Impacts of The Global Economic Crisis on Economic Structure: An Example of Turkey's Economy[19]

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Abstract

In 2008, the global economic crisis is felt mainly in the world economy have led to major changes, the emergence of new and crisis effectively on a global scale are triggered. One of the effects of the global economic crisis is the structural changes in economies. In this study, the causes of the global economic crisis the course of the crisis and the effects appeared after the crisis have been examined.

In the empirical study, the structure of Turkey's economy between the period of 1998-2012 and the impact of the global crisis on the economy has been investigated using data from the Central Bank. In the study, it is assumed that the effects of the economic crisis will reflect on the country's Gross Domestic Product as a result. Firstly, using the quarterly GDP data a model of analysis was set for the entire period. Then, in order to determine the impact on the economic structure of the global crisis, the period was divided into two parts.

As a result of the study, a structural change in Turkey's economy has been seen on the basis of the global economic crisis of the 2008. Thus, Turkey's economy has been affected by the global economic crisis not as a temporarily change but a structural change. And it was seen that variables before and after the crisis is different from each other and it was concluded that the economy has entered into a new structural trend.

***Keywords*:** Global Crisis, Structural Change, Turkey's Economy

JEL Classification Codes: G01, L16, O10.

1. Introduction

The global economic crisis has affected almost all countries in the world. The crisis has become a matter of discussion by all actors from economic decision organs, work environments and occupational institutions to academicians. The crisis has stopped economic growth both in Turkey and in the world. It has also damaged economic balances of the economies of the world.

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In 2000s, Turkish economy was standing on the technical and financial support of International Monetary Fund (IMF) within the scope of a fiscal adjustment program. This adjustment program which based on the exchange rate anchor regime and aimed to reduce inflation to single-digit levels as at the end of 2002 has weakened within one year after the entry into force due to the November 2000 crisis and terminated together with February 2001 crisis. After that as it is well known that the floating exchange rate regime has been adopted.

Following the 2001 crisis after the 2002 elections, the Justice and Development Party came to power alone, Strong Economy Transition Program and strict fiscal and monetary policies together with IMF had been formed the general framework of macroeconomic policies of the post-crisis period of in 2001.

As a result of the policies implemented after the crisis of 2001 Turkey's economy has entered a rapid growth period and between the years of 2002-2007 the average annual growth rate of reached 7%.

The global financial crisis occurring in the United States in September 2008 and spreading all over the world has also impacts on Turkish economy as well. Turkey felt the negative impact of this crisis especially in the fourth quarter of 2008, growth rate decreased by 7% in the quarter and the year ended with only a growth rate 0.7%. In 2009, the effects of the crisis were felt intensively, economy shrank by 4.7% over the previous year. 2010 has been a year for Turkish economy trying to alleviate the impacts of the global financial crisis. The economic growth rates were 12.6%, 10.4%, 5.3% and 9.3% respectively in first, second, third and last quarters of 2010 by means of stability achieved with the policies of the post-crisis economy. By the year 2011, respectively, 11.9%, 9.1%, 8.4% and 5.2% quarterly growths were observed. In the first quarter of 2012 was completed with a growth of 3.2%[20].

2. Global Win-Win Relationship and Factors Behind The Crisis

When it is taken a look at the events behind the mortgage crisis with a point of macroeconomic view, U.S has been giving the largest current account deficit in history. On the other hand U.S economy has been attracting a large amount of funds and the current account deficit was financed in this way. The system is functioned roughly like this: U.S. companies are taking capital and technologies to China, going to invest there, starting production with cheap Chinese labor, and selling these products mainly to the U.S. and European markets. And then, they invest these gains to the U.S. Treasury bonds (Eğilmez, 2008).

[20] www.tuik.gov.tr

Thus, the U.S. current account deficit has been financed substantially by the Chinese contribution. However, this deficit is not possible to go forever; it is known that a correction should be taken in the U.S. economy. So, the U.S. external balance was in a situation of economic bubble. On the one hand there were such bubbles, oil, food and metal prices started to rise rapidly in 2008. These increases led to new negative expectations in financial areas (Eğilmez 2008). On the other hand, since China has export-oriented growth, the "win-win" style of relationship should be sustained for financing of the U.S. current account deficit.

Additionally, when it is reviewed the global market, it was shown that financial boundaries were disappeared, the rules were flexible (deregulation), and portfolio management functions came into prominence. Thus, it could be mentioned a market environment of “carry trade" which currencies borrowed in low-interest rates, invested in high rates and at any time of fluctuations in economies ends up with capital flows.

It should further be noted that, different from other crises which have more local impacts but the mortgage crisis has also affected other geographies. So, it refers an opposite direction crisis from the center of capitalism to other geographies.

To summarize the factors behind the crisis;

- The abundance of liquidity (low interest rate policy of FED because of the fear of recession)
- Low inflation
- Wrong credit decisions (subprime, administrative faults)
- Bubbles in real estate and stock markets
- Win-win relationship between U.S and China
- Deregulation of financial markets
- The effects of the securitization process

3. Literature Review

There is a large literature on the mortgage crisis which in really difficult to list all of these. These studies evaluate the subject with a wide scope of view from reasons of the crisis, influences on the sectors and economies to possible solutions and recommendations.

Frame (2010), takes a critical look at the recent literature that seeks to estimate the negative effects of residential mortgage foreclosures. Gerardi and Li (2010) discuss the economic issues surrounding residential mortgage renegotiations, such as forbearance plans and loan modifications, and identify potential barriers to efficient workouts. They describe the different tools that mortgage lenders and policymakers have used. The analysis is that the process of renegotiating and modifying large numbers of mortgages characterized by severe asymmetric information issues, And then they summarize the lessons learned from that an effective loss mitigation strategy should contain.

Demyanyk and Van Hemert (2011) analyze the quality of subprime mortgage loans by adjusting their performance for differences in borrower characteristics, loan characteristics, and macroeconomic conditions. As a result of their study they found out that the quality of loans deteriorated for six consecutive years before the crisis and it was claimed that securitizers were, to some extent, aware of it.

Santos (2011) in his article investigates the link between banks' financial condition and their lending behavior because the crisis started out in the housing market and imposed large losses on several banks. At the end of the study, he reaches that firms paid higher loan spreads during the subprime crisis also he finds that the increase in loan spreads was higher for firms that borrowed from banks that incurred larger losses.

Al-Shibli (2011) exhibits the fundamental principle of conservation of physical money of the global financial system. The international banking system is volatile and over-valued since it is based on the fractional banking technique. In his study, he tries to explain that subprime mortgage crisis, credit cri-sis and banking closure all have resulted from the violation of conservation money and claims that over valued financial derivatives will lead in the near future to the collapse of the international financial system.

As we mentioned previously, in this topic of interest there have been numerous studies, researches and reports prepared by academics and policymakers. If we look at the topic in line with the aim of this study, mortgage markets in Turkey have not improved as in the U.S. Thus when the subprime mortgage crisis began such a pervasive influence of the crisis can not be spoken directly for the Turkish real estate sector.

Sancak and Demirbaş (2011) have analyzed the changes in Turkey's construction sector during the period of the global economic crisis. Looking at the sector in 2009, it is shown as the most important effect on 4.8 percentage GDP shrinkage with the biggest decline of 16.1 percentages compared to previous year. It was found out that construction industry among real sectors was the most affected by the crisis in Turkey as well as in the world.

Afşar (2011) has examined the effects of the global crisis on the Turkish banking sector. As a result of the study, it was concluded that Turkish banking sector has not been affected by the 2008 crisis which caused a loss of billions of dollars and bankruptcies of several banks in developed countries. This conclusion could be connected with no investment in risky credit derivatives, strong asset quality, liquidity, structure, capital adequacy, risk management and internal control systems of Turkish banks.

Berberoğlu (2011) has studied the effects of the 2008 Global Crisis on Turkey and 27 European Union (EU) member states by examining the economic indicators of these countries. In a conclusion, it was reached that Turkey has affected by the crisis on an equal footing with European Union member countries even though Turkey remained deprived of many advantages of European Union membership due to Turkey is not a member of the union. This situation could be accepted as a strong resistance indicator of Turkish economy against the crisis.

Yavuz and Aslan (2012), in their study of 52 small and medium-sized enterprises, have evaluated the impact of the crisis on the city of Erzincan. In Erzincan, which is one of the less developed cities of Turkey, there were no serious effects of the crisis due to the incentives and the impact of short-term business opportunities.

4. Empirical Study

4.1. The Model

In this empirical study, the structure of Turkey's economy between the period of 1998-2012 and the impact of the global crisis on the economy has been investigated using the Central Bank data system.

As it is well known that there are two basic concepts related to national income. These considerations are Gross Domestic Product (GDP) and Gross National Product (GNP).

GDP of a country expresses the revenue generated within the borders by the citizens of that country's as well as foreigners while the GNP refers the revenue generated both within and outside the borders only by the citizen of that country.

In this empirical study, it is assumed that the effects of the economic crisis ultimately will be reflected in that country's GDP.

Prior to the analysis a model for the entire period has been set up by using quarterly Gross Domestic Product data for the specified period. Then, to be able to determine the impact of the global crisis on the economic structure the analysis period is divided into two parts.

4.2 Methodology

In the study, periods of 1998Q1-2008Q4 and 2009Q1-2012Q1 are analyzed separately and investigated whether there is a structural difference between the periods or not through use of dummy variable besides semi-logarithmic regression equation created by the method of least squares.

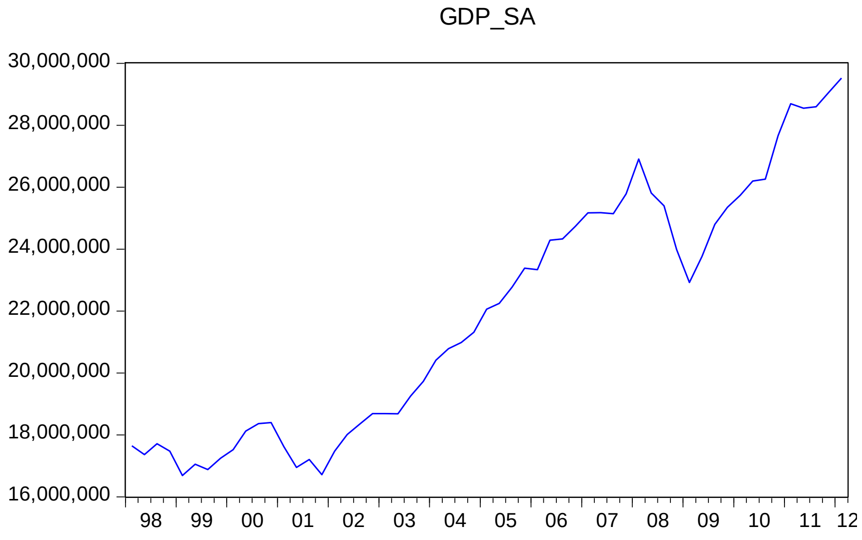
As it is known that, Turkey's economy after 1980, have undergone a structural change, growth strategies of import substitution was abandoned and adopted a free market economy based on the export-oriented growth strategies. Whether the structural change in Turkey's economy continues steadily or not and the effects of the global economic crisis on this structural change are examined in this study.

Our model can be expressed by the following regression equation:

lnGDPt = a1 + b1t + ut

The slope of the model, b1, measures relative or proportional changes in the GDP with respect to an absolute change in the independent variable which is symbolized with "t".

The dependent variable GDP changes chart is as follows:



Model 1: All of the period is considered as a whole

As it is shown from the values in the table below, the generated model is statistically significant. When the constant term and the coefficient in the table are put into the model, the following regression will be obtained.

LNGDP_SA = 16.57982 + 0.010559*T

From the equation, it could be said that, GDP has grown by 1.056 % in each three months during the period of 1998Q1-2012Q1.

Dependent Variable: LNGDP_SA
Method: Least Squares
Sample: 1998Q1 2012Q1
Included observations: 57

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.57982	0.014249	1163.605	0.0000
T	0.010559	0.000427	24.70727	0.0000

R-squared	0.917349	Mean dependent var	16.88603
Adjusted R-squared	0.915846	S.D. dependent var	0.182981
S.E. of regression	0.053081	Akaike info criterion	-2.999525
Sum squared resid	0.154970	Schwarz criterion	-2.927839
Log likelihood	87.48646	Hannan-Quinn criter.	-2.971665
F-statistic	610.4493	Durbin-Watson stat	0.228639
Prob(F-statistic)	0.000000		

Model 2: The period is divided into two parts as before and after the crisis

The periods of 1998Q1-2008Q4 and 2009Q1-2012Q1 are evaluated separately and whether there is a structural difference between theses periods or not analyzed using dummy variable.

At the end of the analysis, the following equation was obtained.

Yt = a1 + a2D + b1X + b2(D.X) + ut

Whether there is a structural difference between the two periods will be investigated with this equation. In the equation the variable notated as "D" (dummy), takes a value of 0 (zero) for the period of 1998Q1-2008Q4 and takes a value of 1 (one) for the period of 2009Q1-2011Q2.

One of the objectives of using dummy variable is to be able to clarify the difference between the two regression equations whether it is resulted from the slope, or constant term, or both of them.

To observe a structural difference in the two regression equations for the periods it is expected to see the following structure.

Y1 = a1 + b1X

and

Y2= (a1 + a2) + (b1 + b2)X

The second model is also statistically significant. Thus, it was seen that the regression equations for the two periods were different from each other. These differences stem from the slope as well as the constant term. This results shows that the difference is stronger.

As a result of analysis the equation obtained is as follows:

LNGDP_SA = 16.56693 - 0.513401*DUM + 0.011409*T + 0.009054*DT

Dependent Variable: LNGDP_SA
Method: Least Squares
Sample: 1998Q1 2012Q1
Included observations: 57

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.56693	0.014863	1114.672	0.0000
DUM	-0.513401	0.184273	-2.786084	0.0074
DT	0.009054	0.003638	2.489000	0.0160
T	0.011409	0.000575	19.83336	0.0000

R-squared	0.933631	Mean dependent var	16.88603
Adjusted R-squared	0.929874	S.D. dependent var	0.182981
S.E. of regression	0.048456	Akaike info criterion	-3.148739
Sum squared resid	0.124442	Schwarz criterion	-3.005367
Log likelihood	93.73907	Hannan-Quinn criter.	-3.093020
F-statistic	248.5202	Durbin-Watson stat	0.270388
Prob(F-statistic)	0.000000		

The result of a2 from the above equation, Y2= (a1 + a2) + (b1 + b2), and specified as DUM in the regression result table above is -0.5134 which shows that the constant term of the second period decreased 0.5134 unit compared to the first period. Also, b2 which takes a value of 0.0091 shows that the slope of the second period increased 0.0091 unit with respect to the first period. Thus, the regression equations for the two periods can be written as follows:

Y1 = a1 + b1X LNGDP_SA = 16.56693 + 0.011409*T

Y2= (a1 + a2) + (b1 + b2)X LNGDP_SA=(16,56693–0,513401) + (0.011409+0,009054)*T

LNGDP_SA = 16,053529 + 0,002355*T

Conclusion

The global economic crisis has affected almost all countries in the world. The crisis has become a matter of discussion by all actors from economic decision organs, work environments and occupational institutions to academicians. The crisis has stopped economic growth both in Turkey and in the world. It has also damaged economic balances of the economies of the world.

In the study as a result of the empirical tests in which dummy variables used, it was shown that the constant terms and slope coefficients of the two periods are different and it was also observed that this difference was statistically significant.

As a conclusion, the dependent variable GDP exhibits an increasing trend in the period of 1998-2012. On the basis of the 2008 global economic crisis, it was proven that Turkey's economy has been exposed a structural change. Thus, Turkey's economy has not been temporarily but structurally affected by the global economic crisis and it could be concluded that the change after the crisis as distinct from the change before the crisis has gotten in a new trend of structural change.

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