Journal of Yaşar University
http://joy.yasar.edu.tr

Journal of Yasar University 2011 23(6) 3782-3793

# FINANCIAL LIBERALIZATION, FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH: AN EMPRICAL ANALYSIS FOR TURKEY

**Meltem İNCE**[a]

***ABSTRACT***

The objective of the paper is to seek how financial growth affects economic growth in Turkey in the flourishing world. The financial market is changed and developed very rapidly in the last decade. Moreover the change of financial market has also been brought some innovations and new policies. So this study examines whether financial development leads to economic growth in Turkey. The main elements of financial liberalization that have been used commonly in the literature are considered for analysis. This is because financial liberalization is the first step to achieve financial development and can contribute to development. In the light of financial development between the period of 1980 and 2010, cointegration and Granger casuality tests are applied to assess the finance-growth linkages. There is a strong relation between finance and growth in the short-run, but it is failed in the long-run casuality. Contrary to the conventional findings in the literature, the results of the analysis support that there is one way link from financial development to economic growth for Turkey and it is necessary to take different policies to improve growth and maintain the steady economic growth.

***Key variables****: Financial growth, financial liberalization, economic growth, Casuality, Cointegration*

***JEL Codes:*** *D53, E44, F43, G01, C22*

[a] Yaşar University

**Introduction**

Globalisation in deed should not be categorised only as an economic progress. It generates changes in peoples' cultures, environment, thoughts and feelings, way of life and requirements. But it´s undeniably true that the changes are made in financial sector of economic system according as they are more drastic, striking, sometimes destructive and sometimes constructive. So the growth of combined financial and global markets has been started with the economic crisis in globalization. When economic crisis emerged, then new financial instruments and rules will be arranged by the market. Many crises happened till now were directly related to banking crisis, stock market crashes and financial bubbles such as mortgages, credit agency ratings, excess cash, imperfect information and etc.

The term of globalisation can be defined as the democratization of economy that there is no any restrictions as tariffs, quatos or customs. In fact it is a system that countries are integrated through their economies, societies, communication, trade, migration, cultures and technology. So globalization can be formed by four elements: goods and services, labor, capital and technology. Being included to the global world will effect the economic growth of that country. According to International Monetary Fund (2008), globalisation has a contentious meaning, it is a historical process that combines the human creativity with technology by enabling the movement of capital and labor.

The global market has been witnessed a rapid development in the last decade by new innovations, rules and controllers. It is argued that the three important factors that caused the global crisis are:

1. Institutions that were giving house credits converted this mortgage they had taken for houses to stocks & bonds and export them to collect funds from market. But the price of houses decreased and individuals took house credits could not make the payments. So the value of the stocks & bonds decreased and institutions which were exporting them corrupted their financial system.
2. Because of this distrustful situation, banks increased interest rates for credits and liquidity deficit has started.
3. consumption and investment expenditures stopped which would lead to decrease in production and a raise in budget deficit. To get rid of these problems, innovations are taken into consideration.

The globalisation process affects both financial sector and economic growth of countries. However there is a relationship between financial development and economic growth which has been an important issue since the studies of Schumpeter (1912). He support that financial development causes financial growth which maintain economic growth. If the financial regulations are done in the same way, then economic growth creates a demand in the sector by causality. There are four types of financial growth that countries run across:

a. Supply leading
b. Demand following
c. Mutual impact of finance and growth
d. No relationship between finance and growth

When all those substances are examined carefully, it can be said that the financial development causes economic growth to distribute resources by changing the real sector from low growth to the modern ones. Of course there are some disadvantages of financial development which affects countries economic positions by crises either exogenously or endogenously. The most known crisis are banking crises leading to huge account deficits. The most known crises were 1980s LDC debt crisis, Wall Street Crash of 1929, Black Monday (1987), United States Savings crisis (1989-1991), Japanese bubble (1990), Asian banking crisis (1997), European Exchange Rate (1992-93). However between 2007 to mid 2009 global financial market has been witnessed with the most horrible financial crisis since 1920s' depression. The Lehman Brothers bankruptcy (2008), Madoff Investment scandal (2008), Northern Rock (2007) and US Mortgage deterioration (2007) are other examples of 21st century's crises. Those crises affect developing and growing countries with its negative results. At first, developing countries like Turkey have been affected negatively in crises but their economies became stronger when they rid of it.

On the other hand, global financial market is expanded and developed every day by emerging countries and markets which are low or middle income levels. Nowadays, new terms have defined to determine the terms of financial stations of developing countries like: BRIC that stands for Brazil, Russia, India, and China, along with BRICET (BRIC + Eastern Europe and Turkey), BRICS (BRIC + South Africa), BRICM (BRIC +

Mexico), BRICK (BRIC + South Korea) and CIVETS (Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa).

In the past decades financial market was made up capital, derivative and money markets. However nowadays financial market hugely has changed and it consists of capital, money, derivative, futures, insurance and foreign exchange markets. The largest and most perfect one is foreign exchange market for all markets. These markets are developed with innovation also compare the last decades, innovation brought new market instruments. Mortgage, credit cards & online banking system, arbitrage, mergers & acquisitions, Eurobond & Eurodollar market and technology are the new instruments. These instruments are created by the global market and all of them are part of innovation.

Developing countries like Turkey have faced with graded financial liberalizations. It was just to achieve an economic growth in the world financial sector. But to pursue this growth, they have to stable the economy which is impossible with financial crises regarding to financial mobility. The researches show that direction of causality between financial and economic growth is more difficult. When cross-countries are evaluated, measures of financial developments like financial intermediaries, financial institutions, domestic credits, stock and bond capitalization are directly related to economic growth (King and Levine, 1993). Anything that leads financial development will affect real sector. Due to Estrella (2001) deregulation, securitization, derivative instruments and financial risk management are some of the affecting ones. When prices are restricted by deregulations, authorities will go to have more control over credits and interest rates will change in private sector. So by changing interest rate, deregulations are modifying both the cost of capital and liquidity which will make banks to decrease the rates on deposits to compete in the sector. By securitization, banks can offer alternative funds that are not available till then. So market liquidity has to be decreased by those extra available funds. In addition to this, derivative instruments affect wealth and capital valuation by exchange rates. So as Prasad (2003) stated financial globalization affects economic growth either directly or indirectly. While domestic saving, technology transfers and lower cost of capital are direct ones, specialization with new policies and capital augmentation are indirect ones.

In theory, financial sector are trasfering funds from economic unit that has excess funds to ones that has funding gap. At the same time, financial system (Shall and Haley, 1996:15)

- ✓ Ensuring risk transfer
- ✓ Providing liquidity
- ✓ Allowing different portfolio preferences to ones who supply and demand funds
- ✓ Maintaining places to use these funds efficiently
- ✓ Facilitating the changes of goods and services
- ✓ Affecting economic growth by rising savings

**Figure 1:** A Theoretical Approach to Finance and Growth

**Source:** Levine, R. (1997), Financial Development and Economic Growth: Views and Agenda, Journal of Economic Literature, V:35 (2), pp:706.

Turkey had experienced two financial crises because of the short term capital movements both in November 2000 and February 2001. With these crises, it has the highest capital account deficit above 8% of GDP among OECD countries and would be financed by growing private debt. So developments in financial liberalization would have an effect on economic development. The benefits of financial liberalization are a better control over money supply and lower interest rates which will foster a higher investment in the economy. But countries like Turkey are experiencing structural transformations to be a free market economy. So if financial liberalization cannot be done perfectly, it would require budgetary problems. Such as those developments will rise the deficit which will lead to an increase in costs. Government will lose revenues and will gonna pay more interest rates on their existing debts.

This is a comprehensive emprical study to discuss the important issues surrounding the financial liberalization, financial development and economic growth in the light of globalization in Turkey. Turkey is very attractive sample research study.[1] Because in spite of the crisis Turkey has faced since 1980, it has applied series of financial restructuring programs and policies to improve and stable the economy. This was followed by re-construction of both public and private banking sector. All these reforms have an impact on the economic growth in the long-run period. Special emphasis is given to the effects of financial development like private credits, domestic credits, broad money and total deposits. Annual data used in the research for the period 1980-2010 was sufficient enough to analyze the relationship to get meaningful results. The series of economic analysis were estimated to find whether there is a relationship between financial development and economic growth for Turkey. The remainder of the paper is constituted by 4 parts. The first part reviews the analytical framework with an overview of how financial development and economic growth are related to each other, while section 2 deals with the model specifications and data. Section 3 explains the econometric specifications and section 4 concludes the intent of the paper.

[1] Özer (2003), for a detailed information about financial reforms that Turkey did since 1980s.

**Analytical Framework**

Until the mid-1970s, one of the common aspects of economic policies implemented in developing countries is intervention to the financial markets. These interventions can be sorted as limitation of deposit and loan interest rates, application of different rates according to the reserve requirement on deposits and keeping this rates high, the prohibition of bank entries, selective credit policies and constraints on capital movements (Galbis, 1977). Due to McKinnon (1973) and Shaw (1973), determining the interest rates outside of the market forces represents an artificial way to keep inflation as a low financial pressure and in time any interference in the financial sector has become a tradition. They suggest that to channel the investments to the necessary savings needed for economic development, interest rates has to be determined freely by market forces. But ceiling application on interest rates would cause various adversities in the economy (Fry, 1997: 755). First of all, when the current consumption compared with future consumption, low interest rates constitute a deviation in favor of current consumption. This situation in terms of social Welfare leads savings to be eventuated under the optimal level. Secondly, people would put their savings into unproductive areas like gold or foreign Exchange or informal sector instead of low interest saving bank deposits. Thirdly, low interest loans borrowed from banks could be considered in capital intensive investment. Lastly, risky entrepreneurs with less income and people who do not want to borrow high interest rates can participate among potential investors. This would lead to the selection of low income projects.

With the new growth theories ( Romer, 1986 & Lucas, 1988) developed in the second half of the 1980s, the role of the financial sectors' growth was brought up again by Pagano (1993) and countries with high levels of financial development has been supposed to have high rate of economic growth. With the support of Keynesian and Structuralist opinions, the way of achieving a financial liberalization for a country is to apply reforms and policies actively. In deed, it must be done effectively in developing countries cause of the strong relationship between financial development and economic growth (Mohan, 2006).

Economic development by creating demand for financial services will contribute to the financial development. In the event of a casuality of financial development to economic growth, financial development should be evaluated as dependent variable and economic growth should be evaluated as independent variable is an argument (Lucas, 1988). It is a reality that developed countries have more developed financial system. So the importance of economic growth for financial development is more easily understood.

According to Do and Levchenko (2007) focussing on the production side of the financial system may play an important role. According to this, after trade liberalization for an economy specialized in financial intensive goods, demand for external finance and depending on this level of financial development may be higher.

Empirical research on financial development and economic growth by Demetriades and Hussein (1996) shows that there is a direct casuality from economic growth to financial development taking the ratio of bank deposit liabilities to nominal GDP and the ratio of bank claims on the private sector to nominal GDP. Darrat (1999) suggested that there is a positive relationship between financial development and economic growth by using the currency ratio, currency to M1 and the ratio of M2 to GNP as the financial development indicators.

Levine (1997) examines five functions that financial system deals with. These are facilitating risk improvements, allocating resources by gatheting informations about investment, monitoring managers, mobilizing savings and facilitating exchange. In the study of Al-Awad and Harb (2005), there is a unilateral causality from economci growth to financial development with the help of real GDP, real government spending, and real M1.

According to Aziz and Duenwald (2002), the financial sector can promote economic growth by three different ways: first of all marginal productivity of capital is increased by gathering more information needed; secondly increasing the financial intermediation by orienting investment to savings, and thirdly by rising the private savings. There are some ways to measure the financial development of a country in the literature. They consist the share of money supply in GDP. One indicator will not be enough for the measurement of financial liberalization. So M1, M2, M3 and deposits & credits are used as indicators (Arestis & Demetriades, 1997).

There are three types of financial liberalization indicators in the literature. The first one is *de jure* indicators which is connected with the official dates of policy reforms. IMF Annual Report on Exchange Arrangements and Exchange Restrictions index is an example (Grilli and Milesi-Ferretti, 1995). A comparison between before and after liberalization period of time can be made with this type. The second type measures *de facto* analysis of financial openness such as capital flows/GDP ratio (Edison et all, 2004). Cyclical fluctuations have negative effects on those measurements. The last one is *de facto* indicators determine structural breaks in capital inflows (Tornell, Westermann and Martinez 2003). It is the combination of the first two types of financial liberalization.

The process of liberalization and opening up capital markets for trade was started in 1970's right after Turkey fell into foreign debt payment problems. The stabilization program and policies were made under International Monetary Fund to control over those problems. First of all, foreign trade was liberalized in 1980's. January 24, 1980 decision known as the stabilization program opens the door to the process of liberalization of experience of Turkey's financial liberalization has been the subject of many scientific studies from different angles. In this context, research can be divided in two areas. Firstly, by determining investment and savings functions, the effect of financial liberalization on saving and investment is estimated (Erol, 1992). Secondly, the contribution of financial liberalization to economic growth is examined. In this context, the studies focused on determining the relationship between financial deepening and economic growth indicators and in the vast majority of these studies, analysis of causality is used (Akçoraoğlu, 2000). This was followed by foreign exchange trade liberalization in 1984. Istanbul Stock Exchange was reopened in 1986. Central Bank began its open market operations in the following year. Control on capital movements were removed in 1989 and Turkish Lira became convertible which meaned the beginning of financial liberalization by making the economy financially open to foreign trade.

Financing public deficit in 1990s, instead of Central Bank, government got into debt through securities, securities market structure dominated by generally public sector. Public securities in outstanding securities were 86% of all stocks in 1999. This made interest rates to rise in relation to restraining the transfer of funds from financial sector to real sector. As a result of this, savings were transfered to public sector instead of real investment. Although capital market increased its volume in the economy, it could not prevail its main purpose which was the fund transfer to productive sector. By the way, there was no any price determination mechanism which yield asymetric information in the sector.

**Model Specification and Data**

Many of the emprical studies of financial growth and economic development investigate the model of:
Economic growth = *f*(financial development)

In deed, financial development is very difficult to measure as data. For this reason, alternative solutions should be developed to test financial development. In most studies indicators developed for the financial sector are: financial status, flow of credit, liquidity management, stock market and characteristics of risk management. Each indicator for measuring the effects of the financial sector reflects the analysis which is important for development in different directions.

There are researches investigating the relationship between financial development and economic growth. In some of those researches, banking sector is taken as a part of financial market which shows the financial development of financial sector. Obsfield (1994) investigate the relationship between liquid stock markets and economic growth theoretically. With the models he used, neither liquidity nor integration with international capital market are related to private sector deposits. Levine and Zervos (1996) use the dataset of 72 countries by using 3 growth rate as dependent variable applying cross-section analysis. They found a meaningful relationship between financial and economic growth. In another study of Levine and Zervos (1998), they analyzed the relationship between liquid stock market and growth banking sector on economic development by using 47 countries for 18 years annually applying OLS Method. The study in which King and Levine (1993) investigated the financial development and economic growth is an important contribution to the literature by analyzing 80 countries for 30 years. Levine, Beck and Loayza (2000) found in their study by using both cross-section analysis and dynamic panel techniques, there is a strong positive relationship between long-run economic growth and financial development. The study of Rousseau and Wachtel (2000) indicates the effects of stock market on economic development by applying panel data with 47 countries' data for 16 years.

Due to Gürsoy and Müslümov (2000), the relationship between stock market and growth is much stronger and found in their study for Turkey that two indicators affected each other.

The simplest indicator for all those studies is the money/GDP. Because financial development is measured with the growth of financial sector and especially its relation to GDP. Although M1/GDP is not giving the real inference for the level of economic development, it is generally used for short-term financial asset value in researches. M2/GDP has an overwhelming effect to the change of the real GDP while measuring the size of the financial sector (King and Levine, 1993b). Also the ratio of M2/M1 is related to a country's financial development notwithstanding it is small.

Annual data covering the period 1980-2010 is used in the study. Data are obtained from World Bank's World Development Indicators (2010), International Financial Statictics (2010), State Institute of Statistics, Central Bank Republic of Turkey, Annually Statistical Bulletins of the Central Bank of Turkey and Istanbul Stock Exchange. All variables are quoted in local currency. The data are converted to logarithms so that they can be interpreted significantly in growth terms after taking the first difference of all. Three dummy variables are included in the estimation to account for financial crises in 1994 and 2001 in Turkey and the global financial crisis in 2008. There are six indicators used in the study that are commonly employed as the financial development proxies. These proxies are determined as: broad money as ratio of GDP (M2/GDP=M), domestic credits as ratio of GDP (DC/GDP=D), private credit as ratio of GDP (PC/GDP=P), commercial bank assets to commercial bank assets plus Central Bank assets (CB/CB+CB=C), stock market capitalization (SMC=S) and total deposits as ratio of GDP (TD/GDP=T). The growth rate of GDP (G) represents the economic growth.

On the other hand, the growth rate of GDP as Al-Awad and Harb (2005) studies, include Monetary and Fiscal Instruments like government expenditures (GE), interest rate (IR) and inflation (IN) as total. As Hung (2003) stated in his study, money is required for loan transactions and the operations of financial markets are subject to asymetric information. So an increase in government spendings' will rise the equilibrium under financial development which would reduce monitoring cost with a higher inflation and decrease economic growth for that country due to higher inflation rates as a result.

First of all, to construct a reliable indicators of financial development, all the variables are in logarithmic forms. Correlation among variables are presentes in Table 1.

**Table 1:** Correlation Matrix

| | M | D | P | C | S | T |
|---|---|---|---|---|---|---|
| M | 1 | | | | | |
| D | 0.924 | 1 | | | | |
| P | 0.788 | 0.716 | 1 | | | |
| C | 0.985 | 0.974 | 0.834 | 1 | | |
| S | 0.819 | 0.827 | 0.937 | 0.685 | 1 | |
| T | 0.783 | 0.883 | 0.935 | 0.738 | 0.892 | 1 |

The correlation matrix reported between the indicator in Table 1 represent the two financial proxies are highly correlated. So this high correlation observed between the two variables may contain casuality and lead to multicollinearity. To overcome this problem and normalize the indicators, Principal Component Analysis is used to find their relative contribution to the cumulative proportion accounted. In general PCA is used here to reduce correlated variables into a smaller uncorrelated variables which is known as principal components (Stock and Watson, 2003).

**Table 2:** Principle Component Analysis of the Indicators

| Principal Component | Eigenvalues | %of variance | Cumulative % |
|---|---|---|---|
| 1 | 2,7157 | 0,9271 | 92,7 |
| 2 | 0,1953 | 0,0516 | 97,9 |
| 3 | 0,0890 | 0,0213 | 100 |
| **Variable** | **Factor Leading** | **Communalities** | **Factor scores** |
| M | -0,584 | 0,352 | 0,354 |
| D | -0,561 | 0,317 | 0,332 |
| C | -0,572 | 0,323 | 0,328 |

Table 2 represents the results obtained from PCA. From the Eigenvalues, the first component explains about 93% of the standardized variance, the second component explains another 5% and the last one just shows only 1% of the variation. It can be seen that the first one which is the main indicator that explains the variation of the dependant variable is the correct indicator to measure the financial development. At the bottom of Table 2, the first eigenvalue shows that all the variables reported are negatively correlated with the first principal component. Factor scores reveals the individual contribution of three components M, D and C to standardized variance of first component. The weights of principle components are calculated due to their correlation to cumulative rates in constructing the Financial Development proxies.

VAR Model is the appropriate technique to investigate the relationship between financial development and economic growth. A Vector Autoregressive (VAR) approaches is conformable to the model used in this study because of differentiating the short and long run casuality of variables if they are cointegrated each other and eliminating the endogenity problems by conducting indicators as endogenous.

The testing is started by analyzing the unit roots with the help of ADF-Augmented Dickey Fuller Test for all variables. If all variables (GE, IR, IN, G) are found out to be I(1), a cointegration test will be done between those variables. That means they are non-statinoary and taking the first difference of variables will make them stationary and helps to estimate Granger casuality test. The VAR model used in this study is:

$$y_t = \delta 1 + \alpha_1 y_{t-1} + \alpha_2 y_{t-2} + \alpha_3 y_{t-3} + \ldots\ldots\ldots + \alpha_p y_{t-p} + \varepsilon_{t1} \qquad (1)$$

$\delta$ is the constant term and p is the order of VAR. $Y_t$ and its lag values (optimal lag length "k") with $\varepsilon_t$ are 4 x 1 vectors (white noise residuals) while $\alpha_1$, $\alpha_2$,.....$\alpha_p$ are 4 x 4 matrices of constants to be estimated.

Here in this regression, GE and G are I(0) while IN and IR are I(1). From the above statement, if I(1) variables are non-stationary, first difference of the variables are used in the VAR model to make them stationary [I(0)]. But here I(1) variables are cointegrated although first differences are taken which will lead a loss in useful information for testing. So omitting the cointegrated variables from the estimation will cause a specification error which will give no reliable results. To prevent this, Vector Error Correction Model is used that is a model of restricted VAR model for the cointegrated non-stationary variables. It is a reintroduced formula of the lost information in differentiating process which will in deed allows long-run equilirium together with short-run dynamics.

$$\Delta y_t = \lambda_1 + \beta_1 \Delta y_{t-1} + \beta_2 \Delta y_{t-2} + \beta_3 \Delta y_{t-3} + \ldots\ldots\ldots + \beta_{p-1} \Delta y_{t-p+1} + €_{t1} \qquad (2)$$

$\Delta$ is the differantiated operator while p-1 is the translated into a lag formar of p parameter of the VAR and $€_t$ is normally distributed error term. This VAR model serves the stability condition for Johansen and Ganger casuality tests.

**Emprical Findings**

The ADF test results state that all the variables become stationary after taking the first-difference which means variables are I(1) for 5% level of significance. The financial development indicators have a trend. The null hypothesis is rejected.

To test the series, hypothesis is:

$H_0$: $\alpha = 0$ (y is non-stationary)

$H_1$: $\alpha \neq 0$ (y is stationary)

**Tablo 3:** Unit Root Test

| | | | |
|---|---|---|---|
| G | -5,944618 | 5% Critical level | (-3,53661) |
| | (-3,65391) | 10% Critical level | (-3,48156) |
| M | -2,92167 | 5% Critical level | (-2,59461) |
| | (-2,60417) | 10% Critical level | (-2,58153) |
| D | -4,32167 | 5% Critical level | (-2,86738) |
| | (-3,67425) | 10% Critical level | (-2,75831) |
| P | -3,68271 | 5% Critical level | (-2,68147) |
| | (-2,97814) | 10% Critical level | (-2,62529) |
| C | -1,98205 | 5% Critical level | (-1,78153) |
| | (-1,89216) | 10% Critical level | (-1,77294) |
| S | -2,92503 | 5% Critical level | (-2,67520) |
| | (-2,73825) | 10% Critical level | (-2,64107) |
| T | -1,89063 | 5% Critical level | (-1,78019) |
| | (-1,78843) | 10% Critical level | (-1,76582) |

**Note:** Values in parentheses show ADF test results at level I(1) at 5%. Level.

By taking first differences of the variables to make them stationary at 5% critical level, cointegration test can be done to analyze the casuality between variables. A cointegration test shows the long run relationship between series. But calculated VAR values of lags are important to find the lon run relationship. So VECM is established and after running Johansen cointegration analysis, the casuality can be determined for the variables. The hypothesis is as:

$H_0$: $\beta = 0$ (there is no cointegration between series)
$H_1$: $\beta \neq 0$ (there is cointegration between series)

**Table 4:** Johansen Cointegration Test

| | | Trace Statistics (λtrace) | | | | Eigen value Statistics (λmax) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | Lags | r = 0 | r ≤ 1 | r ≤ 2 | 5% | r = 0 | r ≤ 1 | r ≤ 2 | 5% | Result |
| G - P | 1 | 28,1942 | 9,8016 | 0,7659 | 19.5297* | 22,7015 | 6,8514 | 0,7659 | 21.3261* | cointegrated |
| G - D | 1 | 31,6407 | 8,7953 | 0,8361 | 27.5029* | 24,8916 | 8,6147 | 0,8361 | 24.8043* | cointegrated |
| G - M | 1 | 26,7931 | 7,9371 | 0,3871 | 24.6524* | 20,9927 | 6,9153 | 0,3871 | 18.0757* | cointegrated |
| G - C | 1 | 25,6185 | 4,4907 | 0,9571 | 22.8188* | 22,7593 | 4,4719 | 0,9571 | 21.8687* | cointegrated |
| G - S | 1 | 20,8371 | 2,4512 | 0,0283 | 23.8561 | 16,9457 | 2,0173 | 0,0283 | 27.5843* | not cointegrated |
| G - T | 1 | 21,6407 | 2,8161 | 0,3197 | 29.7970 | 17,8041 | 2,2918 | 0,3197 | 21.1316* | not cointegrated |

**Note:** * indicates 5% level of significance.

Table 4 shows that after applying Johansen cointegration test, when stock market capitalization (S) and total deposits as ratio of GDP (T) are used as control variables of financial development for economic growth at 5% level of significance, there is no cointegration in the long-run. To estimate casuality in short-run and long-run between financial development and economic growth, the first four pairs are found to be positive and can be used for the analysis of casuality.

If there is a lagged relationship between the variables, Granger Casuality test is applied to find the direction of the relationship both for short and long run. If variables are cointegrated, long run regression of lagged values of error terms can be estimated by Granger casuality test as error correction term.

**Table 5:** Granger Casuality Test

| Hypothesis | Wald Statistics |
|---|---|
| Financial Development does not Granger -cause Growth | 3,473 (0,187) |
| Growth does not Granger -cause Financial Development | 0,027 (0,009) |

**Note:** number of observations (n) = 31; the p-values are in parentheses.

Due to Granger Casuality test in Table 5, if null hypothesis is not rejected, it can be said that Granger casuality runs one-way from Financial development to Economic growth at 5% level of significance. Therefore, there has been a short-term relationship between financial development and economic growth for both directions.

**Concluding Remarks**

Financial markets have a considerable effect on economic development. The development in financial system represents transfering savings to investments which yields to an economic growth. To make this process effective, a well developed financial system is needed in the economy.

This paper contributes to the literature by looking at the financial model and their relationship with economic growth which is estimated in emprical analysis. The direction of financial development to economic growth is examined by VAR between 1980-2010 years. GDP is used for economic growth while M2, domestic credit, private credit, total deposits to GDP, stock market capitalization and commercial bank assets to CB assets have been used for financial development indicators. Three dummy variables are used for financial crises of 1994, 2001 and 2008. Most of the series are not stationary for level to make an estimation for long-term relationship. So all of them are integrated to the same level of I(1). Granger casuality is done to take the lagged variables into consideration.

The emprical evidence from VAR analysis to co-integration show that there is a relationship between financial development and economic growth but not on the desired level. Due to casuality test, changes in financial sector will lead up to a change in growth. There has been no long-term casuality between economic growth and financial development, it just affects growth in the short-run. But reverse is not possible. The reason of that can be high inflation, instability and uncertain policies applied in economy which causes financial crises. The role of commercial and private banks have to be revaluated in Turkey. Because they are the most important intermediaries between savings and investments. Therefore, policy recommendations should be done to improve financial system to achieve the aim of economic growth in Turkey.

**References**

Akçoraoğlu, A. (2000), Financial Sector and Economic Growth: An Exogeneity Analysis, *Ankara Üniversitesi SBF Dergisi,* 55(1), 1-25.

Al-awad, M. & Harb, N. (2005), Financial Development and Economic Growth in Middle East, *Applied Financial Economics*, 15, 1041-51.

Arestis, P. & Demetriades, P. O. (1997), Financial Development and Economic Growth: Assessing the Evidence, *Economic Journal,* 107(442), 783-99.

Aziz, J. & Duenwald, C. (2002), Growth-Financial Intermiation Nexus in China, *IMF Working Paper, 02/194*, Washington.

Beck, T., Levine, R. & Loayza, N. (2000), Finance and the Sources of Growth, *Journal of Financial Economics*, 58(1-2), 261-300.

Darrat, A. F. (1999), Are Financial Deepening and Economic Growth Causally Related? Another Look at the Evidence, *International Economic Journal,* 13, 19-35.

Demetriades, P. & Hussein, K. (1996). Does Financial Development Cause Economic Growth? Time Series Evidence from 16 Countries, *Journal of Development Economics,* 51, 387-411.

Do, Q-T. & Levchenko, A. A. (2007), Comparative advantage, demand for external finance and financial development, *Journal of Financial Economics*, 86(3), 796-834.

Edison, H., Klein,M.W., Ricci,L. & Slok, T. (2004), Capital Account Liberalization and Economic Performance: Survey and Synthesis, *IMF Staff Papers,* 51(2), 220-256

Erol, T. (1992), Short-Term Macroeconomic Adjustment Process in A Developing Economy: the Turkish Case, 1960-80 and 1981-86, *METU Studies in Development*, 19(1), 51-65.

Estrella, A. (2001), *Financial Innovation and the Monetary Transmission Mechanism Focus on Austria*, Oesterreichische Nationalbank.

Fry, M. J. (1997), In Favour of Financial Liberalization, *The Economic Journal* , 107, 754-770.

Galbis, V. (1977), Financial Intermediation And Economic Growth in Less Developed Countries: A Theoritical Approach, *Journal of Development Studies*, 13(2), 58-72.

Gürsoy, C. T. & Müslümov, A.(2000), Stock Markets and Economic Growth: A Causality Test, *Doğuş University Journal*, 2, 124-132.

Hung, F.S. (2003), Inflation, Financial Development and Economic Growth, *Journal of International Review of Economics and Finance,* 12, 45-67.

King, R.G. & Levine, R. (1993), Finance and Growth, *Journal of Economics*,108, pp: 717-737.

King, R.G. & Levine, R. (1993), Finance, entrepreneurship and growth: Theory and evidence, *Journal of Monetary Economics,* 32(3), 513-542.

Levine, R. & Zervos, S. (1996), Stock Market Development and Long-Run Growth, *World Bank Economic Review,* 10(2), 323-39.

Levine, R. (1997)Financial Development and Economic Growth: Views and Agenda, *Journal of Economic Literature,* 35(2), 688-726.

Levine, R. & Zervos, S. (1998), Stock Markets, Banks, and Economic Growth, *American Economic Review,* 88(3), 537-58.

Lucas, R., (1988), On The Mechanics Of Economic Development, *Journal of Monetary Economics*, 22(1), 3-42.

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

Milesi-Ferretti, G.M. & Grilli,V. (1995), Economic Effects and Structural Determinants of Capital Controls, *IMF Working Papers 95/31*, International Monetary Fund.

Mohan, R. (2006), Financial Growth in India: Whither Financial Inclusion?Margin, *The Journal of Applied Economic Research*, 2, 177-197.

Obstfeld, M. (1994), The Logic of Currency Crises, *NBER Working Paper* 4640.

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

Prasad, E., Rogoff, K., Wei, S-J. & Kose, M. A. (2003), Effects of Financial Globalization on Developing Countries: Some Empirical Evidence, *IMF Occasional Paper 220*, Washington D.C.: International Monetary Fund.

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

Schall, L. D. & Haley, C.W. (1996), *Introduction to financial management*, Mc Graw-Hill, 6th edition.

Schumpeter, J. (1912), *The Theory of Economic Development,* Harvard University Press, Cambridge.

Shaw, E. S. (1973), *Financial Deepening in Economic Development*, Oxford University Pres: New York.

Stock, J.H. & Watson, M.M. (2003), *Introduction to Econometrics*, AddisonWesley.

Tornell, A., Westermann, F. & Martinez, L. (2003), Liberalization, Growth and Finacial Crises: Lessons from Mexico and the Developing World, *Brookings Papers on Economic Activity*, 2, 1-113.

Wachtel, A. & Rousseau, P.L. (2000), Inflation, Financial Development and Growth, *Working Papers 00-10,* New York University, Leonard N. Stern School of Business.