely recognized as having a beneficial effect on national economies through boosting economic growth. Due to the demand for goods and services generated by directly or indirectly associated sub-sectors, the sector plays a significant role in the economy in terms of inputs. Economic growth is acknowledged as a driving force, given its relationship to other sectors and its contribution to employment. As a result of these benefits, governments often devote a sizable percentage of their fiscal resources to this sector (Berk and Biçen, 2017). It has been the same for Turkey in the sense that construction sector has had the largest proportion of total loans and Turkey has started mega projects such as bridges, big hospital projects all over the country and these projects have been financed through domestic and international banking sector.

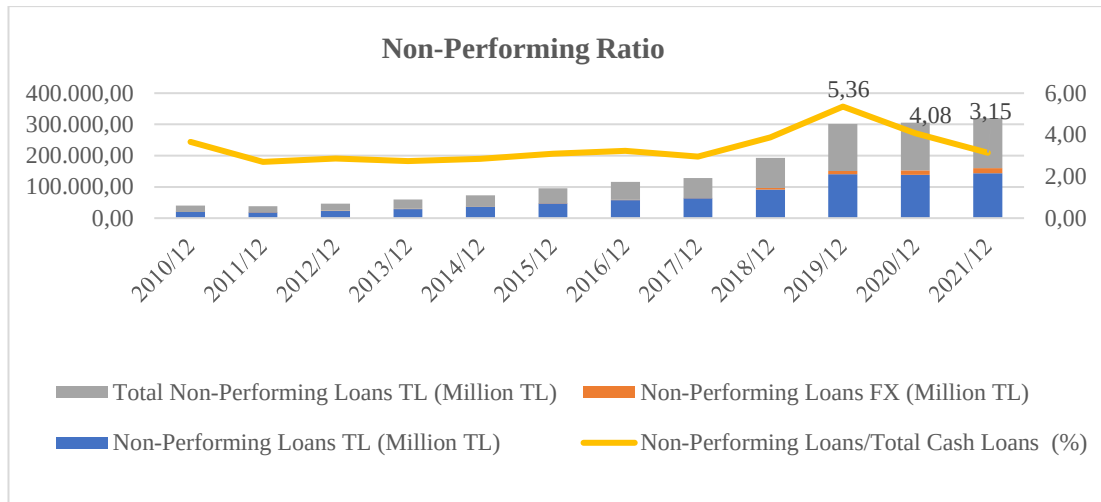


Figure 12. Non-Performing Loans, (BDDK, 2022)

A non-performing loan (NPL) is a loan in which the borrower has become behind on scheduled payments for a defined period. Although the components of nonperforming status differ according to the conditions of the loan, non-performing typically defined as the absence of either principle or interest payments. Additionally, the specified term varies by business and loan type. The term for non-performing however is typically 90 or 180 days. When a borrower does not pay the agreed-upon instalments or interest on a bank loan for more than 90 days, the debt is considered as non-performing. Non-performing loans are also referred to as "bad debt" (European Central Bank, 2016).

A performing loan generates the interest income necessary for a bank to profit and issue new loans. When customers default on agreed-upon repayment terms for 90 days or more, the bank must set aside additional capital in the case of the loan is not repaid. This affects its ability to make additional loans. To be profitable in the long run, banks must keep bad loans to a minimal while still earning a profit on new loans extended to consumers. If a bank's balance sheet has an excessive number of bad loans, its profitability will suffer as it will no longer generate enough money from its credit operations. Additionally, it will need to set aside funds as assurance in case it is forced to write off the entire debt.

As figure 12 illustrates in 2019, total non-performing loans skyrocketed according to previous year. The total volume of non-performing loans in 2019 was approximately 150,7 billion TL. The ratio of non-performing loan to total cash loan was 5,36%. In 2021, the ratio declined from 5,36% to 3,15%. The reason behind the

decrease was beginning in mid-March, the coronavirus outbreak that began in China at the end of 2019 and rapidly spread across the globe in the first quarter of 2020 slowed Turkey's economic activity through foreign trade, tourism, and domestic demand channels. In April, the pandemic's impact on economic activity grew more severe. Economic activity slowed and nearly came to a halt in many sectors, putting pressure on corporate cash flows and increasing the economy's precautionary liquidity requirement. Turkey's policymakers implemented comprehensive efforts to mitigate the pandemic's detrimental effects. The BRSA Decision No.8948 increased the minimum deferral period for banks' non-performing loans from 90 to 180 days effective until December 31, 2020. Thus, under Stage 1 and Stage 2 portfolios, it will be feasible to monitor loans with a delay of up to 180 days. Additionally, the decision eliminated the obligation to monitor loans that are currently monitored under the Stage 3 portfolio and reclassified as performing loans after being restructured, and whose principal and/or interest payments are delayed by more than 30 days during the one-year monitoring period or are restructured again during the monitoring period (BDDK, 2020). Also, it was decided by BRSA No. 9795 dated 16 September 2021 that the 90-day delay period projected for the classification of loans as non-performing loans will be applied as 180 days for loans with a delay period between 91-180 days as of October 1, 2021. Additionally, the 30-day delay period projected for the classification of loans in the second group will be applied as 90 days for loans with a delay between 31-90 days, as of October 1, 2021 (BDDK, 2021).

The increase of minimum deferral period for non-performing loans from 90 days to 180 days and its partially follow-up has had a decreasing effect on the ratio of non-performing loans, which decreased from 5,36% to 4,08% in 2020. The increase of deferral period also prevented to increase the total amount of non-performing loans substantially. The total amount of non-performing loans rose from 150,7 billion TL to 152,6 billion TL in 2020 and 160 billion TL in 2021.

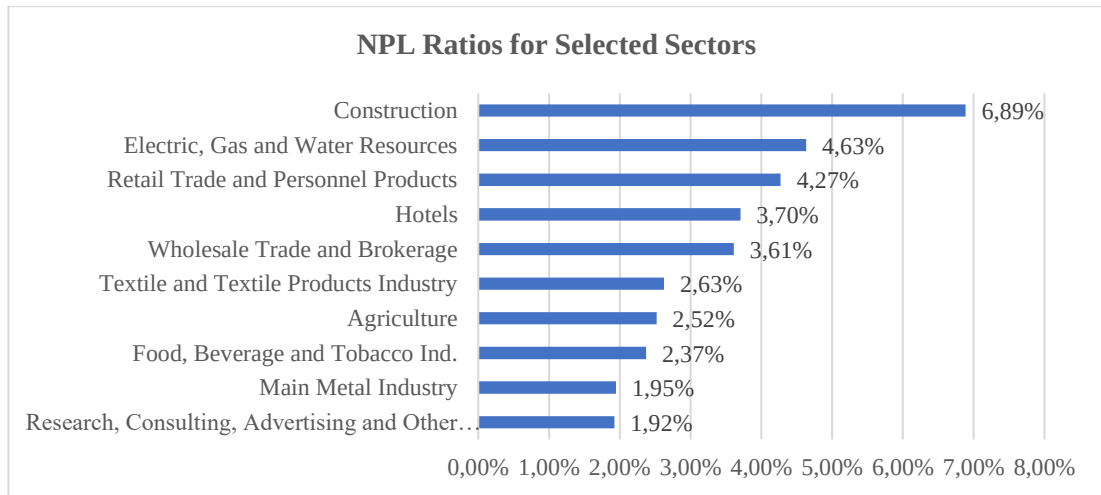


Figure 13. NPL Ratios for Selected Sectors (BDDK,2022)

The construction sector has had the biggest portion of total loans and it has been the same for NPL ratios for selected sectors. The NPL ratio of construction sector has been 6,89% and it has been more than two percent more from wholesale trade and brokerage sector. Construction sector has had a dominant position of NPL ratios. Turkey's construction sector has been experiencing weak activity, particularly in the residential construction segment, which has been harmed by low household confidence and supply problems. With an excessive number of competitors in the market, competition has been strong, putting pressure on businesses' margins. Since the end of 2017, the situation has deteriorated as a result of rising interest rates and resources prices. Due to the large level of debt in the construction industry, many enterprises have required to provide substantial collateral when borrowing. Even larger groups that previously faced no liquidity troubles have been now confronted with funding difficulties (Atradius, 2018).

In general, public banks have vital functions in Turkey. Public banks take part in infrastructural projects to provide financial help, support public policy objectives during turbulent times public banks have been utilized for a variety of objectives. During the Covid-19 pandemic, public banks provide affordable credit to individuals and small and medium-sized businesses. These cheap consumer credits to household and SMEs constitutes a pressure on public banks' profit.

Chapter 4

Economic Growth

4.1 Definition of Economic Growth

Economic growth – or simply "growth" – is frequently used to refer to GDP growth. The gross domestic product, or GDP, of a country is the total value of goods and services produced over a specific time period (Bank of England, 2020). It can be measured by nominal or real terms. Calculating real GDP means taking into consideration the inflation and adjusted according to inflation. Growth is often expressed in real terms to account for inflation's distorting influence on the pricing of products produced.

Growth is frequently modeled in economics as a function of physical capital, human capital, labor force and technology. Increasing the size or quality of the working age population, the tools accessible to them, and the recipes open to them for combining labor, capital, and raw materials all result in higher economic production (Investopedia, 2021).

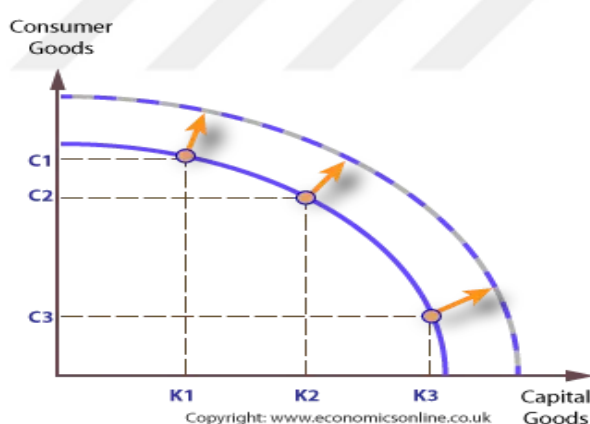


Figure 141. Consumer and Capital Goods (Economics Online, 2020)

The basic way to demonstrate economic development is to categorize all products into two broad categories: consumer and capital goods. A production possibilities frontier (PPF) that moves outward indicates that an economy's potential to create has expanded. Growth is defined as a rise in potential output with time, as indicated by an outward shift in the curve when employing a PPF. A PPF that moves outward indicates that an economy's potential to generate all products has risen.

Economic growth can be achieved through a variety of ways. The first way of increasing economic growth is the increasing the physical capital goods in the sense that increased capital in the economy tends to boost labor productivity. Firms acquire capital goods and utilize them to manufacture the commodities and services that they will sell. Unlike consumer products, capital items do not generate money immediately. Physical capital may boost productivity in two ways: (1) by increasing the amount of physical capital (for example, by purchasing additional computers); and (2) by improving the quality of physical capital such as same number of computers but the computers are powerful, faster etc (BC Campus, 2016). Newer, better, and more tools enable workers to create greater output in the same amount of time.

Capital goods are acquired by societies via the accumulation of wealth that may be invested in the means of production. Within a specified time, they are used to manufacture further commodities or services. Capital goods include machinery, buildings and other types of equipment used in the manufacture of other items for sale. Individuals, companies, or governments can be the owners of capital goods. Any material utilized in the manufacture of capital goods is likewise a capital good. Especially machinery and equipment are vital sources of economic growth and capital goods are used for the process of producing other goods. Capital goods innovations frequently skyrocket corporate expansion and can result in the creation of new manufacturing employment.

The second way of increasing economic growth is human capital. Human capital influences on economic growth and may help an economy developing by improving its citizens' knowledge and abilities. Human capital means the skills, abilities, expertise, and knowledge of workers in increasing the economic value. The increase of human capital is possible by focusing on education of workers with the help of governments, organizations, and society as a general. Human capital is defined as a particular type of asset that is dependent on labor productivity and generates revenue in the form of wages or rent: a stock of health, knowledge, talents, and motivations that contribute to growth (Nureyev, 2007). Human capital helps economic growth in two ways. Firstly, increased human capital enables the absorption of advanced technology from leading countries. This channel is anticipated to be particularly essential for secondary and higher education. Secondly, human capital is more difficult to adapt to changes than physical capital. Thus, a country with high ratio of human to

physical capital (for example, following a war that mostly destroys physical capital) tends to grow larger by increasing the quantity of physical capital (Barro, 2001).

The third way of increasing economic growth is labor force. Labor force participation is essential in producing goods and services in the sense that people contribute labor to companies in return for pay and they change their leisure time to paid working time to acquire goods and services. Businesses, in turn, employ this labor to create the goods and services that customers desire. A critical feature of the labor market is the contribution of individuals' distinctive talents and abilities. These abilities may be developed and increased via education or training, transforming the labor force into an ever-changing pool of talent from which firms employ. Education and other human capital are essential for economic growth and establishing a strong position in marketplaces for products and services (Becker, 1992). Effectively using abilities and educating employees to match changing market needs contributes to the efficiency of the manufacturing process.

Lastly, technology is also essential in economic growth. Technological development enables more efficient production of more and better goods and services, which is necessary for prosperity. Technology covers a large collection of knowledge and technologies that facilitate the efficient and progressive use of economic resources to generate goods and services. Technological advancement is critical for economic growth and development and the more sophisticated the accessible technology, the faster the local and global economies may improve. The advancement of technology enables to save time in processes while producing a good or service which means to produce more efficiently. Technology also becomes a vital tool to connect with internationally and it is essential to do international trade with overseas countries. Industrial machine technology's primary objective is to increase productivity. Its purpose is production continuity, and its approach is autonomy via regulated, well-disciplined power. Industrial culture, because of industrial technology's conceptualization, expects a high degree of rationality in the application of the rules and laws governing the conversion of physical and social resources into multiple uses via mechanical standardization and quantity production (Ball, 1957).

4.2 Theories of Economic Growth

Economic growth is one of the most important indicators of increase in the level of economic and social welfare of a country. Different economic growth theories have

been affected by the social and economic characteristics of the living period, state's intervention in economy and the main causes of economic growth. I will briefly mention the main economic growth theories which are,

- Classical Growth Theory
- Marxist Economic Growth Theory
- Schumpeter Economic Growth Theory
- Keynesian Economic Growth Theory
- Neo-Classical Economic Growth Theory
- Endogenous Economic Growth Theory



4.2.1 Classical growth theory. Classical growth theory is important in the sense that it is the first systematical growth theory. The theory was mainly developed by Adam Smith, Thomas Malthus and David Ricardo. Adam Smith published his book “An Inquiry into The Nature and Causes of The Wealth of Nations” in 1776, he was leading figure in classical growth theory, and he was affected with the economic and social conditions at the start of the Industrial Revolution. Adam Smith (ed. Soares, 2007) states that governmental rules are ill-founded and counterproductive. In this period, the common belief was that gold and silver represented wealth and that governments shall increase exports and decrease imports to maximize their metal wealth. Conversely, Adam Smith (ed. Soares, 2007) states that the measure of nation’s wealth is the total goods and services that is produced, and the nation’s production capacity should be liberated from government intervention. This productive capability and economic growth are based on the division of labor, specialization, and the capital accumulation that it enables. Significant efficiency may be obtained by segmenting production into several little activities, each of which is performed by an expert. This results in a surplus of labor-saving machinery that producers may trade with others or use to invest in new, even more efficient labor-saving technology. He gives the example of pin factory and says if each work can be divided into different many parts, a pin-maker will have a proportionable increase of the productive powers of labor (ed. Soares, 2007). This significant increase in the amount of work that the same number of people can perform as a result of the division of labor is due to three distinct circumstances: first, the increase in dexterity of each individual worker; second, the time savings associated with transitioning from one type of work to another; and third, the invention of a large number of machines that facilitate and abridge labor, enabling one man to perform multiple tasks.

The more money invested in improving production, the more additional wealth will be produced. However, if individuals are to accumulate money, they must be satisfied that it will be protected against theft. Wealthy countries are those which increase their capital, manage it wisely, and safeguard it. When there is free trade and competition, the system will work automatically which means where items are rare, people are ready to pay higher for them: there is more money to be gained from supplying them, and producers devote more money to do so. Where there is an excess and profitability are insufficient, manufacturers transfer their capital and operations. According to Smith, “the invisible hand” will automatically adjust this system.

Another classical growth theory was developed by Thomas Malthus in his books of "An Inquiry into the Nature and Progress of Rent" and "Principles of Political Economy". Malthusian economic model has mainly depended on the population and economic growth. Malthus states that the human population increases geometrically, while food production increases arithmetically. Firstly, there is a positive influence of the quality of living on population increase, either because of the biological effect of consumption on birth and mortality rates, or as a result of potential parents' behavioral response to their economic circumstances. Secondly, because some fixed resource, such as land, exists, there is negative feedback between population number and level of life (Weil and Wilde, 2009). A long-run equilibrium characterized by low and non-growing income per capita, as well as high mortality and fertility, is referred to as a Malthusian trap. Malthus assumed that if food consumption per person exceeds subsistence, fertility will increase until food consumption returns to subsistence levels. As a result, the economy is trapped at the subsistence level of equilibrium (Steinmann, Prskawetz and Feichtinger, 1998).

David Ricardo was another classical economist who shared his main ideas in his book of "The Principles of Political Economy and Taxation". Ricardo emphasized that land as a significant input had declining benefits due to its fixed supply of land. This feature of land results in an increase in land rents and an increase in the cost of living for workers; hence, an increase in the cost of farm production results in a decline in capitalist profits, which undermines capital accumulation. As a result, Ricardo asserted (at first) that this decline may be halted by technological advancements in equipment (although at the expense of falling productivity) and the specialization brought about by trade, but he also believed in stationary states. On the other hand, Ricardo later asserted that equipment may really displace labor and that the labor "set free" may not be reabsorbed, because of the putting downward pressure on wages and lowering labor income. To absorb the additional labor without this impact, the rate of capital growth must be raised. However, there is no clear mechanism for this to occur, especially given the trend for earnings and hence savings to drop over time (Uçak, 2013)

Economic expansion necessitates the acquisition of new machinery to increase output. Additional personnel are required, which results in wage increases due to competition. This results in an increase in population and an increased need for food. Assuming that the finest land has already been used in a mature economy, land that is becoming less productive must be brought into cultivation, with each additional acre

producing less than the prior one. As more and more inferior land was developed, the expense of food and hence its price would grow. However, the food cultivated on the improved land would cost more than previously and this will increase the return to the land rent owners (Zweig, 1979).

Profits are pushed upward by capital accumulation in the Ricardian growth model, while they are pushed downward by the law of diminishing returns. Because of the pressure of diminishing returns eventually outweighs capital accumulation, earnings and the rate of profit tend to zero in the long term.

Ricardo forecasts that capital accumulation and expansion will come to a halt when the wide margin is forced out to the point where the marginal land return equals the conventional wage. At this moment, the profit rate and total profits are zero, implying that capital growth has ceased, and the whole surplus is converted to rent. This is referred to as the stationary state. In this stage, most of a huge population lives on the edge of substance, stressing the limited resources, while a small rich class of landowners appropriates the social surplus product (Uçak, 2013).

4.2.2 Marxist economic growth. Karl Marx is an important figure in economic growth theory in the sense that he openly criticizes classical growth theory and his ideas become a school of economic thought. He mainly mentions his ideas in his books of “Das Kapital”.

Marxist economic theory refers to an integrated understanding of the economics, society, and politics. These three areas aren't regarded as separate entities, but they are interconnected with each other. Marxist theory rejects exploitation of labor within the capitalist economic system and capital and labor represents two opposed classes. Capital can be defined as the ownership of the means of production, but labor means free wage workers to sell their labor freely. For Marxist theory, labor is the sole source of value in production. The labor theory of value is defined as that the exchange value of a commodity is determined by the quantity of socially necessary labor contained in it (Marx, 1890). This means that a commodity's value was defined and could be objectively quantified by the average number of labor hours required to create it. According to the labor theory of value, the quantity of labor required to produce an economic good determines its worth. Assume that five hours of effort are required each day to feed, clothe, and protect a worker to be fit for work the next morning. If

one labor hour was worth one dollar, the appropriate daily salary would be five dollars (Prychitko, 1993).

Marx expresses the term of “surplus of value” which emerges because of the labor-power chooses itself or is compelled to choose to work for a much longer time to produce goods of larger value than are necessary for its sustenance and reproduction at the common living standard in any society. The critical issue is that one must either push oneself or be compelled by others to work longer hours to generate more value than is required to survive at the older level (Daya, 1954). According to Marx, surplus value is generated exclusively through labor power but is expropriated entirely by the capitalist since he has acquired all the worker's labor power and the surplus value he generates. As capital accumulates because of the generation of surplus value in production, capitalists competing with one another would often reinvest a greater portion of that surplus value in constant capital such as equipment than in variable capital which means capital represented by labor. As capital accumulates, the ratio of constant to variable capital increases. The overall value of variable capital may continue to increase, but not in proportion to total constant capital; as a result, the relative value of variable decrease, and the quantity of surplus value will decrease as well (Munro, 2008). Because of the falling rate of the profit, capitalists will increase the exploitation of labor which will decrease the wages to increase surplus value. Both unemployment generated by technical advancements, such as machines performing labor, and population increase encouraged by economic expansion would create a 'reserve army of the unemployed', allowing capitalists to continue depressing wages to the point of poverty of the working classes. This suppression of working class will lead to a revolution.

4.2.3 Schumpeter economic growth theory. Schumpeter's economic growth mainly based on three key ideas which are long-run development is driven by innovation, innovations are driven from entrepreneurial investments that are themselves motivated by the possibilities of monopoly rents; and new innovations substitute old technologies. Growth includes creative destruction (Aghion, Akçigit and Howitt, 2015).

For Schumpeter economic growth process can be summarized under 4 features which are circular flow, the role of entrepreneur, cyclical process or business cycle and end of capitalism. Schumpeter's starting point for the "circular flow" is a stationary

equilibrium in which no investment occurs, population growth ceases, and full employment exists. However, there are countless possibilities in business that entrepreneurs seize, and innovations are implemented. Schumpeter's theory of development is a core part of a dynamic process that is characterized by new resource combinations, innovations, or technical developments. When economic innovations or changes occur, the stationary equilibrium or circular flow is shattered, and the development process begins. To keep it dynamic and compatible with progress, these changes can be brought by innovations (Langroodi, 2017).

The role of the entrepreneur is to become aware of possibilities of innovation, look for the new ways of things and search for new combinations of factors of production. When an innovation is discovered, profits occur for the entrepreneur but because of the competitive environment, other entrepreneurs will follow, and the innovation becomes very common. According to Schumpeter, in competitive equilibrium, the price of each product equals its cost of manufacture, meaning that no profit is made (Langroodi, 2017).

Competition for scarce means of production results in an increase in the price of investment products during a boom, decreasing profit expectations for more investment. The fall in pricing that occurs because of new items entering the market because of improved productive capacities, so guaranteeing that a depression is inevitable. The entrepreneurs then spend their profits to repay their loans, resulting in credit deflation exactly during the period when the additional goods necessary to reduce inflationary pressure as a result of the "abnormal" credit boom (Legrand, 2007). The fall of investment and the rise of unemployment results in a reduction in aggregate demand. Profits also diminish and eventually cease to exist, while uncertainty and risk rise. A storm of pessimism spreads over the whole economy, bringing the boom to an end and welcoming in a period of recession. Schumpeter is certain that a lengthy wave of booms and depression exists. Once the rise begins, the economic power of recovery kicks in and brings about a rebirth; economies rebalance, and a new boom period begins.

Schumpeter states that capitalism fosters an increase in rationalism, which will eventually destroy capitalist civilization, the entrepreneurial function erodes, the protective strata of capitalism are eroding, and private property is weakening. Contract freedom is disappearing, and the traditional sense of family is eroding. Intellectuals are stirring up hostility to capitalism (Swedberg and Schumpeter, 1992).

4.2.4 Keynesian economic growth theory. Keynes is an important economic figure in the sense that he believes that free markets lack self-balancing mechanisms that would result in full employment. Keynesian economists support government involvement by promoting full employment and price stability through public policies. In his book of “General Theory”, he states that real aggregate savings and real consumption are entirely dependent on real aggregate income (Tarascio, 1971). Keynes emphasizes the importance of aggregate demand which means a measure of an economy's overall demand for all completed goods and services. The aggregate demand for goods and services is stated as the total amount of money exchanged at a certain price level and moment in time. He believes that inadequate aggregate demand may result in extended periods of high unemployment. The total of four components determines an economy's output of goods and services: consumption, investment, government purchases, and net exports (the difference between import and export from foreign country). To increase the demand, one of these four components should increase. However, during a recession, significant factors frequently decrease demand as consumer spending declines (IMF, 2014).

Keynesians states that prices and, particularly, wages adjust slowly to changes in supply and demand, resulting in labor shortages and surpluses. Changes in aggregate demand, whether anticipated or unanticipated, have the largest impact on actual output and employment in the long run, not on prices. Keynesians think that because prices are mostly stable, changes in any component of spending—consumption, investment, or government spending—cause output to change. If government expenditure grows while all other components of expenditures stay constant, output increases. Keynesian economic models contain a multiplier effect; that is, output changes by a factor of the increase or decrease in spending that generated the change. If the fiscal multiplier is higher than one, a one-dollar increase in government expenditure results in a greater-than-one-dollar increase in output (Blinker, 1993). The expenditure multiplier is used because one person's spending generates another person's income, which results in further spending and income, and so on, with a combined effect on GDP that is greater than the initial rise in spending.

Other Keynesian economists that talk about economic growth are Harrod and Domar and their economic growth is called a Harrod-Domar economic growth model. The Harrod–Domar model of economic growth is an early post-Keynesian model. It is used in development economics to describe the growth rate of an economy in terms

of saving and capital productivity. It implies that there is no natural cause for an economy to operate in a balanced manner. The model focuses on the level of national saving and the productivity of capital investment. If a country has a high level of saving, it gives capital for companies to borrow and invest. Investment can help an economy develop its capital stock and produce economic growth by increasing the output of products and services. The capital output ratio measures the productivity of capital investment. If the capital output ratio falls, the economy becomes more productive, generating more output from fewer inputs.

In the long-term, long-term full employment needs the fulfillment of two key requirements. The economy must annually invest in full employment savings. For instance, if saving accounts for 10 percent of full employment national income and investment falls short of this, effective demand is inevitably inadequate to achieve full employment. Additionally, to maintain continuous full employment, production growth must match the growth of the physical labor force plus the rate of rise in labor productivity.

If saving accounts for 50 percent of full employment national income and investment falls short of this, effective demand is inevitably inadequate to achieve full employment. Second, to maintain continuous full employment, production growth must match the growth of the physical labor force plus the rate of rise in labor productivity. If each year there are 10 percent more employees, and each generates 5 percent more output, then continual full employment needs production to rise 15 percent each year (Eltis, 1987).

According to Harrod-Domar economic growth model, there are 3 types of growth which are warranted growth, actual growth, and natural growth. Warranted growth rate means the rate of growth at which the economy does not continue to expand indefinitely or enter recession. Actual growth rate means the real rate growth increase in the country's real GDP. Natural growth rate means growth that economy required to maintain full employment (Singh, 2016).

4.2.5 Neo-classical economic growth theory. Neoclassical theory is unique in that it asserts that economic outcomes are determined by inherent human nature. Human beings, according to this view, are born with the reasoning and creative talents necessary to generate the highest amount of wealth in a society. Neoclassical economic theory defines an individual's well-being in terms of the goods and services consumed:

maximum consumption equals maximum well-being (Wolf and Resnick, 2012). Following that, aggregate social phenomena are described in terms of individual acts and their interrelationships. Each observable social outcome is viewed as the natural result of an individual decision. People aim to maximum pleasure within their means, while businesses aim to maximize their profits. It can be said that people's aim is utility maximization and firms' aim is profit maximization. The aggregate demand of all individuals constitutes aggregate demand. The supply of all firms for profit maximization constitutes aggregate supply. The equilibrium consists of where supply equals demand or vice versa and this determines the price mechanism. While microeconomics is primarily concerned with the behavior of households and businesses on various markets and types of markets, macroeconomics is concerned with economic aggregates such as the total GDP, the unemployment rate, and the rate of inflation, as well as the connection of markets. Microeconomic principles are increasingly being used in macroeconomic analysis of major economic aggregates. The final causal determinants of supply-and-demand behavior, and consequently of price, are thought to be desires and abilities. Individual desires and productive capacities are the primary drivers of all other economic events, such as demand, supply, and pricing. Capitalist societies are those that build and defend two critical institutions. The first is private property: each citizen is free to possess, acquire, and sell his or her natural resources and manufactured commodities. The second is a system of completely competitive markets in which no person has the authority to set prices and all buyers and sellers accept market pricing as information upon which to make their judgments (Wolf and Resnick, 2012).

Consumers have an opinion about the perceived worth of a product or service. Neo-classics state that consumers evaluate their impressions of a product or service. In short, a consumer's impression of a product is greater than its real worth. Furthermore, they claim that the price of a product is defined by its "perceived value" instead of by its "cost of production".

The law of diminishing marginal utility states that when consumers use more units of a product or service, the utility they obtain by each item decreases. Total utility is the sum of all the advantages a consumer obtains from consuming a product or service. The difference in total enjoyment experienced as a result of increasing one's use of a product is referred to as marginal utility. For instance, if a person is too thirsty,

he will get more marginal utility when he first drinks a bottle of water, the marginal utility of the second bottle of water will be lower than first one.

Neoclassical economic growth is developed by Robert Solow and three economic factors play a role to produce a constant rate of economic growth: labor, capital, and technology. He attempts to account for long-run economic growth by examining capital accumulation, labor or population expansion, and advances in productivity driven mostly by technical innovation. However, the model also implies that marginal returns to capital accumulation are falling. In other words, more capital results in progressively smaller gains in production. According to the Solow model, saving and population increase influence production per worker through their effect on capital per worker. The consequence is that a country that saves a greater proportion of its production has more capital and output per worker. Additionally, a country experiencing rapid population expansion has less capital and production per worker, as savings must be depleted to maintain the capital-labor ratio (Polimeni J.M. and Polimeni R. I and Trees, 2007).

The diminishing return of capital causes the steady state equilibrium, the growth of per capita income comes to an end in the long run. It is possible to increase growth by increasing saving rate, but the rate of savings also has a maximum limit. Technological progress is a way of getting continuous economic growth. Additionally, Solow states that poor countries expand at a higher rate than rich ones, and there is a chance of convergence between rich and poor countries throughout time.

4.2.6 Endogenous economic growth theory. The endogenous growth theory suggests that economic growth occurs because of internal economic forces rather than external ones. The theory is founded on the notion that advances in innovation, knowledge, and human capital result in higher productivity. They consider technology and knowledge as economic products to better understand the factors of long-term growth through learning by doing or investment in human capital and new technologies (Mayer, 1958).

Sustaining economic growth even if it is narrowly defined as sustained growth in per capita income is a constant process of transformation that always occurs everywhere and at all times. Economic development enjoyed by wealthy nations since the Industrial Revolution would not have been achievable without severe transformations. Economies that stop transforming themselves are destined to go off

the growth path. The countries most deserving of the label "developing" are not the poorest, but the wealthiest (Howitt, 2009).

4.3 History of Economic Growth In Turkey

The nineteenth century of Ottoman Empire faced with many problems in the sense that there were political, economic, and institutional problems within the empire. Europe's growing military and economic strength, the growth of Balkan independence movements, and the challenges to the central administration from regional notables had brought the empire to the edge of collapse. Some reforms were made by the central government to ensure the political, economic, and military support of European powers such as all Ottoman subjects, Muslim and non-Muslim, were promised the same fundamental rights and equality before the law under the reforms. Along with constructing a new army, the central government worked to modernize the bureaucracy, establish a new educational system, and overhaul the judicial system and tax collecting. All of these reforms aimed to improve the empire's life and death situation, but these reforms didn't become successful and the Ottoman Empire collapsed after World War 1.

The Republic of Turkey was created in 1923, following the Ottoman Empire's final collapse in the late 1910s. Although the newly established state claimed an empire's historical legacy, its authorities quickly accepted Western methods and institutions throughout the early stages of governmental reconstruction. The first fifteen years of the new republican rule, led by founder M. Kemal Atatürk, were marked by profound social and cultural transformations, most notably the adoption of secular principles in the country's political life (Celasun and Rodrik, 1989). Formal institutional reforms were brought by within primarily by its own governments and elites. Turkey's institutions during the last two centuries have been formed by the interactions of these new institutions with pre-existing ones, particularly Ottoman institutions of the previous era.

The Republic's initial strategy in the 1920s was to rely on private initiative and avoid taxing the peasantry to finance industrial growth. The 1924 constitution established private property and free enterprise as the state's fundamental principles. Atatürk emphasized the importance of economic independence and the importance of an industrial base in establishing national sovereignty. However, the domestic private

sector was incapable of undertaking such a large-scale resource mobilization. It was financially insufficient, too closely aligned with the commercial rather than industrial sector, and too focused on short-term profit to act as a catalyst for structural transformation. The Great Depression of 1929 and the expiration of the Lausanne Treaty's restrictions altered the government's early liberal economic approach. Turkey's primary source of foreign exchange has collapsed due to the sharp decline in the price of agricultural commodities. The Great Depression came to be viewed as proof of the laissez-faire system's failure, a failure from which the USSR escaped due to state controls. Thus, the government began to take direct responsibility for economic development, primarily for pragmatic reasons. Along with its regulatory role, the state began producing goods. This was the beginning of the establishment of statism. Turkey's first five-year plan, drawn up in 1933, reflected the statist approach. The plan called for the establishment of several state-owned economic enterprises in industries such as iron and steel, textiles, paper, ceramics, and glass, as well as chemical products. To finance public enterprises, two state-owned banks (Sumerbank and Etibank) were established. Both banks quickly evolved into holding companies with significant stakes in public enterprises (Bayar, 1961).

Following World War II, Turkey's formal economic and political institutions underwent significant changes. After World War II, the transition to a multiparty parliamentary system and competitive elections enabled not only large landowners, merchants, and industrialists to voice their opinions, but also many small and medium-sized agricultural producers. Turkey's formal economic institutions were formed by the interaction of the Bretton Woods system's institutions at the global level and the shift toward a private-sector-led economy that occurred parallelly with the country's transition to a multiparty political system. As was the case with the most developing countries at the time, its domestic market remained largely unaffected by international competition. While the public sector remained critical to industrialization, the large conglomerates of the Istanbul region started seizing control of the urban economy (Pamuk, 2019).

In 1960s, the development strategy shifted to the import substitution model and annual and five-year plans were developed by State Planning Organization to follow. The style and performance of development policy improved dramatically. State enterprises played an important role in industrialization in a different form than 1930's but import substitution model did not achieve the transformation to the production of

more technologically required capital goods. With the rise of oil prices and political turmoil of leftist and rightist groups affected Turkish economy negatively.

In 1980s, Turkish economy transformed radically and turned into a more open system. The reform began with a devaluation of the Turkish lira and a commitment to a flexible exchange rate policy. The second aspect was export promotion via tax relief, export credits, and other subsidies. The third aspect of the trade reform was liberalization of imports. At the end of 1983, the import regime was drastically transformed when it was announced that any item not specifically prohibited or subject to licensing could be imported freely.

In the 1990s, public sector deficits continued to grow as because of programs targeted at various segments of the electorate, low-cost credit to small businesses, a lower retirement age and more generous retirement benefits, and, most importantly, high support prices for agricultural producers. Domestic and external borrowing were the primary sources of funding for the growing deficits. High interest rates and a pegged exchange rate regime drew significant inflows of short-term capital. Private banks rushed to obtain foreign financing to lend to the government. Additionally, governments directed large public sector banks to finance a portion of these expenditures. Finally, but certainly not least, monetary expansion was a regular source of fiscal revenue. As a result, there was a period of extremely high inflation, which peaked at more than 100% in 1994 and remained above 50% per year through 2001, extremely high nominal and real interest rates, steady growth in public debt, and increasing vulnerability to external shocks, which resulted in crises in 1991, 1994, 1998, and 2000-1, the latter of which was the most severe (Pamuk, 2007).

As Acemoğlu and Üçer states the 2001 crisis pressured Turkey's conservative political system to accept a series of radical structural reforms imposed by the International Monetary Fund (IMF) and the World Bank, which not only brought persistently high inflation under control but also imposed fiscal discipline, shifted decision-making and regulatory authority to autonomous agencies in an effort to foster rule-based policymaking and introduced transparency. Economic growth began to slow significantly around 2007 as government spending became the primary driver of the economy and productivity growth almost completely stagnated. The change was almost certainly triggered by the reversal of the productivity-enhancing structural changes that had played a critical role over the preceding five years (Acemoğlu and Üçer, 2015).

4.3.1 Some Economic Indicators for Economic Growth

4.3.1.1 Turkey's GDP growth. As figure 15 illustrates Turkey's GDP growth between 1960-2020. Especially after 2001, GDP of Turkey accelerated until the years of 2013, later the total number of GDP started to decline until 2020. Turkey faced a serious economic crisis in 2000-2001 and Turkish economy was troubled by significant current account and trade deficits, high inflation and interest rates that hurt real sector investments, goods and services production declined, increasing unemployment, Turkey's foreign debt increased and the cost of borrowing domestically increased, the Turkish currency, the Lira, was devalued by 50%, and the Turkish economy's growth rate slowed significantly (Temiz, 2009).

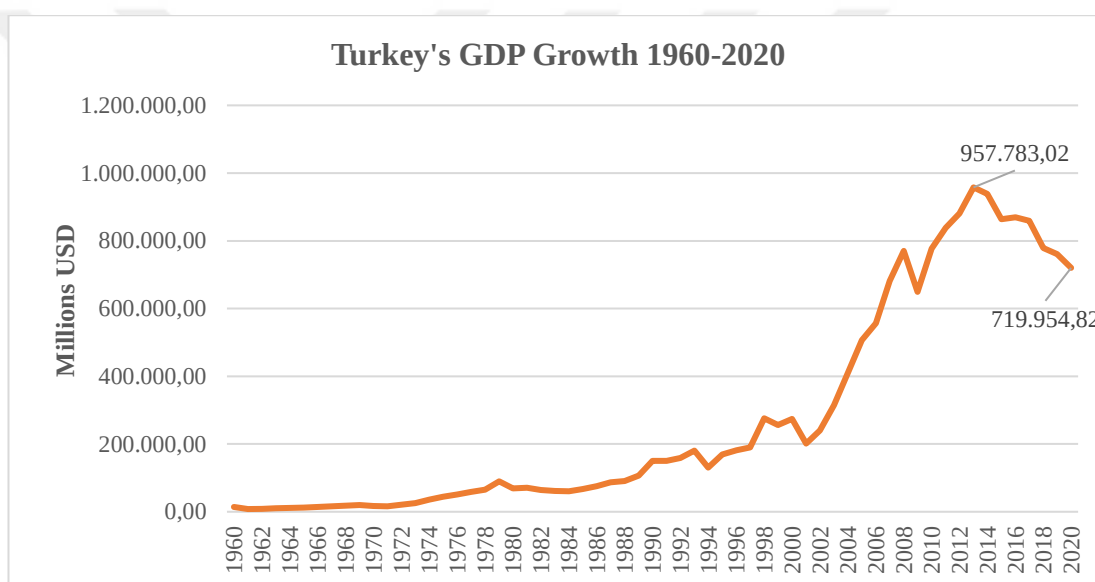


Figure 15.2 Turkey's GDP Growth 1960-2020 (World Bank Data, 2021)

4.3.1.2. Turkey's foreign trade volume. The volume of Turkish foreign trade can be seen in Table 4.

Table 4

The Volume of Turkish Foreign Trade

Years	Exports (Thousand US Dollar)	Import (Thousand Dollar)	Volume Of Foreign Trade (Thousand US Dollar)	Balance Of Foreign Trade (Thousand US Dollar)	Proportion of Imports Covered by Exports (%)
2013	161.480.914,70	260.822.803,00	422.303.717,70	-99.341.888,30	61,9
2014	166.504.861,80	251.142.429,21	417.647.291,00	-84.637.567,41	66,3
2015	150.982.113,77	213.619.211,46	364.601.325,22	-62.637.097,69	70,7
2016	149.246.999,26	202.189.241,86	351.436.241,12	-52.942.242,60	73,8
2017	164.494.619,32	238.715.127,91	403.209.747,23	-74.220.508,60	68,9
2018	177.168.756,29	231.152.482,65	408.321.238,93	-53.983.726,36	76,6
2019	180.832.721,70	210.345.202,55	391.177.924,25	-29.512.480,85	86
2020	169.637.755,31	219.516.806,84	389.154.562,15	-49.879.051,53	77,3
2021	225.291.385,40	271.424.473,44	496.715.858,85	-46.133.088,04	83

The volume of Turkish foreign trade has changed from 2013 to 2021 but it is always the same that balance of foreign trade become negative for Turkey and for 2021, it becomes -46,13 billion dollars. Balance of foreign trade shows the difference between exports and imports. Additionally, the proportion of imports covered by exports also has changed from 61,9% to 83%. It is important in the sense that it shows a country's ability to cover its imports with exports and the potential to create surplus value.

4.3.1.3 Inflation data for Turkey. Inflation is the gradual deterioration of a currency's purchasing power over time. A quantitative estimate of the rate of decline in purchasing power can be found in the increase in an economy's average price level for a basket of selected goods and services over time.

Table 5

The Annual Rate of Change in Consumer Price Index

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Annual rate of change (%)												
2005	9,23	8,69	7,94	8,18	8,70	8,95	7,82	7,91	7,99	7,52	7,61	7,72
2006	7,93	8,15	8,16	8,83	9,86	10,12	11,69	10,26	10,55	9,98	9,86	9,65
2007	9,93	10,16	10,86	10,72	9,23	8,60	6,90	7,39	7,12	7,70	8,40	8,39
2008	8,17	9,10	9,15	9,66	10,74	10,61	12,06	11,77	11,13	11,99	10,76	10,06
2009	9,50	7,73	7,89	6,13	5,24	5,73	5,39	5,33	5,27	5,08	5,53	6,53
2010	8,19	10,13	9,56	10,19	9,10	8,37	7,58	8,33	9,24	8,62	7,29	6,40
2011	4,90	4,16	3,99	4,26	7,17	6,24	6,31	6,65	6,15	7,66	9,48	10,45
2012	10,61	10,43	10,43	11,14	8,28	8,87	9,07	8,88	9,19	7,80	6,37	6,16

2013	7,31	7,03	7,29	6,13	6,51	8,30	8,88	8,17	7,88	7,71	7,32	7,40
2014	7,75	7,89	8,39	9,38	9,66	9,16	9,32	9,54	8,86	8,96	9,15	8,17
2015	7,24	7,55	7,61	7,91	8,09	7,20	6,81	7,14	7,95	7,58	8,10	8,81
2016	9,58	8,78	7,46	6,57	6,58	7,64	8,79	8,05	7,28	7,16	7,00	8,53
2017	9,22	10,13	11,29	11,87	11,72	10,90	9,79	10,68	11,20	11,90	12,98	11,92
2018	10,35	10,26	10,23	10,85	12,15	15,39	15,85	17,90	24,52	25,24	21,62	20,30
2019	20,35	19,67	19,71	19,50	18,71	15,72	16,65	15,01	9,26	8,55	10,56	11,84
2020	12,15	12,37	11,86	10,94	11,39	12,62	11,76	11,77	11,75	11,89	14,03	14,60
2021	14,97	15,61	16,19	17,14	16,59	17,53	18,95	19,25	19,58	19,89	21,31	36,08

Consumer price index (CPI) increased by 54.44% annually and 4.81% monthly. Turkish inflation has started to increase rapidly especially after 2021 December and inflation becomes a problem in the sense that it erodes the ability of people's purchasing power.

4.3.1.4 Employment data for Turkey. Employment has long been recognized as a necessary component of economic development, social inclusion, and well-being. In this context, employment statistics are critical for tracking progress toward a variety of national and international policy objectives. Employment statistics also provide meaningful information about the types of jobs performed by individuals.

Table 6

Change in Employment Ratios

Years		Labour force participation rate (%)	Employment rate (%)	Unemployment rate (%)
2017	Quarter I	51,6	45,0	12,7
	Quarter II	52,8	47,4	10,2
	Quarter III	53,4	47,8	10,5
	Quarter IV	52,7	47,2	10,3
2018	Quarter I	52,1	46,6	10,5
	Quarter II	53,2	48,1	9,7
	Quarter III	54,2	48,2	11,1
	Quarter IV	52,9	46,4	12,3
2019	Quarter I	52,4	44,7	14,7
	Quarter II	52,8	46,0	12,9
	Quarter III	53,8	46,2	14,1
	Quarter IV	52,4	45,5	13,3
2020	Quarter I	49,7	43,0	13,6
	Quarter II	47,5	41,4	12,8
	Quarter III	50,3	43,6	13,3

	Quarter IV	48,8	42,6	12,9
	Quarter I	50,0	43,3	13,5
2021	Quarter II	50,7	44,7	11,8
	Quarter III	52,6	46,4	11,7
	Quarter IV	52,3	46,5	11,0

In Turkey, people's labor force participation rate is 52,3%, employment participation rate is 46,5% and unemployment rate are 11%. The lowest level of unemployment was 11% and the highest level of unemployment is 14,7 between 2019-2021.

Table 7

Distribution of Employment According to Sectors

Years		Total(%)	Agriculture (%)	Industry(%)	Construction(%)	Services(%)
2017	Quarter I	100,0	19,7	19,1	7,4	53,9
	Quarter II	100,0	19,0	19,3	7,5	54,2
	Quarter III	100,0	19,0	19,3	7,7	54,0
	Quarter IV	100,0	19,2	19,2	7,5	54,1
2018	Quarter I	100,0	18,7	19,5	7,5	54,2
	Quarter II	100,0	18,5	19,6	7,2	54,6
	Quarter III	100,0	18,2	20,1	6,8	54,9
	Quarter IV	100,0	18,2	20,0	6,4	55,4
2019	Quarter I	100,0	18,3	19,3	6,0	56,4
	Quarter II	100,0	18,1	19,8	5,7	56,4
	Quarter III	100,0	18,2	19,9	5,4	56,5
	Quarter IV	100,0	18,1	20,5	5,3	56,1
2020	Quarter I	100,0	16,8	20,5	5,5	57,2
	Quarter II	100,0	18,4	20,6	5,5	55,5
	Quarter III	100,0	18,1	20,3	6,0	55,6
	Quarter IV	100,0	17,8	20,9	6,1	55,2
2021	Quarter I	100,0	17,6	21,3	6,1	55,0
	Quarter II	100,0	17,2	21,4	6,3	55,1
	Quarter III	100,0	17,1	21,3	6,1	55,5
	Quarter IV	100,0	16,9	21,6	6,1	55,5

As table 7 shows the distribution of employment according to sectors. The ratio of service sector has decreased from 56,4% to 55,5%. The ratio of industrial sector has increased from 19,3% to 21,6%. The agriculture sector has decreased from 18,3% to 16,9%. Moreover, the share of construction sector has increased from 6% to 6,1%.

4.4 The Sectoral Analysis of Economic Growth in Turkey

Each economy is made up of economic sectors. The term “economic structure” refers to the proportion of the economy that each sector occupies. Most commonly, it is reflected in the labor force share of each sector. Economic growth and income generation are ultimately determined by the competitiveness of individual enterprises. Competitiveness of these enterprises is also dependent upon the relative abundance and cost of resources, as well as the incentives and capabilities to utilize them productively and sustainably. While many determinants, such as macroeconomic stability and the corporate tax rate are shaped by the broader business environment, the relative intensity of factor use, the incentives to pursue opportunities, and the specific capabilities required to transform them into successful businesses vary by sector. As a result, countries vary significantly in terms of sectoral growth and performance (Lankauskiene and Tvaranoviciene, 2013).

Value added growth indicates an economy's ability to generate income and thus to improve material well-being. It is the most straightforward objective of economic activity although there are some constraints imposed by non-economic goals of a society, such as social justice or ecological sustainability. It is important to determine which value added helps to increase economic growth more.

Turkey's economic growth is also dependent on the productivity of several sectors. Turkey's integration into the world economy in the 1950s was based on agriculture. During these years, agriculture was the primary beneficiary of liberal economic policies. Until the 1960s, agriculture accounted for more than half of GDP. However, because of economic and financial difficulties such as high inflation and high external debt during those years, the 1960s and 1970s saw the rise of protectionist trade policies and an industrialization strategy based on import substitution. Thus, during those ten years, the industrial sector's share increased while the agricultural sector's share decreased. On the other hand, the service sector expanded concurrently with the industrial sector, which contradicts the 1960s' policies. The import-substituting industrialization strategy came to an end in the second half of the 1970s. Increased current account deficits and global oil shocks in 1973 and 1979 resulted in the emergence of neoliberal models in the 1980s, which were characterized by liberalization and export-oriented trade policies. As a result, industry's share of the economy increased slightly between 1970 and 1980. On the other hand, the services

sector continued to grow throughout the 1970s, eventually becoming the dominant sector in 1980 with a 49 percent share. Increased current account deficits and world oil shocks in 1973 and 1979 resulted in the emergence of neoliberal models after 1980, which were characterized by liberalization and export-oriented trade policies. Thus, after the 1980s, an emphasis on export-oriented sectors began to emerge in the economy (Özçelik, 2020).

Table 8

GDP Distribution by Sector

GDP Distribution by Sector (Percent of GDP)																	
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average
Agriculture, Forestry and Fishing	9,2	8,1	7,5	7,4	8,1	9,0	8,2	7,7	6,7	6,6	6,9	6,1	6,0	5,8	6,4	6,7	7,3
Financial and Insurance Activities	1,0	1,0	1,0	1,1	1,1	1,1	1,1	1,1	1,1	1,0	0,8	0,8	0,9	1,0	1,1	1,2	1,0
Manufacturing	16,9	17,1	16,8	16,3	15,2	15,1	16,4	15,8	16,3	16,8	16,7	16,6	17,6	19,0	18,3	19,1	16,9
Electricity, Gas, Steam and Air Conditioning Supply	1,1	1,1	1,2	1,3	1,4	1,5	1,3	1,3	1,4	1,4	1,3	1,3	1,2	1,3	1,7	1,8	1,3
Water Supply, Sewerage, Waste Management and Remediation Activities	0,7	0,7	0,7	0,7	0,8	0,8	0,9	1,0	0,9	1,0	0,9	0,9	1,0	0,9	0,8	0,7	0,8
Construction	5,5	6,3	6,7	6,8	5,6	6,1	7,1	7,4	8,0	8,1	8,1	8,5	8,5	7,1	5,4	5,2	6,9
Wholesale and Retail Trade; Repair Of Motor Vehicles and Motorcycles	12,3	12,5	12,3	12,2	10,7	11,1	11,7	11,3	11,2	11,5	11,5	11,4	11,9	12,3	12,5	12,4	11,8
Transport and Storage	9,9	9,9	9,8	9,9	9,1	8,1	7,7	8,4	8,2	8,2	8,2	7,9	8,1	8,4	8,6	7,9	8,6
Accommodation and Food Service Activities	2,1	2,1	2,1	2,0	2,3	2,3	2,6	2,7	2,7	2,9	2,8	2,6	2,7	3,1	3,4	2,1	2,5
Information and Communication	2,7	2,5	2,7	2,7	2,7	2,4	2,3	2,4	2,4	2,4	2,4	2,4	2,5	2,5	2,6	2,7	2,5
Financial and Insurance Activities	2,5	2,1	2,1	2,4	3,7	2,9	2,7	2,9	3,1	2,9	3,0	3,3	3,2	3,0	3,1	3,7	2,9
Real Estate Activities	8,5	8,8	9,5	9,7	10,4	9,9	8,9	8,6	8,2	8,0	7,7	7,7	7,1	6,7	6,5	6,3	8,3
Professional, Scientific and Technical Activities	1,6	1,7	1,9	2,0	2,2	2,2	2,1	2,1	2,1	2,2	2,4	2,3	2,4	2,3	2,3	2,3	2,1
Administrative and Support Service Activities	1,9	2,0	2,2	2,2	2,3	2,1	2,2	2,4	2,5	2,7	2,8	3,0	3,1	3,0	3,0	2,5	2,5
Public Administration and Defence; Compulsory Social Security	4,6	4,5	4,5	4,4	5,0	4,8	4,5	4,7	4,5	4,5	4,3	4,5	4,3	4,8	5,3	5,3	4,7
Education	3,1	3,2	3,4	3,4	3,9	3,9	3,8	3,9	3,9	4,1	4,1	4,3	4,1	4,1	4,4	4,1	3,9
Human Health and Social Work Activities	2,4	2,5	2,6	2,7	2,9	2,8	2,7	2,6	2,6	2,5	2,4	2,6	2,4	2,4	2,6	2,8	2,6
Arts, Entertainment and Recreation	0,3	0,4	0,6	0,7	0,9	0,8	0,8	0,8	0,9	1,0	0,9	0,9	0,9	0,9	1,1	1,3	0,8
Other Service Activities	1,1	1,1	1,1	1,1	1,0	1,0	1,1	1,0	1,0	1,0	0,9	1,0	1,0	0,9	1,0	0,8	1,0
Activities Of Household As Employers	0,0	0,0	0,0	0,0	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Sectoral Total	87,4	87,6	88,7	89,1	89,3	88,0	88,1	88,3	87,7	88,5	88,2	88,2	88,7	89,6	90,0	88,9	88,5
Taxes-Subsidies	12,6	12,4	11,3	10,9	10,7	12,0	11,9	11,7	12,3	11,5	11,8	11,8	11,3	10,4	10,0	11,1	11,5
Gross Domestic Product (Purchaser's Price)	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

As table 8 illustrates GDP distribution by sector from 2005 to 2020, 6 sectors have had a dominant position which has been manufacturing, wholesale and retail trade repair of motor vehicles and motorcycles, transport and storage, real estate activities and agriculture forestry and fishing and construction respectively.

Any country's competitiveness is inseparably linked to the performance of its manufacturing sector. The growth of the manufacturing sector contributes to economic growth in a variety of ways, including the creation of backward and forward linkages, the expansion of technology knowledge, and applicable job training. The

manufacturing sector's importance as a driver of economic growth relates with manufacturing sector productivity is higher than agricultural and service sector productivity, the productivity growth is historically higher than any other sector, sector specialization is higher than other sectors and it has more linkages with other sectors of the economy (Tunalı and Börü, 2019).

From 2005 to 2020, Turkey's manufacturing industry has had the largest GDP share which changes from 15,1% to 19%. The contribution of the manufacturing industry to GDP has been upper than average last four years. Manufacturing industry of Turkey mainly concentrated on the three big cities which are Istanbul, Ankara, and Izmir because of the closeness to main markets and export areas, closeness to main transportation areas while there has been a growing interest to the areas near to the metropolitan cities.

Wholesale and retail trade, repair of motor vehicles and motorcycles have had a similar percentage of GDP historically and the average that they have taken from total GDP has been 11,8%. Changes in Turkey's and the world's dynamics, population increase, urbanization, and other related factors have contributed to continue this trend. Population expansion and fast urbanization, higher household expenditures due to increased purchasing power and a younger population with a greater propensity to spend all present substantial prospects for retail industry growth. The Turkish retail industry, which ranks among Europe's top 10 in terms of consumer expenditures and among the top five in terms of food expenditures is anticipated to maintain its five-year turnover performance. Although Turkey remains among the economies seeking to promote retail industry development, its efforts are constrained by several concerns, such as increasingly difficult borrowing, credit card limits, liquidity issues in middle-income households (PwC Bağımsız Denetim ve Serbest Muhasebeci Mali Müşavirlik A.Ş, 2019).

Transport and storage of food and packaging materials are essential components of the food supply chain. Producers and manufacturers rely on a complex distribution network to guarantee that products reach their destination safely and in good condition. Transportation produces value added services and regulates supply between locations. It considerably improves marketing operations such as purchasing, storing, selling, and warehousing, etc. The whole economy and its growth are dependent on a well-integrated transportation infrastructure. Goods are retained and preserved during the storage process. There is typically a mismatch between the production and

consumption of products. This is the concern of the storing function. Storage guarantees a constant and unrestricted supply and flow of products on the market by making items available as and when they are required. In this way, it produces place utility by keeping and maintaining objects at various locations.

From 2005 to 2020, Turkey's transport and storage industry's average GDP share has been 8,6% which has been lower than average from 2010 to 2020 except the year of 2019. Turkey's logistics services have been greatly enhanced by public and private expenditures during the past decade. Numerous new airports have been constructed, and roadways have expanded across the nation. In addition, a growing high-speed train network has begun connecting key cities and the capacity of Turkish ports has risen. Turkey is also constructing 20 logistics centers which will reduce transportation costs by providing many routes of mobility inside the facilities. Turkey's geopolitical position is also important for transport and storage industry because the Turkey's superior geographical location, which gives easy access to Eastern Europe, North Africa, Central Asia, and the Middle East, enables the nation to serve as a regional freight hub. The logistics business in Turkey contributes for an average of 8.6 percent of the country's gross domestic product.

Agriculture is critical to Turkey's social and economic well-being. Agriculture is an important sector because it supplies raw materials to a variety of industries, food source to humans and animals and creates jobs. Economic crises, rapid population growth and increased growth in food products have boosted agriculture's importance and necessity. The contribution of the agriculture sector to GDP has been lower than average last eight years for Turkey. Turkey is one of the largest agricultural producers however as the country improves and urbanization increases, the economy's structure has shifted dramatically, with manufacturing and service sectors increasingly displacing agriculture as the primary drivers of economic growth. To stimulate investment in the industry, Turkey gives potential agricultural investors a variety of benefits. The Turkish government's support mechanisms include advantageous rules, a competent labor force and several investment incentives based on cheap banking credits or support interest payments of credits. Even though the agricultural sector's share of the Turkish economy is progressively dropping, Turkey is the seventh-largest agricultural economy in the world and agriculture is essential to rural development, employment, exports, and most of the industrial sector. Turkey is a regional hub for

the production, processing, and export of food to significant European and Middle Eastern markets (Giray, 2012)

Construction is a particularly vital sector of the Turkish economy. The Turkish construction sector was rather slow in 2021 due to major obstacles experienced by the industry in the second half of the year because of increasing construction material prices in the context of the country's currency crisis and the suspension of development projects. The construction industry in Turkey is anticipated to expand throughout the projection period, with continuing road and railway infrastructure projects, residential housing, office, and warehouse development as the primary drivers. The government's emphasis on strengthening the energy sector, particularly renewable energy, is also anticipated to contribute to the growth of the industry. The average share of is that construction has been 6,9%. In 2019 and 2020, there was a downward trend for construction sector. The construction industry in Turkey is anticipated to expand due to population increase, which is anticipated to stimulate residential building (Mordor Intelligence, 2022).

Chapter 5

Literature Review

5.1 Studies in Literature about Economic Growth and Financial Development

Numerous studies have been conducted in the literature to examine the relationship between bank loans and economic growth. When the studies are analyzed, the research results vary across studies conducted using a variety of different methods and analyses in a variety of different countries around the world. Several studies concluded that economic growth had a positive effect on bank loans and financial development, while others concluded that financial development and bank loans had a beneficial effect on economic growth. While some researchers concluded that a two-way interaction exists, others concluded that no causal relationship exists between them. When the literature is analyzed, the most consistent finding is that bank loans and financial development on a large-scale benefit economic growth.

King and Levine (1993) using data on 80 countries from 1960 to 1989 analyzes financial system promotes economic growth. They have founded numerous indicators of financial development are positively correlated with real per capita GDP growth, the rate of accumulation of physical capital, and improvements in the efficiency with which economies employ physical capital.

Jayarathne and Strahan (1996) using data from 50 USA states from 1972 to 1992 demonstrates that financial markets can have a direct effect on economic growth by examining the United States' easing of bank branch constraints by using panel data analysis.

Levine and Zervos (1998) using data from 47 countries from 1976 to 1993 by using panel data analysis demonstrates that stock market liquidity and banking development are combined in regressions, both positively affect growth, capital accumulation, and productivity improvements even after economic and political factors are controlled for.

Ghali (1999) using annual data for Tunisia from 1963 to 1993 by using Granger causality examines the causal relationship between finance and economic growth and it is consistent with the view that financial development can act as a source of growth in this country.

Güven (2002) using 3 months data for Turkey from 1987 to 2000 by using Granger causality, variance decomposition and regression analysis states that

economic growth in Turkey is a function of bank credits, implying that policies affecting the expansion or contraction of bank credits have a significant macroeconomic impact and there is a positive correlation between bank credit volume and growth.

Calderon and Lui (2003) using 109 developing and industrial countries from 1960 to 1994 by using Geweke decomposition states that financial development generally contributes to economic growth and the Granger causality from financial development to economic growth and the Granger causality from economic growth to financial development coexist.

Thangavelu and James (2004) using data for Australia from 1960 to 1999 examines the dynamic relationship between financial development and economic growth in Australia, focusing on the financial structure of banks and markets. To demonstrate the dynamic relationship, time series approach based on the VAR Model is used. The paper provides empirical evidence for the financial market's causal effect on the Australian economy's economic growth, but it is only one side effect and there is no evidence of a causal relationship between economic growth and financial markets.

Beck and Levine (2004) using data for 40 countries from 1976 to 1998 through a panel data set for the period and recent GMM techniques developed for dynamic panels states that bank loans have a positive effect on economic growth.

Dritsaki and Dritsaki-Bargiota (2005) using data for Greece from 1988 to 2002 through a trivariate autoregressive VAR model reveals that a bidirectional causal relationship between banking sector development and economic growth.

Hondroyannis, Lolos and Papapetrou (2005) using data for Greece from 1986 to 1999 by VAR models state that the empirical findings from VAR models suggest that there is a long-run bidirectional causal relationship between finance and growth.

Ghirway (2005) using data for 13 sub-Saharan African countries through a vector autoregression (VAR) framework that is based on cointegration and error-correction representation of cointegrated variables demonstrates the existence of a long-run relationship between financial development and economic growth in almost all the countries (12 out of 13). In terms of long-term causality, the findings indicate that financial development has a causal effect on economic growth in eight of the countries.

Aslan and Küçükaksoy (2006) using yearly data for Turkey from 1970 to 2004 through Granger Causality states that the supply-leading and demand-following hypotheses are critical in the relationship between financial development and economic growth. According to the supply-side hypothesis, financial development results in economic growth; however, the demand-side hypothesis maintains that the relationship runs in the opposite direction, from economic growth to financial development. Granger causality tests indicate that financial development results in economic growth, confirming the supply-leading hypothesis for Turkey.

Aslan and Korap (2006) using data for Turkey from 1987 to 2004 utilizing Johansen cointegration and Granger causality econometric techniques states that there is a long-run relationship between indicators of financial development and economic growth. The direction of causality between financial development and economic growth, on the other hand, varies according to the indicators of financial development.

Demir, Öztürk and Albeni (2006) using data for Turkey from 1995-2005 utilizing a vector autoregression states that in the long run, there is a one-way causality between financial markets and economic growth and funding through banks can increase economic growth.

Öztürkler and Çermikli (2007) using data for Turkey from 1990 to 2006 by VAR and Granger causality emphasizes that there is a two-way relationship between bank loans and industrial production.

Akpansung and Babalola (2011) using data for Nigeria from 1970 to 2008 by Granger causality states that there is a one-way causal positive relationship between GDP and private sector credit.

Lu and Shen (2012) using data for China from 2004 to 2006 by generalized method of moments states foreign bank lending has a strong and positive correlation with economic growth in Chinese cities.

Korkmaz (2015) using data from 2006 to 2012 by panel data analysis states that domestic credits created by banking sector for 10 European countries affect economic growth.

Hayaloglu (2015) using data fragile five countries (India, Indonesia, Brazil, South Africa, Turkey) from 1990 to 2012 by dynamic panel data analysis states that the study's findings indicate that there is a positive relationship between financial development and economic growth.

Baş and Kara (2018) using data for Turkey from 2008 to 2018 utilizing unrestricted error correction model (UECM) and Auto Regressive Distributed Lag (ARDL) states that based on the analysis's findings, it is concluded that banking sector credit has a long- and short-term effect on economic growth.

Apaydın (2018) using data for Turkey from 2000-2016 by autoregressive distributed lag (ARDL) model emphasizes loan to agriculture, industry, and services has a positive effect on economic growth, whereas loans to the construction sector have a negative effect on long-term economic growth.

Çonkar, Canbaz and Arifoğlu (2018) using data for Turkey by utilizing Toda-Yamamoto and Granger causality states that a two-way causality relationship between commercial bank credits and gross domestic product while there is no causal relationship between participation (Islamic) bank credits and gross domestic product.

Chapter 6

The Causality Relationship Between Sectoral Loans and Economic Growth: Econometric Analysis

6.1 Purpose of the Research

Bank loans serve an essential role in addressing the financial requirements of both individuals and companies and contribute to the overall economy. The influence of the loans granted by the banking sector to various industries on economic growth is an important issue. In this study, it is aimed to explain how sectoral loans which are made available by banks affect economic growth.

In this study, sectoral loans are provided from banking sector and the gross domestic product is used as an indicator of economic growth. Sectoral loans include cash loans that are extended to 10 different sectors which are agriculture, maritime transportation, energy, financial intermediation, food, tobacco and beverage industry, construction, main metal industry, textile and textile products industry, wholesale trade and brokerage and tourism industry. The sample of the study consists of banking sector in Turkey and all data in the study are taken in Turkish Lira. All the data are taken from database of Banking Regulation Supervision Agency and Turkstat including quarterly data between 31 March 2005 and 31 December 2021. Eviews program is used in the analysis of the data in the study.

6.2 Hypothesis

The research hypotheses are as follows:

H0: Sectoral loans are not the Granger cause of Gross Domestic Product.

H1: Sectoral loans are the Granger cause of Goss Domestic Product.

H0: Goss Domestic Product is not the Granger cause of sectoral loans.

H1: Goss Domestic Product is the Granger cause of sectoral loans.

6.3 Economic Methodology and Empirical Findings

In this section, information is given about the econometric methods used in the study and the stages of these methods.

ADF unit root test was applied to determine the stationarity of the variables. First, the Augmented Dickey-Fuller (ADF) test was conducted. All series are made stationary by taking their first difference. Afterwards, cointegration, Granger causality, and correlation analyses were conducted.

6.3.1 Unit root analysis. Cointegration test requires each individual time series to be stationary across the sample period. The unit root test is used to determine if time series are stationary or nonstationary. If the mean and variance of variables fluctuate with time, we say that the data has a unit root, which indicates that it is nonstationary.

There are various issues with models based on non-stationary time series, and a nonexistent connection between variables is misinterpreted as if it existed. Diverse parametric and non-parametric methods have been devised to determine if a series is stationary, that is it includes a unit root.

It determines the long-term characteristic of a given time series by determining how the value of the variable in the preceding period impacts the present period. To characterize the process from which the determined series originates, the value of each period of this series must be regressed against the value it had in earlier periods. With the unit root test constructed in this manner, the stationarity of the series is determined (Kerimoğlu, 2013: 156).

6.3.2 Augmented Dickey Fuller test. A method for testing stationarity is the Dickey-Fuller (DF) test. The DF test is essential for determining the degree to which a series is stationary, but it does not account for autocorrelation in error terms. DF test is faulty if the error term (E_t) has autocorrelation (Gujarati, 2008).

The widely known test for stationarity is the Augmented Dickey Fuller test. The test is used to examine the data's serial correlation. The main Dickey Fuller test cannot contain several lagged variables, which may result in multicollinearity. However, the Augmented Dickey Fuller Test (ADF) permits multiple lagged variables. The lags are selected using criteria such as the Akaike Information Criterion (AIC), the Hannan-

Quinn Criterion, the Schwarz Criterion, and the Bayesian Information Criterion (BIC) (The Economics Major, 2020)

The Augmented Dickey-Fuller (ADF) unit root test is one of the most often used unit root tests for testing the stationarity or degree of stationarity of time series. This test was created by David A. Dickey and Wayne A. Fuller 1979. The null hypothesis for this test is that the series has a root and is not stable. Three regressions are implemented for the ADF test. The first regression has neither an intercept nor a trend. The second regression contains an intercept but no trend, while the third regression has both an intercept and a trend (Güleç, 2018).

No intercept and no trend:

$$\Delta Y_t = \alpha_1 \times Y_{t-1} + \sum \beta_i \Delta Y_{t-i} + u_t$$

Intercept and no trend:

$$\Delta Y_t = \alpha_0 + \alpha_1 \times Y_{t-1} + \sum \beta_i \Delta Y_{t-i} + u_t$$

Intercept and Trend:

$$\Delta Y_t = \alpha_0 + \alpha_1 \times Y_{t-1} + \alpha_2 \times t + \sum \beta_i \Delta Y_{t-i} + u_t$$

The following hypothesis is tested in all three models

$H_0: \alpha_1 = 0$ (There is a root / not stationary)

$H_1: \alpha_1 < 0$ (There is not a root / stationary)

6.3.2.1 The results of Augmented Dickey Fuller test. All series are made stationary by taking second differences:

Table 9

FarkAgriculture

	t-Statistic		Prob.
Augmented Dickey-Fuller Test Statistic	-10.50791		0
	%1 level	-2.601596	

Test critical values	%5 level	-1.945987	
	%10 level	-1.613486	

When determined from the above findings; significance value is larger than “0.05” and test statistic value is “|-10.50791|” is greater than the absolute value of 1%, 5 % and 10 % of the crucial values. It has no unit root and is stationary. Rejecting the H_0 (There is a unit root and not stationary) hypothesis, the hypothesis H_1 (There is no unit root, and it is stationary) is accepted.

Table 10

FarkEnergy

	t-Statistic		Prob.
Augmented Dickey-Fuller Test Statistic	-5.330488		0
Test critical values	%1 level	-2.604073	
	%5 level	-1.946348	
	%10 level	-1.613293	

When determined from the above findings; significance value is larger than “0.05” and test statistic value is “|-5.330488|” is greater than the absolute value of 1%, 5 % and 10 % of the crucial values. It has no unit root and is stationary. Rejecting the H_0 (There is a unit root and not stationary) hypothesis, the hypothesis H_1 (There is no unit root, and it is stationary) is accepted.

Table 11

FarkFood

	t-Statistic		Prob.
Augmented Dickey-Fuller Test Statistic	-5.792705		0
Test critical values	%1 level	-2.603423	
	%5 level	-1.946253	
	%10 level	-1.613346	

When determined from the above findings; significance value is larger than “0.05” and test statistic value is “|-5.792705|” is greater than the absolute value of 1%, 5 % and 10 % of the crucial values. It has no unit root and is stationary. Rejecting the H 0 (There is a unit root and not stationary) hypothesis, the hypothesis H 1 (There is no unit root, and it is stationary) is accepted.

Table 12

FarkMetal

	t-Statistic		Prob.
Augmented Dickey-Fuller Test Statistic	-9.664858		0
Test critical values	%1 level	-2.606163	
	%5 level	-1.946654	
	%10 level	-1.613122	

When determined from the above findings; significance value is larger than “0.05” and test statistic value is “|-9.664858|” is greater than the absolute value of 1%, 5 % and 10 % of the crucial values. It has no unit root and is stationary. Rejecting the H 0 (There is a unit root and not stationary) hypothesis, the hypothesis H 1 (There is no unit root, and it is stationary) is accepted.

Table 13

FarkTEXTILE

	t-Statistic		Prob.
Augmented Dickey-Fuller Test Statistic	-10.32447		0
Test critical values	%1 level	-2.606163	
	%5 level	-1.946654	
	%10 level	-1.613122	

When determined from the above findings; significance value is larger than “0.05” and test statistic value is “|-10.32447|” is greater than the absolute value of 1%, 5 % and 10 % of the crucial values. It has no unit root and is stationary. Rejecting the

H 0 (There is a unit root and not stationary) hypothesis, the hypothesis H 1 (There is no unit root, and it is stationary) is accepted.

Table 14

FarkTOURISM

	t-Statistic		Prob.
Augmented Dickey-Fuller Test Statistic	-3.142260		0
Test critical values	%1 level	-2.608490	
	%5 level	-1.946996	
	%10 level	-1.612934	

When determined from the above findings; significance value is larger than “0.05” and test statistic value is “|-3.142260|” is greater than the absolute value of 1%, 5 % and 10 % of the crucial values. It has no unit root and is stationary. Rejecting the H 0 (There is a unit root and not stationary) hypothesis, the hypothesis H 1 (There is no unit root, and it is stationary) is accepted.

Table 15

FarkWHOLESALE

	t-Statistic		Prob.
Augmented Dickey-Fuller Test Statistic	-9.729199		0
Test critical values	%1 level	-2.601596	
	%5 level	-1.945987	
	%10 level	-1.613496	

When determined from the above findings; significance value is larger than “0.05” and test statistic value is “|-9.729199|” is greater than the absolute value of 1%, 5 % and 10 % of the crucial values. It has no unit root and is stationary. Rejecting the H 0 (There is a unit root and not stationary) hypothesis, the hypothesis H 1 (There is no unit root, and it is stationary) is accepted.

Table 16

FarkMARITIMETRANSPORTATION

	t-Statistic		Prob.
Augmented Dickey-Fuller Test Statistic	-2.499456		0.0132
Test critical values	%1 level	-2.605442	
	%5 level	-1.946549	
	%10 level	-1.613181	

When determined from the above findings; significance value is larger than “0.05” and test statistic value is “|-2.499456|” is greater than the absolute value of 5 % and 10 % of the crucial values. It has no unit root and is stationary. Rejecting the H 0 (There is a unit root and not stationary) hypothesis, the hypothesis H 1 (There is no unit root, and it is stationary) is accepted.

Table 17

FarkCONSTRUCTION

	t-Statistic		Prob.
Augmented Dickey-Fuller Test Statistic	-8.992836		0
Test critical values	%1 level	-2.601596	
	%5 level	-1.945987	
	%10 level	-1.613496	

When determined from the above findings; significance value is larger than “0.05” and test statistic value is “|-9.812088|” is greater than the absolute value of 1%, 5 % and 10 % of the crucial values. It has no unit root and is stationary. Rejecting the H 0 (There is a unit root and not stationary) hypothesis, the hypothesis H 1 (There is no unit root, and it is stationary) is accepted.

Table 18

FarkFINANCIAL

	t-Statistic		Prob.
Augmented Dickey-Fuller Test Statistic	-7.849378		0
Test critical values	%1 level	-2.602185	
	%5 level	-1.946072	
	%10 level	-1.613448	

When determined from the above findings; significance value is larger than “0.05” and test statistic value is “|-7.849378|” is greater than the absolute value of 1%, 5 % and 10 % of the crucial values. It has no unit root and is stationary. Rejecting the H 0 (There is a unit root and not stationary) hypothesis, the hypothesis H 1 (There is no unit root, and it is stationary) is accepted.

6.3.3 Johansen cointegration test. The cointegration test is used to discover whether the variables interact over time. In this work, the approach established by Johansen (1988) and Johansen-Juselius (1990) was utilized to forecast whether series move together over the long term. This approach is based on the study of the vector autoregressive (VAR) model described in equation 11 (Türedi and Berber, 2010):

$$\Delta Y_t = \beta_0 + \Gamma_1 \Delta Y_{t-1} + \Pi_1 Y_{t-k} + \eta_t \quad k=1, \dots, k-1 \quad (11)$$

Here Y_t ; vector of variables having unit root, β_0 ; constant term, $I = 1, 2, 3, \dots, k-1$; $\Gamma_1 = 1, 2, 3, \dots, k-1$ Y_t represents the coefficients matrix of the series representing the lags of the initial difference of the vector, while represents the Π coefficients matrix associated with the series' levels. The coefficient matrix is written as $\Pi = \alpha\beta$. Alternatively, α matrix adaptation coefficient; The β matrix represents the cointegrated vectors derived from the maximum likelihood estimation (Türedi and Berber, 2010).

Instead of depending on OLS estimation, the process of Johansen constructs cointegrated variables using maximum likelihood estimation. This approach largely depends on the link between a matrix's rank and its characteristic roots. Johansen determined the number of cointegrating vectors using sequential tests to produce the

maximum likelihood estimation. His method is a second-generation strategy in the sense that it is based solely on maximum likelihood, as opposed to depending in part on least squares. Johansen's method is really a multivariate application of the Dickey-Fuller test. Therefore, he offers two distinct likelihood ratio tests: the trace test and the maximum eigenvalue test. This process is a test for vector cointegration. If the data set comprises two or more time series, it has an advantage over the Engle-Granger and Phillips-Ouliaris techniques in that it can estimate multiple cointegration relationships (Ssekuma, 2011).

The long-term relationship is determined by comparing the Trace and Maximum Eigenvalue statistics obtained within the Johansen cointegration test to the critical values established by Johansen and Juselius. A long-term relationship between the series is identified if the Trace and Maximum Eigenvalue statistics reach the necessary values.

Date: 05/22/22 Time: 18:37 Sample (adjusted): 2006Q2 2021Q4 Included observations: 63 after adjustments Trend assumption: No deterministic trend Series: FARKFARKX6 FARKFARKX4A Lags interval (in first differences): 1 to 2				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.753169	100.3235	12.32090	0.0000
At most 1 *	0.175837	12.18338	4.129906	0.0006
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **Mackinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.753169	88.14012	11.22480	0.0000
At most 1 *	0.175837	12.18338	4.129906	0.0006
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **Mackinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegrating Coefficients (normalized by b*S11*b=I):				
FARKFARKX6 FARKFARKX4A				
-4.76E-08 8.76E-07				
-5.82E-08 -1.03E-06				
Unrestricted Adjustment Coefficients (alpha):				
D(FARKFARK 34243290 14911075				
D(FARKFARK -2180394. 582719.5				
1 Cointegrating Equation(s): Log likelihood -2188.644				
Normalized cointegrating coefficients (standard error in parentheses)				
FARKFARKX6 FARKFARKX4A				
1.000000 -18.42197				
(2.10117)				
Adjustment coefficients (standard error in parentheses)				
D(FARKFARK -1.628287				
(0.25352)				
D(FARKFARK 0.103679				
(0.01166)				

Figure 16. Agricultural Loan Cointegration Test

The results of cointegration tests are shown figure 17. The trace test indicates the existence of 2 cointegrating equations at 0.05 significance level and the Max-Eigen statistic confirms this result. Therefore, agricultural loans and GDP have a long run relationship between them.

Table 19

Cointegration Test Results for The Dependent Variable GDP

Sectors	Ho:No Cointegration H1:Cointegration	Eigenvalue	Trace Statistics	%5 Critical Value	Prob.	Max-Eigen Statistics	%5 Critical Value	Prob.	Result
Agriculture	Ho: $r=0$	0.753169	100.3235	12.32090	0.0000	88.14012	11.22480	0.0000	There is Cointegration
Energy	Ho: $r\leq 1$	0.800178	108.5701	12.32090	0.0000	99.84041	11.22480	0.0000	There is Cointegration
Food	Ho: $r\leq 2$	0.723672	91.58676	12.32090	0.0000	79.74231	11.22480	0.0000	There is Cointegration
Metal	Ho: $r\leq 3$	0.762229	122.1510	12.32090	0.0000	89.05977	11.22480	0.0000	There is Cointegration
Textile	Ho: $r\leq 4$	0.763487	106.9904	12.32090	0.0000	89.38850	11.22480	0.0000	There is Cointegration
Tourism	Ho: $r\leq 5$	0.778167	103.8165	12.32090	0.0000	93.36139	11.22480	0.0000	There is Cointegration
Wholesale	Ho: $r\leq 6$	0.691260	94.38097	12.32090	0.0000	72.86585	11.22480	0.0000	There is Cointegration
Transportation	Ho: $r\leq 7$	0.749197	94.59295	12.32090	0.0000	85.75145	11.22480	0.0000	There is Cointegration
Construction	Ho: $r\leq 8$	0.647276	68.87214	18.39771	0.0000	65.65032	17.14769	0.0000	There is Cointegration
Financial	Ho: $r\leq 9$	0.692638	113.4715	12.3290	0.0000	73.14315	11.22480	0.0000	There is Cointegration

By analyzing Table 19, the trace statistical values and the Max-Eigenvalue statistical values above the critical values of 5%, because of that the null hypothesis is rejected. It is concluded that total cash loans have a long-term relationship with GDP and the variables are cointegrated.

6.3.4 Granger causality test. The Granger causality test determines the link between a variable or collection of factors and another variable. The analysis can provide three distinct outcomes: If just one of the two variables is the cause of the other, there is one-way causality. If both variables are the cause of the other, there is two-way causation.

VAR Granger Causality/Block Exogeneity Wald Tests			
Date: 05/22/22 Time: 18:37			
Sample: 2005Q1 2021Q4			
Included observations: 64			
Dependent variable: FARKFARKX6			
Excluded	Chi-sq	df	Prob.
FARKFARKX4A	6.392689	2	0.0409
All	6.392689	2	0.0409
Dependent variable: FARKFARKX4A			
Excluded	Chi-sq	df	Prob.
FARKFARKX6	3.795969	2	0.1499
All	3.795969	2	0.1499

Figure 17. Agricultural loan Granger causality test for dependent variable GDP

The table shows that agriculture loan is the dependent variable of GDP but not vice versa.

6.3.4.1 Granger causality test for dependent variable GDP. In case the dependent variable is GDP, the causality of other variables with GDP is tested.

Table 20

Granger Causality Test for Dependent Variable GDP

Null Hypotheses (Ho)	Chi-sq	p	Result
Agriculture Loans is not the Granger cause of GDP level.	6.392689	0.0409	Granger Cause
Energy Loans is not the Granger cause of GDP level	1.687124	0.4302	Not Granger Cause
Food Loans is not the Granger cause of GDP level	7.215962	0.0271	Granger Cause
Metal Loans is not the Granger cause of GDP level	6.414846	0.0405	Granger Cause
Textile Loans is not the Granger cause of GDP level	2.266638	0.3220	Not Granger Cause
Tourism Loans is not the Granger cause of GDP level	0.438463	0.8031	Not Granger Cause
Wholesale Loans is not the Granger cause of GDP level	2.168598	0.3381	Not Granger Cause
Maritime Loans is not the Granger cause of GDP level	5.203423	0.0741	Not Granger Cause
Construction Loans is not the Granger cause of GDP level	2.701791	0.2590	Not Granger Cause
Financial Loans is not the Granger cause of GDP level	2.895519	0.2351	Not Granger Cause

By analyzing Table 20, it can be said that agriculture, food and metal sector loans are the Granger cause of GDP, however energy, textile, tourism, wholesale, maritime, construction and financial sector loans are not the Granger cause of GDP.

6.3.4.2 Granger causality test for dependent variable sectoral loans. In case the independent variable is GDP, the causality of GDP with other variables is tested.

Table 21

Granger Causality Test for Dependent Variable Sectoral Loans

Null Hypotheses (Ho)	Chi-sq	p	Result
GDP is not the Granger cause of Agriculture loan level	3.795969	0.1499	Not Granger Cause
GDP is not the Granger cause of Energy loan level	1.976280	0.3723	Not Granger Cause
GDP is not the Granger cause of Food loan level	2.837395	0.2420	Not Granger Cause
GDP is not the Granger cause of Metal loan level	8.812649	0.0122	Granger Cause
GDP is not the Granger cause of Textile loan level	5.148636	0.0762	Not Granger Cause
GDP is not the Granger cause of Tourism loan level	1.713040	0.4246	Not Granger Cause
GDP is not the Granger cause of Wholesale loan level	0.422416	0.8096	Not Granger Cause
GDP is not the Granger cause of Maritime loan level	14.36258	0.0008	Granger Cause
GDP is not the Granger cause of Construction loan level	4.634391	0.0985	Not Granger Cause
GDP is not the Granger cause of Financial loan level	0.330708	0.8476	Not Granger Cause

By analyzing Table 21, it can be said that GDP is the Granger cause of Metal and maritime loans, however it is not Granger cause of agriculture, energy, food, textile, tourism, wholesale, construction, and financial loans.

6.3.5 Correlation

Correlation expresses the relationship between two variables. The size of the correlation coefficient, which takes a value between -1 and +1, defines the strength of the relationship, and the sign defines the direction of the relationship. A positive sign indicates a relationship in the same direction, a negative sign indicates a relationship in the opposite direction. The fact that the correlation coefficient is zero or close to zero indicates that there is no relationship between the variables. The correlation coefficient being equal to one indicates that there is a 100% relationship (perfect relationship) between the two variables.

As Ratner (2009) states the correlation value shows an indication of relationship according to:

Values between 0 and 0.3 indicate a weak positive (negative) relationship,

Values between 0.3 and 0.7 (0.3 and – 0.7) indicate a moderate positive (negative) relationship

Values between 0.7 and 1.0 (–0.7 and – 1.0) indicate a strong positive (negative) relationship.

Table 22

Correlation test result for Dependent variable GDP

Variables	GDP	Agriculture	Energy	Food	Metal	Textile	Tourism	Wholesale	Maritime	Construction	Financial
GDP	1.0000	0.0124	0.461319721985554	0.2957379118465602	0.2986670331940538	0.2345181860765163	0.2890305434374573	0.09809298639904082	0.4224101619162238	0.36872199171	0.1185472556355066

Energy, maritime and construction loans have a moderate positive relationship with GDP, whereas agriculture, food, metal, textile tourism, wholesale and financial loans have weak positive relationship with the dependent variable GDP.

Chapter 7

Conclusion

Banks are the financial institutions that are supporting the individuals and businesses. Banks have many products and services to support the financial system and act as a financial intermediary between different parties. Banks mainly support the economies with the loans to the firms and real sector. Sectoral loans to the different sectors are important to support firms' financial needs and investments.

Economic growth is one of the most essential concepts for the countries and global economy. Especially after the different crisis that affect countries' ratio of economic growth leads to the different substantial problems which affect countries and individuals' welfare. As a result, economic growth which was traditionally the primary emphasis of the economics has become a subject of increased study. In this context, several research on the link between credit and economic growth have been conducted.

From 2005 to 2021, an analysis of Turkish banking history and banking structure demonstrates an upward trend in bank credit lending. As a result of rising demand and the possibility of profiting from bank loans, banks have prioritized bank loans in their balance sheets. Especially public banks' support to the real sector via loans has increased.

This study examined the connection between bank loans and economic growth. We also explored the direction of causality in the link between bank lending and economic development, in addition to determining its presence.

In this study, sectoral loans are provided from banking sector and the gross domestic product is used as an indicator of economic growth. Sectoral loans to 10 sectors are especially focused which are agriculture, maritime transportation, energy, financial intermediation, food, tobacco and beverage industry, construction, main metal industry, textile and textile products industry, wholesale trade and brokerage and tourism industry.

The sample of the study consists of banking sector in Turkey and all data in the study are taken in Turkish Lira. All the data are taken from database of Banking Regulation Supervision Agency and Turkstat including quarterly data between 31 March 2005 and 31 December 2021. Eviews program is used in the analysis of the data in the study.

In the analysis of the study, total cash loan volume and GDP are investigated, ADF unit root test, Johansen cointegration test, Granger causality tests and correlation are used. The stationarity of the series is checked, and series are made stationary by taking their second differences.

With the analyzation of models, it is found that agriculture, food, and metal loans are the Granger cause of GDP, however energy, textile, tourism, wholesale, maritime, construction and financial loans are not the Granger cause of GDP. On the other hand, GDP is the Granger cause of metal and maritime loans, however it is not Granger cause of agriculture, energy, food, textile, tourism, wholesale, construction, and financial loans.

The results of the study are important in the sense that it can be a pathfinder to determine which sectors should be supported to aim economic growth. In our analysis, it is found that agriculture, food, and metal cash loans affected the growth of GDP. Turkish economic growth has been floating for years. To ensure the sustainability, the economy must employ factor inputs more effectively to produce extra output. This necessitates changes that permit the transfer of resources to sectors and enterprises with better productivity, and that let firms to invest in productivity-enhancing skills and technologies. In this study, it is found that cash loans to the agriculture, food and metal industry have a beneficial effect on Turkish economic growth. It can be assumed that supports to these sectors can be also helpful for economic growth.

It is also interesting that loans to the construction sector is not Granger cause of GDP. Turkey has been supported construction sector intensively via bank loans in to make infrastructure investments, but it is found that construction sector has not a meaningful effect on Turkish economic growth. The support to the sector is changed from the needs for housing and big projects such as bridges, hospitals etc. The high increases in input costs in the sector, as well as the rise in commodity prices and exchange rates, continue to be a significant problem. All such problems cause immense substantial cash flow issues in the short term, increasing need for cash all through the economy due to the sector's interconnection with numerous subsectors.

In this respect, Turkey should focus on sectors that have been beneficial to the Turkish economic growth and take incentives for leading bank loans to these sectors.

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