

GLOBAL CRISIS, CHANGE IN OIL PRICES AND ITS EFFECTS ON TURKISH EXPORT

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ABSTRACT

In the fourth year of great global crisis, many leading pessimists economist have been forecasting deeper economic crises with low growth rates. The sharp foreign exchange volatility was one of the main reasons of the financial crisis in the earlier years of last century and till 2007, however, this time crisis emerged in housing and especially in mortgage market in the USA. It spill over to the other markets and other countries later. Although, Turkish economy was very sensitive to the volatility of foreign exchange for many decades and experienced many crises due to sharp volatility of foreign exchange within last 30 years, Turkish economy followed high growth rates during the last four years. It would not be possible to follow high growth rates, high export opportunities in coming years. In this paper, the volatility of exchange rates and its effects on Turkish Economy will be analysed by wavelet methods.

Keywords: *oil, price, Turkish Economy, price*

1. THE VOLATILITY OF FOREIGN EXCHANGE AND OIL PRICES AND EXPORT

The volatility of foreign exchange has been subject to great interest among economist for a long time. Exchange rate volatility, the unexpected movements in the exchange rate has great impact not only on interest rate, inflation rate but also international trade. Especially, due to large volume of global trade, any kind of unexpected movement in the exchange rates results large effects on the general economy.

The large number of studies focused on the effect of effect of foreign exchange volatility on the economy. Their results differentiated due to sample country features or the model used, however, some of the them find out that negative effects, some of them find out negative effects and some of them concluded positive effect (Ozturk, 2006:92).

In recent years, increased mobility of capital and goods increased sensitivity on exchange rate regimes. Due to the changes in exchange rates, there would be large fluctuations in on export and import. In their papers, Bubula and Otker Rodi (2008) found out that countries have tended to move more flexible forms of intermediate regimes away from less flexible ones, in part to minimize potential trade-offs between competing policy objectives in a world with growing mobility of capital.

Obstfeld and Rogoff (2007) evaluated effect of real depreciation of the dollar across Asian and Non Asian Currencies. They assumed the current account deficit would be closed by the rise in the relative US saving and this implies a negative demand shock for US produced non-traded goods and a positive demand shock for foreign non traded goods (Obstfeld and Rogoff, 2007). Obstfeld and Rogoff (2007) also argued this general equilibrium effects turns out to imply an even larger depreciation in the real dollar exchange rate. They also expected some of the potential rebalancing shocks are considerably more adverse in 2008 crisis than one might have imagined in 2000 also (Obstfeld and Rogoff, 2007).

In large country and small country comparison, Obstfeld and Rogoff (2007) argued a global rebalancing in demand risks setting off a dollar depreciation that might be catastrophic for Europe and Japan since Europe's product and labour markets and Japan's credit markets are much less flexible than those in the US. Dollar depreciation likely shifts demand toward the US exports and away from exports in the rest of the world.

Obstfeld and Rogoff (2007) show that the relative productivity jump was in non- tradable goods production, rather than tradable goods production where generalized productivity gains often first show up. Therefore, contrary to conventional wisdom, as global productivity rebalances toward Europe and Japan, the US current account deficit could actually become larger rather smaller. They assumed labour and capital cannot move freely across sectors in the short run and found out that the US current account may amount to only 6 per cent of total US production, but it is likely 20 per cent or more of US traded goods production. Edwards's survey of current account reversals in emerging markets finds an economy's level of trade to be the major factor in determining the size of the requisite exchange rate adjustment with larger traded goods sectors implying a smaller currency adjustment on average.

The end of the 1980 witnessed a 40 per cent of decline in the trade weighted dollar as the Reagan era current account deficit closed up. Yet the change was arguably relatively being that Japan's macroeconomic responses to the sharp appreciation the yen in the late 1980s helped plant the seeds of the prolonged slump that began in the next decade.

Obstfeld and Rogoff also asked what happens if the US accounts for roughly a quarter of world GDP and a relative demand shock abruptly closes its current account deficit from 5 per cent of GDP to full balance. Suppose that an end to the housing boom in the United States reduces consumption there while improving growth expectations lead to a higher consumption levels in Europe, Japan and China (Obstfeld and Rogoff, 2007).

In their study, they also focused on small country case. They allow for general equilibrium effects due to price movements outside of the United States. The elimination of the current account deficit implies something like a 20 per cent fall in the demand for traded goods (as the current account deficit is 5 per cent of GDP while traded goods production accounts for about 25 per cent of GDP). The relative price of a non-traded goods needs to fall by 20 per cent when the elasticity of intra-national substitution is 1. They also recommended to pay attention to the fact that abroad, the price of non-traded goods must rise in parallel to the effect in the United States. If the world economy's two regions were roughly equal in size and there were no terms of trade effects, then in our general equilibrium model, the real exchange rate change would have to be twice that in the partial equilibrium model. But if the US accounts for only 1 / 4 of global traded output so that a US current account deficit of 5 per cent of GDP corresponded to a foreign current accounts surplus of 1.67 per cent of foreign GDP the effect would be about 33 per cent instead of 100 per cent larger in the component of the dollar real exchange rate attributable exclusive to relative non-tradable and tradable prices at home and abroad.

2. GLOBAL CRISIS

Until 2007, all financial and economic crises were related to the less developed countries or developing. Early 1990s were the boom years for foreign direct investments and portfolio flows to emerging markets at East Asia and the other leading emerging markets. After Latin American Crisis, 1997 East Asia Crisis was the second important crisis the emerging markets in the last decades after collapse of Bretton Wood system at 1973. In the literature, leading monetarists considered banking panics as a major reason of first contraction on globalization (Mishkin,1992:2). Kindleberger and Minsky viewed financial crises as sharp declines in asset prices, failures of both large financial and nonfinancial firms, deflations or disinflations, disruptions in foreign exchange markets or some combinations of all these at the same time(Mishkin, 2010). These were due to persistent capital market segmentation, home country bias and correlation between domestic saving and investment (Mishkin,2003). However, a large room should be devoted to fluctuations of exchange rate and oil prices for explaining the crises.

When a financial and economic crises occurs, much more expanded role for government intervention. While all governments were following the policies necessary for participating on the globalized world, after 2003 the rapid growth of financial markets, raising volume of capital mobility and trade. However, Mishkin (2012) criticized this view on determining the optimum size of intervention to the markets. Stiglitz (2005) used globalization for refer not only to closer integration of the countries and peoples of the world that has resulted from lowering of transportation and communication costs and man-made barriers but also to the particular policies, like "Washington Consensus

Greenspan (2010) argued geo-political changes starting by collapse of Soviet Socialist States Union, unification of Germany, the end of the Cold War, reduced the threat of diversification on economic systems and risk on this region. Real long term interest rates all over the world. produced a new bubbles in different countries like home price. This is new World order. Especially, China and the other successful export-oriented countries, the Asian Tigers and the Eastern European countries, supplied well educated, low cost workforces, in addition to highly developed world technology and protected by the rule of law, unleashed explosive economic growth. The International Monetary Funds (IMF) figure out that in 2005 more than 800 millions of labour force engaged in export oriented and therefore competitive markets. Additional hundreds of millions became subject to domestic competitive forces, especially in the former Soviet Union (Greenspan, 2010).

The first signs of crises came in early 2007 from losses at the US subprime loan originators and institutions holding derivatives of securitized subprime mortgages. However, these first signs were limited to problems in the subprime mortgage market till late 2007. Lehman Brothers bankruptcy was the trigger for the financial crisis, AIG and the Reserve Primary Fund collapsed on September 16, 2008 (Greenspan, 2010:12).

Although, capital flows were limited to a few countries and a few sectors at the beginning, capital flows is a central issue for centuries. Similarly, the collapse of the World Economy is not a new phenomenon. The World Economy contracted at 1914, just before the World War I. It was the end of the gold standard era, the end of free trade and free capital mobility for a period of time. Economic globalization starting after industrial revolution and with the support of Adam Smith's and his followers philosophers since early 18th century, had raised the prosperity in advanced countries and many other poor countries. The liberal economists argued markets should be free and the governments should not intervene to the markets and they consider a role for government restricted with national defence or justice only. Although, world trade had expanded approximately 1 per cent year during the seventeenth and eighteenth centuries it raised 4 per cent during nineteenth century due to rapid changes and globalization (Rodrik, 2012:24). Three important changes have been defined within this period: use of steam on transportation and industry and the invention of telegraph made revolutionary change on global economy. Especially, the widespread adoption of the gold standard made capital to move internationally easily. It was the realization of Adam Smith and his follower's philosophy and making the world prosper (Rodrik, 2012:22).

Tables below (table 1, table 2, table 3)would show the economic performance of the world economy. One of the main indicators is the short term interest rate. After, short term interest rates were quite much high until 2008. Just before the 2007, the Advanced Market Economies were following very strong monetary policies. Expansionary monetary policies during the

recent crises were critical in supporting banks and markets. Monetary policy was relaxed significantly early on by quickly adjusting short-term interest rates to historical lower levels. Here, are the rates applied in some of the countries. It was under 1 per cent at 2009. In Turkey, the short term interest rate just reduced from 18.84 per cent in 2008 to 10.98 per cent in 2009. This is very serious decline in for Turkish economy. After many decades since 1980s, the interest rate declined to 10% in Turkey at 2009. It continued to decrease until now (Table1)

Table 1: Short Term Interest Rates

	2003	2004	2005	2006	2007
Turkey	38.52	23.84	15.87	17.93	18.25
U. S.	1.17	1.58	3.53	5.17	5.28
Euro 15	2.36	2.13	2.20	3.09	4.28
Germany	2.33	2.11	2.18	3.08	4.28
Greece	2.33	2.11	2.18	3.08	4.28
U.K.	3.67	4.57	4.70	4.80	5.96
Spain	2.33	2.11	2.18	3.08	4.28
Sweden	3.25	2.31	1.89	2.56	3.89
Japan	0.04	0.03	0.03	0.25	0.66
Switzerland	0.33	0.48	0.81	1.56	2.57
	2008	2009	2010	2011	2012
Turkey	18.84	10.98	7.81	8.74	8.00
U. S.	3.20	0.94	0.53	0.42	0.43
Euro 15	4.63	1.24	0.81	1.39	0.59
Germany	4.63	1.23	0.81	1.39	0.58
Greece	4.63	1.23	0.81	1.39	0.59
U.K.	5.49	1.20	0.69	0.89	0.91
Spain	4.63	1.23	0.81	1.39	0.59
Sweden	4.74	0.92	0.93	2.45	2.07
Japan	0.74	0.35	0.16	0.12	0.16
Switzerland	2.48	0.36	0.19	0.12	0.07

Source:

http://stats.oecd.org/Index.aspx?DataSetCode=EO92_INTERNET

The second important indicator is inflation rate. In general, almost all countries had very low interest rates due to low demand after crisis. However, only in Turkey, the inflation rate was 46 per cent in Turkey at 2003. This

is the highest rate among the developed and developing countries just after 2001 financial crisis experienced in Turkey. However, at 2009, it decreased to 11.6 per cent for the first time (Table 2).

Table 2.: Inflation Rates

Time	2003	2004	2005	2006	2007
Country					
Germany	4.1	4.0	3.4	3.8	4.2
Greece	4.3	4.3	3.6	4.1	4.5
Italy	4.3	4.3	3.6	4.0	4.5
Japan	1.0	1.5	1.4	1.7	1.7
Spain	4.1	4.1	3.4	3.8	4.3
Switzerland	2.7	2.7	2.1	2.5	2.9
Turkey	46.5	25.2	16.5	17.9	18.3
U.K.	4.5	4.9	4.4	4.5	5.0
U. S.	4.0	4.3	4.3	4.8	4.6
Euro 15	4.2	4.1	3.4	3.8	4.3

Time	2008	2009	2010	2011	2012
Country					

Source:OECD Statistics, http://stats.oecd.org/Index.aspx?DataSetCode=EO92_INTERNET

1.1.2. Growth

The World Economy suffered highest contraction at 2009. The World economy and the USA had experienced recovery and expansion since 2009, although, this expansion was slow. The demand is still weak. The US housing market, tight credit conditions in "some sectors" and spillovers from the situation in Europe just avoid more fiscal contraction at all levels of government and concerns about the medium term US fiscal outlook were considered as the main barriers preventing fluent performance of the US economy (Bernanke, 2012 October 14).So, the households and businesses still are very careful for raising either individual or corporate spending. The economic growth has been insufficient to stimulate the employment (Table 3).

Table 3.: Growth Rates

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
World	3,4	4,6	4,3	5,0	5,1	2,5	-1,1	4,9	3,7	2,9
Euro 15	0,7	2,0	1,8	3,4	3,0	0,3	-4,3	1,9	1,5	-0,4
OECD – Total	2,1	3,1	2,7	3,2	2,8	0,2	-3,6	3,0	1,8	1,4
China	10,0	10,1	11,3	12,7	14,2	9,6	9,2	10,4	9,3	7,5
Turkey	5,3	9,4	8,4	6,9	4,7	0,7	-4,8	9,2	8,5	2,9
U.K.	3,8	2,9	2,8	2,6	3,6	-1,0	-4,0	1,8	0,9	-0,1
U.S.	2,5	3,5	3,1	2,7	1,9	-0,3	-3,1	2,4	1,8	2,2

Source:OECD Statistics, http://stats.oecd.org/Index.aspx?DataSetCode=EO92_INTERNET

In the table below, it would be seen the growth of Turkish export rapidly. Although, the USA economy suffered from the financial crisis, they had large

increased in their export following the China and the USA.

Table 5: Export

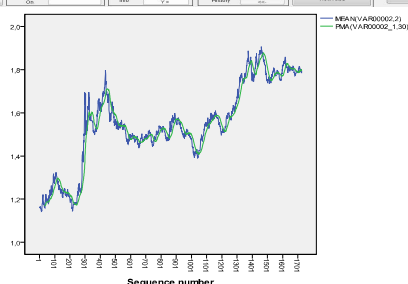
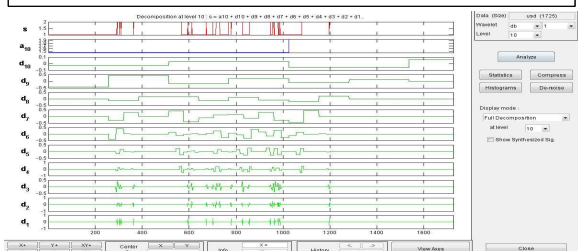
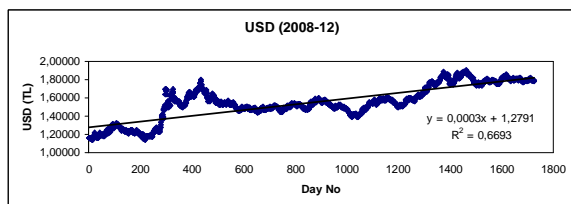
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Turkey	88	98	106	113	121	124	118	122	130	150
China	545	678	837	1.036	1.242	1.347	1.211	1.544	1.681	1.774
U. K.	541	567	618	693	676	684	628	668	698	697
U.S.	1.116	1.222	1.305	1.422	1.554	1.650	1499	1.665	1.777	1.842
Euro- 15	3.395	3.644	3.841	4.193	4.472	4.511	3952.7	4.387	4671.2	4.802
World	10.785	11.917	12.878	14.148	15.237	15.723	14.127	1.595	16.903	17412

Source: Economic Outlook, No.92 December 2012 OECD Annual Export Data

The price reflects both total world demand for oil and total supply by all of the oil-producing countries since the oil prices are global, in different places, prices are identical.

3. ANALYSIS OF USA DOLLAR, EURO, CRUDE OIL PRICES VARIATIONS IN TURKEY

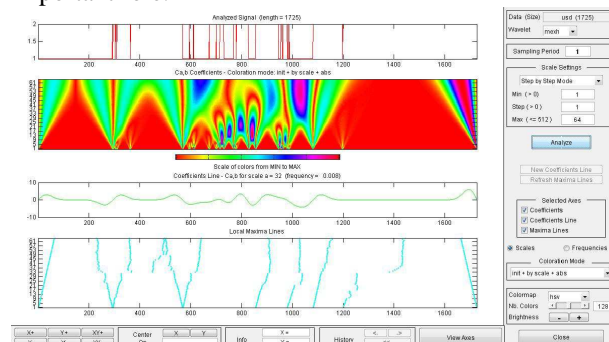
In this paper, the influence of volatility of USA dollar, Euro, the crude oil prices on Turkish Export and import and logistics. Previously, Melek et al (2008) made similar analysis of Dollar values against Turkish Lira between January 1950 and June 2006 by wavelet methods. That study showed the large scale variation in 1960, 1976 and 1985. Here, in this paper, the latest USD dollar, Euro and crude oil prices between 2008-2012 have been used in the wavelet model.



Moving Average Lag=30days (approx. Monthly)

Beginning from March 2011, there is an important increasing trend

1Dwavelet, db, level:10 (USD, 2008-12)
October 2010 no small (high frequency influences), commonly large scale (long-term) fluctuations play an important role.



1D Continuous wavelet, Mexh, Sampling Period: 1, USD, 1

July, August 2007 the role of meso scale factors (local) 2009 end, 2010 and beginning of 2011 (data no: 730 - 1095)

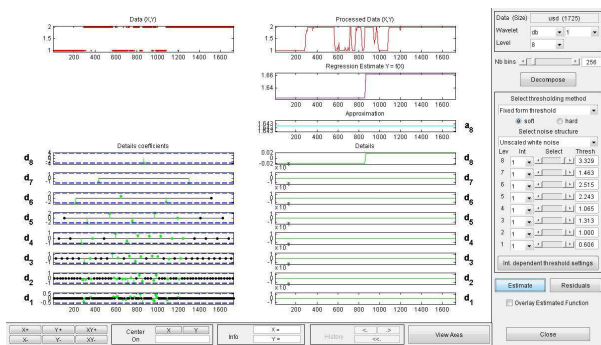
September 2008, The Lehman Brothers, the large investment bank of the World announced its bankruptcy, bank and other financial institutions in 2010:

The role of small (local, regional), meso (country scale) and large scale (global) events play an important role on daily USD Exchange rates (purchasing parity TL). Frequency of occurrence of meso and large scale influences vary between a week and one and a half month. At the end of the year 2010 it increased up to two months.

In March 2011, there are small scale factors with the frequency up to 30 days play an important role on the daily variation of USD exchange rate.

Beginning from approximately April 2011, stable, the role of large scale influences are dominant.

Blue bars show extremes (min or max); beginning from March 2011 no strong minimums.



The financial crisis started by 2008 in the USA. Although, the crisis was due to mortgage crisis, the first impact of the crisis on Turkish market was depreciation of TL against USA dollar. The first impact was on October 2008, the TL / USA Dollar changed 20% against TL. However, the at the end of 2008, the TL / USD Dollar parity changed %45 in comparison to the beginning of 2008. This was the first attack, this large change pushed the domino chain, all other important parts of Turkish economy has been affected.

The primary demand for oil is as a transport fuel, with lesser amounts used for heating, energy, and as inputs for petrochemical industries like plastics. The increasing demand for oil from all countries, but particularly from rapidly growing emerging-market countries like China and India, has therefore been, and will continue to be, an important force pushing up the global price (Feldstein,2008:1).

Firstly, after the first year of the global crisis, export declined %30 per cent due to the sharp decrease in the demand of Turkish products on export markets in 2009. The European Union countries are the main trade partner of Turkey for both export and import. In contrast to the 1997 Asia Crisis, or Argentina Crisis, similarly to the great depression of 1929, the crisis has been started from the USA and spill out the European Union countries. The crisis was a radical decrease in Turkish export.

Similarly, import also decreased 30 % per cent. In 2009, the quantity of minibus, truck and lorry production also decreased 30% in comparison to 2008 while export decreased approximately 50%. Sharp decrease on either of these items were due to decrease on demand to the Turkish products in the European Union countries. The economic reforms and stability package applied by the government in the USA; the European Union countries recovered their economies for a while. Due to the recovery, Turkish economy performed better in 2010 and 2011 in comparison to 2009.

However, the depreciation of TL continued during the 2008-2012 period. However, after raising to 1.750 TL for each USA dollar, it decreased to 1.35 TL for each dollar at the end of 2010.

In 2011, due to the crisis in Euro area, the depreciation of TL against USD and Euro was accelerated.

However, the investment to the road has been increased from 2,233 million Euro in 2008 to 2,918 million Euro in 2009 and 5,419 million Euro in 2010 (OECD Statistics, 2012). This can be considered as very surprising development. Although, crisis, the investment to infrastructure continue to increased. This may be also

considered as reason of recovery of Turkish economy at a shorter time and getting high growth rates even at the time of global crisis.

4. CONCLUDING REMARKS

In this study, the volatility of foreign exchange has been analysed and the relationship between the volatility of foreign exchange and the investment has been analysed. Although, in the first year of crisis, there was large fluctuation on volatility of USD dollar, Euro and sharp decreases on export and import of Turkey, the only positive development was the increase in investment of infrastructure of road, so the logistic industry and international economy. This can be considered as the first and strong stimulus for the following years high growth rates of Turkey.

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Annex A: Data used in Analysis

		EXPORT	CRUDE OIL	Foreign exchange
		USD \$	USD \$	TL- \$ Parity
2003	1	353,370,600	273.92	1.63
	2	292,346,000	293.75	1.64
	3	390,825,600	275.88	1.65
	4	366,218,300	239.99	1.65
	5	386,047,100	207.42	1.67
	6	379,611,400	213.77	1.43
	7	423,611,400	239.05	1.40
	8	382,872,600	229.66	1.40
	9	411,467,800	211.88	1.38
	10	482,438,800	231.62	1.43
	11	396,969,700	195.98	1.48
	12	459,504,200	191.98	1.43
2004	1	461,966,100	203.93	1.35
	2	366,450,300	197.81	1.33

	3	521,804,200	201.24	1.33
	4	507,246,300	242.8	1.36
	5	517,006,200	238	1.52
	6	528,438,300	243.43	1.50
	7	563,213,900	253.63	1.45
	8	470,749,100	253.63	1.48
	9	565,628,400	270.87	1.51
	10	586,734,200	241.72	1.49
	11	573,390,900	206.7	1.45
	12	654,087,400	213.43	1.40
2005	1	499,728,000	230.14	1.36
	2	565,174,100	265.97	1.31
	3	659,185,900	321.04	1.31
	4	612,813,200	327.39	1.36
	5	597,722,600	333.79	1.37
	6	603,853,400	347.7	1.36
	7	576,346,600	351.82	1.34
	8	555,286,700	387.36	1.34
	9	681,426,900	398.84	1.34
	10	677,217,900	369.84	1.36
	11	594,257,600	343.78	1.36
	12	724,627,900	353.46	1.35
2006	1	513,304,900	397.46	1.33
	2	605,825,100	426.75	1.33
	3	741,110,200	453.28	1.32
	4	645,609,000	497.21	1.34
	5	704,154,300	527.55	1.43
	6	781,543,400	491.71	1.60
	7	706,741,100	437.04	1.55
	8	681,120,200	413.88	1.47
	9	760,655,100	398.63	1.43
	10	688,881,300	389.32	1.48
	11	864,147,500	364.65	1.46
	12	860,375,300	363.64	1.43
2007	1	656,455,900	405.67	1.43
	2	765,695,100	437.36	1.40
	3	895,785,100	437.36	1.41
	4	831,331,200	437.36	1.36
	5	914,762,000	452.21	1.34
	6	898,024,700	454.46	1.32
	7	893,774,100	480.17	1.28
	8	873,668,900	501.14	1.32
	9	903,874,300	498.04	1.26
	10	989,521,600	516.19	1.20

	11	1,131,879,800	585.54	1.20
	12	972,401,700	557.86	1.18
2008	1	1,063,220,700	537.52	1.00
	2	1,107,789,900	528.72	1.20
	3	1,142,858,700	599.61	1.24
	4	1,136,396,300	660.54	1.30
	5	1,247,796,800	706.99	1.25
	6	1,177,063,400	770.13	1.23
	7	1,259,542,600	861.93	1.21
	8	1,104,683,000	771.87	1.18
	9	1,279,314,800	723.87	1.24
	10	972,270,800	630.76	1.50
	11	939,587,200	480.04	1.60
	12	772,194,800	324.2	1.54
2009	1	788,449,300	362.2	1.60
	2	843,511,500	419.37	1.66
	3	815,548,500	430.58	1.71
	4	756,169,600	477.81	1.61
	5	734,640,700	530.86	1.56
	6	832,969,200	615.44	1.55
	7	905,573,300	618.14	1.52
	8	783,990,800	671.29	1.49
	9	848,070,800	673.5	1.49
	10	1,009,576,800	655.73	1.49
	11	890,301,000	717.44	1.49
	12	1,005,459,100	717.44	1.51
2010	1	783,600,700	729.54	1.47
	2	826,901,300	715.07	1.52
	3	989,208,100	715.07	1.53
	4	940,227,400	738.14	1.49
	5	980,095,900	731.93	1.55
	6	954,182,100	702.86	1.58
	7	957,654,800	710.22	1.54

	8	852,478,100	720.56	1.51
	9	891,207,900	705.01	1.49
	10	1,096,803,600	705.01	1.42
	11	939,184,500	721.16	1.44
	12	1,186,015,900	759.11	1.52
2011	1	9551000000	813.41	1.60
	2	10059000000	685.7	1.55
	3	11811000000	738.3	1.55
	4	11873000000	824.9	1.51
	5	10943000000	805.2	1.59
	6	11350000000	739.2	1.63
	7	11860000000	732.6	1.67
	8	11245000000	753.2	1.75
	9	10751000000	719.9	1.85
	10	11907000000	789	1.75
	11	11079000000	755.8	1.84
	12	12477000000	733.2	1.91
2012	1	10349000000	802.4	1.78
	2	11749000000	825.3	1.76
	3	13210000000	827.6	1.77
	4	12632000000	875.7	1.75
	5	13133000000	833.1	1.83
	6	13234000000	760.6	1.82
	7	12833000000	665.7	1.81
	8	12834000000	724.6	1.81
	9	12960000000	794.9	1.78
	10	13205000000	802.4	1.79

Source: Export and Crude Oil Prices Turkey
 Statistics Institutions, www.tuik.gov.tr ;
 TL –Parity: Central Bank of Republic of Turkey
www.tcmb.gov.tr

