



ÇANKAYA UNIVERSITY
GRADUATE SCHOOL OF SOCIALSCIENCES
DEPARTMENT OF ECONOMICS

MASTERS THESIS

FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH:

TURKISH CASE

ADNAN TALEB BAKHTIAR-BAKHTIAR

AUGUST 2016

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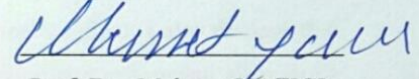
TURKISH CASE

**BY
ADNAN TALEB BAKHTIAR-BAKHTIAR**

AUGUST 2016

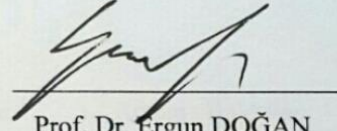
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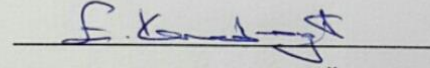
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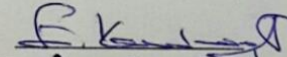
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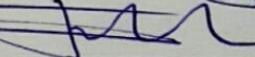
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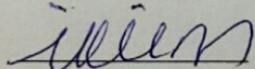
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ÖZET

FINANSAL GELİŞME VE EKONOMİK BÜYÜME: TÜRKİYE ÖRNEĞİ

Adnan Taleb, Bakhtiar

M.Sc., Department of Financial Economics

Supervisor: Doç. Dr. Ece C. AKDOĞAN

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Finansal gelişme ile ekonomik büyüme arasındaki nedensellik ilişkisi literatürde yoğun olarak tartışılan ve araştırılan bir konudur. Söz konusu ilişki teorik çerçevede bir ilişki bulunmadığı görüşünden çift yönlü bir ilişki bulunduğuna kadar her ihtimal çerçevesinde savunulmasına rağmen ana akım görüşler arz öncüllü, talep takipli ve çift yönlü ilişki hipotezleridir. Finansal gelişme ve ekonomik büyüme arasındaki nedensellik ilişkisini araştıran çalışmaların sonuçları da farklı görüşleri destekler nitelikte olduğundan henüz ne teorik ne de ampirik açıdan bir görüş birliğine varılamamıştır. Bu tezin amacı, Türkiye’de finansal gelişme ile ekonomik büyüme arasındaki nedensellik ilişkisini araştırmak ve ana akım görüşlerden hangisinin geçerli olduğuna ilişkin ek bir bulgu sağlayarak literatüre katkıda bulunmaktır. Bu kapsamda zaman serileri analizi kullanılarak 1988:Q1-2015:Q2 dönemi incelenmiştir. Analizler çerçevesinde ekonomik büyüme ölçütü olarak reel gayrisafi yurtiçi hasıla (GSYH), finansal büyüme ölçütü olarak ise geniş para arzının (M2), özel sektör kredilerinin, piyasa kapitalizasyonunun ve merkez bankası varlıklarının GSYH’ya oranları olmak üzere 4 farklı gösterge kullanılmıştır. Johansen Eşbütünleşme ve Vektör Hata Düzeltme Modellerinden elde edilen bulgular hem uzun hem de kısa vadede nedensellik ilişkisinin finansal gelişmeden ekonomik büyümeye doğru olduğunu göstermekte olup, arz öncüllü hipotezi destekler niteliktedir.

Anahtar Kelimeler: Nedensellik, Ekonomik Büyüme, Finansal Gelişme

ABSTRACT

FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH: TURKISH CASE

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M.Sc., Department of Financial Economics

Supervisor: Assoc. Prof. Dr. Ece C. AKDOĞAN

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The causal relationship between financial development and economic growth is a long debated and widely researched topic in the literature. Theoretically, the arguments on this causality range from no relationship to bidirectional causality and the past empirical research provide conflicting results as well. Thus no consensus could have been reached yet, both theoretically and empirically. This research thesis is aimed to contribute to the controversial evidence on the causal relationship between financial development and economic growth by focusing on Turkey as the case study. In this respect, the validity of Supply Leading, Demand Following and Bidirectional Causality Hypotheses which consist the mainstream views on the causality of this relationship, are investigated by applying time series analysis for the period 1988:Q1-2015:Q2. In the analyses, real gross domestic product (GDP) growth rate is used to measure economic growth and broad money supply to GDP ratio, market capitalization to GDP ratio, central bank assets to GDP ratio and deposits in banks to GDP ratio are used as the proxies to measure financial development. The findings obtained from the Johansen Co-Integration and Vector Error Correction Model (VECM) tests indicate that the relationship between financial development and economic growth mainly runs from financial development to economic growth both in the short and the long-run.

Keywords: Causality, Economic Growth, Financial Development

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LIST OF ABBREVIATIONS

ADF	Augmented Dicky Fuller.
BAT	Bank Association of Turkey.
BIST	Borsa Istanbul.
BRSA	Banking Regulation And Supervised Agency.
CAGR	Compound Annual Growth Rate.
CBRT	Central Bank of The Republic of Turkey.
FDI	Foreign Direct Investment.
G20	Group of 20.
GDP	Gross Domestic Product.
IMF	International Monetary Fund.
ODA	Official Development Assistance.
OECD	Organization For Economic Cooperation And Development.
SDIF	Saving Deposit Insurance Fund.
SME	Small And Medium Sized Enterprises.
VECM	Vector Error Correction Model.
WBG	World Bank Group.
WDI	World Development Indicator.
WEF	World Economic Forum.
WEO	World Economic Outlook.

INTRODUCTION

Financial development can be defined as “the factors, policies, and institutions that lead to effective financial intermediation and markets, as well as deep and broad access to capital and financial services” (WEF 2011:P, 3). It reflects the sum of quantity and quality improvements in the workings of the financial systems, brings advancements, leads to openness in the financial sector, helps to ameliorate market imperfections through the financial system and provides information to the actual functions of the financial system.

Financial system of an economy consists of three main components that are financial markets, financial intermediaries (institutions) and financial regulations (Leonardo 2010) and as Levine (1997) argues, plays five important functions in the economy: mobilize savings, allocate resources, corporate control, facilitate risk management and ease trading of goods and services. Besides, high advancement levels in a country's financial system will also lead to the high availability of financial services. Therefore, financial development should be approached in a broader sense. As argued by Cihak et al. (2012), financial development in a broader level means an improvement in the quality of important financial functions in terms of providing information for investments, controlling the investment, easing diversification and facilitating risk, mobilizing savings and improving the exchange of goods and services.

The multidimensional nature of financial systems raises the need to use various indicators to measure financial development. However, it is not an easy task to determine which indicator(s) will provide the most appropriate proxy to measure financial development and remains as an unanswered question. It is generally accepted that financial development can be measured in terms of four dimensions that are financial depth, access, efficiency and stability.

The causality between financial development and economic growth which can shortly be defined as an increase in the amount of goods and services that are produced in a given country (Philip and Peter 2009) and can be measured on the basis of gross domestic product (GDP) that is one of the most important, widely used and inclusive measure of national output, is a long debated subject both theoretically and empirically.

The mainstream theoretical views on this relationship are the supply leading, the demand following and the bidirectional causality hypotheses where supply leading hypothesis supports the view that financial development fosters economic growth while demand following hypothesis argue economic growth leads to financial development. On the other hand, bidirectional causality hypothesis claims a two-way causality.

Advocates of supply leading hypothesis argue that financial institutions can promote economic efficiency, create liquidity, mobilize savings, promote capital accumulation and allocate resources from traditional sectors to others that encourage economic growth. In contrast, advocates of demand following hypothesis argue that changes in the technology, sophisticated production and services promote the real growth which in turn increases the demand for financial services. And the advocates of bidirectional causality hypothesis support a mutual interaction: Financial development gradually encourages economic growth and this, in turn, causes feedback and encourages further financial development. As Goldsmith (1969) argues, financial development is not only a reflection of growth in the economy but also has the power to accelerate it. Besides, some advocates of the bidirectional causality hypothesis widen these arguments by including the role of development level on the direction of this relationship. For example, Patrick (1966) argues that in the first stages of development, the direction runs from financial development to economic growth where financial development allows to transfer savings from traditional sectors to new sectors that are more effective in production and return to capital, while in the later stages of the development process the direction runs from economic growth to financial development.

The causal relationship between financial development and economic growth has also been widely researched empirically. However, no consensus could have been reached yet. Some studies like King and Levine (1993a), Levine (1997, 2004), and Gupta (1984) found that the improvements in financial sector lead to economic growth while some others such as Robinson (1952), Kuznets (1955) Fredman and Schwartz (1963) found that the economic growth leads to improvements in the financial system. The findings of some other researchers such as Demetriades and Hussein (1996), Blackburn and Huang (1998), Luintel and Khan (1999), Khan (2001) and Calderon and Liu (2002) indicate that financial development and economic growth reinforce each other, supporting the bidirectional causality hypothesis whereas the findings of still some other researchers such as Stern (1989), Chandavartar (1992), and Lucas (1998) lack to provide any causal relationship. As prior research undertaken for Turkey also provide conflicting results, more empirical evidence is crucially needed to understand more comprehensively the nature of this causal relationship which may potentially serve as a valuable asset for the policy makers in formulating and implementing the policies.

In an attempt to fix another piece on the puzzle, this research thesis is aimed to empirically examine the causal relationship between financial development and economic growth by focusing on Turkey. The rest of the study is organized as; In Chapter 1 and Chapter 2 theoretical considerations on financial development and economic growth are provided respectively. Chapter 3 discusses the causal relationship between financial development and economic growth, and reviews the past empirical research on this causality. In Chapter 4 Turkish economy and her financial system is reviewed and past empirical research on this causality that focus on Turkey is surveyed. Methodology, data and results are provided in Chapter 5, and finally Chapter 6 concludes.

CHAPTER 1

FINANCIAL DEVELOPMENT: THEORETICAL CONSIDERATIONS

1.1. Financial Development

Financial development can be defined as “the factors, policies, and institutions that lead to effective financial intermediation and markets, as well as deep and broad access to capital and financial services” (WEF 2011: P, 3). Petra (2012) points out that an increase in saving rates leads to investing in projects that offer high returns and in turn supports the developments in the financial sector. High advancement levels in a country's financial system lead to the high availability of financial services. Furthermore, it reflects the sum of quantity and quality improvements in the workings of the financial systems, shows the level of growth, brings advancements and leads to openness in the financial sector.

Financial development helps to ameliorate market imperfections through the financial system and provides information to the actual functions of the financial system. Therefore, researchers have developed a broader definition and focused on the role of the financial system and how it affects various aspects of the economy (Levine et al 2000). Financial development in a broader level means an improvement in the quality of important financial functions in terms of providing information for investments, controlling the investment, easing diversification and facilitating risk, mobilizing savings and improving the exchange of goods and services (Cihak et al 2012). Besides, financial development not only reduces the poverty and inequality by broadening access to finance the poor and vulnerable groups, facilitating risk management by reducing their vulnerability to shocks, and increasing investment and productivity consequencing in a higher income group, but also enables small and medium sized enterprises (SMEs) easier access to finance (Demirguc and Levine 2008).

According to Leonardo (2010), financial system of an economy consists of three main components, specifically financial markets, financial intermediaries (institutions) and financial regulations. Each of these components plays a specific role in the economy. The role of the financial sector is to create channels through which people can save money. The institutions then lend out money to investors. The money that is lent out is normally surplus money that the owners do not have use of it at the present moment. The role of the financial sector as an intermediary makes it an important part of the economy. The more developed that the financial sector in a country becomes, the more likely money is channelled into concrete and productive projects. In addition to this, the way that these funds are channelled becomes more effective. Financial institutions turn people's savings into investments through re-constituting wealth and conveying information and capital. Two significant issues are experienced by the financial institutions.

1. Transaction issues: Banks are faced by particular hazards including the likelihood that investors may be unable to pay the money back. In addition to this, the question of morality arises, because they have to give borrowers (investors) money that is given by lenders (savers). This problem exists, because the lenders and borrowers have contrasting information concerning the practicability and nature of the investment projects.

2. Information issues: The screening and pooling procedures used by financial systems are quite expensive. So as to run banks have to make use of the economies of scale. Thus, as financial systems grow they can reduce both issues. Financial intermediary services are important and essential for technological innovation. Financial institutions and markets can be influenced by transaction and information issues. Friction in the market is the tool that is used by financial systems when it comes to the task of reducing information and transaction costs (Levine 2004). On the other hand, Arrow (1964) and Debreu (1959) state that there would be no need to push for financial markets and intermediaries if the information was perfect because, it expends resources. The studies that were carried out by Levine (1997), and King and Levine (1993a) supported the fact that the sophistication of financial intermediation services could positively affect the economic growth by increasing the specialization capacity in the financial

sector. These studies also maintain that the development of the financial sector is crucial in developing countries so as to increase the growth of the economy in the long-run.

According to Levine (1997), the financial system plays five important functions in the economy:

1. Facilitating the exchange of goods and services.

This is the most basic function of financial systems for the economy to grow, and there must be a form of exchange platform within it. The ways that the financial sector affects the economy is through:

- a) Facilitating a shift in the type of technology.

Financial systems have the ability to either increase or to decrease economic growth through regulating the innovations in a certain country. Financial markets can reduce the gain shocks and in turn investments into specialized and productive initiatives are increased. In this way, technology goes up and the economy is able to reap its benefits by growing.

- b) Accumulation of capital.

The financial sector has the ability to increase or to decrease the amount of money that is available for investments. The economy in a country is driven by the number of investments in it thus financial systems have some serious effects. Financial systems are able to ensure that transactions in an economy are possible.

Through having platforms that payments can be received and paid they ensure that information and transaction issues are dealt with. Consequently, the financial sector enables growth, innovation and specialization in addition to services and goods. By increasing innovations in the financial sector the information and transaction issues are greatly reduced.

By increasing the specialization, financial systems become more essential and this further enable specialization which pushes the need for financial systems. In turn, the gains in the market go up, the economy develops and it leads to an increased development in the financial sector.

2. Financial institutions help to reduce the risk.

This role of the financial institution is linked to two types of risks specifically the risk of liquidity and the individual risk. The first type of risk is brought on the fact that most investments which are profitable need to hold capital in the long-term period. Most people are not willing to let their savings be out of their control for a long time. Financial institutions allow people to avoid shocks that are brought on the liquidity hence their savings are projected to be more productive. The second type of risk is linked to the uncertainty that comes with projects. No one can be sure that a project will end up as being beneficial or not. The existence of such risks brings up the need for the financial sector as people can change their capital worth directly or indirectly. The risks that are mentioned above are also related to countries, regions, industries, firms and projects. Financial institutions help to reduce risks by offering services for diversification. Through this, they inspire people to save more while increasing the resource allocation abilities.

3. Exercising corporate control as well as monitoring managers.

Financial systems have the ability to decrease moral risks. Financial institutions and particularly banks have the ability to make sure that loans are given to the right people and they are put in to their maximum use. The screening systems in most financial institutions are quite rigorous and by making sure that the system is not compromised, capital is protected. The level to which creditors and stakeholders can efficiently influence and monitor how institutions use their capital and make managers maximize the value of a firm greatly affects utilization, allocations, and decisions that govern how savings are made. Financial institutions have to make sure that they make use of effective corporate governance mechanisms. Corporate governance is essential as it elevates a company's efficiency when it comes to the utilization and allocation of resources. In addition to this, it increases a saver's willingness to fund innovation and production ventures. However, some people oppose this argument, and most believe that corporate governance can be strengthened through a number of engaging mechanisms including, competition in the market, insolvency threats, corporate control in the market, activism that is shown by investors in an institution (pension funds and banks) and creditors (holders of bonds or banks).

4. Allocation of funds as well as the provision of information related to probable investments.

This role of financial systems is connected to the ability of financial systems to obtain information on which projects are available at the time and which are feasible. It gives financial institutions the ability to invest in projects that are profitable and whose risk can be greatly reduced. People that save money at an individual level cannot easily process and acquire information on conditions in the market, managers and firms as the costs are high. Thus, one cannot be able to tell which investment will give them an acceptable return on their capital. Financial institutions are able to reduce the cost of information through making the most use of economies of scale as well as specialization. More information also helps in identifying which technologies are more efficient for production and the investors who have the highest likelihood of successfully initiating new processes of production and packing goods. Stock markets also play a significant role in generating information about various companies.

5. Accumulation and mobilization of savings.

Mobilizing people to save as a way of getting capital from a number of savers so as to get capital for investment is quite difficult. Information and transaction issues have to be overcome during the savings process. The presence of financial systems in a country helps to increase the willingness of savers to put their surplus cash into financial institutions. The existence of an insurance structure at the government level helps facilitating this particular function of the financial systems.

Financial systems that have the ability to get people to save promotes economic development in the country through beating indivisibilities in the financial sector, taking advantage of the economies of scale and augmenting savings. By running projects that are indivisible, financial systems that are able to get savings from a lot of people are able to diversify as they are able to venture into projects that are risky.

Additionally, they move towards investing in projects that are bound to bring in higher returns. Mobilization of savings helps in increasing the allocation of resources as well as the ability to invest in innovations.

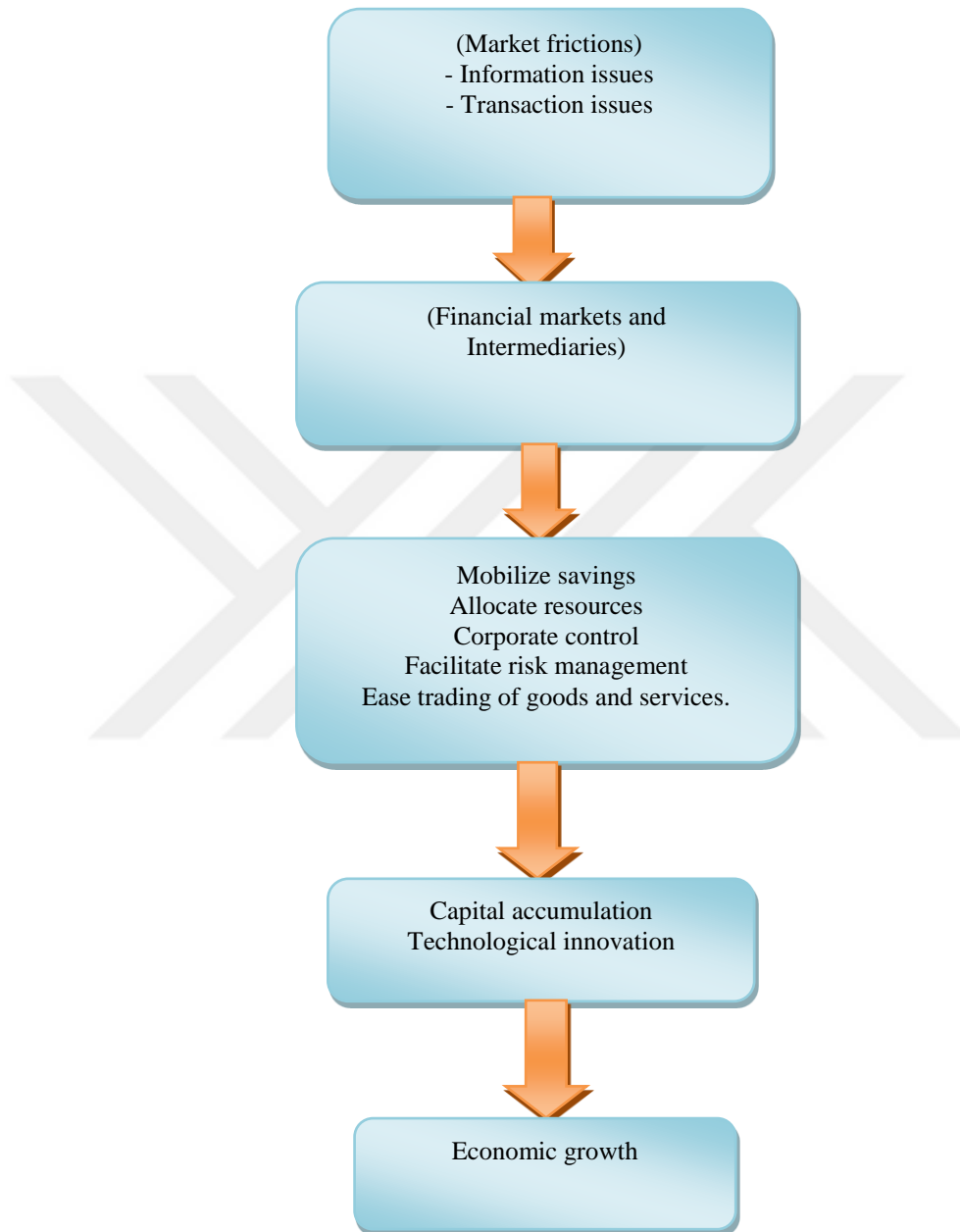


Figure 1: Financial sector development and economic growth.

Source: Levine (1997:691).

1.2. The Measurement of Financial Development

As argued by Edwards (1996) "defining appropriate proxies for the degree of financial development is, indeed, one of the challenges faced by empirical researchers". Measuring financial development is not easy and there is no direct measure that can help economists to assess it. Due to this, a number of indicators are used during its measurement. As generally accepted, financial development can be measured in terms of four dimensions: depth, access, efficiency and stability. The most common dimension which is used in the measurement of financial development in literature is the financial depth which reflects the size of the financial sector, and is measured by the ratio of liquid liabilities of the financial system to Gross Domestic Product (GDP) (Petra 2012). Researchers use different measures to measure the depth in a particular financial sector. However it is important to note that they have similar behavior in that they use measures that are connected to money supply and this kind of measures are known as the monetary aggregate. Some researchers use the ratio of M2 to (GDP). Abduljalil and Yingma (2008) is a perfect example to explain this fact. The study focuses on using the M2 indicator which leans towards the measurement of large portions of money. The second indicator that is used to evaluate the financial development is the bank ratio which is defined as the ratio of bank credits divided by the sum of bank credits and central bank's domestic assets. This proxy is specifically used in King and Levine's (1993a) study by using three different measures of development in the financial sector, and they found a strong positive link between financial development and economic growth.

The stock market measure is also used in empirical studies to measure financial development and it consists of three effective indicators. The first important proxy that is commonly used is the stock market capitalization ratio which was also used by Yu et al. (2012). This proxy refers to the aggregate size of the stock market which is also equal to the total value listed shares to GDP. The second proxy is the Turnover ratio which was employed by Baubakari and Jin (2010). This proxy is equal to the total value of traded shares divided by gross value of listed shares. The last proxy is the stock market activity which is used by Manning (2003). This proxy is equal to gross value of traded shares to GDP.

Cihak et al (2012) constructed a 4x2 matrix of the financial system characteristics, by indicating the financial development proxies with regard to these four dimensions (financial depth, access, efficiency and stability) by using the global financial development databases to analyze financial sector development and trends in 205 jurisdictions around the world which is provided in Table 1.

Tble1: The 4x2 matrix of financial system characteristics

	Financial institutions	Financial markets
DEPTH	Private credit to GDP Financial institutions assets to GDP M2 to GDP Deposits to GDP Gross value – added of the financial sector to GDP	Stock market capitalization plus outstanding domestic private debt securities to GDP Private debt securities to GDP Public debt securities to GDP International debt securities to GDP Stock market capitalization to GDP Stock traded to GDP.
ACCESS	Accounts per thousand adults (commercial banks) Branches per 100000 adults (commercial banks) % of people with a bank account % of firms with line of credit (all firms) % of firms with line of credit (small firms)	Percent of market capitalization outside of top 10 largest companies: Percent of value traded outside of top 10 traded companies Government bond yield (3 month and 10 years) Ratio of domestic to total debt securities Ratio of private to total debt securities (domestic). Ratio of new corporate bond issues to GDP.
EFFICIENCY	Net interest margin Lending – deposits spread Non- interest income to total income Overhead costs (% of total assets) Profitability (return on assets, return on equity) Boone indicator (or Herfindahl or H-statistics)	Turnover ratio (turnover /capitalization) for stock market price synchronicity (co- movement) Private information trading Price impact Liquidity/transaction costs Quoted bid – ask spread for government bonds Turnover of bonds (private, public) on securities exchange settlement efficiency
STABILITY	Z- score (or distance to default) Capital adequacy ratios Asset quality ratios Liquidity ratios Other (net foreign exchange position to capital etc.)	Volatility (standard deviation / average) of stock price index, sovereign bond index Skewness of the index (stock price, sovereign bond) Vulnerability to earnings manipulation Price/earnings ratio Duration Ratio of short- term to total bonds (domestic, int'l) Correlation with major bond returns (German, US)

Source: Cihak et al (2012), p 17.

Due to the fact that every country has its own unique economic and financial structures that is different from others, these indicators suggest that the studies and literature offers a little unanimity concerning the most appropriate measures of financial development. Some countries depend on banks whilst other countries depend on stock market in applying their financial proxies. So as to get an encompassing view of indicators of financial development in a particular country the financial sector has to be evaluated and indicators that are related to it should be formulated.



CHAPTER 2

ECONOMIC GROWTH: THEORETICAL CONSIDERATIONS

2.1. Economic Growth

Philip and Peter (2009) defined economic growth as an increase in the amount of goods and services that are produced in a given country. Economic growth in a given country is generally measured by using the gross domestic product (GDP) which is one of the most important, widely used and inclusive measure of national output. Regardless of who owns the resources, it takes the market value of all final goods and services that are produced in a given country during a specified period generally one year. Economic growth can be measured by changes in the gross domestic product; it measures a country's full economic output for the past year. Moreover, it includes all goods and services that are produced in the country for sale, whether they are sold domestically or sold overseas. It only measures finished production, so that the parts manufactured to make a product are not counted. Exports are counted, because they are created in the country while imports are deducted from economic growth (Idris 2012).

Morris (1998) points out that a growth in the economy shows that a country is moving in the right direction while a slowdown points out that a country needs to evaluate what it is so doing wrong. Denison (1962) argued that the growth of an economy could be seen by evaluating the GDP per capita or the real GDP. Economic growth implies an increase in living standards as well as wealth of people living in the social order. Wealth of people relies on a raise in their consumption. Therefore, economic growth can be defined as having an aptitude and ability to produce goods and services in an increasing set and total of a society. It is argued that an increase in production capacity leads to sustainable increase of income per person for a given country (Turan 2008). Economists have emphasized that economic growth is affected

by direct and indirect factors. Direct factors include innovations in technology, natural resources (such as land and minerals) and last but not least human capital (a decrease or increase in the working population) whereas, indirect factors include fiscal policies, saving rates, investments, labour and capital, efficiency of the government, the effectiveness of the financial system, financial institutions, private sector and the stance of the aggregate demand (Boldeanu and Constantinescu 2015). Countries had been grouped as developed and developing countries. This new world design led nations to set economic growth as a main target for conformity with the new process. Therefore, economic growth is one of the most important economic policies of governments for developing countries, as in Turkey. While economic growth is critical for developed countries, it is in the foreground for developing countries. Economic development consists of education, health and other social factors. For poor countries, there is no sensibility in experiencing economic growth by with little or no economic development initiatives (Betül 2013).

From the assessment above economic growth can be defined as just the increase in real GDP that occur annually to an economy, whether due to increases in aggregate demand and supply of goods and services as occurs in the developed countries, or as a result of efforts associated with an organized long-term restructure and completion of economic, technological and social structure. The economies in the world are divided into three particular classes that is: underdeveloped, developing, and developed countries. Hence, economists have to ask what brings about the differences in various countries. Idris (2012) points out several advantages of economic growth. First of all, economic growth enables consumers to get higher levels of income. Secondly, economic growth helps to increase the employment rate and thus lead to a decrease in the level of unemployment. Next, it helps governments to decrease borrowing by creating higher tax revenues which in turn enables to improve the public services such as education and infrastructure. Besides, economic growth can also help to protect the environment by spending more money to environmental issues from the revenue.

2.2. Main Theories on Economic Growth

2.2.1. Schumpeterian Growth

The Schumpeterian Theory on economic growth is named after Schumpeter Joseph (1911) an economist from Australia. His growth model takes up the view that growth of the economy is pushed by new innovations which refers to the process of creative demolition that understands the duality of technological development. It has the view that entrepreneurs formulate new processes and products for the market so that they can get the advantage of being a monopoly even though it is for a short period of time. As put by Parelo (2010), through innovation, the current processes and products in the market are made outdated. The behaviour of innovations to render processes and obsolete products makes them destroyers.

2.2.2. Harrod and Domar Growth Theory

Investments and savings are the most important factors that are used in this model. Harrod (1939) and Domar (1946) stated that a high level of national income is a result of increases in investment which leads to supporting the aggregate demand. Besides, an increase in the productivity is a result of total supply. The returns of national income become larger, if investment increases in the productivity which led to more investment again, this leads to get a high level of marginal saving rate and economic development by channelling funds with effecting capital accumulation in growth. In addition, Harrod-Domar analysed the necessity of monitoring the saving rates and introducing foreign capital that supports growth (Liu 2011). They first applied the mathematics in calculating economic growth rates. They have distinguished three important rates of growth which are; natural growth rate which is equivalent to a growth rate of employees in addition to the labor productivity growth rate, the actual growth rate and secured growth rate, which is a growth of previous years and guaranteed to achieve rate in later year with fixed marginal propensity to save (Thirlwall 1999).

2.2.3. The Theory by Solow (Exogenous Growth)

The founder of this theory is Solow (1956) who assumes that the growth rate is determined by the rate of population growth and technical advance. Both are considered as an external factor for continued growth. The Solow model has denominated economic growth theories in the long run with production function in terms of constant returns to scale. This model examines the division of output between consumption and investment and its effects on capital accumulation. In addition, Solow model state that the long run growth rates are strongly related to the exogenous factors, such as population growth rates, productivity growth, the structure of labor force and technology. These exogenous factors explain the steady – state level of income. In the Solow model the Cobb-Douglas production function is given as follows:

$$Y = A e^{mt} K^a L^{1-a}, 0 < a < 1.$$

In the above equation, Y, K, L, A, e^m and a denote output, capital, labor, "effective of labor", technology for exogenous growth rate and the share of labor respectively (Pack 1994).

Solow (1956) investigates what brought about different economic growth in various countries. He proposed an exogenous growth framework which considered progress in technology as exogenous phenomena. This framework is particularly important as it helps to explain the function of accumulating infrastructure and emphasizes on the value of advancements in technology citing that it is the power that sustains growth in an economy. Solow (1956) developed a model that was greatly used in the 1950's. This framework takes on the thought that labor and capital experiences diminishing returns. Capital in a country is increased by the amount of savings. The growth of population and depreciation decreases the output level of each worker and hence the amount of capital also reduces. This type of growth leads to economic growth that is steady. Solow's model points out those nations can be able to surpass steady growth by employing the use of new technologies. The model also emphasizes that the per capita output is greatly affected by the level of savings in a country in the long-run.

The model emphasizes that for a nation to grow even when it is experiencing diminishing returns then the exogenous effect has to be present. The exogenous factor represents the formulation of new technology which allows for production to be possible even when resources are quite a few. Once the technology in a country goes up, then the country starts to grow and make investments. This model also states that for underdeveloped nations to catch up and grow rapidly, they must have similar technologies and saving rates as those in developed countries. Grants and Toniolo (1996) stated that this theory refers to the adverse relationship between the growth levels and per capita income. In other words, the rate of growth decreases when the per capita income increased. Therefore, convergence in income between developed and developing countries appear if they arise foreign and domestic investment (Obsfeld 2008). The Solow model has been successful in practice in developed countries, but has not achieved in developing countries (Tawiri 2010).

2.2.4. The Theory on Endogenous Growth

The theory on endogenous growth included a new notion that is considering people as capital and their knowledge and skills as important factors of production. The theory states that humans have an augmented return rate. Theories in this class have centred on what augments the productivity of human capital. An endogenous growth model is the implicit source of growth that is developed by Philip and Peter (1992). This theory presumes that an industrial advance improves the quality of products. The size of the savings increases spontaneously by increasing the confidence of savers towards financial intermediaries (Boca 2011).

On the other hand, Pagano (1993) used the AK model for closed economy (where K embodies both human and physical capital and A is the level of technology which is a positive constant) and discussed that financial system enables fund transfer and expense of efficiency intermediaries that help to transfer savings into investments and these intermediary institutions can effect economic promotion by raising the marginal productivity level of capital. Moreover, this theory assumes that growth is concerned with investment and savings in human capital, and is concerned with investment research and progress and production of knowledge.

Thus, the government can ameliorate the efficiency of allocating resources through human capital and through encouraging investment in high-tech industries and long-run growth is preferable (Ito 1997).

2.2.5. Theories on Unified Growth

This Theory was formulated by Galor (2011) in order to address the disability of endogenous growth theory to explain key empirical regularities in the growth procedure of an economy. Endogenous growth theory was satisfied with accounting for empirical regularities in the growth process of developed countries over the last hundred years. As a result the theory on endogenous growth was not able to demonstrate the different empirical regularities that characterized the growth process over longer time horizons in both developed and developing economies. The theories on unified growth are able to get described the entire process of economic growth with particular interest being put to the shift from economic stagnation which characterized most of the developmental process to the modern form of economic growth which is sustainable. The theory on unified growth provides a formal framework which accounts the entire growth process of human history. The term “unified” can be defined as fundamental growth engines that have propelled the transmissions from recession to sustained growth, causing essential divergence in living standards across the global economy. Unified growth theory provides insights on the interaction between the process of economic development and the human evolution.

2.2.6. New Economic Growth Theory

This theory stands for creativity in long run growth instead of capital accumulation. The lead developer of this model is Romer (1986), who discussed that human capital (such as engineers) and institutions (such as patent law) improve standard of living. This will not only help the investment on knowledge to be stable but will provide higher level of return rates. As well by imitating the developed countries technology, developing countries can realize technological innovations and by rising their savings and capital accumulation, they can experience a rapid economic growth (Liu 2011).



CHAPTER 3

The Relationship between Financial Development and Economic Growth

The relationship between the economic growth and the financial development of an economy is a long debated subject. Various researches have been investigating this relationship and analysing the controversial issues among the economists. The financial development and economic growth relationship was first unequivocally shown by Bagehot (1873) who introduced clear samples on how financial sector development in England fortifies capital stream to locate its most noteworthy rate of return and how financial middle people change funds into long haul ventures which advances economic growth.

One of the first economists to talk about how the financial system in a country can affect the economic growth was Schumpeter (1911) who pointed out that the financial system affects growth because it determines which resources are released to firms so as to enable productivity and push for innovation. Due to this, financial institutions play an essential role in the development of the economy by helping innovations to be developed. However, it is important to note down that Bagehot (1873) had briefly talked on the issue though in a light manner. On the other hand, Robinson (1952) discussed that there exists a relationship between financial development and economic growth where the relationship flowed in such a way that economic growth boosts financial development. The growth in the economy pushes the need for financial tools and institutions hence leading to their accrual. The school of financial repression was put into use up to the start of the 1990s. This school explains how the growth of the economy is affected by the development of financial systems. The founders of this school are Shaw and McKinnon (1973) who argue that the implementation of certain policies such as requiring high reserve ratios restricts the development of financial institutions. In turn, this affects the growth of the economy.

The 1990s brought in new insights which focused on getting an explanation on information that showed growth frameworks that were endogenous. According to these frameworks, the tools and markets that are controlled by the financial system are endogenous variants. These frameworks state that development of financial systems leads to a growth in the economy through two particular ways. First, there is an increase of capital which helps in creating funds that help in the financing of investments which is pushed by the financial systems ability to make people save and lend out these savings to investors. Second, these frameworks point out that financial system keep an eye on projects that they have helped to fund by lending money to investors. This enhances the productivity of total factor as well as helping with the issue of information which is brought up by economic factors. Greenwood and Smith (1997), Pagano (1993), King and Levine (1993a), Beceivenga and Smith (1991) and Greenwood and Jovanovic (1990) all emphasize that increasing the productivity of total factor and accumulation of capital lead to economic growth.

Greenwood and Jovanovic (1990) are particularly important for the 1990s period as they emphasized on the role of the financial system in making best knowledge and pooling of risk on economic growth. They developed a model to detect the relation between financial development and economic growth. In their model, capital is assumed to be rare and many entrepreneurs stimulate capital. Financial markets and intermediaries show better choices than households when it comes to the selection of perfect investment opportunities. The financial system promotes high yield investments and provides more effective resource allocation by providing and improving information that is received by financial institution. In addition, it also reduces the risk that come up when investing in new technologies. The debatable relationship between financial development and economic growth can be seen in many developed and less developed countries. In developing countries, it is important to identify the stages of economic improvement whereas in developed countries efficiency of the financial system is pertinent for real GDP. Gurley and Shaw (1955) argued that developing countries are less efficient than developed countries and the amount of total savings is not sufficient in developing countries. Thus, they depend on capital inflow for economic growth. Many less developed countries try to repress the financial sector by decreasing the interest rates, regulating

the capital movements and tightening the association between banks and government. On the other hand, Calderon and Liu (2002) offered an opposite view about the association between financial development and economic growth and stated that the contribution of the financial markets to the occasional relationship in developing country is larger than in the industrial countries, where the developing countries have a wide area in the financial development and economic growth relation. In contrast, this relation is negatively affected in developed countries. The economic and financial improvement can be positive and important in the middle income countries while the high and low income countries are not significantly related (Rousseau and Whactel 2005).

Rajan and Zingales (1998) state that reducing the external finance from firms and easing to establish new productive firms lead to long run growth. They also suggest that inadequate financing methods have an impact in preferring foreign companies to the domestic. They also suggest that the sophisticated financial markets and banking systems have more ability to provide credits that are needed from industrial sectors. Studies such as King and Levine (1993a), Levine (2004) believe that a rise in financial development is caused by mobilization of savings, facilitation of transactions and risk management etc. Studies that have put these propositions forward have argued that arise in capital accumulation enhances the opportunities for economic growth. On the other hand, researchers, such as Robenson (1952), Kuznets (1955) Fredman and Schwartz (1963) suggest that the economic development leads to improvement in the financial system. The study of Goldsmith (1969) showed the difficulty of determining the direction of the relationship between economic growth and financial development: Financial development has the power to accelerate economic growth while financial development is a reflection of growth in the economy.

Graff (2001) referred to four groups of possibilities when talking about this relation. He first cited that there are no relationship between economic growth and financial development. Graff (2001) backs his proposal by saying advancements are pushed by historical processes. The second possibility is that the economic growth causes developments in the financial sector by causing shifts in the market as well as having effects on financial institutions. The third possibility is that the relationship

flows from financial development to economic growth. And the last possibility put forward by Graff (2001) is that financial development could have a negative effect on economic growth. This last possibility is set forth because there are some financial systems which are not stable.

3.1. Main Hypothesis on the Causality of the Financial Development and Economic Growth Relationship

3.1.1. Supply Leading Hypothesis (Financial Development Leads To Growth)

Advocates of this view argue that financial development has an impact on economic growth. Financial institutions can promote economic efficiency, create liquidity, mobilize savings, promote capital accumulation and allocate resources from traditional sectors to others that encourage economic growth. This hypothesis is first argued by Schumpeter (1911) and is developed by Patrick (1966), who stated that the demand for financial services is dependent upon the commercialization of agriculture and other subsistence sectors. Consequently, the creation of new financial institutions, their financial assets and liabilities and related financial services are a response to the demand for these services by investors and savers. Besides, the more rapid rates in the real national income growth, the greater will be the demand by enterprises for external funds (the saving of others) and thus financial intermediation, since in most cases firms will be less able to finance expansion from internally generated depreciation allowance and retained profits. In other words, with a given aggregate growth rate, the more the variance in the growth rates among different sectors or industries, the greater will be the need for financial intermediation to convey saving from slow-growing industries and from individuals into fast-growing industries.

Consequently, the financial system can promote and boost the leading sectors in the growth process. Orits and Solis (1979) support this view by discussing that the falling in performance of the growth rates in Mexico is due to the problems that are associated with financial intermediary activities.

3.1.2. Demand Following Hypothesis (Economic Growth Leads to Financial Development)

Advocates of this hypothesis argue that the changes in the technology and sophisticated production and services could promote the real growth which in turn increases the demand for financial services (Darat 1999). As argued by Patrick (1966), the creation of modern financial institutions and related financial services are a response to the demand for these services by investors. The more rapid the growth of real national income, the greater will be the demand by enterprises for external funds and financial intermediation (Kar and Pentecost 2000). In this sense, development of the financial sector is a consequence of the development of the real sector (Betül 2013). Therefore, economic growth leads to financial development by increasing the demand for the quality and the variability of the offered services. For this hypothesis, Kar and Pentecost (2000) conducted an empirical study on Turkey and found unidirectional causality from economic growth to finance accession sectors.

3.1.3. The Bidirectional Causality Hypothesis (Two Way Causation)

This hypothesis is a combination of the two previous hypotheses (supply leading - demand following hypothesis) and state that there is a two way (bi-directional) or mutual relation between financial development and economic growth. Financial development gradually encourages economic growth and this, in turn, causes feedback and encourages further financial development. Patrick (1966) stated that there are two way relationship for the link between financial sector and the real sector in any country and argue that in the first stages of development, the direction runs from financial development to economic growth, where financial development allows to transfer savings from traditional sectors to new sectors that is more effective in production and return to capital, while in the later stages of the development process the direction runs from economic growth to financial development. Jung (1986) conducted a study on fifty six nations by using Vector Auto Regressive (VAR) and causality analysis and found that in developed countries

the relationship flows from economic growth to financial development and in developing countries it is the opposite. Perera and Paudel (2009) conducted a study to test this hypothesis by using six measures of financial development and different models for Sri Lanka and found that the broad money reasoned growth with two way causality.

In general, the developments that has been in the world especially in developed countries comes from following the correct plans, advanced financial systems, and advanced economic structure and dynamics. These developments helped to determine and detect the controversial link between financial development and economic growth. Finally, this relationship depends on the existence of a sophisticated financial system that is able to perform its functions effectively and efficiently which reflects on reducing the cost of obtaining information and encouraging investment as well as contributing to exploit investment opportunities for institutions, works to meet the financing needs of these institutions and facilitates the exchange of goods and services. Accordingly, the controversy about the relationship between financial development and economic growth requires more empirical evidence, as the debate on the underlying causality linkage between the two is mysterious.

3.2. Scepticism over the Relationship between Growth of the Economy and Development in the Financial Sector

In the prior subsections, it was highlighted that the functions which are offered in the financial sector are affected by the accumulation of capital as they lead to improvements in the current technology. All these help to boost growth of the economy. However, the effect of these functions may have detrimental in relation with the real growth. As some economists say that financial sector may cause a crisis and can destabilize the economy. This has been the case in a lot of countries during recession periods. Keynes (1936) supported this view and stated that speculative activities lieutenant in stock markets have effects that may destabilize a particular economy. Similarly, Kindleberger (1978) also argued that financial system can be affected by speculative behaviour which leads to asset price bubbles.

Investors always strive to sell their assets and dispose them off before prices in the market continue to go down. This is very detrimental to an economy as it leads to lack of confidence which may cause the economy to continue weakening. Therefore, the price bubble get to finally burst and effect finance turmoil and economic crisis. Arcand et al. (2012) researched the impact of financial system on real growth by using different data and methodology and found that a small or a medium sized financial system will contribute the growth of the economy and obtains a high return by providing credit. In addition, the economic growth may be negatively affected when the financial depth reaches 80% - 100% of GDP. This effect is likely to make allocation of resources to go down. If a person has no credit then they are not given loan which will lead to financial crisis risk emerge and economic volatility by credit booms. Cecchetti and Kharroubi (2012) emphasize that a large finance is not good for economics because they think that financial system negatively affects the economy.

3.3. Empirical Literature on the link between Financial Development and Economic Growth

Through the rapid developments in the financial intermediation with the advanced payment methods and the role of these improvements in the progress of economic policies, the relationship between financial development and economic growth has become to attract widespread attention. Studies have recently focused on the nature of the occasional relationship between financial development and economic growth. Some studies like King and Levine (1993a), Levine (1997, 2004), and Gupta (1984) found that improvements in financial sector lead to economic growth. Besides, the upgrading in the financial intermediation in the financial system is a result of mobilizing savings, facilitating transactions, risk management and etc., lead to an increase in capital accumulation, then enhance the opportunities for economic growth. On the other hand, some researchers such as Robinson (1952), Kuznets (1955) Fredman and Schwartz (1963) suggest that the economic growth lead to improvement in the financial system. Other researchers such as Blackburn and Huang (1998) argued that financial development and economic growth reinforce each other. In other words, economic growth helps to develop financial systems and financial development helps to foster economic growth. Hence the direction of the causality is two way. Studies by Demetriades and Hussein (1996) Luintel and Khan (1999), Khan (2001) and Calderon and Liu (2002) investigated the causal relationship between economic growth and financial development and their results support the view that this relation is bidirectional. On the other hand, researchers such as Stern (1989), Chandavartar (1992), and Lucas (1998) lacks to find an interactive association between economic growth and financial development.

Some of the past empirical research is briefly summarized in Table 2. By evaluating the information presented in the table it is clear that there is a strong positive link between economic growth and financial development.

Table 2: Applied Studies That Relate To Economic Growth and Financial Development

Outcome	Methods Used	Indicators of Financial development	Countries	Period	Study
Positive relationship between financial development and Economic growth, short-term Two way causality.	Panel regressions, decompositions	Domestic credit banking sector -Domestic credit to private sector -(M3) -Gross domestic saving GDS -Trade/GDP -GOV/GDP: Government final consumption expenditure.	168 developing countries	1980-2007	Hassan. etal. (2011)
A positive correlation between financial development variables and Economic growth.	ARDL (Cointegration)	-M2/Nominal GDP -Deposit liabilities/ Nominal GDP. -Credit private sector.	Pakistan and China	1960-2005	Abduljalil and Ying Ma (2008)
The rise in the investment led to rebound in Egyptian economic performance then financial sector essential to boost economic growth.	Cointegration Technique, VECM And Granger Causality tests	Real GDP per capita Share of investment to GDP Money stock ratio M2 minus currency to GDP Bank credit to private sector to nominal GDP.	Egypt	1960-2001	Suleiman and Abu-Quan (2005)
Financial development cause economic growth.	Granger causality and ECM.	real GDP Credit to private sector by financial intermediaries.	13 countries in sunSaharan African	30 years	Ghirmay (2004)
The stock exchange market and banking industry hence the financial sector affects the growth of the economy positively.	Exogenous test that is weak, Johansen cointegration Technique and VECM.	Volatility in the stock market. The GDP to domestic bank credit ratio. The GDP and value of the stock market ratio.	Five developed nations	Quarterly data from 1972 and to 1998	Aretis et al. (2001)
Hypotheses of supply leading	Impulse-Response Analysis, and VAR	Total deposits to the GDP	Forty-one countries	Annual information between 1960 and 1993	Xu (2000)
There is a relationship between economic growth and financial development though it is bidirectional	Granger Causality tests, Johansen Cointegration Technique, VECM, and VAR	Total deposits to the GDP	Ten developing nations	Annual information that must span over thirty-six years	Luintel and Kahn (1999)
Hypotheses of supply leading	Granger Causality, Johansen Cointegration Technique, VECM, and VAR.	The fluctuation between the base and money stock. Pension funds, credit cooperatives, insurance companies, savings institutions, and commercial banks assets. Saving institutions and commercial banks joint assets. The commercial bank's assets.	Five developed countries	Annual data from 1870 to 1929	Rousseau and Wachtel (1998)

There is a strong link between economic growth and financial development	OLS	The GDP divided by the credit that is given to investors. Stock returns volatility. The GDP divided by the stock market value. The return ratio of the stock market. The stock market capitalization.	Forty-seven nations	Annual data ranging from 1976 to 1993	Levine and Zervos (1998)
The hypothesis of supply leading is true because the manufacturing and financial sector's GDP is co-integrated in the examined nations.	Granger Causality tests, Johansen Cointegration Technique, and VAR.	The GDP in the financial sector	Thirty OECD countries	Annual information 1970-1991	Neusseur and Kluger (1998)
Considerable evidence of bidirectional causality	Granger Causality tests, Johansen cointegration Technique, VECM, and VAR	The GDP and private sector's volume ratio. The GDP and total deposits ratio	Sixteen developing nations	Annual data that is within twenty-seven-year range	Demetriades and Hussein (1996)
The Causality between economic growth and financial development is positive.	OLS	and private sector's volume ratio to The GDP. The ratio of the total domestic credit to the private sector credit. M3/ GDP	Eighty countries	Annual information ranging from 1960-1989	King and Levine (1993a)
In developed nations the relationship flows from economic growth to financial development and in developing countries it is the opposite.	Granger Causality tests, and VAR	M2/GDP. M1/GDP.	Fifty-six nations	Annual data spanning within twenty-seven years	Jung (1986)
The hypothesis on supply leading is true.	Granger Causality tests, and VAR	M2	Fourteen developing countries	Quarterly information between 1961 to 1980	Gupta (1984)
As economic growth goes up so does financial development	Graphical Analysis	the financial assets value ratio to The GNP	Thirty-five nations	Annual data spanning from 1949 to 1963	Goldsmith (1969)

CHAPTER 4

FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN THE CASE OF TURKEY

4.1. Turkish Economic Outlook

In 1980s, the strategies of the Turkish economic advance went through significant changes. Turkish economic policies towards net trade changed through switching into export led growth instead of import that came from liberalization in financial market preface (Doganlar 1998). Turkish industry with the service sectors had an active role in increasing the growth rates. The involvement of the state had reduced in some sectors such as communication, banking, transport and the basic industry by applying an aggressive privatization program. Thus, this added dynamism into the Turkish economy.

The trend of Turkish real growth rates and the data for the post 1985 era can be followed from Table 3 and Figure 2. The figure illustrates the fluctuations that happened in the Turkey's annual GDP growth rate. Especially, in years 1991, 1994, 1999 and 2001 which is affected by negative economic crisis. These crises are as a result of several factors such as populist domestic policies, industrial and political instability problems in foreign affairs and a major earthquake in 1999. According to the World Economic Outlook (WEO) report which is established by International Monetary Fund on October 2015, Turkey ranked in Emerging and Developing Europe which is provided in Table 4.

Table 3: Real GDP Growth in Turkey (1985-2014).

Years	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14
Annual %	4.7	3.6	4.4	4.4	3.2	5.4

Source: The Data are obtained from WDI 22/12/2015.

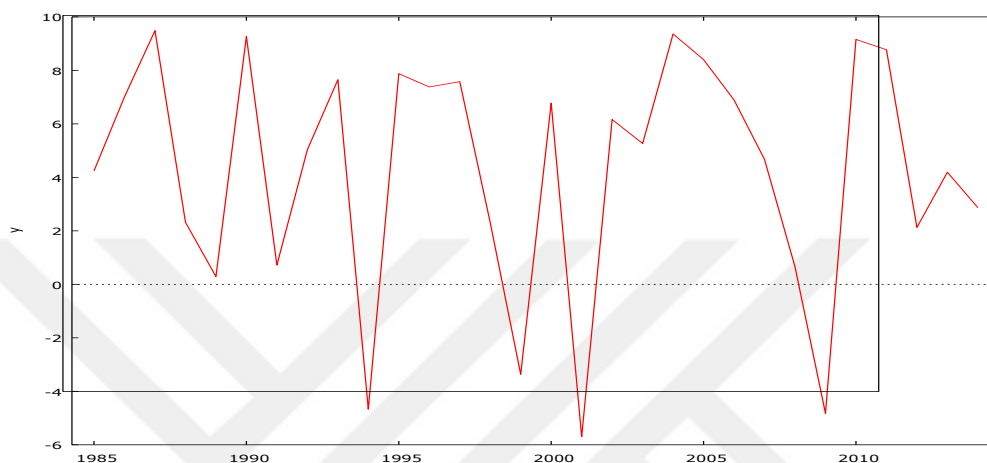


Figure 2: Real GDP Growth rate in Turkey (1985-2014).

Note: The data provided in Table 3 is graphically plotted in figure2.

Table 4: Emerging Market and Developing Economies Real GDP (Annual %).

Turkeys Ranked as Emerging and Developing Europe.

Countries	1997-2006 Average	2007	2008	2009	2010	2011	2012	2013	2014
Albania	5,1	5,9	7,5	3,4	3,7	2,5	1,6	1,4	1,9
Bosnia And Herzegovina	7,8	6	5,6	-2,7	0,8	1	-1,2	2,5	1,1
Bulgaria	3,5	6,9	5,8	-5	0,7	2	0,5	1,1	1,7
Croatia	3,8	5,2	2,1	-7,4	-1,7	-0,3	-2,2	-1,1	-0,4
Hungary	4	0,5	0,9	-6,6	0,8	1,8	-1,5	1,5	3,6
Kosovo	0	8,3	4,5	3,6	3,3	4,4	2,8	3,4	2,7
FYR. Macedonia	2,9	6,5	5,5	-0,4	3,4	2,3	-0,5	2,7	3,8
Montenegro	0	10,7	6,9	-5,7	2,5	3,2	-2,5	3,3	1,5
Poland	4,2	7,2	3,9	2,6	3,7	4,8	1,8	1,7	3,4
Romania	2,7	6,9	8,5	-7,1	-0,8	1,1	0,6	3,4	2,8
Serbia	0	5,9	5,4	-3,1	0,6	1,4	-1	2,6	-1,8
Turkey	4,3	4,7	0,7	-4,8	9,2	8,8	2,1	4,2	2,9

Source: IMF, WEO 2015.

According to the World Bank information (2016) Turkey is one of the important emerging countries that have high middle income partners of the World Bank Group (WBG) in recent years. In addition, it is ranked as 18th largest economy in the world. Per capita income was 10,000 US Dollar in 2014 with a population of 75.93 million. Turkey is a member of the Organization for Economic Cooperation and Development (OECD) as well as the Group of Twenty (G20), and an inexorably vital contributor to respective Official Development Assistance (ODA). Between 2002 and 2012, the utilization of the last 40% expanded at around the same rate as the national normal. Over the same period, compelling neediness tumbled from 13% to 4.5% and direct destitution tumbled from 44% to 21%, while access to wellbeing, training, and metropolitan administrations unfathomably enhanced for the less fortunate. Since the worldwide money related emergency, Turkey has made nearly 6.3 million occupations, despite the fact that increments in the work compel, incorporating through an ascent in the support of ladies, has kept unemployment at around 10%. Turkey's accomplishments and future potential have been a wellspring of motivation for other developing markets, and the World Bank has made a provision details regarding Turkey's transitions depicting the nation's encounters keeping in mind the end goal to impart them to intrigued creating countries.

The European Union (EU) increase handle has been a huge stay for changes in Turkey, yet advance has impeded lately. The EU is Turkey's biggest monetary accomplice, representing around 40% of Turkish trade. Turkey has profited fundamentally from emerging combination with the EU through developing refinement of both fares and imports and access to financing. Turkey turned into a contender for full EU enrollment at the Helsinki summit in 1999. Promotion transactions started in October 2005, yet advance has hindered as of late notwithstanding various political deterrents (counting relations with Cyprus). Both sides are attempting endeavors to recover force, with an emphasis on monetary collaboration, specifically the modernization of the Customs Union and strength relations. However, Turkey has been powerless against changes in speculator supposition and, together with other developing markets, has encountered huge money and budgetary market unpredictability since mid-2013 (The World Bank 2016).

4.2. Historical evolution of the Financial System in Turkey

The most dominant part of the financial sector in Turkey is the banking system. The financial sector in the country became active following the foundation of Republic of Turkey in 1923. The "Türkiye İş Bankası" is the one of the first private banks that was established in the country. This bank was set up in 1924 with the aim of enhancing development in the economy by lending capital to the business sector. It was done so as to give entrepreneurs the power to be innovative hence supports the economic growth. In 1925 "Sanayi Maden Bankası" was established. These banks were founded as private institutions and therefore, the government or the public had no control of what went in the financial sector. This trend continued up to 1933 (Betül 2013). In 1931 the country took a huge leap when the Central Bank of the Turkish Republic was set up. The Central Bank would help in the regulation of a financial sector that was largely dominated by private institutions (Carter 2013).

In 1944, the Yapı Kredi Bank was established. The next private bank to be established was in 1948 which is known as the Akbank. The private sector continued to dominate the market by having more financial institutions than those that were public (Coskun and Basar 2002). The financial sector went through a planned economic period between 1960 and 1980. This period came about because the financial sector became unstable. However, the private part of the financial sector continued to grow with the foundation of Arap -Turk Bank, Türkiye Maden Bank, and T. C. Turizm Bank. These banks accelerated the number of investments in private sector by providing the required funding (Gormez 2008). Despite of five years plan that was formulated between 1963 and 1967 the Turkish economy witnessed a decrease in savings especially between 1976 and 1980, this was mostly attributed to foreign debt and policies that negatively affected interest rates. During this entire period Turkey went through a financial repression (Betül 2013).

The 1980s brought in dramatic shifts in the Turkish financial system. During this period, the developmental process in financial systems was based on financial liberalization frameworks. The primary activity in this framework was the liberation of interest rates on credit as well as deposit accounts terms (Şıklar 2001). After the 1980's era development of financial institutions in Turkey got modern as financial markets which were newly came into the system. In 1984, an adjustment to the law led to the liberalization of foreign currency in Turkish banks. In 1985, Borsa Istanbul (formerly Istanbul Stock Exchange) was founded. In 1986, the Interbank Money Market (IME) was set-up. It was the first step that was made towards the liberalization of practices that governed foreign exchange. In 1988, the second step in the liberation of practices that governed foreign exchanges was made. This step included two new establishments in the Turkish Central Bank that is an effective market as well as the Interbank Foreign Exchange (IFE). The section of the law that had been adjusted in 1984 is changed in 1989 leading to more liberalization of practices in foreign exchange. The change to the law also led to the lifting of capital movement controls. In 1989, foreign currency was supposed to be exchanged in terms of gold. This initiative was to be undertaken under the control of the Turkish Central Bank. The Istanbul Gold Exchange was set up in 1995 and the authority to bring gold into the country was transferred to participants in the Turkish market. The 2000s have also brought in a couple of changes to the financial system in Turkey, particularly targeting instruments and institutions in the financial sector. Treasury Undersecretaries started to issue out indexed bonds that focused on indexes on the Consumer Price in 2007. Systems such as the private pension and mortgage were established during this time. In 1997, the first derivatives market known as the Istanbul Gold Exchange Derivatives was established in Turkey. In 2003 futures in the EURO/TL were established and in 2001, futures in USD/TL were put into transaction. These futures were established by the Istanbul Stock Exchange General Directorate which is another derivative market. However, in 2005, the operations of the future general directorate in the Borsa Istanbul, as well as the derivatives exchange of Istanbul Gold, were stopped. After this, there was an establishment of the Turkish Derivatives Exchange which was supposed to deal with derivative market transactions that are derivative in nature (Akinci et al., 2013).

4.3. Turkey's Current Financial Sector

The financial sector in Turkey was able to stand strong during the recession that hit the world in 2008. The sector was also able to exceed the economic crisis which followed the turmoil. Turkey faced a meltdown of its financial system in the early 2000s and due to this, the whole system was restructured and new reforms on regulations were made. The reforms helped in boosting the confidence of investors to the point that the financial sector in the country is important for foreign direct investment (FDI). Over the last couple of years, the country has experienced investments which appreciated by 48 million dollars. The financial sector in the country is currently dominated by banking. The conditions in Turkey support liquidity that keeps on growing hence contributing to the development of the financial sector. The number of assets that are in the financial sector have been going up over the last 14 years. The structure of the equity system in the country is quite strong hence protecting the financial sector from problems that may come from conditions in the market or loans.

Though the financial sector in the country is quite developed, the insurance markets are quite underexploited. The insurance market only accounts for 1.4% of the GDP. Turkey has a large part of its population stemming from dynamic and young people. This has been particularly important in the growth of the economy which has been quite strong. In addition to this, services and products in the financial sector are being increasingly demanded. This has helped the economy of the country to grow as more savings are made and hence money for carrying out investments is available.

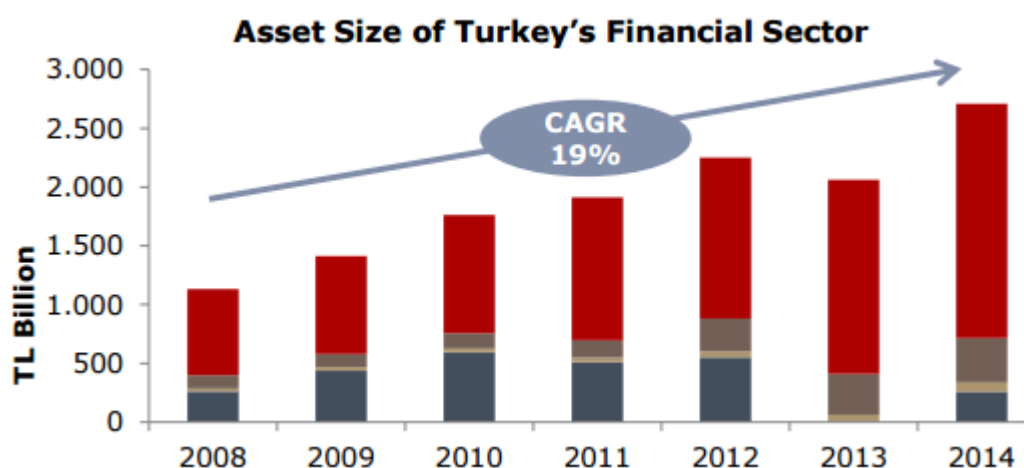


Figure 3: Turkish financial sector's asset size

Source: Financial services sector in Turkey (FSST 2016).

Figure 3 shows that Turkey basically enjoys a significant growth in the assets with a surprising Compound Annual Growth Rate (CAGR) of around 19 % i.e. a significant increase in the total assets to GDP ratio from 63% in 2005 to 114% in 2014. Despite that, the banking sector of Turkey is still unsaturated when compared with the Euro Area (FSST 2016).

According to annual report published by Banking Regulation and Supervised Agency (BRSA), overall financial asset size was overtake the gross domestic product GDP in the first time in history. The institutions, which are under the mandate (BRSA), were developed constantly. Overall asset size of Turkish financial sector reached at 2.4 Trillion TL. Borsa Istanbul and direct finance were included by 21% and the remaining 79% counts for financial intermediation and indirect finance as seen in Figure 4. 97% of the overall coverage was the shares of banking sector and the remaining was the share of financial leasing corporations, factoring and financing corporation with 1% for each of them and it can be seen in figure 5. This more obviously demonstrates the importance of financial intermediation function for the stability and performance of Turkish economy (BRSA 2014). The Banking Regulation and Supervised Agency (BRSA) established in 2000 and founded by new banking law in 1999. The aim of this organization is to control and regulate the Turkish banks and financial sector as well as to contribute the financial markets and

financial stability by performing the institutions operations in a safe and sound manner. It takes required measures to make institutions subject their supervision secure (BRSA 2014).

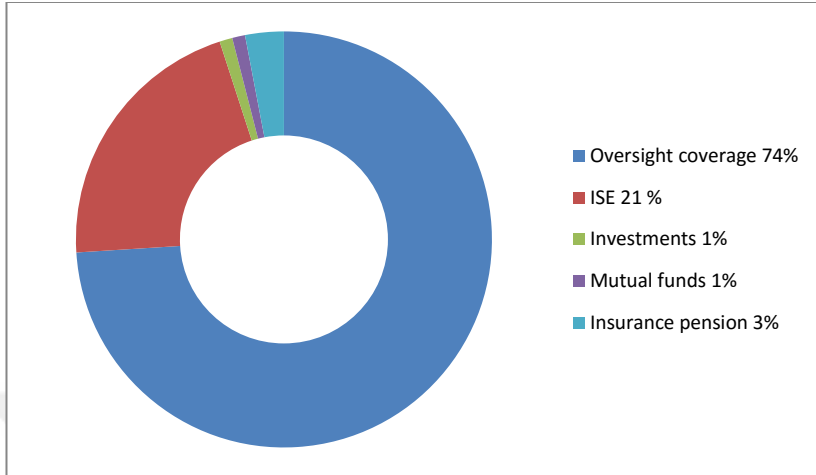


Figure 4: Total size of Turkish financial sector in 2013.

Source: (BRSA) Annual Report 2014.

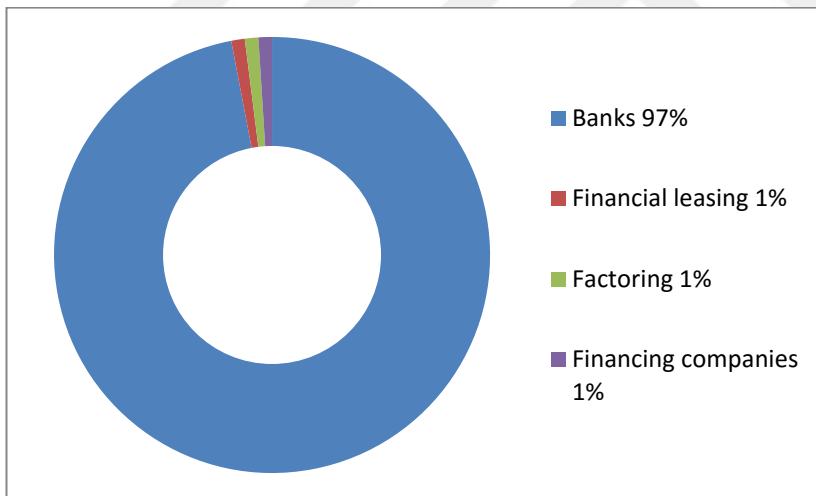


Figure 5: Banking sector in Turkey in 2013.

Source: (BRSA) Annual Report 2014

Trends have shown that other parts of the financial sector have the potential to grow significantly. Total of banks in Turkey as of September 2015 was fifty banks which are provided in Table 5. The country has five participation banks, thirteen investment and development banks and thirty-two banks which focus on deposits. Statistics show that twenty of the banks in the country hold foreign capital that is quite significant (BAT 2015).

Table 5: Number of Banks in Turkey

	2011	2012	2013	2014	Sep 2015
Deposit Banks	30	31	32	32	32
State Owned	3	3	3	3	3
Private	11	12	12	10	9
Foreign	16	16	17	19	20
SDIF	1	1	1	-	-
Development And Investment Banks	13	13	13	13	13
Participation Banks	4	4	4	4	5
Total	47	48	49	49	50

Source: (BAT 2015)

Note: the data of Saving Deposit Insurance Fund (SDIF) banks are excluded as from February 2014 by (BRSA).

4.4. Financial Crisis:

“A financial crisis is a disruption to financial markets in which adverse selection and moral hazard problems become much worse, so that financial markets are unable to efficiently channel funds to those who have the most productive investment opportunities” (Mishkin, 1992, p.115). The liberalization process of post 1980s period had an effect to create instability of Turkish economy that caused an increase in interest rate risk and exchange rates led to financial crisis in 1994. Furthermore, the value of Turkish lira decreased by 57% led to lose by over half of this value in the Turkish banking sector (Celason 1999). As a result the crisis the inflation rate rose and reached at 106% because the budget deficit reached at the high levels with a decrease in the number of bank branches and employees (BAT 2012). The government tried to overcome the crisis by signing an agreement with IMF in 1994 (Damar 2004).

In September 1995, another stand-by agreement with the IMF was signed at the end with the early announcement of the parliament election and this announcement created a political instability in Turkey. After 1995, government tried to avoid liquidity crisis. The central bank banned speculative attacks on foreign currency by offering flexibility of interest rates on Treasury bills and gathering of foreign exchange reserves (CBRT 2005).

In 1999, the high budget deficit caused high inflation rate. Turkey's economy influenced adversely by Asian crisis and narrowed world trade. Asian crisis risk caused to transact 6 billion US dollar capital outflow. In addition, the earthquake of 1999 and the political doubt in Turkey costed 13 billion US Dollar (Savrun 2011). In October 2000, the IMF delayed the release of the 3rd tranche of loan. These affect the expectations of international investors negatively and enhanced capital outflows supplementary. Thus, a new financial crisis, high interest rates and liquidity problems was experienced in November 2000 (CBRT 2005).

This crisis increased the vulnerability of the banking sector. The shortened maturities of both foreign and domestic funds, high levels of inflation and the TL appreciation against the foreign exchange basket created suspicion about the peg sustainability. There was a new agreement with the IMF signed in May 2001 in order to decrease the uncertainty in the financial markets and to establish the macroeconomic stability (CBRT 2005). Briefly, these entire financial crisis imply the instability of the macroeconomics and fragility of the financial system in Turkey. Furthermore, the important role of the IMF in the post crisis periods has led Turkey to be a debt paying country in all these crisis periods (Selma 2005).



4.5. Past Empirical Research Investigating the Relationship between Financial Development and Economic Growth for Turkey

It had been observed that studies related to Turkey have different results therefore we can't limit ourself to one approach only and need more evidences which will help us in leading to a much stronger financial conclusion. Table 6 outlines some of these studies.

Table 6: Related Studies Made for Turkey

Findings	Methods and financial indicators	Time frame	Study
The type of relationship is bidirectional.	VECM Stock market capitalization divided by the GDP. Credit of the Private sector and GDP as a ratio.	Quarterly data from between 1987 to 2006	Demirhan et al. (2011)
The hypothesis on supply leading applies in the short run.	The stock market capitalization. Deposits ratios. The credit of the Private sector and GDP as a ratio. The GDP and total credit ratio. M2.	Annual data spanning from 1980 to 2010	Ince (2011)
Economic Growth to Financial Development.	Co integration- Granger-ARDL	Quarterly data 1987:1-2007:1	Nazlioglu et al. (2009)
No long-run relationship And a one way causal from Econ G to Fin D	(VAR) Vector auto regression Co integration and error correction methods. Financial credit to private sector.	1975 -2005	Özturk (2008)
The hypothesis on supply leading applies in the short run.	Total deposits ratio over GDP	Quarterly information between 1970 and 2001	Acaravci et al. (2007)
Hypotheses on demand following.	Stock market capitalization divided by the GDP. The stock market transactions divided by GDP. The credit of the Private sector and GDP as a ratio. The stock market transactions as a ratio of the stock market capitalization.	Quarterly data from 1987 to 2004	Kandir et al. (2007)

Economic growth and financial development have a relationship that is long running. The flow of the relationship relied on the financial development indicators that are utilized.	The private sector credit volume as a ratio of GDP. M2Y.	Quarterly information from 1988 to 2004	Aslan and Korap (2006)
Hypotheses on supply leading.	The number of credits in the private sector.	Annual data spanning from 1987 to 2004	Aslan and Kucukaksoy (2006)
The relationship between financial development and economic growth is bidirectional in the long-run while in the short run it shifts from financial development to economic development.	The credit of the private sector as a ratio of the Total credit. The credit of the private sector to the GDP. The credit ratios to the GDP as a ratio. M2.	Annual data from between 1970 to 2001	Unalmis (2002)
Indicators of financial development determine the flow of the relationship between economic growth and financial development. Nevertheless, the main inclination is to shift from economic growth to financial development.	The credit of the private sector as a ratio of the Total credit. The credit of the private sector to the GDP as a ratio. The credit ratios to the GDP as a ratio. GD P/M2.	Annual information from 1963 to 1995	Kar and Pentecost (2000)

Kar and Pentecost (2000) utilized five indicators of financial development for the 1963-1995 period by using Granger Causality Tests. Their study exposed that the course of the causal relationship between financial development and economic growth relies on the financial development indicator. As per the consequences of the study, financial development causes economic growth when the proportion of the cash to the GDP demonstrates financial development, while economic growth leads to financial development when the proportions of bank store, private credit and local credit to gross domestic product is utilized as the measures of financial development. Ünalmiş (2002) utilized the same indicators of financial development as Kar and Pentescot's for the 1970-2001 period by using Granger Causality Test and found a causal relationship from financial development to economic growth in the short run and a bidirectional causal relationship for the long run. Aslan and Küçükaksoy (2006), utilized Granger Causality Test for the 1970-2004 period, and inferred that

financial development prompts economic growth. They used an expansion in the volume of private segment credits as financial development proxy. By using the Granger Casualty Test and the Johansen Co-Integration Model for the 1987-2004 period, Aslan and Korap (2006) reported that there exists a long run relationship between financial development and economic growth, while the direction of the casual relationship merely depends on the financial development indicator which is being used. Kandır et al. (2007) utilized four distinct pointers of financial development, three of which are identified with stock trade business sector and one identified with the credit designation of the banks. They used Johansen Co-Integration Method and causality tests for the 1988-2004 period, and found that economic growth results in financial development. Acaravcı et al. (2007) utilized co-integration tests and VAR by using quarterly data for the period 1986-2006. In this study, utilizing the expansion as a part of the proportion of aggregate acknowledge to GDP as financial development, they reasoned that a long run relationship does not exist between financial development and economic growth. Notwithstanding, they additionally found that financial development causes economic growth in the short run.

Ozturk (2008) investigated the relationship between financial development and economic growth by using Vector Auto Regression (VAR), co-integration and Error Correction Methods and their found one way causality from economic growth to financial development. By utilizing causality tests for the period 1980-2010, İnce (2011) lacks to provide any relationship between financial development and economic growth in the long run, while the results indicate that financial development causes economic growth in the short run. Demirhan et al. (2011) used Vector Error Correction Model for the 1987-2006 period and found a bidirectional causal relationship between financial development and real economic growth. Total valuation of the stock exchange market and bank credits gave to the private sector are utilized as indicators of financial development, and the results demonstrate that the banking sector contributes more to the economic growth than the capital markets.

CHAPTER 5

METHODOLOGY, DATA AND RESULTS

5.1. Econometric Analysis

The aim of this research thesis is to investigate the causal relationship between financial development and economic growth for Turkey both in the short run and in the long run. For this aim, the econometric model is based on time series analysis. But for this purpose, first of all, it is important to examine whether the data sets have a unit root or not because time series data sets generally have trending data and thus variables become likely non-stationary. So, first unit root test will be applied by using ADF Test. In the presence of non-stationary data in model, co-integration test methods provide us to identify whether these variables have a long-run relationship. For this purpose, Johansen Co-Integration Model will be used. However, the results of co-integration tests cannot provide any evidence about the direction of the causality among the variables. Thus to identify the direction of this relationship and to determine the short and the long run causalities Vector Error Correction Method (VECM) will be applied as the last stage of the econometric analyses.

5.1.1. Unit Root Test

Asteriou and Hall (2007) state that before applying time series method, each of the stationary indicators that will be used in the study should be checked. Shocks in stationary time series become temporary and, their impacts are removed by the time because the series transform to their long-run mean values. If the series are founded as not stationary, time series contain persistent components. The means and variances of the non-stationary variables will be changed relying on time. Consequently, a series has no long-run mean to which the series turn back, and the variance of the series will approach infinity when time goes to infinity. Using the Ordinary Least Squares (OLS) cannot provide reliable outcome if the variables are not stationary. In addition, even if outcome seems significant, the high values of R^2 and t-ratios, modelling with trended indicators or non-stationary would lead to have incorrect result. Therefore, Augmented Dickey Fuller (ADF) test has been addressed to examine whether the variables are stationary in this study. If the variables are stationary, then they have constant mean and variance. The formula of the ADF test can be written as below;

$$\Delta Y_t = \gamma + \beta Y_{t-1} - \sum_{k=1}^p \mu_k \Delta Y_{t-k} + e_t$$

Where (Y) demonstrate the variable to discover whether it is stationary or not. The calculated t-value should be compared with Mac-Kinnon critical values. If the calculated t-value is greater than the critical values, the null hypothesis is rejected and automatically alternative hypothesis (H_0 : Y has not a unit root) will be accepted which proves the variable becomes stationary at this level.

5.1.2. Co -Integration Analysis

It can be observed that when variables in the analysis are non-stationary, we can take their differences for (d) times to make them stationary, integrated of order (d), I (d). Whilst, if two variables are integrated of the same order and they are non-stationary, the linear series cancels out the stochastic ways in the two series, and linear combination of these two variables may be stationary which is called co-integration (Damodar 2004).

Johansen Co-Integration Test

If the variables are integrated of the same order, Johansen Co-Integration Method can be applied to determine long run relationship can be applied between the series. Johansen (1988) proposes a method for determining how many co-integrating vectors there are by estimating the relationships. This examination is a multivariate generalization of the Dickey-Fuller test. In Johansen test, variables must be non-stationary at level but when we convert them into first differences, they will be stationary.

There are two test statistics in Johansen's test procedure. The first one known as trace statistics and the second is maximum Eigen value statistic. The trace statistic tests the null hypothesis: "there is at most r co-integrating relations" versus the alternative of " m co-integrating relations" (the series are stationary), $r = 0, 1, \dots, m - 1$. The maximum Eigen value statistic tests the null hypothesis: "there are r co-integrating relations".

The co-integration method by Johansen (1991) relies on the VAR theory that comprises of the levels and differences in series that are not fixed. The equation shown below shows the co - integration analysis by Johansen. The equation uses p -dimensions of the VAR framework.

$$X_t = A_1 X_{t-1} + \dots + A_K X_{t-p} + \phi D_t + \varepsilon_t, \quad t = 1, \dots, T \quad (i)$$

In the equation that is shown above ε_t stands for the term error which is commonly known as white noise. This term has a variance that is constant as well as a zero value. D_t stands for the variable of settled vectors that is constant terms, variables that are of dummy nature as well as linear trends), A_t stand for constant vectors, and X_0, \dots, X_{t-p} stands for a variable of the vectors stemming from the integrated order known as one. After some algebraic actions are carried out then the equation (i) can be expressed as shown below:

$$\Delta X_t = \Pi X_{t-1} + \Gamma_1 \Delta X_{t-1} + \dots + \Gamma_{k-1} \Delta X_{t-p+1} + \phi D_t + \varepsilon_t, \quad t = 1, \dots, T \quad (ii)$$

The Γ and Π terms in the (ii) equation is shown below:

$$\Pi = \sum_{t=1}^p A_t - I_p \text{ and } \Gamma_i = \sum_{j=i+1}^p A_j \quad (\text{iii})$$

The number of vectors that co-integrates is equal to the Π coefficient in equation (ii). The constant matrix I is related to the vectors which represent lags of the first divergence in vector X_i

The co- integration model that was developed by Johansen depends on a studies ability to find the rank of the constant matrix Π . If the matrix Π rank is zero ($r = 0$) then this shows that the variables that make up vector X_{-1} are not co-integrated. In the long run, the data sets that are used in an evaluation are expected to shift so that they do not move far apart.

5.1.3. Vector Error Correction Model (VECM)

The Co-Integration Technique that was formulated by Johansen will be used in determining whether there is co-integration in a particular data series. Engle and Granger (1987) stated that the linear aggregation of two or more non-fixed data sets may be fixed. If fixed linear units exist then a time series which is moving is said to be co- integrated. The combination of linear fixed sets is known as the co-integrated equation and it may be understood as a long-run balanced causality among indicators. Vector Error Correction Model (VECM) is a restricted vector auto regression method. VECM allows the short run dynamics as well as restricts the long-run behaviour of the endogenous series to converge to their long-run relationship. In this model, the short run dynamics of the series are influenced by the deviations from the long run. The Vector Error Correction Model helps us to study the short run dynamics in the relationship between y and x (Engle and Granger 1987). There are two issues in the VECM method, long-run causality and short-run causality.

The null hypothesis for long run test: there is no long run causality,

The alternative hypothesis: there is long run causality.

And the null hypothesis for short run causality is: there is no short run causality,

The alternative: there is short run causality.

5.2. Data

In this research, to investigate the relationship between financial development and economic growth, quarterly data from Turkey is used for the period 1988:Q1-2015:Q2. Real gross domestic product (GDP) growth rate is used as a measure of economic growth and the financial development is measured by using four different proxies that are also widely used in the literature to assess financial development levels.

The first indicator that is used as a proxy to measure financial development is the ratio of broad money supply to GDP (M2). The second indicator is the ratio of market capitalization to GDP (MCAP) which concerns with the aggregate size of the stock market capitalization and was also used by Yu et al. (2012). The third indicator that is used to measure financial development is the ratio of central bank assets to GDP (CBA). King and Levine (1993a) state that as the CBA ratio goes up, the financial development also goes up due to the fact that financial services offered by the central bank is more prosperous. And the last indicator that is used as a proxy to measure financial development is the deposits in banks to GDP ratio (DEP) where the deposits in banks refers to the total value of demand, time and saving deposits at domestic deposit money banks.

The data of all the variables are obtained from the Electronic Data Distribution System (EDDS) of the Central Bank of the Republic of Turkey (CBRT), International Financial Statistic (IFS) or Borsa İstanbul (BIST), and are all listed in Table 7 by indicating its abbreviation as well as the dataset source.

Table 7: Variable description

Variable Description	Abbreviation	Source
GDP growth (real GDP)	Y	IFS
Broad Money Supply to GDP	M2	IFS
Market Capitalization to GDP	MCAP	Borsa Istanbul (BIST)
Central Bank Assets to GDP	CBA	CBRT
Deposits in Banks to GDP	DEP	CBRT

5.3. Econometric Results

5.3.1. The ADF Test Result for Unit Root

Before Co-Integration and VECM tests can be applied, the data sets of each variable should be searched for whether they contain unit root. For this purpose, firstly Augmented Dickey Fuller (ADF) Test is implemented and the results for non-stationary of the series and their differences are provided in Table 8 while the whole output is provided in the appendix.



Table 8: The ADF Test Result

Variables		Test Statistic	Findings
Real GDP Growth Rate (Y)	1 st Difference	-11.150 (0.0000)	Stationary
	Level	-4.950 (0.0000)	Stationary
M2	1 st Difference	-9.356 (0.0000)	Stationary
	Level	2.075 (0.9988)	non stationary
MCAP	1 st Difference	-9.707 (0.0000)	Stationary
	Level	-1.699 (0.4315)	non stationary
CBA	1 st Difference	-8.474 (0.0000)	Stationary
	Level	1.169 (0.9958)	non stationary
DEP	1st Difference	-9.554 (0.0000)	Stationary
	Level	2.061 (0.9987)	non stationary

Note: values in the parentheses refer to (P- value).

It can be observed that after taking the first difference of the variables, all of the series become stationary. So, it can be concluded that the ADF test results suggest that both financial development indicators and economic growth series contain a unit root indicating that Johansen Co-Integration tests can be run.

5.3.2. Results of Co-Integration Tests

The findings obtained from the Johansen Co-Integration Tests are summarized in Table 9 and the whole results are presented in the appendix.

Table 9: Findings of Johansen Co-Integration Tests

Models		Maximum Rank	Trace Statistic	5% Critical Value
1st Model	Y-M2	r = 0	26.1473	15.41
		r = 1	3.3687*	3.76
2 nd Model	Y-MCP	r = 0	26.7165	15.41
		r = 1	2.8711*	3.76
3 rd Model	Y-CBA	r = 0	23.7103	15.41
		r = 1	0.4330*	3.76
4 th Model	Y-DEP	r = 0	26.7152	15.41
		r = 1	3.4837*	3.76

The findings obtained from the Johansen Co-Integration tests suggest that there are co-integration relationships between each indicator of financial development under consideration and economic growth. Therefore, it can be concluded that there exists a long run relationship between economic growth and financial development. So, as the next stage, VECM is used to identify the direction of this relationship and to determine the short and the long-run causalities.

5.3.3. Results of VECM Tests

The Vector Error Correction Model (VECM) is used in placing what kind of relationship exists between financial development and economic growth both in the short and in the long-run and the findings are summarized in Table 10 while all the results are submitted in the appendix.

Table 10: Findings of VECM Tests

Variables	Long run			Short run	
	Coefficient	probability	Direction	probability	Direction
M2 – Y	-0.4472313	0.000	M2 to Y	0.2579	No
MCAP-Y	-0.499564	0.000	MCAP to Y	0.0007	MCAP to Y
CBA – Y	-0.4792018	0.000	CBA to Y	0.0693*	CBA to Y
DEP – Y	-0.4750946	0.000	DEP to Y	0.0010	DEP to Y
Y - M2	0.0003492	0.365	No	0.7450	No
Y – MCAP	-0.002938	0.520	No	0.7829	No
Y – CBA	-0.0003475	0.894	No	0.8993	No
Y – DEP	0.072026	0.307	No	0.3690	No

* as 0.0693 can be considered as just marginally greater than 0.05, the causality direction can be interpreted as valid.

From the table, it is clearly that there exists a long-run causality running from broad money supply (M2) to economic growth while no statistically significant short-run causality could be found. When the causality running from economic growth to M2 is investigated, the findings lack to provide any statistically significant evidence.

In terms of market capitalization to GDP (MCAP) as the measure of financial development, the results indicate that there exists a causality running from MCAP to economic growth both in the short-run and in the long-run. However, the results lack to provide any statistically significant causality running from economic growth to MCAP both in the short run and in the long run.

When central bank assets to GDP ratio (CBA) is used as a proxy to measure financial development, the results show that there is a causality running from CBA to economic growth both in the long-run and in the short-run. But no statistically significant causality could be detected running from economic growth to CBA either in the long or in the short-run.

If the ratio of deposits in the banks to GDP (DEP) is used as a proxy to measure financial development, the results indicate that there exists a causality running from DEP to economic growth both in the long run and in the short run while no statistically significant causality could be found running from economic growth to DEP either in the long or in the short-run.

These causal relationships obtained from the VECM tests which are provided in Table 10 and explained above, are briefly summarized in Table 11.

Table 11: Short-Run and Long-Run Causal Relationship

	Short -Run Causality	Long-Run Causality
M2 TO Y	No	Yes
Y TO M2	No	No
MCAP TO Y	Yes	Yes
Y TO MCAP	No	No
CBA TO Y	Yes	Yes
Y TO CBA	No	No
DEP TO Y	Yes	Yes
Y TO DEP	No	No

It can easily be observed from Table 11 that the test results of VECM indicate a causal relationship running from financial development to economic growth both in the short-run and in the long-run with the exception of broad money supply to GDP (M2) which lacks to provide any statistically significant causality in the short-run from financial development to economic growth. On the other hand, the test results do not provide any statistically significant relationship running from economic growth to financial development both in the long-run and in the short-run.

These findings indicate that the causal relationship between financial development and economic growth mainly runs from financial development to economic growth for Turkey at least for the period under consideration which provides a support for the Supply Leading Hypothesis.

CHAPTER 6

CONCLUSION

The upgrading or the development of financial system of a certain country is known as financial development and the increases in the amount of goods and services that are produced in a given country is referred as economic growth. Given the importance of both concepts and the potential causality in-between, it is not surprising that the causal relationship between financial development and economic growth is a long debated subject both theoretically and empirically.

On the theoretical side, although five possible alternatives are mentioned that may potentially underline the nature of this relationship (which are no causal relationship, unidirectional causality from financial development to economic growth, unidirectional causality from economic growth to financial development, bidirectional causality and the possibility that financial development can have a negative effect on economic growth which is set forth by Graff (2001) for unstable financial systems), the mainstream theoretical views on this relationship are the Supply Leading Hypothesis, the Demand Following Hypothesis and the Bidirectional Causality Hypothesis.

Supply Leading Hypothesis argues that financial institutions can promote economic efficiency, create liquidity, mobilize savings, promote capital accumulation and allocate resources from traditional sectors to others that encourage economic growth and thus financial development leads to economic growth. Contrarily, Demand Leading Hypothesis argues that economic growth leads to financial development by increasing the demand for the quality and the variability of the offered services. On the other hand, the advocates of Bidirectional Causality Hypothesis support a mutual interaction as financial development gradually encourages economic growth which in turn, causes feedback and encourages further financial development.

On the empirical side, due to the conflicting results obtained, no consensus could have been reached yet. Probably one of the main reasons for these conflicting results rests in the problems associated with the dynamic nature of this relationship, the variability of country specific characteristics that may affect this causality and the difficulty of selecting which indicators are the best proxies to measure financial development. Although the selection of the indicator(s) to measure economic growth does not carry much complexity since GDP based measures are widely accepted as an effective indicator of economic growth, there is no easily defined and readily available indicator(s) to measure financial development. The multidimensional nature of financial systems raises the need to use various indicators to measure financial development. Although, it is generally accepted that financial development can be measured in terms of four dimensions that are financial depth, access, efficiency and stability, which indicator(s) will provide the most appropriate proxy to measure financial development remains as an unanswered question. Hence, to figure out the big picture, many empirical studies are needed.

In this research thesis, the causal relationship between economic growth and financial development is analysed for the case of Turkey with the aim of providing another empirical evidence on the causality of this relationship and to contribute the literature with the hope of fixing another piece on the puzzle. To test the validity of the mainstream hypotheses, time series analysis, specifically ADF, Johansen Co-Integration and VECM tests, is applied by using quarterly data for the period 1988:Q1-2015:Q2. During the analysis economic growth is measured by real GDP growth rate and financial development is measured by four different indicators that are broad money supply to GDP, market capitalization rate to GDP, central bank assets to GDP and deposits in banks to GDP ratios.

First the ADF test is applied to check the stationarity of data sets. Next, Johansen Co-Integration Test is applied to determine whether the financial development indicators and the economic growth are co-integrated. Finally, VECM test is used to evaluate and to determine the direction of the causality between financial development indicators and economic growth both in the long and in the short-run.

The results of Johansen Co-Integration tests show that there is a long-run relationship between all indicators of financial development and economic growth in Turkey. Further, the findings obtained from VECM indicate a long-run causality running from each of the financial development indicators to economic growth. The financial development indicators are also found to lead economic growth in the short-run except broad money supply to GDP ratio for which the findings lack to provide a causal relationship. On the other hand, the test results lack to provide any statistically significant relationship running from economic growth to financial development both in the long and in the short-run.

Overall, the findings indicate that the causal relationship between financial development and economic growth mainly runs from financial development to economic growth in Turkey which can be concluded as providing support for the Supply Leading Hypothesis.

REFERENCES

Abduljalil, and Ying Ma. (2008). financial development and economic growth: Time series evidence from Pakistan and China, *Journal of economic cooperation*, 29, 2, 29-68.

Acaravci, A., I. Ozturk, and S. K. Acaravci (2007). Finance-Growth Nexus: Evidence from Turkey. *International Research Journal of Finance and Economics*, ISSN 14502887, (11), 30-40.

Akinci, D., Matousek, R., Radić, N. and Stewart, C. (2013). Monetary policy and the banking sector in Turkey, *Journal of International Financial Markets, Institutions and Money*, 27, pp.269-285.

Aslan, Ö. and Korap, H.L. (2006), “Türkiye’de Finansal Gelişme Ekonomik Büyüme İlişkisi,” *Muğla Üniversitesi Sosyal Bilimler Dergisi*, Güz, (17), 1-20.

Aslan, Ö. and Küçükaksoy, İ. (2006), “Finansal Gelişme ve Ekonomik Büyüme İlişkisi:Türkiye Ekonomisi Üzerine Ekonometrik Bir Uygulama,” *Ekonometri ve İstatistik*, Vol:4, 12-28.

Asteriou, D., and Hall, S. (2007). *Applied Econometrics*, Revised Edition. New York: Palgrave Macmillan.

Arcand, J. L., Berkes, E. and Panizza, U. (2012). Too Much Finance? *IMF Working Paper Series* No:WP/12/161.

Arestis, P., Demetriades, P.O., and Luintel, K.B. (2001). Financial Development and Economic Growth: The Role of Stock Markets. *Journal of Money, Credit, and*

Banking 33, 16–41.

Arrow, K., J. (1964). The role of securities in the optimal allocation of risk bearing, *Review.Econ. Stud.* 2 pp: 91-96.

Bagehot, W (1873). Lombard Street: A description of the money market. In Richard Irwin, D. (eds.): *Homewood, IL*.

Banking Regulation and Supervised Agency (BRSA). (2014). Annual report, 15 April 2014, ISSN: 1307-5683

Banks association of Turkey (BAT). (2012).Statistical data base of the Banks association of Turkey.

Banks association of Turkey (BAT). (2015). The Banking Sector in Turkey2011 – December 2015. Online available at:
https://www.tbb.org.tr/en/Content/Upload/Dokuman/140/The_Banking_Sector_in_Turkey_2011-2015_December.pdf

Baubakari, A. and Jin, D. (2010). The Role of Stock Market Development in Economic Growth: Evidence from Some Euronext Countries. *International Journal of Financial Research*, 1(1).

Bencivenga, V., R., and Smith, (1991). Financial Intermediation and Endogenous Growth, *Review of economic studies*, pp: 195-209.

Betül, M. (2013). Financial development and economic growth: The case of Turkey. Ph. D. Thesis, Istanbul University.

Blackburn, K. and V. Huang (1998). "A theory of growth, financial development and trade," *Economica*, 65,.107-124.

Boca, G., N., A. (2011). Financial development, institutions and economic growth: An empirical evidence, *Master thesis, Jonkoping international business school*.

Boldeanu, F. T. and Constantinescu, L. (2015). The Main Determinants Affecting Economic Growth. *Bulletin of the Transilvania University of Braşov. Series V: Economic Sciences*, Vol. 8 (57) No. 2.

BRSA. (2014). Banking Regulation and Supervised Agency, Annual report. ISS. N: 1307-5683.

Calderon, S., M., and Liu, L. (2002). The Direction of Causality between Financial Development and Economic Growth, *Central Bank of Chile Working papers*. N O: 184. Pp: 333-346.

Carter, S. H. (2013). Financial Intermediation, Growth, and Microfinance in Turkey: A Quantitative study. Economics Thesis. Paper.1.

Cecchetti, S., G., and Kharroubi, E. (2012). Reassessing the impact of finance on growth, BISWorkingPapersNo381. Available at: <http://www.bis.org/publ/work381.pdf> (Accessed: 22 October 2013).

Celason, O. (1999). The 1994 Currency Crisis in Turkey. Macroeconomics and Growth Group, development, Washington, D. C: The World Bank.

Central Bank of the Republic of Turkey. (2005). The impact of Globalization on Turkish economy. Available at; <http://www.tcmb.gov.tr/yeni/evds/yayin/kitaplar>, June 13, 2005

Central Bank of Turkish Republic (CBRT), Electronic Data Distribution System (EDDS), <http://evds.tcmb.gov.tr/yeni/cbt-uk.html>.

Chandavarkar, A. (1992). "Of Finance and Development: Neglected and Unsettled

Questions,”*World Devel.* , 20(1), pp. 133–42.

Cihak, M., Kunt, A., D., Feyen, E., and Levine, R., (2012). Benchmarking financial systems around the World. The World Bank. *Policy Research Working Paper*, 6175.

Çoşkun, M., and Başar, M. (2002). Bankacılık Uygulamaları. Anadolu Üniversitesi Yayınları. No. 1361. Eskişehir.

Darat, A. F. (1999). Are financial Deeping and economic growth causality related? Another look at the evidence. *International economic journal*. Vol. 13, Issue 3.

Damar, H. E. (2004). “The Turkish Banking Sector in 1980s, 1990s and Beyond”, September , <http://www.plu.edu/~damaree/turkey.pdf>, June 09, 2005.

Damodar, G. (2004). Basic Econometrics, McGrawHill Companies, p.798.

Debreu, G. (1959). Theory of value. New York: Wiley.

Demetriades and Hussein (1996). Does financial development cause economic growth? Time series evidence from 16 countries. *Journal of development economics*. 51(387-411).

Demirgüç, K., A., and Levine, R. (2008). “Finance, Financial Sector Policies, and Long- Run Growth.” M. *Spence Growth Commission Background Paper* 11, World Bank, Washington, DC.

Demirhan, E., Aydemir, O. and Inkaya, A. (2011). The direction of Causality between financial development and economic growth: Evidence from Turkey, *International journal of Managemen*, Vol.28No.1, part1.

Denison, E. F. 1962. “The Sources of Economic Growth in the United States, *The Journal of Business*, Vol. 35, No. 2 (Apr., 1962), pp. 109-121

Doganlar, M. (1998). Testing for the structural break in the foreign trade. *J. Cukurova FEAS.*, 8:333-340.

Domar, E. (1946). Capital Expansion, Rate of Growth and Employment, *Econometrics*, 14: pp. 34-56.

Edwards, S. (1996). "Why are Latin America's savings rates so low? An international comparative analysis", *Journal of Development Economics*, Vol. 51, pp. 5-44.

Engle, R.F. and Granger, C.W.J. (1987), "Co-integration and Errorcorrection: Representation, estimation and testing," *Econometrica*, Vol:55, 251- 276.

FSST. Financial services sector in Turkey (2016). Investment Support and Promotion Agency of Turkey, [online] Available at: <http://www.invest.gov.tr/en-US/infocenter/publications/Documents/Financial.Services.Industry.pdf>.

Fredman, M., and Schwartz, A., J. (1963). A. Monetary History of the United States, *Princeton university press*, Princeton.

Galor, O. (2011). Unified Growth Theory, *Journal of Economic Literature*, forthcoming, Princeton, New Jersey: Princeton University Press, ISBN 978-0-691-13002-6.

Ghirmay, T. (2004). Financial Development and Economic Growth in Sub-Saharan African Countries: Evidence from Time Series Analysis. *African Development Review*, 16 (3), 415-432.

Goldsmith, R. W. (1969). Financial Structure and Development, *New Havan, Yale University press*.

Görmez, Y. (2008). Banking in Turkey: History and evolution, Banks of Greece.

Working paper. NO. 83.

Graff, M. (2001). Financial Development and Economic Growth, New data and empirical analysis. *METU studies in development*. Vol. 28, pp: 83-100.

Crafts N. and Toniolo G., (1996), "Postwar growth: an overview", in: N. Crafts and G. Toniolo (eds), *Economic Growth in Europe Since 1945*, Cambridge: Cambridge University Press for the Centre for Economic Policy Research (CEPR).

Greenwood, J., Jovanovic, B. (1990). "Financial Development, Growth and the Distribution of Income", *Journal of Political Economy*, Vol.98, No.5, Part.1, pp.1076-1107.

Greenwood, J., Smith, B. (1997). "Financial Markets in Development and in the Development of Financial Markets." *Journal of Economic Dynamics and Control*, Vol.21, No.1, pp.145-181.

Gupta, K. (1984). Finance and Growth in Developing Countries. *Journal of economic literature*, 25.

Gurley, J and Shaw, E (1955): "Financial Aspects of Economic Development", *American Economic review* 515-538.

Harrod, R. (1939). Domar and Dynamic Economics. *The Economic Journal*, 69(275), p.451.

Hassan, M. K., Sanchez, B., Yu, J. S. (2011). "Financial Development and Economic Growth: New evidence from panel data", *The Quarterly Review of Economics and Finance*, 51/1, pp. 88-104.

Idris, F., O. (2012). Financial development and economic growth: Empirical evidence from Nigeria, Ph. D. Thesis, Covenant University, Ota, Ogun State, Nigeria.

Ince, M. (2011), "Financial Liberalization, Financial Development and Economic Growth: An Empirical Analysis for Turkey," *Journal of Yasar University*, Vol:23, 3782-3793.

Ito, T. (1997). What can developing countries learn from Asia s Economic growth, World bank

Johansen, S. (1988). "Statistical Analysis of Co integration Vectors", *Journal of Economic Dynamics and Control*, Vol.12, pp.231–254.

Johansen, S. (1991), "Estimation and Hypothesis Testing of Co integration Vectors in Gaussian Vector Autoregressive Models," *Econometrica*, Vol: 59, No:6, 1551-1580.

Jung, W. S. (1986), Financial Development and Economic Growth: International Evidence, *Economic Development and Cultural Change*, 34(2), pp.333-46.

Kandır, S., İskenderoğlu, Ö. and Önal, B. (2007), "Finansal Gelişme ve Ekonomik Büyüme Arasındaki İlişkinin Araştırılması," *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 16(2), 311-326

Kar, M. and Pentecost, E. J. (2000). The direction of causality between financial development and economic growth in Turkey: Further evidence on the causality issue, *Loughborough University Economic Research paper*. No. 00/26.

Keynes J. M. (1936). "The General Theory of Employment, Interest and Money." London: Macmillan. ISBN 1169831995.

Khan, A. (2001). "Financial Development and Economic Growth," *Macroeconomics Dynamics*, 5, 413-433.

Kindleberger, C. (1978). *Manias, Panics, and Crashes: A History of Financial Crises*. 4rd ed. New York: John Wiley and Sons.

King, R. G. and Levine, R. (1993a). Finance and growth: Schumpeter might be right. *Quarterly journal of economics*, 108(3): pp: 717-737.

Kuznets, S. (1955). Economic Growth and Income Inequity, *American Economic Review*, 45, 1- 28.

Leonardo, D., (2010). Financial markets: Education and culture. Lifelong Learning programme.

Levine, R. (1997). "Financial development and economic growth: Views and Agenda ", *Journal of Economic Literature*, PP. 688-726.

Levine, R. (2004). Finance and Growth: Theory and Evidence. *NBER Working Paper No. 10766*, National Bureau of Economic Research, Cambridge, MA. Available: www.nber.org/papers/w10766.

Levine, R. Loayza, N. and Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of monetary economics* 46, 31-77.

Liu, Y. (2011). Financial development and economic growth: Evidence from China in 1978-2009. *Master Programme in Economic Growth. Lund University*.

Lucas, R., E., J r. (1988). "On the Mechanics of Economic Development," *Journal of Monetary Economics* 22/1, PP. 3-42.

Luintel, K. B. and Khan, M. (2004). Are International R&D Spill-overs Costly for the US? *The Review of Economics and Statistics* 86(4), 896-910.

Manning, M. (2003). Finance Causes Growth: Can We Be So Sure?. *Contributions in Macroeconomics*, 3(1).

McKinnon, R. I. (1973). *Money and Capital in Economic Development*, Washington: *Brookng Institution*.

McKinnon, J.G. (1991), "Critical Values for Co integration Tests", in: R.F. Engle and C.W.J. Granger (ed.), *Long-run Economic Relationships: Readings in Co integration*, Oxford University Press, Oxford.

Mishkin, F. S. 1992, 'Anatomy of a Financial Crisis', *Journal of evolutionary Economics*, vol. 2, no. 2, pp. 115-130.

Morris, A. (1998). *Geography and development*. London Ucl press, LTD.

Nazlioglu, Ş., Ege, I. and Bayrakdaroglu, A. (2009). Financial development and economic growth: Co-integration and causality analysis for Turkey, *Banking finance letters*, 1(2). Pp. 59-66.

Neusser, K., Kluger, M. (1998) "Manufacturing Growth and Financial Development: Evidence from OECD Countries", *Review of Economics and Statistics*, 80/4, pp.636-646.

Obstfeld, M. (2008). *International Finance and Growth in Developing Countries: What have we learned?*

Ortiz, G. and Solis, L. (1979), *Financial Structure and ExchangeRate Experience*, *Journal of Development Economics*, Mexico, 6(4),Dec. 1979, p. 515-48.

Öztürk, İlhan. (2008). Financial development and economic growth; Evidence from Turkey, *Applied econometrics and international development*. Vol.8-1.

Pack, H. (1994), 'Endogenous Growth Theory: Intellectual Appeal and Empirical Shortcomings', *Journal of Economic Perspectives*, vol.8, no198qq28.

Pagano, M. (1993). "Financial Markets and Growth: An Overview", *European Economic Review*, 37/2, pp. 613-622.

Parello, C. (2010). A Schumpeterian Growth Model With Equilibrium Unemployment. *Metroeconomica*, 61(2), pp.398-426.

Patrick, H. T. (1966), "Financial Development and Economic Growth in Underdeveloped Countries", *Economic Development and Cultural Change*, 14, 174-189.

Perera, N. and Paudel, R. (2009). Financial development and economic growth in Srilanka. *Applied Econometrics and international development*; 9(1), 157-164.

Petra, V. (2012). The role of financial development in economic growth: A Meta analysis, *Master thesis, Charles University in Prague*.

Philippe, A., and Peter, H. (2009). The economics of growth. *The MITpress, London*, p: 1.

Rajan, R., and Zingales, L. (1998). Financial Dependence and Growth, *The American Economic Review*, June, pp559-586.

Robinson, J. (1952), "The generalization of the general theory", in: *The Rate of Interest and Other Essays*, MacMillan, London, 67–142.

Rousseau, P., L., and Wachtel, P. (1998). Financial Intermediation and Economic Performance: Historical Evidence from Five Industrialized Countries. *Journal of Money, Credit, and Banking*, Vol. 30-(4), 657-678.

Romer, P. M. (1986), Increasing Returns And Long Run Growth, *Journal of Political Economy*, 94(5), 1002-1037.

Rousseau, P. P., Wachtel. (2005). "Economic Growth and Financial Depth: Is the Relationship Extinct Already?" Wider Discussion Paper, Vol.10.

Savrun, B. (2011). Financial development, International Trade And Economic Growth, Master Thesis, Eastern Mediterranean University, Gazimağusa, North Cyprus.

Selma, S. (2005). Financial development and economic growth: The case of Turkey. Ph. D. Thesis, Istanbul University.

Schumpeter, J. A. (1911), the theory of economic development, *Harvard University press, Cambridge*.

Shaw, E. S. (1973). Financial Deeping in economic development. *New York: Oxford University Press*.

Şıklar, I. (2001). Türkiye Ekonomisi. Anadolu Üniversitesi Yayınları. Eskişehir.

Solow, Robert M. (1956). "A Contribution to the Theory of Economic Growth", *The Quarterly Journal of Economics*, Vol.70, No.1, February, pp.65-94.

Suleiman, A., and Aamer, S. A. (2005). Financial development and economic growth: time series evidence from Egypt. Discussion paper No05-14.

Stern, N. (1989). "The Economics of Development: A Survey," *Econ. J.*, Sept., 99(397), pp. 597–685.

Tawiri, N. (2010), Domestic Investment as a drive of economic growth in Libya. *International Conference on Applied Economics – ICOAE*, 759 – 767.

Thirlwall, A. (1999). "Growth and Development" 6th edition Macmillan Press Ltd.

Turan, B. (2008). Life Expectancy and Economic Development: Evidence from

Micro Data. University of Houston, pp.2-10.

Ünalımsı, D. (2002), "The Causality between Financial Development and Economic Growth: The Case of Turkey," *The Central Bank of Republic of Turkey, Research Department Working Paper*, No:3.

WEF, (2011). The financial development report "*World Economic Forum*". New York: USA Inc.

World Bank. (2016). Turkish overview. Online available at:
<http://www.worldbank.org/en/country/turkey/overview>.

World Economic Outlook. (2015). International Monetary Fund, Adjusting to lower commodity, Washington, October 2015. Available at: <http://www.imf.org/external/pubs/ft/weo/2015/02/pdf/text.pdf>.

Xu, Z. (2000). Financial development, investment, and growth. *Economic Inquiry* 38, 331–344.

Yu, J., Hassan, M. and Sanchez, B. (2012). A re-examination of financial development, stock markets development and economic growth. *Applied Economics*, 44(27), pp.3479-3489.

APPENDICES

The ADF Test Result

The ADF test on GDP Growth rate

Dickey-Fuller test for unit root Number of obs = 109

Test	Interpolated Dickey-Fuller			
	1% Critical	5% Critical	10% Critical	
Statistic	Value	Value	Value	
Z(t)	-4.950	-3.507	-2.889	-2.579

MacKinnon approximate p-value for Z(t) = 0.0000

The ADF test on M2

Dickey-Fuller test for unit root Number of obs = 109

Test	Interpolated Dickey-Fuller			
	1% Critical	5% Critical	10% Critical	
Statistic	Value	Value	Value	
Z(t)	2.075	-3.507	-2.889	-2.579

MacKinnon approximate p-value for Z(t) = 0.9988

The ADF test on MCAP

Dickey-Fuller test for unit root Number of obs = 109

Test	Interpolated Dickey-Fuller			
	1% Critical	5% Critical	10% Critical	
Statistic	Value	Value	Value	
Z(t)	-1.699	-3.507	-2.889	-2.579

MacKinnon approximate p-value for Z(t) = 0.4315

The ADF test on CBA

Dickey-Fuller test for unit root Number of obs = 109

Test	Interpolated Dickey-Fuller			
	1% Critical	5% Critical	10% Critical	
Statistic	Value	Value	Value	
Z(t)	1.169	-3.507	-2.889	-2.579

MacKinnon approximate p-value for Z(t) = 0.9958

The ADF test on DEP

Dickey-Fuller test for unit root Number of obs = 109

Test	Interpolated Dickey-Fuller			
	1% Critical	5% Critical	10% Critical	
Statistic	Value	Value	Value	
Z(t)	2.061	-3.507	-2.889	-2.579

MacKinnon approximate p-value for Z(t) = 0.9987

First Differences

The ADF test on GDP Growth rate

Dickey-Fuller test for unit root Number of obs = 108

Test	Interpolated Dickey-Fuller			
	1% Critical	5% Critical	10% Critical	
Statistic	Value	Value	Value	
Z(t)	-11.150	-3.507	-2.889	-2.579

MacKinnon approximate p-value for Z(t) = 0.0000

The ADF test on M2

Dickey-Fuller test for unit root Number of obs = 108

Test Statistic	Interpolated Dickey-Fuller			
	1% Critical Value	5% Critical Value	10% Critical Value	
Z(t)	-9.356	-3.507	-2.889	-2.579

MacKinnon approximate p-value for Z(t) = 0.0000

The ADF test on MCAP

Dickey-Fuller test for unit root Number of obs = 108

Test Statistic	Interpolated Dickey-Fuller			
	1% Critical Value	5% Critical Value	10% Critical Value	
Z(t)	-9.707	-3.507	-2.889	-2.579

MacKinnon approximate p-value for Z(t) = 0.0000

The ADF test on CBA

Dickey-Fuller test for unit root Number of obs = 108

Test Statistic	Interpolated Dickey-Fuller			
	1% Critical Value	5% Critical Value	10% Critical Value	
Z(t)	-8.474	-3.507	-2.889	-2.579

MacKinnon approximate p-value for Z(t) = 0.0000

The ADF test on DEP

Dickey-Fuller test for unit root Number of obs = 108

Test Statistic	Interpolated Dickey-Fuller			
	1% Critical Value	5% Critical Value	10% Critical Value	
Z(t)	-9.554	-3.507	-2.889	-2.579

MacKinnon approximate p-value for Z(t) = 0.0000

Results of Co-Integration Tests

The Johansen Co-Integration test on and GDP M2

Johansen tests for cointegration
Trend: constant Number of obs = 108
Sample: 1988-Q3 - 2015-Q2 Lags = 2

5%					
maximum	trace				
rank	parms	LL	eigenvalue	statistic	critical value
0	6	-490.50587	.	26.1473	15.41
1	9	-479.11657	0.19016	3.3687*	3.76
2	10	-477.43221	0.03071		

5%					
maximum	max				
rank	parms	LL	eigenvalue	statistic	critical value
0	6	-490.50587	.	22.7786	14.07
1	9	-479.11657	0.19016	3.3687	3.76
2	10	-477.43221	0.03071		

The Johansen Co-integration test on GDP and MCAP

Johansen tests for cointegration
Trend: constant Number of obs = 108
Sample: 1988-Q3 - 2015-Q2 Lags = 2

5%					
maximum	trace				
rank	parms	LL	eigenvalue	statistic	critical value
0	6	902.1386	.	26.7165	15.41
1	9	914.06127	0.19812	2.8711*	3.76
2	10	915.49684	0.02623		

5%					
maximum	max				
rank	parms	LL	eigenvalue	statistic	critical value
0	6	902.1386	.	23.8454	14.07
1	9	914.06127	0.19812	2.8711	3.76
2	10	915.49684	0.02623		

The Johansen Co-Integration test on GDP and CBA

Johansen tests for cointegration
Trend: constant Number of obs = 108
Sample: 1988-Q3 - 2015-Q2 Lags = 2

5%					
maximum				trace	critical
rank	parms	LL	eigenvalue	statistic	value
0	6	-1028.4719	.	23.7103	15.41
1	9	-1016.8333	0.19389	0.4330*	3.76
2	10	-1016.6168	0.00400		

5%					
maximum				max	critical
rank	parms	LL	eigenvalue	statistic	value
0	6	-1028.4719	.	23.2773	14.07
1	9	-1016.8333	0.19389	0.4330	3.76
2	10	-1016.6168	0.00400		

The Johansen Co-Integration test on GDP and DEP

Johansen tests for cointegration
Trend: constant Number of obs = 108
Sample: 1988-Q3 - 2015-Q2 Lags = 2

5%					
maximum				trace	critical
rank	parms	LL	eigenvalue	statistic	value
0	6	-1101.0372	.	26.7152	15.41
1	9	-1089.4214	0.19354	3.4837*	3.76
2	10	-1087.6796	0.03174		

5%					
maximum				max	critical
rank	parms	LL	eigenvalue	statistic	value
0	6	-1101.0372	.	23.2315	14.07
1	9	-1089.4214	0.19354	3.4837	3.76
2	10	-1087.6796	0.03174		

The VECM test on MCAP and GDP

Vector error-correction model

Sample: 1989:Q2 - 2015:Q2
 Number of obs = 105
 AIC = -16.96871
 Log likelihood = 911.8573
 HQIC = -16.75362
 Det(Sigma_ml) = 9.82e-11
 SBIC = -16.43792

Equation	Parms	RMSE	R-sq	chi2	P>chi2
D_grwth	10	3.59909	0.4926	92.22136	0.0000
D_mcap	10	3.1e-06	0.1147	12.30271	0.2653

	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
D_grwth						
_cel						
L1.	-.499564	.106082	-4.71	0.000	-.707481	-.2916471
grwth						
LD.	.1500935	.0918207	1.63	0.102	-.0298718	.3300587
L2D.	.1479302	.0919713	1.61	0.108	-.0323302	.3281907
L3D.	.2455686	.0900052	2.73	0.006	.0691616	.4219756
L4D.	-.2810183	.089885	-3.13	0.002	-.4571897	-.1048469
mcap						
LD.	490726.6	121917.5	4.03	0.000	251772.6	729680.5
L2D.	4255.739	131935.7	0.03	0.974	-254333.5	262845
L3D.	299999.3	126266	2.38	0.018	52522.44	547476.2
L4D.	147346.4	130368.2	1.13	0.258	-108170.7	402863.4
_cons	-2.64e-14	.3568772	-0.00	1.000	-.6994665	.6994665
D_mcap						
_cel						
L1.	-5.83e-08	9.05e-08	-0.64	0.520	-2.36e-07	1.19e-07
grwth						
LD.	8.59e-08	7.84e-08	1.10	0.273	-6.77e-08	2.39e-07
L2D.	-8.48e-09	7.85e-08	-0.11	0.914	-1.62e-07	1.45e-07
L3D.	-4.28e-09	7.68e-08	-0.06	0.956	-1.55e-07	1.46e-07
L4D.	-2.37e-08	7.67e-08	-0.31	0.757	-1.74e-07	1.27e-07
mcap						
LD.	.0655836	.1040637	0.63	0.529	-.1383776	.2695447
L2D.	-.2942183	.1126148	-2.61	0.009	-.5149393	-.0734973
L3D.	.0538837	.1077754	0.50	0.617	-.1573523	.2651196
L4D.	.0353691	.1112769	0.32	0.751	-.1827296	.2534678
_cons	2.31e-07	3.05e-07	0.76	0.448	-3.66e-07	8.28e-07

Cointegrating equations

Equation	Parms	chi2	P>chi2
_cel	1	.4786985	0.4890

Identification: beta is exactly identified

Johansen normalization restriction imposed

beta	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
_cel						
grwth	1	.	.	.	.	.
mcap	50414.11	72865.36	0.69	0.489	-92399.36	193227.6
_cons	-4.49539	.	.	.	.	.

Short-run causality test from MCAP to Growth

- (1) [D_grwth]LD.mcap = 0
- (2) [D_grwth]L2D.mcap = 0
- (3) [D_grwth]L3D.mcap = 0
- (4) [D_grwth]L4D.mcap = 0

chi2(4) = 19.26
 Prob > chi2 = 0.0007

The VECM test from GDP to CBA

Vector error-correction model

Sample: 1989:Q2 - 2015:Q2
 Number of obs = 105
 Log likelihood = -958.5553
 AIC = 18.6582
 Det(Sigma_ml) = 291397.1
 HQIC = 18.87328
 SBIC = 19.18899

Equation	Parms	RMSE	R-sq	chi2	P>chi2
D_cba	10	159.277	0.2820	37.30619	0.0001
D_grwth	10	3.78468	0.4389	74.31017	0.0000

	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
D_cba						
_cel						
L1.	-.0003475	.0026083	-0.13	0.894	-.0054597	.0047647
cba						
LD.	.2818975	.1028873	2.74	0.006	.0802422	.4835529
L2D.	-.4113529	.1103585	-3.73	0.000	-.6276515	-.1950542
L3D.	-.028239	.112199	-0.25	0.801	-.248145	.191667
L4D.	.1363505	.1105339	1.23	0.217	-.080292	.352993
grwth						
LD.	-1.665124	4.030241	-0.41	0.679	-9.564252	6.234004
L2D.	-2.839523	3.979818	-0.71	0.476	-10.63982	4.960776
L3D.	-.8779555	3.911677	-0.22	0.822	-8.544702	6.788791
L4D.	1.600773	3.918731	0.41	0.683	-6.079798	9.281344
_cons	13.93873	183.5938	0.08	0.939	-345.8984	373.7759
D_grwth						
_cel						
L1.	.0002622	.000062	4.23	0.000	.0001407	.0003836
cba						
LD.	-.0038827	.0024448	-1.59	0.112	-.0086744	.0009089
L2D.	-.0025186	.0026223	-0.96	0.337	-.0076582	.002621
L3D.	-.0041114	.002666	-1.54	0.123	-.0093367	.0011139
L4D.	.0023437	.0026265	0.89	0.372	-.0028041	.0074915
grwth						
LD.	.1625799	.0957652	1.70	0.090	-.0251164	.3502763
L2D.	.1788372	.094567	1.89	0.059	-.0065108	.3641852
L3D.	.2574772	.0929479	2.77	0.006	.0753027	.4396518
L4D.	-.2831552	.0931155	-3.04	0.002	-.4656583	-.1006521
_cons	18.47397	4.362491	4.23	0.000	9.923648	27.0243

Cointegrating equations

Equation	Parms	chi2	P>chi2
_cel	1	18.2153	0.0000

Identification: beta is exactly identified

Johansen normalization restriction imposed

beta	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
_cel						
cba	1	.	.	.	.	.
grwth	-1827.892	428.2846	-4.27	0.000	-2667.315	-988.47
_cons	-62683.72	.	.	.	.	.

Short-run causality test from GDP to CBA

- (1) [D_cba]LD.grwth = 0
- (2) [D_cba]L2D.grwth = 0
- (3) [D_cba]L3D.grwth = 0
- (4) [D_cba]L4D.grwth = 0

chi2(4) = 1.07
 Prob > chi2 = 0.8993

CURRICULUM VITAE

PERSONAL INFORMATION

Name, Surname: Adnan Taleb, Bakhtiar

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Marital Status: Married

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EDUCATION

Degree	Institution	Year of Graduation
MSc.	Çankaya University. Financial Economics	2016
BSc.	University of Mosul / College of Administration and Economics	2006
High School	Kozloo Baba	2002

WORK EXPERIENCE

Year	Place	Enrollment
2008- Now	University of Kirkuk / College of Administration and Economics	Accountant

LANGUAGES

Language	Speaking	Reading	Writing
English	Good	Good	Good
Turkish	V. Good	V. Good	V. Good
Arabic	V. Good	V. Good	V. Good
Kurdish	Good	Good	Good