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THE EFFECTS OF MACROECONOMIC FACTORS ON *CREDIT TO DEPOSITS-RATIO (CDR): EVIDENCING TURKEY*

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Abstract

The relationship between developments in the banking sector and macroeconomic factors in country's economy has been the focus of both the economy and the banking literature. As a result of this; various research and sturies that investigate the effects on the banking sector have been done on economic performances of countries and financial developments. Because these reearch and studies are very important not only for the development of banking sector but also determining the principles of the strategies that will be developed the banking sector towards the future together with doing accurate prediction.By way of this thought, in this paper, the relationship between the periodic changes in the "credit/deposit ratio" (shortly CDR) of the banking sector and the periodic changes in macroeconomic parameters has been investigated in Turkey for the period 2002-2016. Deposits, Credits and CDR were mentioned in part II as a fact of Turkey's Banking Sector View. GDP, CPI, IPI, Export and Import were mentioned in part III as an elements of Turkey's Macroeconomic View. Data set and methodology were mentioned in part IV. According to the results obtained; we claim that in Turkey Banking Sector, the percentage change of credit to deposits ratio is affected by both the percentage change of import and the percentage change of CPI strongly, that is as imports increase in Turkey, the credit to deposit rate increases and similarly as CPI increase, the credit to deposit rate increases too. Moreover; we claim that Imports in Turkey are financed by bank credits. As imports increase, the need for bank credits are also increasing. We claim also that imports are not an increasing effects on savings in Turkey. Similarly; we claim that CPI must be reduced to increase savings. Otherwise; as inflation increases, the demand for credit will increase because there is a need for additional resources due to decrease of the purchasing ability of the existing assets.

Keywords: Deposits, Savings, Credits, Loans, Credit to Deposits Ratio, Loan to Deposits Ratio, Macroeconomic Parameters, Panel Data.

I- Introduction

Generally in the World; the relationship between developments in the banking sector and macroeconomic factors in country's economy has been the focus of both the economy and the banking literature. As a result of this; various research that investigate the effects on the banking sector has been done on economic performances of countries and financial developments.

By the most clear statement; the basic function or purpose of the banks is that to be a bridge between people or institutions who need funds and other people or institutions who have saving oppurtunities in their hands. In other words; one of the important elements of money and credit policy in the economy is that banks fulfill the function of transferring funds from units with financing capacity to the units with financially open. Therefore; banking sector, which capital base is strong and activity is high and more transparently and full controlly and technologically advanced, is of paramount importance for the financial systems and economic development of countries.

If we look at the banking sector in Turkey; it's seen that with today's communication and digital technology capability, the sector can safely maintain its activities and can safely fulfill the most functions, such as collecting money and lending credit, in a healthy and profitable manner by keeping up with developments and along with globalization and regulating and adapting to the rules of both public authorities and also by Basel criteria, capital even in the face of the pressures and risks that many binding factors.

Especially together with globalization; as a result of foreign banks being either directly or increased their activities in Turkey through partnerships, the competition among banks has increased and the capital base has strengthened and the competition increased and has caused
not only the improvement of financial developments but also accelerated the development of the banking sector and increased total quality rapidly at the same time at this duration.

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When the banking sectors of financially developed countries are examined, it is seen that the main frame of the financial structure is mainly composed of the banking sector which including many banks that are very different structure and technologically developed. In this way; deepened financial systems bring the idle funds and savings in the economy to consumers who need and the companies who want to make investment or production directly in a wide variety of models and in a much more efficient way. Thus; the banking system which is the main frame of the financial structure, play a crucial role both in providing "resource diversity" and also in attracting "resource costs" to more reasonable levels.

However, not only for overcoming economic problems but also ensuring a sustainable growth within constantly and stability and having a low inflation level and creating a strong, sound and competitive economic environment in the international arena, it is of vital importance to reduce dependency on external sources and to increase national savings and also to use national savings effectively and efficiently. In order to increase national savings; consistent, stable and innovative macroeconomic policies which are based to the free market rules and international competition and approaching macroeconomic balances and encouraging private entrepreneurship, production and accumulation must be applied.

For managing and economically using the national savings, it is of great importance that the financial sector and the banking system must operate in an efficient and healthy manner based on trust and efficiency. Therefore; the relationship between developments in the banking sector and macroeconomic factors in country's economy has been the focus of both the economy and the banking literature. As a result of this; various research that investigate the effects on the banking sector has been done on economic performances of countries and financial developments.

The level of economic development of countries dissociate according to their own particular structure characteristics and different sizes of economic systems. Doubtly; one of the most important factors in the differentiation and development of economic systems is the financial system composed of banking, insurance and capital markets. When the financial system is mentioned; the banking sector is more widely understood. Therefore; with changes and developments in the banking sector and the relationship between macroeconomic developments has always been a matter of curiosity.

In the economic literature, the relationship between financial markets and economic growth are frequently searched topics. After the work of (Mckinnon, 1973) and (Shaw, 1973), discussions on the effect of financial intermediaries on growth in the long term are still ongoing (Demir, 2007). From the literature view; it is seeing that the first studies about the relationship between financial development and economic growth had been done by Bagehot (1877), and Hicks (1969). Bagehot and Hicks' studies show that financial developments have contributed significantly to the industrialization of the UK, because; many businesses that can cause intense business volume in the industrial sector are funded by the financial sector (Wagabaca, 2004).

Schumpeter's work expressed that the sectors with high returns had been successfully determined and funded by financial system and also stated that these sectors determined by financial system were usually innovative and technological sectors so that financial developments of these sectors encouraged both the technological innovations and also the production and by this way this helps the economic growth of the country (Wagabaca, 2004).

Then in economic literature; after the work of (Goldsmith, 1969), (Mckinnon, 1973), and (Shaw, 1973), it is stated that the subject becomes constantly debatable (Hondroyiannis, 2005).

In summary; for the economic development of Turkey, the existence of the banking sector, health and development is extremely important.

By making academic works; determine how the banking sector is affected by macroeconomic developments and at what level the banking sector is being sensitive to economical changes is thought to be very important. Because these studies are very important not only for the development of banking sector but also determining the principles of the strategies that will be developed the banking sector towards the future together with doing accurate prediction. By way of this thought, in this paper, the relationship between the periodic changes in the "credit/deposit ratio" (shortly CDR) of the banking sector and the periodic changes in macroeconomic parameters has been investigated in Turkey for the period 2002-2016.

a. The Subject and Hypothesis

The subject of this paper is to investigate whether there exists a meaningfully statistical relationship between the percentage change of the "credits to deposits ratio" with respect to the previous quarter and the percentage change with respect to the same period of the previous year with the percentage change of the chosen parametric variable of macroeconomics with respect to the previous quarter and the percentage change with respect to the same period of the previous year which as GDP, inflation (CPI) , imports and exports seperately. The hypothesis of our work is as follows:

Hypothesis: periodic changes in the parameters of macroeconomic indicators effects the Banking Sector "Credits to Deposits ratio (CDR)". The statistical methodology and obtained results specified in part 4 and 5 seperately.

II- Turkey's Banking Sector View

a. Deposits

Emerging economies face the problem of saving money and the fact that this lack of savings can not be solved affects other areas of economic life also negatively. As a matter of fact, the low savings caused by the low income level leads to insufficient investments and this situation leads to the increase in unemployment, decrease in production and national income and this loop unfortunately comes to vicious circle. This vicious circle is causing countries to struggle financially at the point of increasing their economic performance.

In this case, countries with insufficient savings resort to foreign savings. Nevertheless, these countries are struggling to develop measures and policies to increase their savings in order to reduce their foreign resource dependency. Thus; It's known very well that importance to increase the savings' of the household, which is one of the elements of economic life (Duzgun, 2009).

In the aftermath of the financial crisis in 2001; although the major structural reforms had been carried step by step by Turkey just to ensure macroeconomic stability successfully, providing sustainable and high economic growth still stands out as one of the most important problems. Disposing the adverse effects of the global crisis, with the help of stimulating policies for domestic demand in 2010 and 2011, the Turkish economy, which has survived by achieving high growth, is about to enter a new period once to experience again a low growth.

In this negative development; while the importance of global conditions is not neglected, but the existence of own problems that Turkey needs to solve for high and sustainable growth must not be overlooked.

Firstly the "high saving deficit" arising as a result of the drop in savings rates and secondly the distorted "current account balance" are two of major of these problems since 2001.

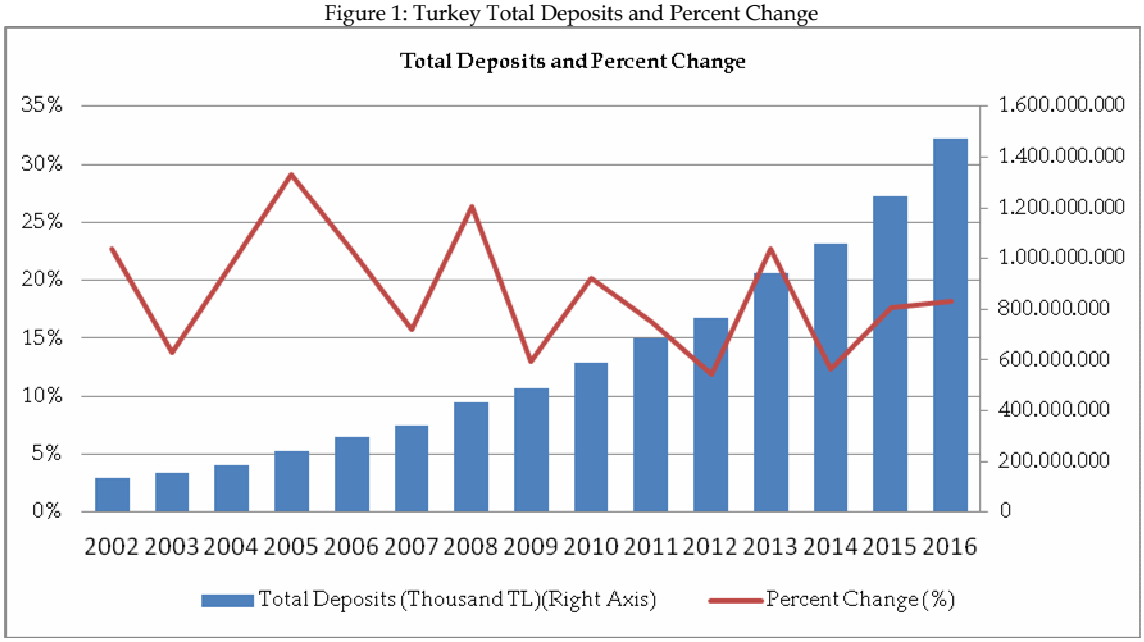
Low saving rates is getting the economy to become more and more dependent on external savings, in order to reach the desired level of investment. This situation makes the economy especially in periods of negative global economic conditions more susceptible to foreign capital movements.

So ever, in the post-2001 period, although the Turkish economy could attract considerable foreign capital due to its successful stabilization policies and opportunities and attractive returns, it is clear that this growth strategy is unsustainable. International comparisons show that the savings rates in Turkey are lower than the OECD average and the savings rates of the countries in the same income group (Ozlale, 2012)

Table 1: Turkey's Banking Sector Deposits (yearly)(Source:BRSA)

Year	Total Deposits (thousand TL)	Percent Change By Previous Year
2002	135 575 188	22.67%
2003	154 185 095	13.73%
2004	187 289 520	21.47%
2005	241 906 014	29.16%
2006	296 711 472	22.66%
2007	343 643 600	15.82%
2008	434 217 162	26.36%
2009	490 464 488	12.95%
2010	589 347 444	20.16%
2011	685 927 741	16.39%
2012	767 901 944	11.95%
2013	942 392 802	22.72%
2014	1 058 539 551	12.32%
2015	1 245 821 558	17.69%
2016	1 472 294 130	18.18%

Figure 1: Turkey Total Deposits and Percent Change



In figure-1 which compiled from the table-1; it is seen that the banking total deposits has increased during the perion 2002-2016 steadily, however the percent of change with respect to the same period of the previous year has getting slowly. This means that the performance of growing of total deposits in banking sector is getting decreasing steadily. This situation is not the desired position for Turkey's economy. To examine it closely that one of the most important reasons for the drop in saving rates seen in the last 10 years in Turkey, is the increase in purchases of durable goods. With improved macroeconomic conditions and increased foreign financing, The banking sector has gone to a significant increase in consumer loans, which has led to a dramatic increase in household purchases of durable goods such as motor vehicles and housing (Ozlale, 2012)

In the report published by the World Bank in 2012 (Report No: 66301-TR) namely 'High Growth Sustainability: The Role of Domestic Savings, Turkey Country Economy Report', It is emphasized that "the national income ratio of savings" in Turkey tends to decrease. This decreasing is likely to have a negative impact on economic growth (Vurur, 2013)

b. Credits

In the process of continuous and sustainable growth of the country's economies banks that have an important place in the financial system play a crucial role with their basic functions. Loans that they use for real sector come at the beginning of these basic functions.

By means of the Loans; It is aimed to grow the economic activities and the economy by supplying the operating and investment capital needed by the real sector.

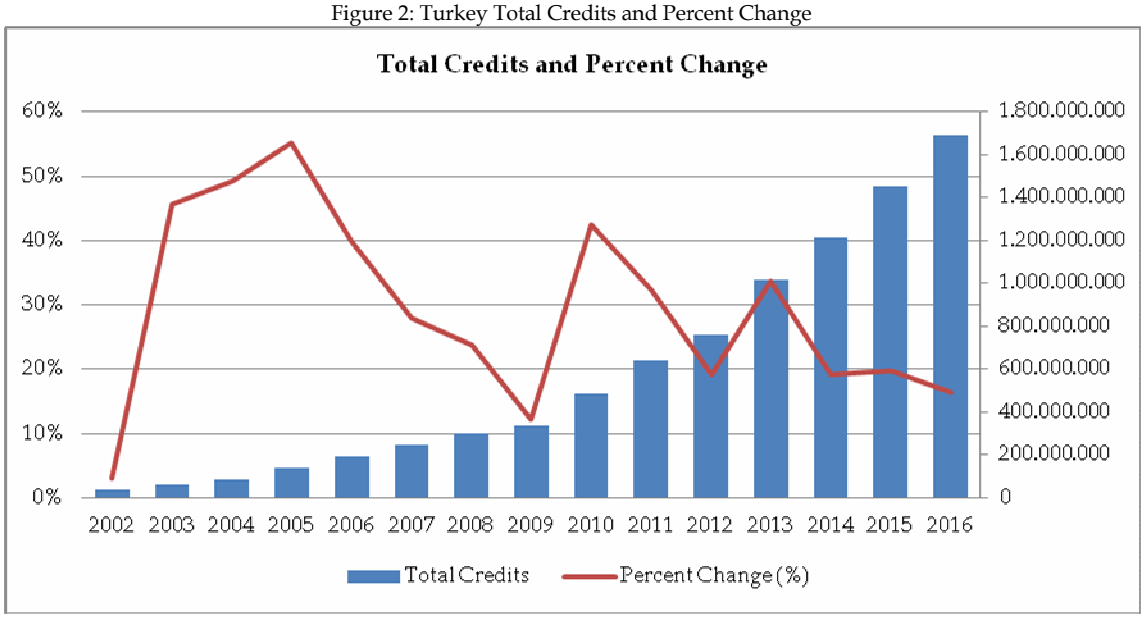
Research shows that; there are strong links between the real sector and the banking sector. Possible problems or improvements to be experienced in any one could affect the other one with the same way. Therefore; the reforms carried out to strengthen the banking sector in Turkey have also recovered the real sector at this period.

One of the most important reasons for the limitation of the effects of the 2008 global financial crisis on the Turkish Banking Sector is, no doubt that, the structural reforms that have been introduced after the February 2001 crisis. While the Turkish banking sector experienced a significant growth performance during the period 2002-2016, the increasing of production and foreign trade are directly effected by the significant increases in loans so that contributing the growing of Turkish economy is. Foreign trade is growing because being dependancy on imports of raw materials in industrial production, is directly cause the exports also dependent on imports. Therefore, there is a trade deficit in the balance of payments. However, this situation leads to the current account deficit.

Table 2: Turkey's Banking Sector Credits (yearly)(Source:BRSA)

Year	TotalCredits (thousand TL)	Percent Change By Previous Year
2002	40 476 892	3.04%
2003	58 943 878	45.62%
2004	87 927 080	49.17%
2005	136 521 546	55.27%
2006	190 897 461	39.83%
2007	244 210 075	27.93%
2008	302 022 714	23.67%
2009	338 850 183	12.19%
2010	482 849 318	42.50%
2011	639 005 598	32.34%
2012	761 435 341	19.16%
2013	1 017 595 050	33.64%
2014	1 212 447 794	19.15%
2015	1 452 882 499	19.83%
2016	1 689 669 825	16.30%

Figure 2: Turkey Total Credits and Percent Change



In figure-2 which compiled from the table-2; it is seen that the banking total credits has increased during the period 2002-2016 steadily, however the percent of change with respect to the same period of the previous year has getting slowly. This means that the performance of growing of total credits in banking sector is getting decreasing steadily due to the lack of national savings. Because the more savings you have the more loan you give to economy. In recent years, Turkish economy is not growing fast because the growing model was based on directly to domestic consumption supported by credit growing. Unfortunately, due to the decrease in loans in banking sector since the lack of savings it has caused automatically the lower GDP growing.

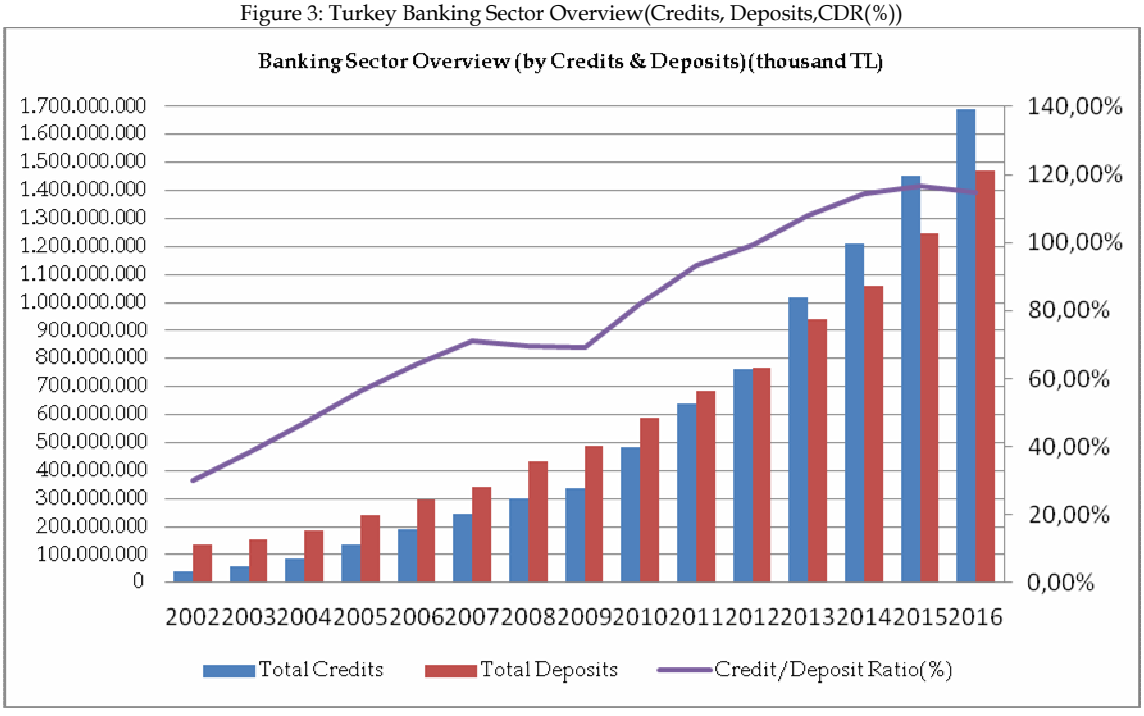
c. Credits/Deposits Ratio (CDR)

As it is seen from figure-3 which compiled from table-3; in Turkey, upto 2012 the total deposits always over the total credits and the credit/deposits ratio (shortly CDR) is less than 1, that is; all the credit demands had been successfully funded by financial system due to the large domestic savings capability and this helped the huge economic growth of the country for the period 2002-2007.

Table 3: Turkey Banking Sector Credits&Deposits, (2000-2016) (Source:BRSA)

Year	Total Credits (thousand TL)	Total Deposits (thousand TL)	"Credit/Deposit" Ratio
2002	40 476 892	135 575 188	29.86%
2003	58 943 878	154 185 095	38.23%
2004	87 927 080	187 289 520	46.95%
2005	136 521 546	241 906 014	56.44%
2006	190 897 461	296 711 472	64.34%
2007	244 210 075	343 643 600	71.06%
2008	302 022 714	434 217 162	69.56%
2009	338 850 183	490 464 488	69.09%
2010	482 849 318	589 347 444	81.93%
2011	639 005 598	685 927 741	93.16%
2012	761 435 341	767 901 944	99.16%
2013	1 017 595 050	942 392 802	107.98%
2014	1 212 447 794	1 058 539 551	114.54%
2015	1 452 882 499	1 245 821 558	116.62%
2016	1 689 669 825	1 472 294 130	114.76%

Figure 3: Turkey Banking Sector Overview(Credits, Deposits,CDR(%))



However, during the period 2012-2016, the CDR is more than 1, that is all the domesitc savings had insufficient to meet the growing credit demands of the economy and the banking system had to borrow from the outside in order to meet the credit requirements of the economic system. Besides this; in order to increase

the deposits in their sheet balance the banks increased the deposit interest rates. With this rise, consumption get fallen in the economy and the unempoyment get rise to the highest level of recent years. This distorted macro economical situation naturally increased the fragility of the finance system and economy. So that Turkey lost the country grade that can be invested at the end of 2016.

III- Turkey's Macroeconomic View

a. GDP

The Gross Domestic Rate (according to the method of production) is the value obtained as the result calculation of deduction of two inputs which the one is the sum of all the goods and services that the producer units have created as a result of their domestic activities in a certain period and the other one is the sum of the values of goods and services used in the production of these goods and services.

In the literature review; there have been lots of studies investigating the relationship between GDP and the banking sector. For example; (Beck, 1999) investigated the relationship between banking sector development and economic growth using the five-year data for the period of 1960-1995 for 63 countries and 77 countries. According to the results of the survey conducted by the researcher, a significant long-term relationship between economic growth and loans granted to the private sector has been determined. (Beck, 2004) investigated the relationship between banking sector growth and economic growth over a total of 40 countries over a five-year period between 1976 and 1998 using the panel data analysis method. According to the results of the survey, the relationship between banking sector growth and economic growth was found to be significant and positive. (Hondroyiannis, 2005) investigated the relationship between banking sector development and the growth for the Greek economy for the period 1986-1999 by using monthly data. According to the results of the research conducted by the researcher, it has been found that there is a double-sided causality between banking sector growth and economic growth in the long run. (Levine, 1998) investigated the relationship between banking sector growth and economic growth using data from 1976-1993 for 47 countries. According to the results of the survey by the researcher, a positive and strong relationship between banking sector development and economic growth has been determined. (Unalmis, 2002) investigated the relationship between financial development and economic growth using annual data for Turkey during 1970-2001. According to the results of the survey, it was determined that short and long term bi-directional causality between financial development and economic growth in Turkey. In another study (Altintas, 2010); ARDL (autoregressive Distributed lag) - boundary testing approach known as cointegration method In Turkey, using the quarterly data of 1987-2007 period, Examined the empirical relationship between economic growth and real Growth, financial development, openness and real interest rate and they encountered the existence of a cointegration relation. In the Harrod-Domar Growth Model (Domar, 1946), (Harrod, 1939), it is clear that savings are the main determinant of growth and depend on the tendency to grow marginally. (Solow, 1956) suggest that long-term saving does not affect growth. In the academic studies conducted after the middle of the 1980s; ((Barro, 1995), (Lucas, 1998), (Mankiw, 1992), (Romer, 1986) and (Romer, 1987), (Rebelo, 1991)); It has been suggested that the increase in savings will have a positive impact on investment and capital accumulation, leading to permanent and high growth.

In studies on saving determinants, it has been suggested that income is a positive influence in the growth of savings. (Attanasio, 2000); (Carroll, 2000); (Carroll, 1994); (Deaton ve Paxson, 2000); (Loayza, 2000); (Rodrik, 2000); (Schmidt-Hebbel, Serv'en ve Solimano, 1996).

(Singh, 2010) explores the long-term effects of domestic savings for India and explores causality between saving and growth; Sided causality between savings and growth, and at the same time suggests that financing of current account deficits and investments is often financed by internal savings. In another study (Gu, 2013) using with structural vector autoregressive (SVAR) studied the relationship between savings and growth in China and at the end they have reached the result is that China's growth is a positive influence of savings and there is a limited effect on savings and an inequality between savings and growth and that this inequality is a stronger factor for growth than the saving. Similarly, (Cardenas, 1998) investigated the determinants of savings in Colombia through a time series approach and concluded that the result is a perfect correlation between the change in the national economy and the change in investment, and the savings are the Granger cause of growth.

When we look at what is happening in Turkey GDP as shown in the figure-4 which compiled from table-4 below that although the sharp decrease in 2001 and 2008, the Turkey's economy grew 2,33 times from the first quarter of 2000 to the last quarter of 2016.

Table 4: Turkey annual GDP and Quarterly Change Percentages (Source:Turkstat)

GSYH, harcama yöntemiyle mevsim ve takvim etkisinden arındırılmış zincirlenmiş hacim endeksi ve değişim oranları (2009=100)

GDP by expenditure approach, seasonally and calendar adjusted chain linked volume index & percentage change (2009=100)

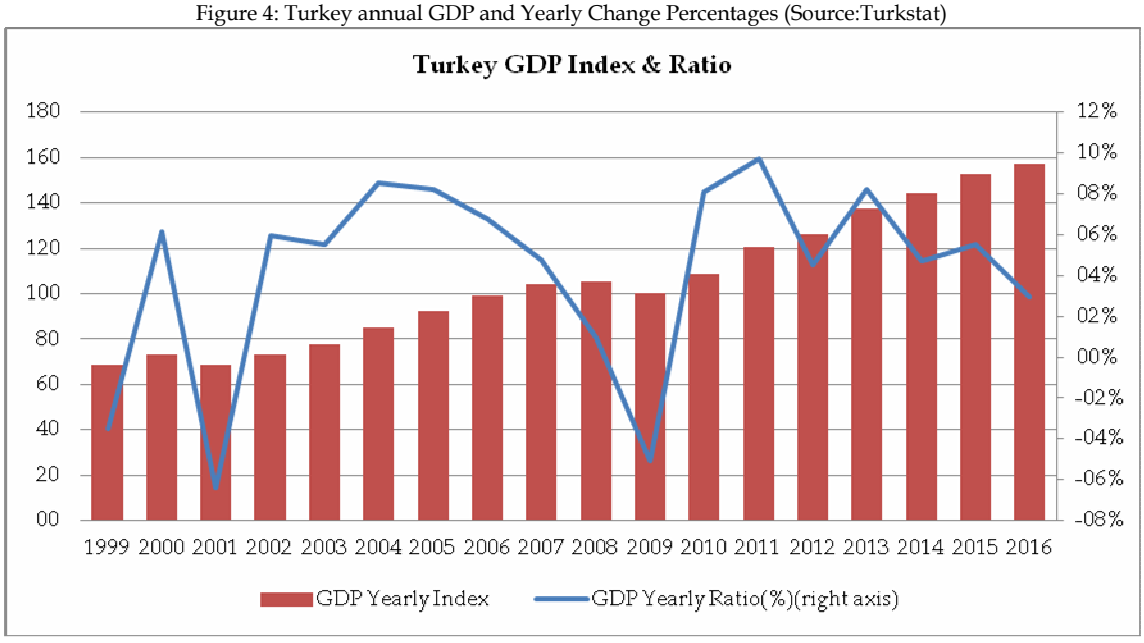
	Yıl Year	Mevsim ve takvim etkilerinden arındırılmış Seasonally and calendar adjusted							
		Endeks Index				Çeyreklik değişim (%)(2) Quarterly change (%)(2)			
		Çeyrek Quarter				Çeyrek Quarter			
		I	II	III	IV	I	II	III	IV
Gayrisafi yurtiçi hasıla- Gross domestic product	2000	69.8	73.4	75.1	74.9	1.0	5.0	2.3	-0.3
	2001	71.5	67.8	69.4	66.8	-4.5	-5.2	2.3	-3.7
	2002	70.6	73.3	74.3	74.8	5.6	3.9	1.4	0.6
	2003	75.9	76.1	78.3	79.9	1.4	0.4	2.9	2.0
	2004	83.1	84.9	85.2	86.1	4.0	2.1	0.4	1.1
	2005	90.9	91.3	92.2	95.3	5.5	0.4	1.0	3.4
	2006	97.3	100.0	98.2	101.2	2.1	2.8	-1.7	3.0
	2007	104.7	103.2	101.7	106.9	3.5	-1.5	-1.4	5.1
	2008	111.2	105.6	102.3	101.4	4.0	-5.1	-3.1	-0.9
	2009	95.9	99.1	101.5	103.5	-5.4	3.3	2.4	2.0
	2010	103.0	106.9	110.9	114.4	-0.5	3.7	3.8	3.1
	2011	114.6	118.7	123.7	124.9	0.2	3.5	4.2	1.0
	2012	121.8	125.0	128.3	129.6	-2.5	2.6	2.7	1.0
	2013	133.2	137.2	139.7	139.7	2.7	3.1	1.8	-0.1
	2014	144.5	141.6	144.5	146.5	3.4	-2.0	2.0	1.4
	2015	149.6	151.9	153.9	155.6	2.1	1.5	1.3	1.1
	2016	155.6	158.3	155.0	160.9	0.0	1.7	-2.1	3.8

TÜİK, Dönemsel Gayrisafi Yurtiçi Hasıla

TurkStat, Quarterly Gross Domestic Product

%2:**Bir önceki çeyreğe göre değişim** %- Change on the previous quarter in %

Figure 4: Turkey annual GDP and Yearly Change Percentages (Source:Turkstat)



However; as shown in the figure-5 (previous monthly change) and figure-6 (with respect to the same month of the previous year) that although the economy has grown up for last 16 years the growth rate both for quarterly and yearly are getting slowly quarter by quarter and year by year. That is; growth rates are falling. Whereas Turkey's economy which is in the league of developing countries should have to be growen at least % 5 per year in order to supply the macroeconomical balances regularly.

Figure 5: Turkey annual GDP and Monthly Change Percentages (Source:Turkstat)

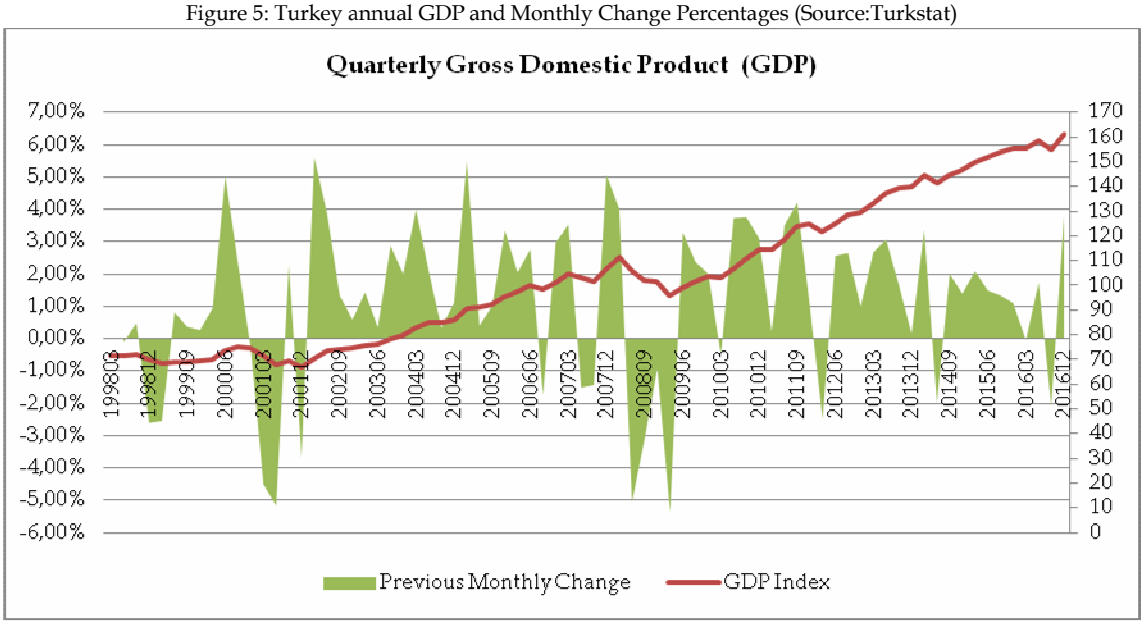
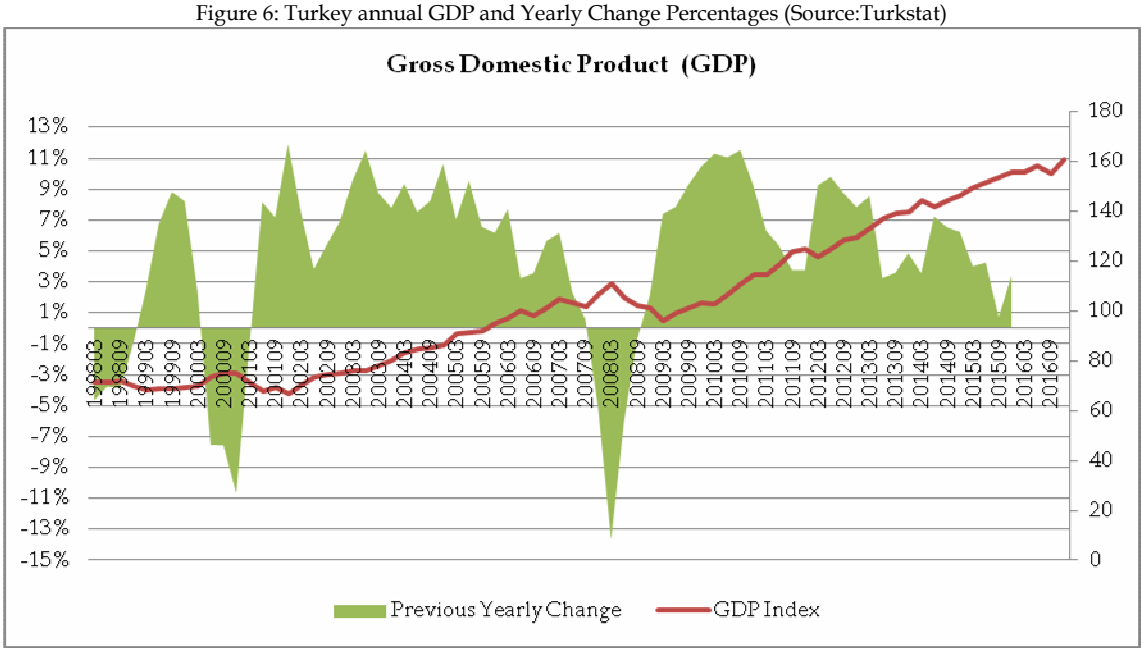


Figure 6: Turkey annual GDP and Yearly Change Percentages (Source:Turkstat)



b. Import and Export

Each developed or developing country wants to make current account surplus in foreign trade for its healthy macroeconomic balances. Because the current surplus can serve as a safety valve for economy getting a protection against exchange rate shocks.

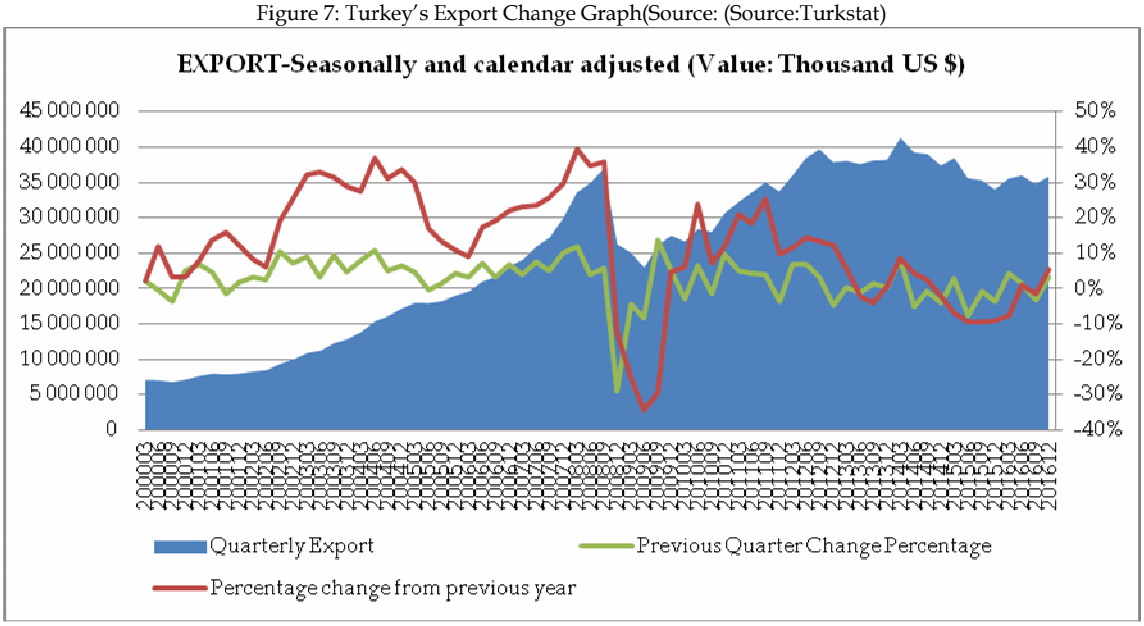
In the literature review; there have been very few studies investigating the relationship between foreign trade and the banking sector directly. (Al-Yousif, 2002), (Beck, 2003), (Svaleryd, 2005), (Jordan, 2007), (Jenkins, 2010) and (Shahbaz, 2011), (Zhang, 2012), (Shahbaz, 2014) suggest that exports have positive effects on economic growth in most of these studies . (Tang, 2016) which one of the rare studies on direct export and banking sector relations investigated the development of Eastern and Central European countries exports to other EU countries after inclusion and integration in European Union Financial System in his study and cliamed that one of the reasons for the absence of the positive effect of the bank credit effect on exports is that there is no increase in bank credits for exports despite the presence of the EU bank. In another study (Zegarra, 2014) investigated the influence of the legal and economic factors on the growth of commercial banking in the 19th and 20th centuries in Latin America countries including Argentina, Chile, Brazil,Peru and Mexico by using economical datas from 1840 to 1920 and claimed that the growth of exports was an important and positive effect on the resources of the banks deposits and bonds. In addition, (Sun, 2010) investigated the Chinese economy and China's monetary policy between 1996 and 2006 and in his work he studied China's monetary policy indicators, bank balance variables such as total deposits, total credits, bank

securities and real economic variables such as GDP, inflation, export, import, foreign exchange reserves. He claimed that total credits play a serios role on the Chinese Economy in the long run term. One of the rare works (Kubo, 2008), during a period fo 7 years in his work on the monetary transmission mechanism in Thailand; ppecifically suggest that monetary tightening is a strong negative impact on import demand in the short run, although import prices have fallen. In another study (Rufael, 2009) investigated the causal relationship between development and economic growth for Kenya during the years 1966-2005, and claimed that some tangible results were obtained that the financial development was a causality for import and export development but in the opposite direction the results obtained were weak.

Table 5: Turkey's Export from 2000-2016 (Source:Turkstat)

EXPORT- Seasonally and calendar adjusted external trade, 2000-2016 Quarterly, (thousand usd)						
EXPORT- Seasonally and calendar adjusted external trade, 2000-2016 Quarterly- Thousand US $		I	II	III	IV	Total Year
	2000	7 030 700	6 991 862	6 745 316	7 094 702	27 862 580
	2001	7 587 640	7 945 214	7 818 297	7 958 128	31 309 280
	2002	8 219 702	8 418 768	9 313 799	9 971 060	35 923 329
	2003	10 854 698	11 198 936	12 258 899	12 838 788	47 151 321
	2004	13 836 063	15 335 216	16 087 874	17 155 518	62 414 670
	2005	17 977 779	17 927 741	18 214 793	19 019 137	73 139 450
	2006	19 609 666	21 013 531	21 681 658	23 189 348	85 494 203
	2007	24 113 841	25 975 233	27 285 762	30 038 031	107 412 867
	2008	33 639 636	34 994 754	37 037 951	26 285 719	131 958 059
	2009	25 121 684	22 984 527	26 132 663	27 512 472	101 751 346
	2010	26 691 064	28 444 820	28 023 659	30 770 060	113 929 603
	2011	32 280 377	33 694 262	35 079 775	33 797 330	134 851 744
	2012	36 059 975	38 537 664	39 782 515	37 950 625	152 330 779
	2013	38 114 830	37 678 062	38 180 766	38 252 884	152 226 542
	2014	41 417 847	39 315 270	39 081 151	37 475 495	157 289 763
	2015	38 532 726	35 644 718	35 384 740	34 076 681	143 638 865
	2016	35 592 404	36 056 947	34 826 737	35 902 744	142 378 832

Figure 7: Turkey's Export Change Graph(Source: (Source:Turkstat)

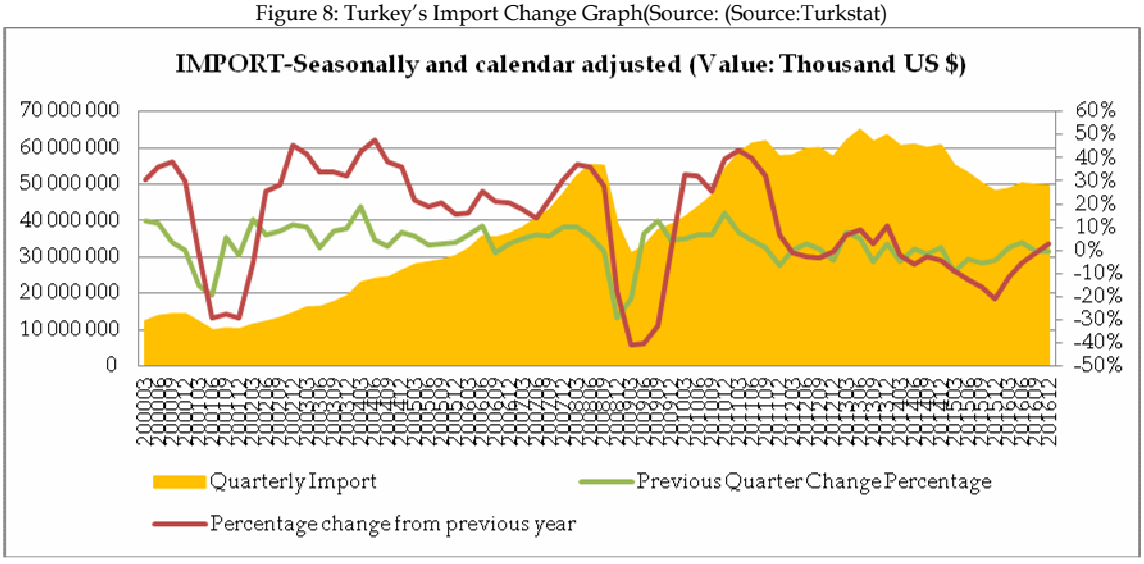


When we look at what is happening in Turkey's export and import view as shown in figure-7 which compiled from table-5 above for export that although the sharp decrease in 2001 and 2008, the Turkey's export grew 5,1 times from 2000 to 2016. However; as shown in the figure-7 above that although the export has grown up for last 16 years, the growth rate both for quarterly and yearly are getting slowly. That is; growth rates are falling. The total export for year 2015 and 2016 decreased dramatically according to year 2014. Whereas Turkey's export performance is really to far from the target of government for amount 500 billion usd for the year 2023.

Table 6: Turkey's Import from 2000-2016 (Source:Turkstat)

IMPORT- Seasonally and calendar adjusted external trade, 2000-2016 Quarterly						
Seasonally and calendar adjusted external trade, 2000-2016 Quarterly Thousand US $		I	II	III	IV	Total Year
	2000	12 245 709	13 676 065	14 122 467	14 138 037	54 182 277
	2001	11 958 218	9 646 927	10 187 443	9 976 412	41 769 000
	2002	11 315 008	12 095 682	13 095 829	14 523 721	51 030 241
	2003	16 013 629	16 182 343	17 533 321	19 230 139	68 959 432
	2004	22 859 597	23 857 745	24 220 490	26 143 523	97 081 355
	2005	27 822 542	28 427 445	29 165 359	30 200 269	115 615 616
	2006	32 270 116	35 640 204	35 360 566	36 353 567	139 624 453
	2007	38 097 510	40 647 773	43 088 794	47 418 208	169 252 285
	2008	52 247 149	55 387 123	55 137 537	39 078 009	201 849 819
	2009	30 833 905	33 015 698	37 259 888	38 918 668	140 028 159
	2010	40 899 122	43 726 840	46 785 778	54 261 741	185 673 482
	2011	58 607 864	61 259 819	61 926 343	57 785 924	239 579 949
	2012	57 976 903	59 772 547	60 029 446	57 542 788	235 321 685
	2013	62 033 201	65 085 409	61 773 059	63 568 885	252 460 554
	2014	60 605 755	61 017 921	60 051 683	60 852 669	242 528 028
	2015	55 246 078	53 154 835	50 396 838	48 107 709	206 905 460
	2016	48 718 190	50 258 089	49 894 902	49 555 035	198 426 216

Figure 8: Turkey's Import Change Graph(Source: (Source:Turkstat)



Besides; when we look at what is happening in Turkey's import view as shown in the figure-8 which compiled from table-6 above for import that although the sharp decrease in 2001 and 2008, the Turkey's import grew nearly 3,7 times from 2000 to 2016. As shown in the figure-8 above that due to the decreased oil prices and due to high exchange rates; the growth rate both for quarterly and yearly are getting slowly. That is; growth rates are falling. The total import for year 2015 and 2016 sharply decreased according to year 2014. Because of current account deficit ; this situation is good for Turkish economy getting better and managable current account deficit.

Because Turkey's economy is an energy dependent country, the oil import gets a huge ratio in total import. In recent years decreased oil prices make it easy for Turkish economy and totally less import had been done for oil. It has seen easily from figure-9 that from the second quarter of 2013 the gap between imports and exports is closing. At this situation from figure-10; it has seen that the export import coverage ratio (export/import ratio) is improving positively due to the decreased imports from 2011.

Figure 9: Turkey's Quarterly Export & Import (thousand usd) (Source:Turkstat)

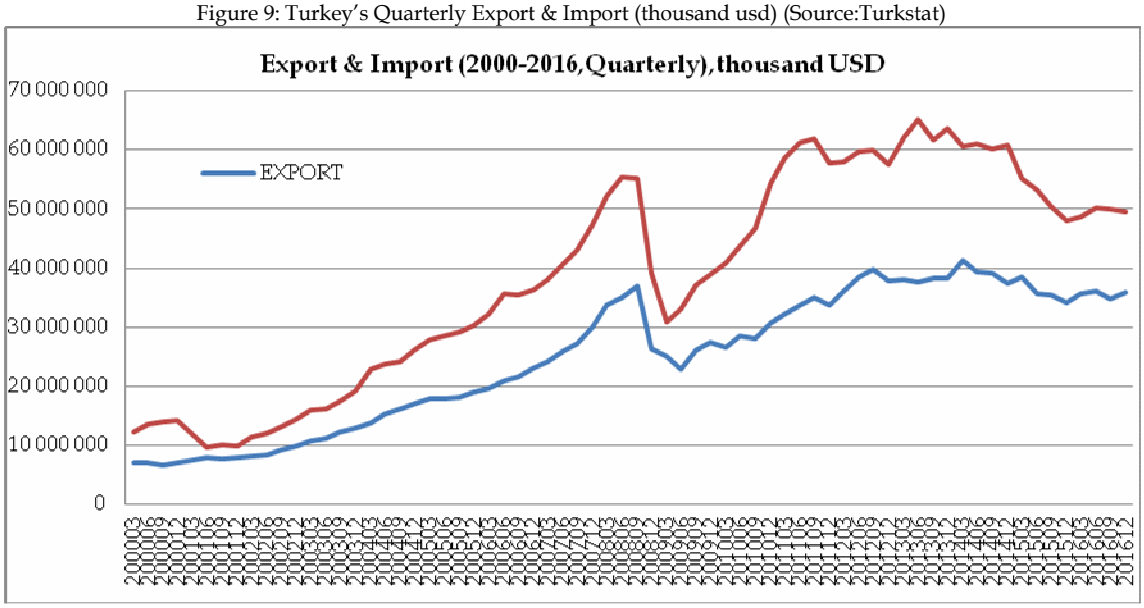
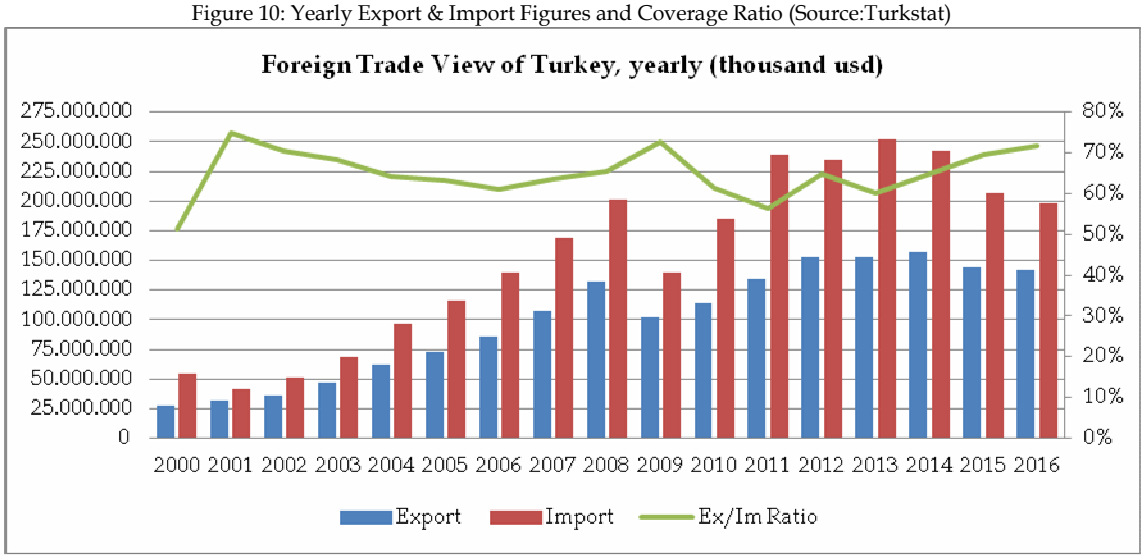


Figure 10: Yearly Export & Import Figures and Coverage Ratio (Source:Turkstat)



c. Inflation

According to terminology CPI; measures the change in the prices of goods and services for consumption of households over time. Every country desires sustainable and reasonable inflation. A known fact is that high inflation makes societies poor and damages economy deeply. Turkey saw the damages of high inflation. Turkey's economy suffered high inflation during in the 1980's and 1990's and during these periods Turkish economy had seen major economic crises a few times. We will refer to this issue again after we have studied the literatüre below.

When we look at the studies in the literature, a large part of them indicate a clear relationship between macroeconomic indicators and the finacial performances of banks (Gursoy, 2000), (Hassan, 2003), (Ghirmay, 2004), (Curak, 2012), (Choong, 2012), (Alper, 2011), (Ongore, 2013), (Bilal, 2013), (Gul, 2011), (Bukhari, 2012), (Imran, 2013), (Acaravci, 2013). In terms of Turkey; (Arslan, 2008) tried to determine the relation between the bank loans and the inflation which is an important discussion topic in the literature of economics. In this study covering the period of 1983-2007, total bank credits and inflation variables were used. According to the results of the study, inflation affects bank loans negatively in the long run, whereas bank lending affects inflation positively. In addition, error correction-developed Granger causality tests show that there is a mutual causality relationship between bank lending and inflation.

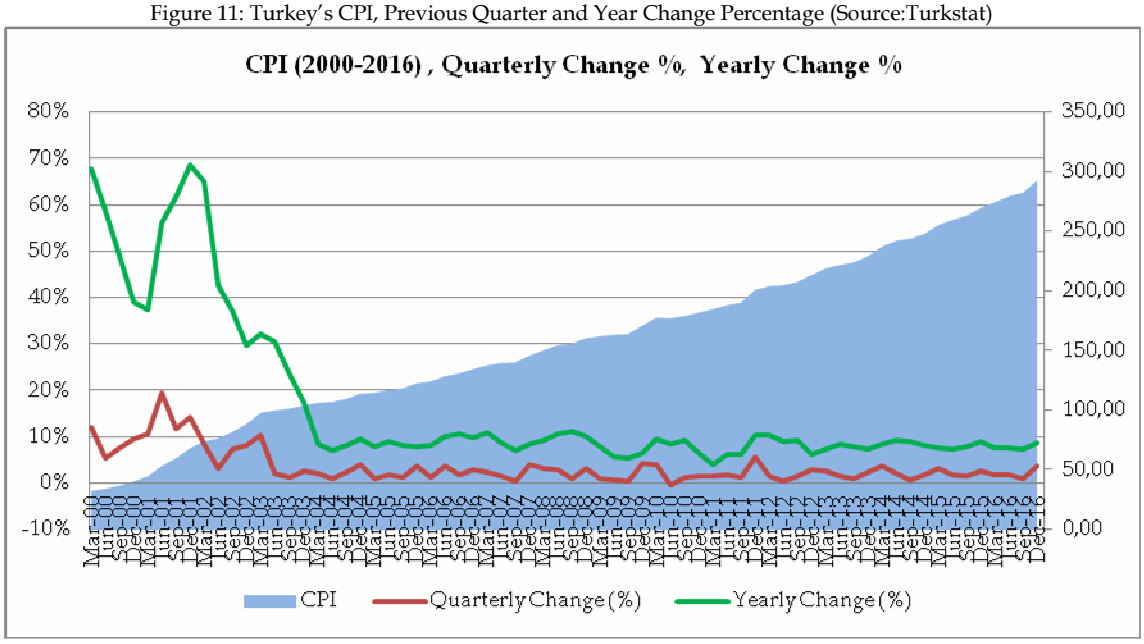
In another study, (Imran, 2013) claimed that the strong economic developments get the banking sector also strong as well as weakened otherwise and they have determined in their research that credit growth is low in periods when high inflation exists. In another study, (Mashamba, 2014); investigated the effects of deposit interest rates and selected macroeconomic factors such as inflation, GDP, per capita income on bank deposits in the Zimbabwean banks between 1980 and 2006 by using the OLS method and they concluded that there was a statistically significant relationship between the macroeconomic variables and bank deposits. (Frederick, 2015); analyzed the performance of domestic and foreign banks in Uganda between 2000 and 2011 by linear multiply analysis and concluded that the effect of management efficiency, asset quality, interest rate, capital adequacy and inflation affect the performance of domestic banks in Uganda and moreover he obtained that monetary policy regulations did not strengthen banks' liquidity and capital adequacy. (Athurolara, 2004) mentioned in his research for india that the Inflation due to the through impact on wealth can affect savings and the amount of savings will increase with inflation in all cases where the consumers intent is protect their wealthy target level. (Deaton, 1989) and (Kimball, 1990); argued that inflation has uncertainties related to future income flows, so that prudence may be even more appropriate for households in emerging countries whose savings are likely to rise, which is far less vague than their counterparts in developed countries. (Deaton, 1977), (Fischer, 1993) and (Loayza, 2000) also suggested that inflation together with real interest rates is an explanatory variable on savings previously with similar reasons.

Table 7: Turkey's monthly CPI numbers (Source:Turkstat)

TUFE - Tüketici fiyat endeks rakamları (2003=100)												
CPI - Consumer price index numbers (2003=100)												
Year	Ocak	Şubat	Mart	Nisan	Mayıs	Haziran	Temmuz	Ağustos	Eylül	Ekim	Kasım	Aralık
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
2003	94.77	96.23	98.12	99.09	100.04	100.12	99.93	100.09	101.44	102.38	103.68	104.12
2004	104.81	105.35	106.36	106.89	107.35	107.21	107.72	108.54	109.57	112.03	113.50	113.86
2005	114.49	114.51	114.81	115.63	116.69	116.81	116.14	117.13	118.33	120.45	122.14	122.65
2006	123.57	123.84	124.18	125.84	128.20	128.63	129.72	129.15	130.81	132.47	134.18	134.49
2007	135.84	136.42	137.67	139.33	140.03	139.69	138.67	138.70	140.13	142.67	145.45	145.77
2008	146.94	148.84	150.27	152.79	155.07	154.51	155.40	155.02	155.72	159.77	161.10	160.44
2009	160.90	160.35	162.12	162.15	163.19	163.37	163.78	163.29	163.93	167.88	170.01	170.91
2010	174.07	176.59	177.62	178.68	178.04	177.04	176.19	176.90	179.07	182.35	182.40	181.85
2011	182.60	183.93	184.70	186.30	190.81	188.08	187.31	188.67	190.09	196.31	199.70	200.85
2012	201.98	203.12	203.96	207.05	206.61	204.76	204.29	205.43	207.55	211.62	212.42	213.23
2013	216.74	217.39	218.83	219.75	220.07	221.75	222.44	222.21	223.91	227.94	227.96	229.01
2014	233.54	234.54	237.18	240.37	241.32	242.07	243.17	243.40	243.74	248.37	248.82	247.72
2015	250.45	252.24	255.23	259.39	260.85	259.51	259.74	260.78	263.11	267.20	268.98	269.54
2016	274.44	274.38	274.27	276.42	278.02	279.33	282.58	281.76	282.27	286.33	287.81	292.54

If we go back to inflation in Turkey again; thanks to the stability and predictability brought about by the single-party government at the beginning of the 2000s, inflation in Turkey has rapidly fallen to single-digit numbers. In many areas of macroeconomics, accurate and successful work has been done in Turkey by the strong government. The uncertainties were gone , the reform policies needed for a sustainable and stable economy were put into practice and budget discipline provided and as can be seen easily from figure-11 which compiled from table-7 that the inflation has stabilized and is not a problem from Turkish economy and is getting stability in single-digit numbers.

Figure 11: Turkey's CPI, Previous Quarter and Year Change Percentage (Source:Turkstat)



IV- Data Set and Methodology

In this study, the data set is compiled from quarterly data covering the years 2000-2016. All variables in the panel data set consist of the percentage change of the 'credits to deposits ratio (CDR)' with respect to the previous quarter and the percentage change with respect to the same period of the previous year and these two values constitute the dependent variables of our data set obtained from BRSA (Banking Regulation and Supervision Agency). The loans and deposits datas are obtained from 17 bank with a 95 percent market share of the banking sector which actively work in Turkey's banking sector. All variables are expressed in percent data forms. As the macroeconomic parameters of the data set, the following variables are taken as data between 2000 and 2016 quarterly:

Gross Domestic Product (GDP): As announced by Turkstat seasonally and calender adjusted GDP data were used.

Inflation (CPI): As announced by Turkstat data Consumer Price Index (2003 = 100) series data were used.

Export and Import (EXP and IMP): As announced by Turkstat Foreign Trade by Months on statistical data were used.

Table 8: The Panel Data variables with definition

Variables	Variable Status	Definition of Variables
C_D_PQ	Independent	"Credits to Deposits Ratio" Percentage change with respect to previous quarter
C_D_PY	Independent	"Credits to Deposits Ratio" Percentage change with respect to previous year
GDP_PQ	Dependent	GDP (Gross Domestic Product) Percentage change with respect to previous quarter
GDP_PY	Dependent	GDP (Gross Domestic Product) Percentage change with respect to previous year
CPI_PQ	Dependent	CPI(consumer price index) Percentage change with respect to previous quarter
CPI_PY	Dependent	CPI(consumer price index) Percentage change with respect to previous year
IMP_PQ	Dependent	Imports Percentage change with respect to previous quarter
IMP_PY	Dependent	Imports Percentage change with respect to previous year
EXP_PQ	Dependent	Exports Percentage change with respect to previous quarter
EXP_PY	Dependent	Exports Percentage change with respect to previous year
IPI_PQ	Dependent	IPI (Industrial Production Index) Percentage change with respect to previous quarter
IPI_PY	Dependent	IPI (Industrial Production Index) Percentage change with respect to previous year

The mathematical form of regression model is as;

$$Y_{it} = \beta_0 + \sum_{k=1}^{K} \beta_k X_{kit} + u_{it}$$

(For C-D-PQ value: 'Credits to Deposits Ratio' Percentage change with respect to previous quarter)

$$Z_{it} = \gamma_0 + \sum_{k=1}^{K} \gamma_k \Psi_{kit} + \varepsilon_{it}$$

(For C-D-PY value: 'Credits to Deposits Ratio' Percentage change with respect to previous year)
The sembols represent to:
İ : 1,.....N; number of groups (N:16)
t:: 1,....T; time lag 2000-q1 to 2016-q4, (T: 68)
k : number of independent variables (K:10)
Y_{it} : i refers to the percentage change with respect to previous quarter value of 'credit to deposits ratio' of i bank in t time,
Z_{it} : i refers to the percentage change with respect to previous year value of 'credit to deposits ratio' of i bank in t time,
β_k : coefficient of independence variable,
u_{it}, ε_{it} : error term

a. Panel unit root tests

In panel data analysis, the panel unit root test must be taken first in order to identify the stationary properties of the relevant variables. In this study, we choose Levin et al. (LLC) (2002) panel unit root tests. The null hypothesis of the unit root test is that there exist unit root (i.e. the variables are non-stationary), whereas the alternative hypothesis states that no unit root exists in the series (i.e. the variables are stationary). For this purposes; we use stata command 'xtunitroot llc var xi, trend' and it can be seen from table-9 that all the variables in level are statistically significant under the LLC test, indicates that all variables have no unit root.

Table 9: Unit Root Test Resuls

Variables		Unadjusted t	Adjusted t*
GDP_PQ	Statistic	-24.5039	-18.9438
	p-value		0.0000
GDP_PY	Statistic	-15.4568	-9.5976
	p-value		0.0000
CPI_PQ	Statistic	-11.9958	-6.482
	p-value		0.0000
CPI_PY	Statistic	-10.5577	-6.8668
	p-value		0.0000
IMP_PQ	Statistic	-21.3008	-16.2485
	p-value		0.0000
IMP_PY	Statistic	-20.013	-16.4442
	p-value		0.0000
EXP_PQ	Statistic	-18.6599	-11.6037
	p-value		0.0000
EXP_PY	Statistic	-14.0904	-8.8154
	p-value		0.0000
IPI_PQ	Statistic	-29.7288	-15.0966
	p-value		0.0000
IPI_PY	Statistic	-14.6528	-8.3887
	p-value		0.0000

b. Defining Panel Models

In this section we identify the best panel estimator model that helps us identify the effects of macroeconomics variables on credit to deposits ratio and then describe our model in mathematical form. To identify the best estimator model whether pooled OLS or random effects or fixed effects model we first test the classical model by using F-test and/or Likelihood Ratio (LR) test with stata command xtreg and xtmixed. It is not need to use a different command in stata and only enough to predict fixed effect model regression by using 'xtreg var xi, fe' for F test. The pooled OLS model could not be used incase of the test results pointing time effects and/or unit effects.

i. Model-1

Independent variable: C-D-PQ ('Credits to Deposits Ratio' percentage change with respect to Previous Quarter) in figure-12, 12(a) and 12(b).

Figure 12: Matrix graph of Model-1

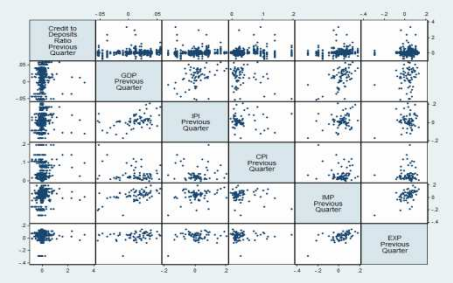


Figure 12(a)**:** Twoway graph of Model-1

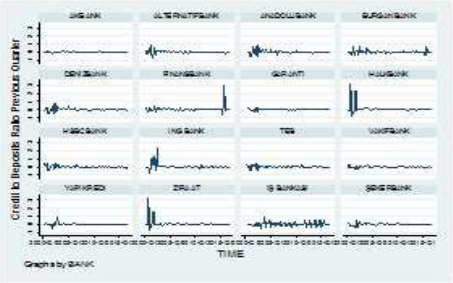
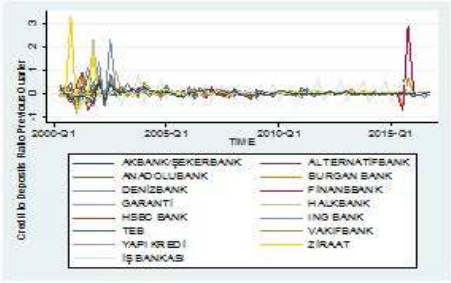


Figure 12(b): Twoway graph of Model-1



For unit effects; getting the result of F test that 'all u-i=0: F(15, 1035) = 0.69 Prob > F = 0.8011' according to F-distribution table for F(15, 1035)=0,69, it can not be said that unit effects exist. With it; for time effects with stata command xtmixed the result of LR test that 'LR test vs. linear regression: chibar2(01)=31.28 Prob>=chibar2=0.0000' it can be said that time effects exist. Due to existance of time effects we eliminated the pooled OLS model. So now it needs to apply Hausman test for the choice the fixed effect (FE) or random effect (RE) with stata command 'hausman'. Getting the result of hausman test that 'chi2(5)=0.00 Prob>chi2 = 1.0000', it can be sait that random effects (RE) model can be used for an estimator. After defining the RE model, we should check the panel data basic assumptions formerly known as heteroskedasticity, autocorrelation and cross-sectional dependence in panel-data models with tests mentioned table-10.

Table 10: Tests for heteroskedasticity, autocorrelation and cross-sectional dependence in RE model

Heteroskedasticity	Autocorrelation	Cross-sectional Dependence
Breusch-Pagan/Cook-Weisberg Test	t-Test	Durbin Watson Test
White Test	Durbin-Watson Test	Pesaran Test
	Breusch-Godfrey test	Friedman Test
	Wooldridge Test	Frees Test

Heteroskedasticity

Breusch and Pagan Lagrangian multiplier test for random effects:

After estimated the xtreg regression we use 'xttest0' command to get Breusch and Pagan Lagrangian multiplier test result to check the Heteroskedasticity. Getting the result 'chibar2(01)=0.00 Prob > chibar2 =

1.0000', it can be said about the existance of heteroskedasticity. The same results also obtained with the Levene-Brown-Forsythe Test.

Autocorrelation

Bhargava-Franzini-Naredranathan Test:

After estimated the 'xtregar var xi,re lbi' regression in stata we get directly the test result to check the autocorrelation. Getting the result 'modified Bhargava et al. Durbin-Watson = 2.545714 , Baltagi-Wu LBI = 2.5544364', it can be said about that because the test statistics 2,545714 and 2,5544364 are bigger than chi-square critical value:2 , the existance of autocorrelation with AR(1) could be said. The same results also obtained with the LM Test.

Cross-sectional Dependence

Pesaran Test:

After estimated the xtreg regression we use 'xtcsd,pesaran' command to get Pesaran Test result to check the cross-sectional dependence. Getting the result 'Pesaran's test of cross sectional independence=15.063, Pr = 0.0000', it can be said about the existance of cross-sectional dependence. The same results also obtained with the Friedman Test and Frees Test.

In summary; after the tests results it is decided Random Effect (RE) model as a panel estimator model but existing with heteroskedasticity, autocorrelation and cross-sectional dependence. Due to existance of heteroskedasticity, autocorrelation and cross-sectional dependence at the same time the regression model should be estimated with the known robust estimators some of mentioned below:

Huber-Eicker-White Estimator (HU-EI-WH)

Arellona-Froot-Rogers Estimator (AR-FR-RO)

Driscoll-Kraay Estimator (DR-KR)

Figure 13: Results of robust estimaters

	HU_EI_WH	AR_FR_RO	DR_KR
GDP Previous Q~r	-0.028	-0.028	-0.161
	(0.185)	(0.185)	(0.419)
IPI Previous Q~r	0.093	0.093	0.218
	(0.276)	(0.276)	(0.126)
CPI Previous Q~r	0.876*	0.876*	1.121***
	(0.387)	(0.387)	(0.317)
IMP Previous Q~r	0.516***	0.516***	0.516**
	(0.126)	(0.126)	(0.157)
EXP Previous Q~r	-0.181	-0.181	-0.150
	(0.117)	(0.117)	(0.165)
Constant	0.001	0.001	-0.009
	(0.009)	(0.009)	(0.018)
R-squared			
N	1072	1072	1072
vce	robust	cluster	

* p<0.05, ** p<0.01, *** p<0.001

All the results obtained from these estimators are shown in figure-13. According to the results; we claim that in Turkey Banking Sector, the percentage change of credit to deposits ratio respect to previous quarter is affected by both the percentage change of import respect to previous quarter and the percentage change of CPI respect to previous quarter strongly, that is as imports increase in Turkey, the credit to deposit rate increases and similarly as CPI increase, the credit to deposit rate increases too.

ii. **Model-2**

Independent variable: C-D-PY ('Credits to Deposits Ratio' percentage change with respect to Previous Year) in figure-14, 14(a) and 14(b).

Figure 14: Matrix graph of Model-2

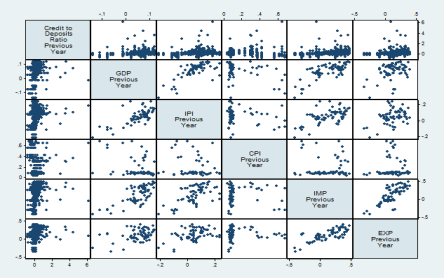


Figure 14(a): Twoway graph of Model-2

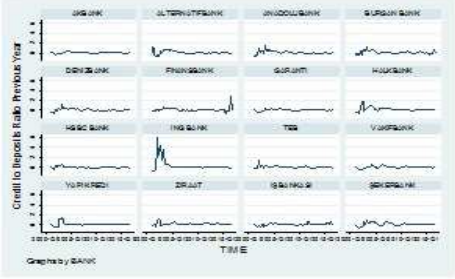
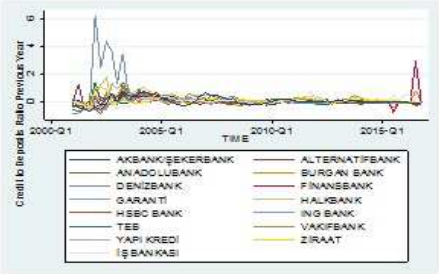


Figure 14(b): Twoway graph of Model-2



For unit effects; getting the result of F test that 'F test that all u-i=0: F(15, 1003)= 3.14 Prob > F = 0.0000' according to F-distribution table for F(15, 1035)=3,14, it can be said that unit effects exist. With it; for time effects with stata command xtmixed the result of LR test that 'LR test vs. linear regression: chibar2(01)=25.44 Prob >= chibar2 = 0.0000' it can be said that time effects exist. Due to existance of both unit and time effects we eliminated the pooled OLS model. So now it needs to apply Hausman test for the choice the fixed effect (FE) or random effect (RE) with stata command 'hausman'. Getting the result of hausman test that 'chi2(5)=0.00 Prob>chi2 = 1.0000', it can be sait that random effects (RE) model can be used for an estimator.

After defining the RE model, we should check the panel data basic assumptions formerly known as heteroskedasticity, autocorrelation and cross-sectional dependence in panel-data models with tests mentioned table-10.

Heteroskedasticity

Levene-Brown-Forsythe Test for random effects:

After estimated the xtreg regression we use 'predict eps,e' and 'robvar eps, by(id)' command to get Levene-Brown-Forsythe test result to check the Heteroskedasticity. Getting the result 'W0 = 7.9294259 df(15, 1008) Pr > F = 0.00000000 ,

W50 = 3.3909309 df(15, 1008) Pr > F = 0.00001231 , W10 = 3.5133990 df(15, 1008) Pr > F = 0.00000633', it can be said about the existance of heteroskedasticity.

Autocorrelation

Bhargava-Franzini-Naredranathan Test:

After estimated the 'xtregar var xi,re lbi' regression in stata we get directly the test result to check the autocorrelation. Getting the result 'modified Bhargava et al. Durbin-Watson = 1.0935933 , Baltagi-Wu LBI = 1.1107695', because the test statistics 1,0935933 and 1,1107695 are smaller than chi-square critical value:2 , the existance of autocorrelation with AR(1) could not be said. The same results also obtained with the LM Test.

Cross-sectional Dependence

Pesaran Test:

After estimated the xtreg regression we use 'xtcsd,pesaran' command to get Pesaran Test result to check the cross-sectional dependence. Getting the result 'Pesaran's test of cross sectional independence = 13.937, Pr = 0.0000', it can be said about the existance of cross-sectional dependence. The same results also obtained with the Friedman Test and Frees Test.

In summary; after the tests results it is decided Random Effect (RE) model as a panel estimator model but existing with heteroskedasticity and cross-sectional dependence. Due to existance of heteroskedasticity and cross-sectional dependence at the same time the regression model should be estimated with the known robust estimators some of mentioned below:

Huber-Eicker-White Estimator (HU-WH)

Arellona-Froot-Rogers Estimator (AR-FR-RO)

Driscoll-Kraay Estimator (DR-KR)

Figure 15: Results of robust estimaters

	HU_EI_WH	AR_FR_RO	DR_KR
GDP Previous Y~r	-0.359	-0.359	-0.780
	(0.403)	(0.403)	(0.497)
IPI Previous Y~r	0.476	0.476	0.892***
	(0.275)	(0.275)	(0.195)
CPI Previous Y~r	0.078	0.078	0.068
	(0.347)	(0.347)	(0.144)
IMP Previous Y~r	0.544*	0.544*	0.429**
	(0.256)	(0.256)	(0.149)
EXP Previous Y~r	-0.121	-0.121	-0.159
	(0.305)	(0.305)	(0.159)
Constant	0.048	0.048	0.063
	(0.029)	(0.029)	(0.038)
R-squared			
N	1024	1024	1024
vce	robust	cluster	

* p<0.05, ** p<0.01, *** p<0.001

All the results obtained from these estimators are shown in the figure-15. According to the results; we claim that in Turkey Banking Sector, the percentage change of credit to deposits ratio respect to previous year is affected by the percentage change of import respect to previous year. Besides, Driscoll-Kraay Estimator also shows that the percentage change of credit to deposits ratio respect to previous year is affected the percentage change of IPI respect to previous year strongly. In summarize; as imports increase in Turkey, the credit to deposit rate increases and similarly as IPI increase, the credit to deposit rate increases too. Import appears to be an effective variable in both models. But CPI appears only in model-1 and IPI appears only in model-2.

V- Conclusion

Level of economic development of the countries are seperated from each other because of the different sizes of the different structural characteristics and economic systems. When analyzed in terms of finance banking sector of developed countries, it is seen that the financial structure of the main frame has been formed by efficient, technologically advanced and very different structure consisting of a large number of banks (shortly the banking sector). That's why; the relationship between macro-economic developments in the country's economy and developments in the banking sector, both also been the focus of attention in the economy and banking literature and its effects on the banking sector of the country's economic performance and financial developments in the consequence has been the subject of wide-ranging research.

Because of the assets of strong capital base, high efficiency, extremely transparent, be controlled and monitored and technologically advanced banking sector is very important on behalf of the economic development of the country and financial system. In this way, deepening financial systems play a significant role to gain idle funds in economies by accumulation of various models with a much more effective way for consumers to save on their industrial activities and production and thus both ensuring both resource diversity in retreat to more reasonable levels of capital costs. It is important to determine and to show in academic studies that in what way the banking sector in Turkey is affected by the macroeconomic development and in what level responsive and in what and how will react with macro-economic developments.

In this study, it is aimed to contribute to the literature by making statistical comparisons and examining the effects of the percentage change respect to previous quarter and year seperately of selected macroeconomic variables as GDP, CPI, IPI, Export and Import on banking sector variable as the percentage change of credit to deposits ratio (CDR) with respect to previous quarter and previous year seperately. According to the obtained results; we claim that in Turkey Banking Sector, the percentage change of CDR is positively affected by both the percentage change of import and the percentage change of CPI strongly in model-1 and is affected by both the percentage change of import and the percentage change of IPI strongly in model-2. That is; as imports increase in Turkey, the CDR increases and similarly as CPI (in model-1) and IPI (in model-2) increase, the CDR increases too.

Moreover; we claim that due to the direct effect of CDR, the imports in Turkey are mostly financed by bank credits. As imports increase, the need for bank credits are also increasing. We argue that the capital accumulation of importing firms is low because, credit means extra financing costs for firms and also the credit costs are one the main factors that increases the price of goods. Despite this; unfortunately, our

companies are forced to use credits due to lack of capital. Therefore; we may say that imports are not an increasing effects on savings in Turkey. At this moment we suggest that implementations and methods should be developed to facilitate the acquisition of goods by Turkish companies from abroad without advance payment. That is; Turkish companies can do import by deferred payment instead of down or advance payment especially while importing raw materials and machinery. For this; bank guaranteed financing products such as deferred leter of credit can be used.

Raw materials and advanced mechanized industry are necessary for our economics activities. If the industry revolves, it means industrial production (IPI) is also increasing. But especially the raw materials and advanced equipment are usually provided by import. So; import and IPI are related to each other. Due to this relation we guess that , the yearly percentage change of CDR is positively affected by IPI in model-2 by Driscoll-Kraay (DR_KR) estimator. According to these results, we should say that Turkish economy must reduce its dependence on raw materials and developed tools and equipment.

Similarly; according to the other results in model-1, we claim that CPI must be reduced to decrease credits. Otherwise; as CPI increases, the demand for credit will increase because there is a need for additional resources due to decrease of the purchasing ability of the existing assets. The fight against inflation is the main task of the Central Bank of Turkey (CBRT). That is; the primary objective of the CBRT is to achieve and maintain price stability. The CBRT having tools and method of its independence should be more effective in combating with inflation.

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