

2008 Global Crisis, The Case Struggle Turkey

“You are the Privileged, give us lessons”*

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Abstract

In this survey, how Turkey overcame the 2008 crisis was studied using 2002:1-2011:12 period data through co-integration test. Within the scope of Empiric analysis, the influence of

selected macroeconomic variables such as Economical growth, ISE, unemployment, export, agriculture, foreign currency rate-USD and supply of Money were studied through two-stage Engle-Granger co-integration method.

As a result of co-integration test, in the long run, export policies, IMKB, agriculture and foreign currency policies practiced have positive contribution to economic growth; therefore, Turkey has been successful in the struggle against economic crisis. Money supply policies had negative effect on economic growth and the recent economic crisis affected the growth of Turkish economy in a negative way. In the short term, export and agriculture had a positive effect on the growth of Turkish economy but global economic crisis had a negative effect.

Keywords: 2008 Global economic crisis, struggle, Turkey, co-integration.

1.INTRODUCTION

In a globalizing world, all countries monitor and study what happens in a particular country. As a result of globalization, all countries are interrelated directly or indirectly. Economic and political relations have become more and more important along as a result of globalization. Developed countries not only manipulate globalization for their own sake, but also they use it as a weapon against developing countries (John Perkins, 2006) the rapid change in the accelerated with immense developments in hi-tech, communication and transport, and there remains no limitation in front of capital and information. The spread of crises to a different country is regarded as the result of a globalization (Öztürk and Gövdere, 2010) the recent crisis which broke out with the bubbles in the mortgage markets in USA and continued with the publication of the two giants of the market, Fannie May and Freddie May and deepened with bankruptcy of Lehman Brothers in USA in September, 2008 and detriments from private sectors (General motors etc.) first influenced finance markets (American stock markets in the first place and then the whole world economies fell sharply) and then real economies (economic growth, unemployment etc.). (Turkish ministry of Finance). The influences of the crisis are still on the go in especially EU countries (Greece, Portugal, Spain, Italy, Hungary etc.)

The globalizing world had its first devastating economic recession 1929 and it was followed by oil crises in 1970 and 1980. however new crises were on the way: European monetary crisis(1992-1993), Mexico Tequila Crisis (1994-1995), south-east Asia crisis (1997-1998), Indonesia Crisis (1997), Russia Crisis (1998), Brazil Crisis (1999), and Argentina Crisis (2002). Recent crises in Turkey are; 4th April, 1994, November 2000, and February 2001 (Koyuncu and Şenses, 2003)

The concept of crisis which badly affects living standards of people and financial crises definitions and their types were handled. Next, the world financial crisis process which emerged in mid-2007 but whose effect was felt in 2008 in Turkey, and also known as mortgage crisis was explained and finally the effects of crisis on Turkish economy and its reflections were mentioned and the effects mentioned were analyzed econometrically and its results were assessed.

2.ECONOMIC CRISIS, DEFINITIONS AND TYPES

2.1.Definition of the Economic Crisis

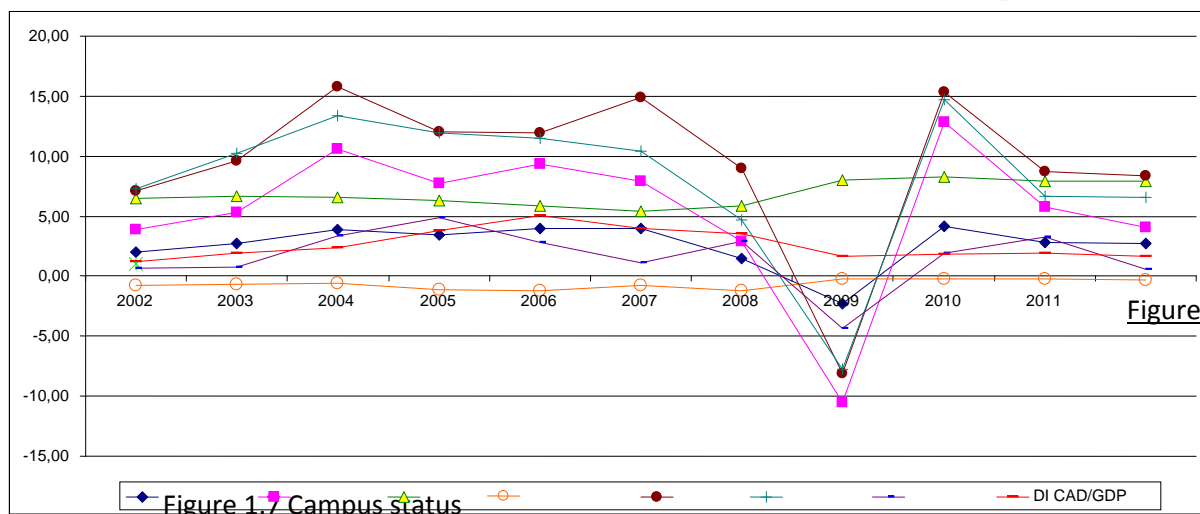
A great many definitions have been made for economic crisis. Only a few of those will be given here. “Economic crises can be defined as violent surges which happens beyond an acceptable change limit in any kind of goods, service, production factor or foreign Exchange market.” (Kibritçioğlu, 2003) it means “incidents which happen all of a sudden and unexpectedly in the economy result in quakes in a country’s economy (macro) and firms (micro)” (Aktan and Şen, 2002) In other words, economic crisis can be stated as an unexpected and unpredictable state of nervousness which requires quick action, which needs to be managed well and which threatens the company’s current values, goals and assumptions by making its prevention and adaptation mechanisms inadequate. (kobifinans, 2010) “Financial crisis is a nonlinear corruption in which adverse selection and moral risks are at an advanced level, consequently, financial markets cannot convert funds actively into economic institutions which have the most productive investment opportunities. (Mishkin, 1996)

2.2. 2008 Process of Global Economic Crisis

Most of the countries were effected by the crisis. In this period there were also less effected countries(China, Rusia, Brazil etc.). the negative effects of crisis were felt in turkey in the last quarter of 2008. In this crisis real sector was effected in Turkish economy unlike fiscal sector crisis in 2001-2002(Global crisis and Turkey, 2009).

The recession in developed countries and sharp falls in the growth rate of developed countries diminished foreign demand, world export rate has declined since the last quarter of 2008. The most effected economies were those which based their growth on exports. As a result of the decline in foreign demand as well as obscurity consumer and real sector reliability declined to the lowest and resulted in a sharp decrease in domestic demand primarily investment(Yörükoğlu, 2009).

Figure 1: Selected Macroeconomics Overall Views Of Selected Groups 2002-2011



Sources: The data was created by me taking IMF(World Economic Outlook Database, April 2012).

Table 1: Descriptions of variables used in Figure 1

WORLD EG	World Real Economic Growth
WORLD TV	World Trade Volume
D UN	Development Countries Unemployment Rate
D CAD/GDP	Development Countries Currnet Account deficit/GDP
DI TV	Developing Countries Trade Volume
DI TIV	Developing Countries Total Import Volume
DI TXV	Developing Countries Total Export Volume
DI CAD/GDP	Developing Countries Currnet Account Deficit/GDP

According to the chart above, 12% by volume of global trade in 2009, recorded a 23% reduction in terms of value.

Apparently the U.S. economy which started the crisis transferred it to EU. US appear to have got over the crisis. In the EU zone crisis tends to spread. Even though Greece was healed temporarily countries such as Spain and Portugal are also susceptible.

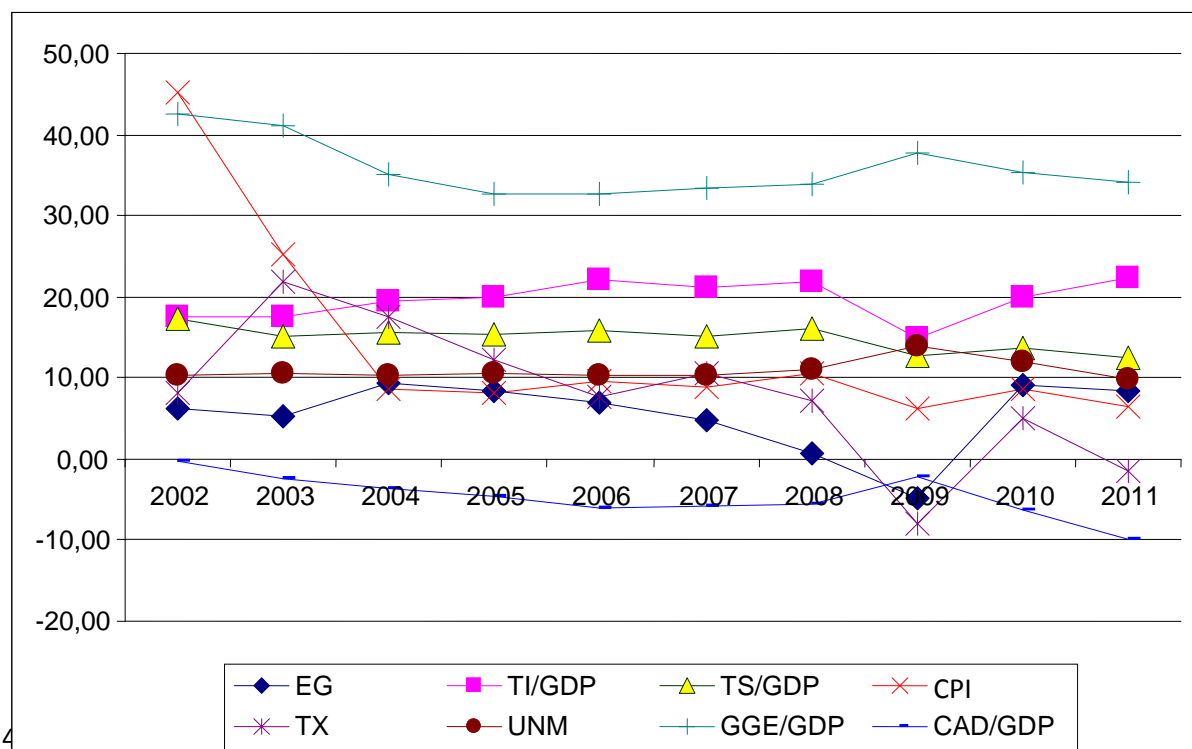
International credit rating institute(S&P) warned that it would lower 15 EU countries' ratings in December 2011, and decreased 9 EU countries' ratings including France, Austria, Italy on 13 January 2012(Haberturk, 14 Jan. 2012).

So what happened in Turkish economy while all these were taking place in the world?

2.3. Process of 2008 Global Economic Crisis Turkey

Reconstruction, strengthening and durability of Turkish banking sector following 2001 crisis enabled it to be more resistant to global crisis. Therefore real sector, not the banking sector, was effected by the recent global crisis. Thus Turkey was less effected by the crisis and got rid of its negative effects easily. In order to perceive the effects of crisis on Turkish economy, developments of basic macroeconomic parameters are written below.

Figure 2: General View of Selected Turkey macroeconomics Variables 2002-2011 (% annually)



Sources: The data was created by me taking IMF(World Economic Outlook Database, April 2012).

Table 2: Descriptions of variables used in Figure 2

Variables	Descriptions
EG	Economic Growth
TX	Total Export
TI/GDP	Total Investment /Gross Domestic Product
UNM	Unemployment Rate
TS/GDP	Total Saving/ Gross Domestic Product
GGE/GDP	General Government Expenditures / Gross Domestic Product
CPI	Consumer Price Index
CAD/GDP	Current Account Deficit / Gross Domestic Product

In figure 2 some annual economic data are provided for 2002-2011 period. According to the chart, of the economic indicators growth rate, export volume, total savings, total investments and inflation fell while current account deficit, government expenditures and unemployment rate increased.

Turkey is the fastest growing economy of Europe in 2010 and in the first quarter of 2011. In the second quarter of 2011 Turkey reached 8.8% growth rate being the second after China 9.5% in the world. OECD foresees that Turkey will be fastest growing OECD country for 2011-2017 period. What helped Turkey overcome the crisis most is trade Turkey follows aggressive export policies(cooperating with African and Asia countries) and is shifting its trade to other places at a time when Europe is in crisis(Çağlayan, 2011).

Turkey's export reached 114 billion dollars in 2010 rising four times and imports reached 185,5 billion dollars rising 3,5 times in the last decade. In 2011the country's export was 134 billion 969 million dollars. According to the first 79 months data of 2011 exports were made to 79 countries/regions (Çağlayan, 2011).

Let's look into the effects of crisis by checking Turkish economy's recent data: according to the chart below Turkey started to feel the recent global crisis in the last quarter of 2008 and found itself in the middle of the crisis Feb. 2009. Macroeconomic indicators, especially unemployment rates in 2009, growth rate, ISE as a finance indicator and consumption figures demonstrate this clearly. Then Turkey continued its economical activities, shifted its export from Europe to other countries and started to get over effects of the crisis in a very short time by applying strict fiscal policies. This situation is clear in the next figures.

Table 3: Selected Macroeconomic Indicators of the Global Economy in Crisis and Post-2008 Turkey 2008-2012

Selected Macroeconomic Indicators	2008	2009	2010	2011	2012Q1*
Economic Growth %	0,7	-4,8	9,2	8,5	
Total Consumption %	-0.4	-2.0	5.9	7.2	
Unemployment Rate %	10,9	14,0	11,9	9,7	9,1
Istanbul Stock Market Endex	37587,1871	37489,9219	59440,0334	60724,6953	58226,7269
Credit Volume (Million	114.657.587,4	124.082.398,6	166.330.794,2	231.587.129,9	634.752.560,9

TL)					
Total Export (Million USD)	132.027.190	102.142.606	113.883.213	134.969.268	34.744.000**

Sources: The data was created by me taking TUIK.

*: Quarter of 2012, while expressing 2008, 2009, 2010 and 2011 year period represents.

** : <http://www.tim.org.tr/tr/tim-gundem-8.html> (DA:20.04.2012)

3.LITERATURE

Short quotations were made from the crisis studies and given in this section.

Obstfeld and Rogoff (2009), used oil prices, economic growth, international reserves, long term interest rates, policy interest rate, estate prices(case-shiller index), exchange rate, net trade figures, current account deficit, the portion of settled investments in GDP, international investments and foreign deficit while clarifying global imbalances and financial crisis

Gourinchas and Rey (2007), showed econometrically that price arrangements of dollar which has been held as reserve currency in the last 10 years determined US net export.

Zandi, expressed that low energy costs would greatly contribute to the US economy and would help development in technology.

Verick and Islam (2010), suggested that the recent global crisis significantly effected economic growth first, then mixed and the related factors emerged in the markets, freedom of monetary policies has occurred, global imbalances emerged and financial risks have increased. In the most recent of them, beyond all these, economic collapse and unemployment increased and focused on this issue.

Taylor (2009), clarified reactions of inflation and macroeconomic activities that was used by CMB's which use interest rate instrument. Especially short-long term interest rate being used: 1. Current interest rate to target interest rate, 2. How far Current economic activities are from full employment, 3. At what level short long term interest rate should be in full employment.

Krugman (1999), expressed that at the time of crisis firms and entrepreneurs could provide growth using foreign capital.

Hayaloğlu and Artan (2011), examined IMF well and tried to make out its role.

Şimşek and Altay (2009), studied fiscal policies applied during global crisis in their survey and emphasized that. Economy would not recover by only increasing public spending without foreign sources. And they stated that crisis could only be prevented by studying the effects of crisis well, recovering the global liquidity congestion, decreasing domestic obscurities, applying monetary and fiscal policies that are freed from diminishing effects of real sector.

4.DATA SET, METHODOLOGY AND EMPIRICAL RESULTS

4.1.Data Set

Data used for analysis between 2002:01 – 2011:12 monthly closed values for 120 observations from Central Bank of the Republic of Turkey-CBRT-(Electronic Data Delivery System). Analysis was conducted using E-wievs 5.1 packet program.

Table 4: Variables Used in Analysis And Descriptions

IPI	Industrial Production Index
X	Export
ISE	Istanbul Stock Exchange Market
M2	Monetary Supply
AGR	Agriculture
USD	ABD (\$)
DUM	Dummy variable for month of February 2009

For analysis first of all logarithmic series were obtained by taking logarithm of the indexes monthly average values and the integration level of logarithmic series were examined. Whether logarithmic series are stationary or not was studied Augmented Dickey Fuller (ADF)(Dickey and Fuller, 1981) and Phillips-Perron (PP)(Phillips-Perron, 1988, 1990) tests.

4.2.Methodology

Some pretests need to be carried out so that EKKY-two stage Engle-Granger co-integration analysis could be made to the least squares method. First selected variables were analyzed for stationary.

In this survey series stationary was tested with ADF and PP methods. Short and long term relations between the series were conducted Engle-Granger two stage co-integrations analysis.

Moreover short term models are obtained when long term equation residuals are added to series whose differences are taken.

5.EMPIRICAL RESULTS

5.1.Unit-Root Test Results and Evaluations

The stationary of the variables are calculated for the ADF in Table 5.

Table 5: ADF Unit Root Test Results

Variables	t-Statistic	Critical Values		
		%1	%5	%10
<i>lnIPI</i>	-1.54 [12]	-3.49	-2.88	-2.58
<i>lnX</i>	-1.94 [2]	-3.48	-2.88	-2.58
<i>lnISE</i>	-1.45 [1]	-3.48	-2.88	-2.57
<i>lnM2</i>	-2.75 [1]	-3.48	-2.88	-2.57
<i>lnUSD</i>	-1.64 [2]	-3.48	-2.88	-2.58
<i>lnAGR</i>	-0.07 [12]	-3.49	-2.88	-2.58
<i>DUM</i>	-10.98 [0]	-3.48	-2.88	-2.57
ΔIPI	-9.44 [11]	-3.49	-2.88	-2.58
ΔX	-13.02 [1]	-3.48	-2.88	-2.58
ΔISE	-8.95 [0]	-3.48	-2.88	-2.57
$\Delta M2$	-7.85 [0]	-3.48	-2.88	-2.57
ΔUSD	-8.06 [1]	-3.48	-2.88	-2.58
ΔAGR	-4.02 [12]	-3.49	-2.88	-2.58
Variables	t-Statistic	Critical Values		
		%1	%5	%10

<i>lnIPI</i>	-1.66 [12]	-4.04	-3.45	-3.15
<i>lnX</i>	-2.07 [2]	-4.03	-3.44	-3.14
<i>lnISE</i>	-1.68 [1]	-4.03	-3.44	-3.14
<i>lnM2</i>	-0.62 [1]	-4.03	-3.44	-3.14
<i>lnUSD</i>	-1.78 [2]	-4.03	-3.44	-3.14
<i>lnAGR</i>	-2.21 [12]	-4.04	-3.45	-3.15
<i>DUM</i>	-10.91 [0]	-4.03	-3.44	-3.14
ΔIPI	-9.35 [11]	-4.04	-3.45	-3.15
ΔX	-13.10 [1]	-4.03	-3.44	-3.14
ΔISE	-8.98 [0]	-4.03	-3.44	-3.14
$\Delta M2$	-8.49 [0]	-4.03	-3.44	-3.14
ΔUSD	-8.08 [1]	-4.03	-3.44	-3.14
ΔAGR	-4.14 [12]	-4.04	-3.45	-3.15

Note: MacKinnon (1996), Δ symbol indicates that the variables taken the first difference. In values []; The optimum length of lag is determined (Schwarz Information Criterion: SC).

As shown in Table 5, the series has a unit root at level of first-degree differences, but that is not a unit root at a significance level of 5%. It appears to be stationary. In other words, the level of alignment of the series I (1) is.

PP test results are given in Table 6.

Table 6: PP Unit-Root Test Results

Variables	t-Statistic	Critical Values		
		%1	%5	%10
<i>lnIPI</i>	-2.68 [7]	^{-3.48}	-2.88	-2.57
<i>lnX</i>	-1.84 [21]	^{-3.48}	-2.88	-2.58
<i>lnISE</i>	-1.20 [6]	^{-3.48}	-2.88	-2.57
<i>lnM2</i>	-3.22 [2]	-3.48	-2.88	-2.57
<i>lnUSD</i>	-1.78 [1]	^{-3.48}	-2.88	-2.57
<i>lnAGR</i>	-3.07 [2]	-3.48	-2.88	-2.57
<i>DUM</i>	-10.98 [0]	^{-3.48}	-2.88	-2.57
ΔIPI	-23.06 [26]	-3.48	-2.88	-2.57
ΔX	-93.94 [24]	-3.48	-2.88	-2.58
ΔISE	-30.15 [14]	-3.48	-2.88	-2.58
$\Delta M2$	-39.86 [33]	-3.48	-2.88	-2.58
ΔUSD	-50.43 [96]	-3.48	-2.88	-2.58
ΔAGR	-30.03 [7]	-3.48	-2.88	-2.58
Variables	t-Statistic	Critical Values		
		%1	%5	%10
<i>lnIPI</i>	-4.01 [4]	-4.03	-3.44	-3.11
<i>lnX</i>	-3.83 [4]	-4.03	-3.44	-3.14
<i>lnISE</i>	-1.83 [6]	-4.03	-3.44	-3.14
<i>lnM2</i>	-0.68 [2]	-4.03	-3.44	-3.14
<i>lnUSD</i>	-1.95 [1]	-4.03	-3.44	-3.14
<i>lnAGR</i>	-3.97 [2]	-4.03	-3.44	-3.14
<i>DUM</i>	-10.91 [0]	-4.03	-3.44	-3.14
ΔIPI	-25.22 [28]	-4.03	-3.44	-3.14
ΔX	-94.64 [24]	-4.03	-3.44	-3.14
ΔISE	-30.52 [14]	-4.03	-3.44	-3.14
$\Delta M2$	-40.31 [34]	-4.03	-3.44	-3.14
ΔUSD	-56.72 [102]	-4.03	-3.44	-3.14
ΔAGR	-29.87 [7]	-4.03	-3.44	-3.14

Note: MacKinnon (1996), Δ symbol indicates that the variables taken the first difference. In values []; Barlett-Kernel used as a prediction method is the optimum length of lag.

As shown in Table 6 that the series has a unit root, but the first degree level at 5% significance level differences appear to be stationary, ie there is a unit root. In other words, the level of alignment of the series I (1) is.

After levels of integration of series is determined I (1) the error terms of the series obtained by regression of the series I (0) is expected to be (Brooks, 2008).

When ADF test is applied for a series of error terms, the ADF test statistic is -7.288124, given a series at a critical value of 1% does not have 5% significance level a unit root is seen in Table 7.

Table 7: The Regression error terms Unit Root Test

The length of lag: 0	Critical Values	t- St.	Prob.
ADF Test Statistical		-7.288124	0.0000
Test Critical Values	1% level	-3.48	

5.2. Long-Term Analysis

Long-term model for the series included in analysis was estimated and the results are given Table 8.

Table 8: Long-Term Analysis

Variables	<i>C</i>	<i>AGR</i>	<i>USD</i>	<i>ISE</i>	<i>X</i>	<i>M2</i>	<i>DUM</i>
Statistical Values	-3.45 [-8.71]	0.04 [4.92]	0.277 [4.22]	0.164 [6.83]	0.428 [12.12]	-0.166 [-5.20]	-0.148 [-2.95]

Table 9: Long-Term Analysis Statistic

R^2	$CRDW_{AC}$	$CRDW_{TAB}$	F_{ist}
0.93	1.25	0.511	287.78

In Table 9 the descriptive statistics for the analysis of long-term value of $CRDW_{AC}$ $CRDW_{TAB}$, in Table 10, the ADF_{AC} value of long-term residuals are significant because of the 5% level of co-integration analysis of long-term relationship between the series.

In table 8, long term analysis crisis effected Turkish economy in a negative manner and its statistically significant. Export is the most remarkable variable which contribute to the country' economy. This rate is statistically significant coefficient and 0,428. The other variables that contributed to the growth of Turkish economy are ISE, USD and AGR and they are statistically significant. Supply of money effects economic growth negatively.

5.3 Testing for Co-Integration

Residuals series were composed from long term analysis of countries and ADF and CRDW tests were applied to the series.

Table 10: The Relationship Co-Integration

	ADF_{AC}	ADF_{TA}	$CRDW_{AC}$	DW_{TA}	Conclusion
VARIABLES	-7.28	-3.77	1.25	0.511	Yes

Note: Critical values, Engle-Granger, 1987, taking in Table II. The calculated test statistics, in absolute value, the table is larger than the critical values, the existence of co-integration relationship between the series makes decisions.

In table 10, its clear that there is a co-integration relation between Turkey macroeconomic series. Since a co-integration relation is found its decided that short term analysis could be made.

5.4. The Short Term Analysis

Short-term error correction model and the results are given in Table 11.

Table 11: The Short Term Analysis

Variables	EC_{t-1}	C	ΔAGR	ΔUSD	ΔISE	ΔX	$\Delta M2$
Statistical Values	-0.531 [-5.49]	-0.002 [-0.38]	0.032 [3.23]	0.175 [1.24]	-0.020 [-0.31]	0.495 [12.12]	-0.110 [0.40]

Table 12: The Short Term Analysis

	R^2	DW	F_{st}	LM_{ols}	WH_{ols}	Constant
Variables	0.75	1.84	48.48	0.75	0.06	-0.002

Note: LM_{ols} : Breusch-Godfrey Serial Correlation LM test probability values, WH_{ols} : White Heteroskedasticity test probability refers to the value. These values are less than 0.05 is large, the model is considered Note a problem.

When the results in table 12 are examined, its observed that error corrections term coefficients in the short term are negative and statistically significant. Therefore, deviations occurring in the short term between series which move together in the long run are removed and series approach their long term balance value again. The variable which effects economic growth n the short term is export series with 0,49 coefficient and in a positive way. Agriculture an exports effect economic growth in a positive way and its significant. Effect of global economic crisis is negative and statistically significant.

6.CONCLUSION

In this survey, the effects of 2008 global economic crisis on the selected macroeconomic variables in Turkey was studied using 2002-2011 period monthly data. Crisis was represented in analysis with a dummy variable. In the long term analysis it was proved empirically that in Turkish economy agriculture, exchange rates, exports effected economy in a positive way while money supply and 2008 global crisis effected negatively. All of the variables in the analysis are significant. While exports effected economic growth in a positive way as expected the effect of crisis on Turkish economy is negative.

In the short term analysis; error correction terms coefficients is negative and statistically significant. Therefore, deviations occurring in the short term between series which move together in the long run are removed and series approach their long term balance value again. In other words the effect of a shock on one of the variables disappear in the long run.

According to empirical results obtained; the biggest contribution to Turkish economy was made by export and agriculture and recent economic crisis had a negative effect on its growth. Because, crisis in Turkey lasted relatively short and precautions were effective.

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