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THE EFFECT OF EXCHANGE RATE ON TEXTILE EXPORT

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Supervisor

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By

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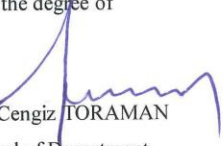
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ABSTRACT

THE EFFECT OF EXCHANGE RATE ON TEXTILE EXPORT

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The study examine the impact of exchange rate volatility on the exports of textile sector by using panal data approach. By analyzing different factors which could be affecting the exports in general, both fixed effect and random effects models are used in this study. The results of the fifteen firm which are listed in the Borsa Istanbul shows a negative relationship between exchange rate and exports. This study developed by using different methodology and all the results were significant.

Keywords: Exchange rate , Export, Textile sector , Panel data.

ÖZET

DÖVİZ KURU RİSKİNİN TEKSTİL İHRACATINDA ETKİSİ

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Yüksek Lisans Tezi, İşletme Ana Bilim Dalı

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Tekstil sektöründe döviz kuru oynaklığının incelenmesinde panel veri metodu kullanılmıştır. Çalışmada genel olarak yurtdışı satışları etkileyen farklı faktörlerde analiz edilmiştir, hem sabit etkiler hemde rassal etkiler modelleri kullanılarak sonuçlandırılmıştır. İstanbul Borsası'nda işlem gören onbeş firmanın sonuçları Döviz kuru ile ihracat arasındaki negatif ilişkiyi sahip olduğunu göstermektedir. Farklı metodoloji kullanarak bu çalışmayı geliştirmeye çalışılmıştır ve tüm sonuçlar anlamlı bulunmuştur.

Anahtar Kelimeler: Döviz kuru, İhracat, Tekstil sektörü, Panel veri.

This thesis dedicated it to my brother DR.Shadi Wais. To all my family and all those who contributed to my upbringing and my education

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CHAPTER 1

INTRODUCTION

Today, the Turkish textile industry has reached a very high degree, this sector in recent years has shown a very big step of development and due to the important place that the Turkish textile has in the world trade it was very important to choose this sector to be included to our case study.

The Turkish textile companies compared to other countries are today's biggest competitor known to international markets, where it has developed itself in terms of external export volume, due to the development of the processing of raw materials it has and using high technology in the manufacturing and the diversity of the market which have liabilities that fit foreign markets and in very efficient way.

the main topic in this study is to measure and see the relationship of exchange rate risk and volatility impact on exports. A lot of studies are seen in that field which are using different methods for methodology, while the feature of this study is that we established a new methodology by using panel data analysis applied to different factors and variables such as foreign currency position and the profit and loss from commercial activities which were included to this study to see their impacts on exports.

CHAPTER 2

LITERATURE REVIEW

2.1 The literature of foreign studies on the exchange rate

There are many studies in the economics literature, dealing with the volatility of exchange rates and their impact on the international trade flows. These studies mostly using collected extremely trade flows, rather than of Individual products, and using a different ways to measure the exchange rate volatilities.

Some studies suggest that; The increase in exchange rate volatility would increase the uncertainty, this condition would reveal a risk for firms which aim to avoid the risk of the volatility, therefore that it will negatively affect the volume of trade. (Hooper and Kolhagen, 1978; Chowdhury, 1993; Kenen and Rodrik, 1986; Arize, 1995).

Some of other studies; suggest that exchange rate volatility on trade have a positive impact like (Assery and Peel, 1991; De Grauwe, 1988) . However, Gotur (1985) and Bailey vd. (1987) failed to find a significant relationship between exchange rate volatility and trade or exports.

Hooper and Kohlhagen (1978), worked on binary trading between the U.S. and West Germany, multilateral trade flows parties of these countries from 1965 to 1975. From 16 cases, they studied, There had been only one statistically significant effect of exchange rate fluctuations on the trade volume. The significant flow of trade was U.S trade with the UK. They found that the impact of the exchange rate risk on the prices of circulating commodities had a statistically significant. The increasing in foreign exchange rate risk affected the prices in a way shows that exchange rate risk first must be incurred by the importers with U.S. Excluding the importers because they, unlike others, has denominated imports in their private currencies.

Foreign exchange rate risk variable Hooper and Kohlhage were found to become the best of indicative of risk had the absolute difference between the prior period's forward Rate and The spot exchange rate for the current period. The results shown that rising in the exchange rate risk have a depressive on demand of imports and causes the market prices to fall off. These findings mean that the risk premium requested by the exporters those who bear the risk of exchange rate, If the importers afford the risk of exchange rate, the prices will drop with a decline in import demand. Consequences show that prices of United States exports were as much as 2% below and import prices been 54% higher than it had been in 1974 In the absence of currency risk. So they couldn't find any impact of the exchange rate risk on the trade volume.

Cushman (1983), amendment the Hooper and Kohlhagen (1978), case study and expanded it to the analysis of trade flows between 1965-1977. The study also amended by using real exchange rates in its calculations of the exchange rate risk. Using real rather than nominal risk, he demonstrated that when exchange rate uncertainty increases, commercial quantities decrease. Also he noted that the risk effects typically caused by a lagged effect.

Cushman has found contravening to the Cushman Hooper and Kohlhage results , the risk from the effects of the real exchange rate has a greater impact upon the amount than the price of circulating commodities. Briefly, although studies are not corresponds, when they used the nominal exchange rate risk, the most of an impact is on the price [Hooper and Kohlhagen (1978)], but when the risk of the real exchange rate is been used [Cushman (1983)], the greater impact of exchange rate risk is traded on volume.

Cushman (1988), used five various relationships to gauge the real exchange risks. Conclusions indicate that the two countries for which United States exports negatively are affected by foreign exchange risk are the United Kingdom and Canada. Japan had a positive impact on the risk of U.S exports. As United States import flows, instead Germany had a significant negative, with the Netherlands, United Kingdom and Japan become the strongest alternative features.

Keenan and Roderick (1986), Checked the impact on the real effective exchange rate in industrialized countries and its effects on their processed imports in short-term

volatility. Researchers found that the exchange rate fluctuations has not diminished after many years of floating exchange rates. The researchers also were found exposure to exchange rate fluctuations varies between countries. They found that from the eleven leading industrial countries, only four have a major negative effect of volatility on the volume of imports. These four countries were, United States, Canada, West Germany and the UK.

The study of De Grauwe (1988), that the exchange rate volatility have a positive impact on foreign trade, and depending on the degree of risk aversion of the exporting firms. The increases in exchange rate volatility will let the expected revenue of the cost from exports will increase faster, therefore, it is suggested it would raise trade volume. If risk aversion is important for export companies, the increases in foreign currency rate volatility will make companies prefer to do more effort to reduce their exports to avoid the decreases in revenues In this case, the income effect will prevail and will happen an increase in exports. If the degree of risk aversion in exporting companies is low, the increase in exchange rate volatility will directed the company to the domestic market, and will claim to reduce the export.

Pick (1990), chooses bilateral exchange rates to examine the effect of the volatility of the exchange rate risk by assembling U.S export flows of ten countries. By using quarterly reports between 1978-1987 were built proxies for exchange rate risk, the quarterly and monthly data to examine the total exports of U.S agricultural commodities. By the used of expected utility maximizing the problem, where it was supposed to be a tool to increase profits and reduced function of the standard deviation of the profits, so he found negative impacts of foreign exchange risk on the U.S exports, and concluded the importance of the volatility particularly for South Korea, Brazil and Mexico which are the least developed countries. Pick summed up that this conclusion because those less developed countries don't have so many opportunities for hedging against currency volatility because of less-complicated financial markets in their own countries. He pointed out that Alejandro Diaz come up with the same impacts on trade in Brazil and Colombia.

Asseery and Peel (1991), worked on the total trade flows among Japan, the U.S., Australia, the UK and West Germany. They observed that trade mainly variables are unit roots operations. By taking the techniques of cointegration to take into

consideration non stability of these variables, they found a positive impact of exchange rate fluctuations on trade flows among these countries.

Chowdhury (1993), use the common integration and error correction techniques to examine the trade flows of exports of G-7 countries. By using the same method like Asseery and Peel (1991), and Gotur (1985), with the approach common integration technique together with the test for parameter stabilization. His prediction coverage the second quarter of 1976 to the fourth quarter of 1990. He noted that there is plenty proofs on the delayed relationship between exports size and their limitations.

He formed expressly for this repetition along with the fact that real exports and some real determinants of exports are an integrated variables which are likely to be unstable. His measure of volatility is the standard deviation of the growth rate of the exchange rate. He discovered that the use of cointegration and error correction model, the exchange rate volatility has an important negative effect on trade flows among these G-7 countries: France, Canada, Germany, Italy, United Kingdom, and U.S.

Ariza (1995), by using multivariate error correction model, studied how the U.S exports affected by the exchange rate volatility. This study which made by Ariza has been different from other studies from three angles:

First, export demand behaviour of dynamic model , instead of simple restrictive standards adjustment mechanism he used more developed way based on an error correction process and less restrictive procedure.

Second, this study has been the first one which took separated time series by using the integration test.

The third property is that he used different methods regarding to measure the exchange rate volatility.

Ariza's study by consisting of exchange rate series model which formed In a three variables, that exchange rate volatility statistically has a significant negative impact on exports volume in U.S.

While Doroodian (1999), examined in his the study the developing countries, by using multiple, bilateral and sectoral data of these countries has analysed the relationship

between exchange rate volatility and foreign trade volume. According to the results of analyses; he found that exchange rate volatility has a negative impact on foreign trade.

Arize, Osang and Slottje (2000), which their studies covering the 1973-1996 period, both in the short-term and long-term they have reached to the conclusion that the exchange rate volatility negatively affects the exports. Exchange rate volatility of the manufacturers and exporters that is negatively affected foreign trade.

The recent studies done in the same field by taking under consideration the sector level to see the effect of exchange rate volatility on the external trade volume. Egert and Zumaquero (2005), studied the direct impact of the exchange rate volatility on export performance and they examine the indirect effects caused by exchange rate system changing. The general results of these studies; that the exchange rate volatility has a negative impact on export flows and they have reached that particularly the manufacturing sector is the most one which seriously affected from this volatility of the exchange.

2.2 The literature of Turkish studies

The impact of exchange rate volatility on the foreign trade also been studied for Turkey. In the study of Özbay (1999), with the help of GARCH model he studied the effect of real exchange rate volatility on external trade by using quarterly data covering the period 1988:Q2-1997:Q2. This study concluded that the real exchange rate volatility has a significant negative impact on exports. On the other hand it's stated that there is no statistically significant relationship between imports and the real exchange rate volatility.

While Öztürk and Acaravcı (2002), studied the effects of exchange rate volatility on Turkey's exports by using the monthly data for the 1989-2002 period. The integration model was used as a method of analysis for this study. As a result for this study; the increase in the real exchange rate volatility negatively affects real exports. Even if the exchange rate volatility negatively affects Turkey's exports, they suggested that the imbalance in the level of exports is not permanent and it will effect just for short-term.

Kasman (2003), searched by using monthly data for the 1989-2002 period the effects of the real effective exchange rate volatility on the export. He used cointegration test

and error-correction model in his study and he has been estimated both in the aggregate and sectoral export mode. The obtained findings demonstrate that the real effective exchange rate volatility in determining the export level is really an important variable.

Kasman, found that the impact of exchange rate volatility on total exports in the short term and the long term expressed a negative effect. According to the studies, found a positive effect in the short-term of exchange rate volatility on total exports.

He also repeated the same estimation method to study the three main sectors (manufacturing, agriculture and mining) according to the obtained results, there is negative and statistically significant relationship between exchange rate volatility and exporting in the manufacturing and agricultural sector. As for the mining industry there is a positive, statistically significant relationship. In addition, they concluded that exchange rate volatility in the manufacturing and mining sector for a short-term is positive while in the agricultural sector for the short-term there is a negative impact.

Demirel and Erdem (2004), had used Quarterly data covering the 1990-2001 period. The study included the following countries: the U.S, Germany, England, France, and Italy. They searched the effect of real exchange rate and real exchange rate volatility on exports and discussed it in the context of Engle-Granger, cointegration and error correction model. Due to Demirel and Erdem (2004), they have been found (if not for all of the countries included in the study, especially for the mining and agricultural sectors) that the real exchange rate volatility have a negative impact on exports.

Tunçsiper and Öksüzler (2006), have studied the foreign exchange risk resulting from the fluctuations in the exchange rate. This study showed the effect of the exchange rate volatility on the aggregate and sectoral (manufacturing, agriculture, energy, raw materials) exports of Turkey by the help of quarterly data for the 1980-2001 period. Foreign exchange risk variables were obtained by using the ARIMA model. According to the empirical results of the analysis, foreign exchange rate risk negatively affects total and sectoral exports. Due to the Tunçsiper and Öksüzler Turkey's entry into the European Union, they will be using the Euro, therefore they suggested that there will not be any exchange rate risk in trade with EU member countries. So they defended that the decline of foreign exchange risk will increase the export capacity of Turkey.

Köse, Ay and Topallı (2008), using monthly data of Turkey from 1995-2008, have studied long and short-term the effects of exchange rate volatility on real exports. In this study, Johansen cointegration test, error correction model is been used. For calculating the real exchange rate volatility taken into consideration three the alternative measures, these alternatives are; the real exchange rate calculated from the change in the logarithm, simple moving average standard deviation of the standard deviation, and the conditional variance which obtained by GARCH model . Results of analysis, emphasized that there has a negative effect of real exchange rate volatility on exports of Turkey both in the short and long term.

According to the study, the increase in the real exchange rate volatility would increase the uncertainty about the future trend of exchange rate. As a result, the exporting companies tend will turn to the domestic market more than external market. Thus it leads to a negative impact of the real exchange rate volatility on exports.

CHAPTER 3

THE PLACE OF TURKISH TEXTILE INDUSTRY IN THE TURKISH ECONOMY

3.1 Introduction

Turkish textile sector with its, technology level, economic activity and social interaction is one of the leading socioeconomic activities in Turkey. The product quality and production technology conform to the modern world textile industry standards. About 75 percent of the production machines are used less than 10 years in this sector.

After 1980, using raw materials and labour in an effective way has made significant investments in the infrastructure sector and made a big growth in the size of external demand. Therefore the textile and clothing industry as production, employment, and in export size has a significant place an important share .

The textile sector carries more than 1/3 of the country's exports, approximately 25% of the 500 largest industrial companies operate in the textile sector. It is estimated that 40,000 companies are operating in the textile sector in Turkey. More than 90 percent of this company are constituting (SME) Small and medium-sized enterprises and doing contract manufacturing. 25% of the companies operating in this field are active exporters and constitute 37 % of our overall export sector.¹

Another striking figures for this sector briefly given below :

- Textile- apparel industry in Turkey include the 12 % of the Gross domestic product (7.5 percent for textile, 4.5 percent for confection).
- Textile-apparel sector in Turkey occupies 18% of the manufacturing industry.
- Textile-apparel sector in Turkey occupies 40 % of manufacturing employment.
- Textile-apparel sector provide upto 40 % of Turkey's total exports.

¹ EGS, Textile and Clothing Industry in Turkey and Aegean region report, 1996, p.3

- Provides more than 20 % of the industrial labor force in the country and more than 10 % of the total workforce.
- Turkish textile industry ranked the thirteenth in the world today and the number six in ready clothing industry suppliers.
- Turkey, is the second largest supplier to the European Union (EU) after China.
- Turkey is The world's 6th largest cotton producer.
- Turkey among the countries ranked in the 7th place and has the largest capacity in the world in the ring system, and the 4th in open-end system.

3.2 Textile exports in Turkey

Textile and garment industry in Turkey has been in a rapid growth in exports since the early 1980s, between the EU's common trade policy and the Turkish foreign trade policy in order to ensure parallelism in the context of decree No. 95/6815, regarding to textile trade signed bilateral agreements with many countries, made arrangements for the implementation on one side quotas on imports of textiles, for the same purpose create protective measures assessment board.

Table 3.1 Turkey's textile and clothing exports Share in total exports

Years	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total Exports	12.87	27.78	31.33	36.06	47.25	63.17	73.48	85.54	107.27	132.03
Total Textile Exports	4.322	10.1	10.4	12.16	15.12	17.61	18.9	19.72	22.934	23.05
The Ratio of General Export of Textile Exports	34%	36%	33%	34%	32%	28%	26%	23%	21%	17%

Source: The ninth development plan of Turkish textile .

As seen in Table 3.1, with continual increase in textile and clothing exports in Turkey, The share of overall exports Since 2000, it dropped to about 2% each year, while the Textile exports in 1990 is 4.322 million dollars, this rate increased to 10.102 million dollars in 2000 and 23,050 million dollars in 2008.

Figure 3.1 Turkey's share in the total exports of textiles

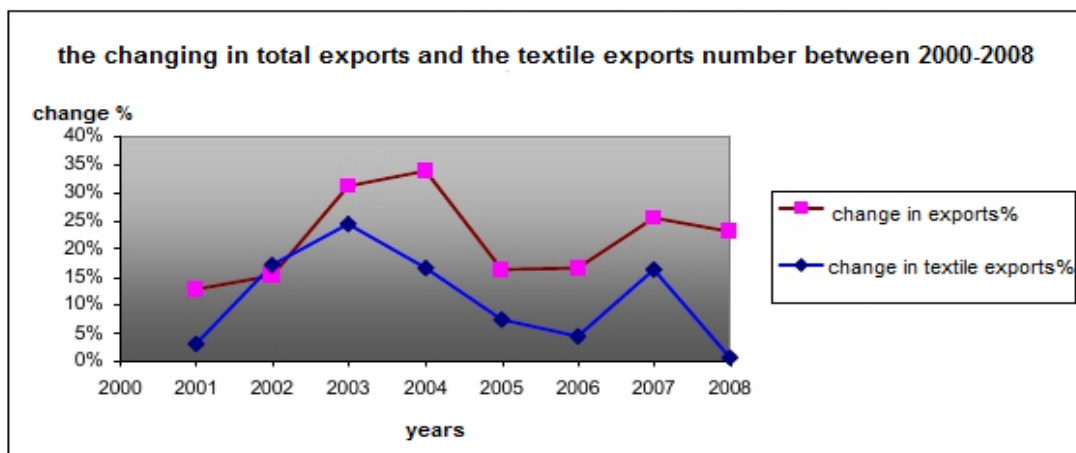


Source: The ninth development plan of Turkish textile .

As shown in figure 3.1, Turkey's share in total exports of textile exports in 1990 by 34%, while it reached its maximum level in 2000 with 36%, in 2008, the ratio was realized at the level 17%.

Between 2000-2008 period, Turkey's total exports increased by 22% per year, the average rate of increase in textile exports was realized as 11%. Therefore, relative to the total exports the textile exports increased to a lesser extent and despite the increase in this period its share in total exports has decreased.

Figure 3.2 the changing in total exports and textile exports number between 2000-2008



Source: The ninth development plan of Turkish textile .

If we would evaluate Turkey's exports between the 2000-2008 period according to figure 3.2 :

In 2000, due to the negative effects of external and internal factors this year was a very hard year for the Turkish exporters. In addition, due to the first year of applying the Economics Program, and trying to implement exchange rate policies in parallel with the inflation target, has been another development affecting our exports negatively.

All these negativities which were caused by external and internal factors, exports in 2000 reached \$ 27.8 billion, an increase 4.4%. In 2000, manufacturing industry products formed 91.2 % of total exports, agricultural and forestry products, 7.1%, and the mining products formed 1.4%. If we look at the separation; According to the exporting group countries in 2000:

Our exports to the European Union, while its 14.5 billion dollars, the share of our total exports of Co-operation and Development countries was 68.4%. In the country rankings, Germany ranked the first with 5.1 billion dollars, followed by the USA, Italy, England and France. In February 2001 after following the economic crisis in our country the exports showed a significant increase. Turkish lira left to free float after the crisis and the devaluation of the Turkish lira to a large margin and with the impact of the crisis as a result of contraction in domestic demand, the companies have turned to exports as a way out of the crisis, and as a result exports in 2001 increased 12.8% compared to 2000 and reached 31.3 billion dollars.

In 2003, by starting to create a new road map and vision to exports these studies resulted "a starting to create structure exports to ensure the sustainable export growth" in order to prepare export strategic plan 2004-2006, this plan was adopted in January 2004. According to data from World Trade Organizations exports worldwide in 2002 our country is 25th in the rankings, and in export Strategic Plan 2004- 2006 period increased to the place 22. Our exports in 2007 increased by 25.3% and reached 107.2 billion dollars, therefore our exports reach for the first time to 100 billion dollars level in addition had 1.04% share in the world exports. In 2008, our exports were 132 billion dollars, and our share in the world exports also has increased to 1.1%.

The clothing and apparel industry, which share the space 11.7% of our general exports reached 15.4 billion dollars in 2008. Our exports in 2008, when analysed in terms of groups of countries, is that the European Union occupies the largest export weight, in 2008, exports to EU countries increased by 4.9% and reaches to 63.4 billion dollars

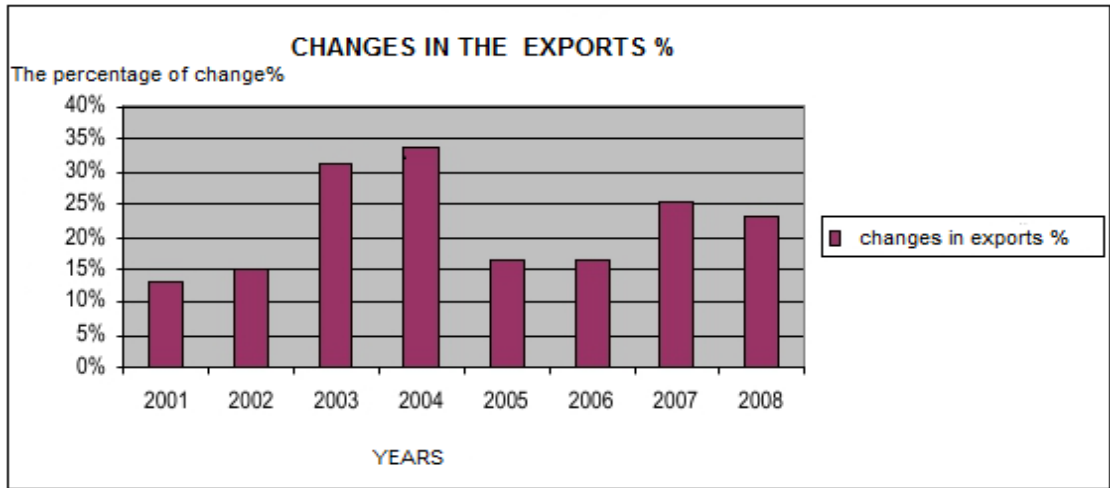
therefore EU countries have the highest share in our exports by 48%.²

3.3 Textile foreign trade between 2000 -2008

In 2003, textile and garment products exports increased to the 24.4%, while in 2004 this rate dropped to 16.4%, and its fall of to 5.1% in 2005. It could be said that by the end of 2005, the increase has stopped completely and starts to gradual decline.

Because Turkey's total exports increased faster than textile and apparel exports, the share of textile and apparel exports in total exports was at the beginning of term around 34%, and fallen to 25.3% in 2005.

Figure 3.3 Changes in the total exports between 2000-2008



Source: The ninth development plan of Turkish textile.

The next four-year periods after 2001 crisis garment products imports increased by an annual average to 37.8%. However, because of a low starting figures, despite these high increases in 2005, 751 million dollars in imports of garment products has not reached a more dangerous dimension.

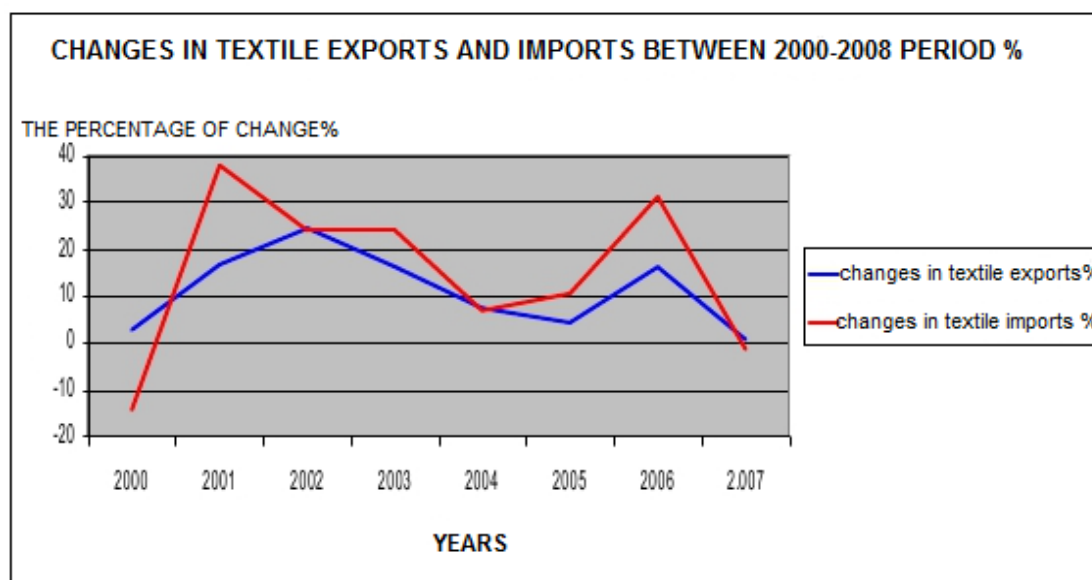
While textile products (fiber, yarn, fabric) imports in the next four-year periods after 2001 crisis increased per year on average by 21.3%, taking from 2.7 billion to 5.9 billion dollars has reached dangerous levels. Turkish textile and apparel industry has been increasingly with imported inputs began to become a working industry.

² <http://ekutup.dpt.gov.tr/imalatsa/tekstil/öik668.pdf> Dokuzuncu Kalkınma Planı Tekstil, Deri ve Giyim Sanayii Özel İhtisas Komisyonu Raporu(11.12.2014)

According to calculations made by Turkish Committee, in 2004, the Turkish textile and apparel industry's monetary value is around 28 billion dollars, used in the production of textile products is around 15 billion dollars. The 5.6 billion part is for the imports, and 9.4 billion dollars covers the Turkish textile industry products

Due to a significant increase in imports of garment products, the turnover of apparel industry is 26 billion dollars, and the monetary value of textile products has dropped to 14 billion dollars even though that the imports of textile products has been in slight amounts it rose up to 5.9 billion dollars. Therefore the textile materials used in the turkish clothing and textile of the garment Industry become 42% and textile materials used in the export product has become 67%.

Figure 3.4 changes in textile exports and imports between 2000-2008



Source : The ninth development plan of Turkish textile.

3.4 Textile foreign trade after 2008

Textile and apparel industry in terms of import-export balance creates the maximum part of the foreign trade sector. According to the ministry of economy input supply strategy when the sectors listed while the garment industry take the first place with 10.6 billion dollars, the textile industry take the third place with 6.1 billion dollars.

Textile and clothing exports in 2012 which reached value of 152.5 billion dollar's worth, forms an important item of Turkey's total exports.

Over the years, the continuous upward exports trend in this industry only in the last six years as the global financial crisis has recorded a decline in 2008 and 2009. But has displayed a rapid recovery in the following years

On the other hand, as shown in table 3.2 ,the declining trend in the share of textile and apparel industry could be remarkable. While this Share in Turkey's exports is 37.4% in 1996, this share becomes 16.7% of the total export in 2012.

Table 3.2 Place of textile, carpet and clothing products from general export (billion \$)

Value / Share	1996	2000	2005	2006	2007	2008	2009	2010	2011	2012
Total Exports	23.2	27.8	73.5	85.5	107	132	102	114	135	153
Textile; Carpet, Clothing	8.7	10.1	18.9	19.7	22.9	23.1	19.3	21.8	25	25.5
Share %	37.4	36.4	25.7	23.1	21.4	17.5	18.9	19.2	18.5	16.7
Luggage Trade	8.8	3	3.5	6.4	6	6.2	4.8	5	4.4	

Source: The tenth devolpment plan of Turkish textile.

Table 3.3 changing rate in total exports, textile, carpet, and clothing products exports(%)

Rate of Chance %	96-00	00-05	2006	2007	2008	2009	2010	2011	2012	05-12
Total Exports	19.6	164.5	16.4	25.4	23.1	-22.6	11.5	18.5	13.0	107.5
Textile; Carpet, Clothing	16.2	87.1	4.3	16.3	0.5	-16.2	13.0	14.4	2.2	34.9

Source: The tenth devolpment plan of Turkish textile.

As seen in table 3.3, between 2005-2012 while the total export increased 107.5% textiles, carpets, garments exports recorded an increase by 34.9% .

3.5 Export and import figures recording to sector basis

As seen in table 3.4 ,Turkey's textile value in 2012 reached 25.5 billion dollars , and significant part of this carpet and garment export products are formed by the apparel products. In 2012, the exported worth of textile products is 7.7 billion dollars, the value of carpets is 2 billion dollars, and apparel products value is 15.8 billion dollars.

Table 3.4 Recording to sector basis the textile, carpet and apparel products exports (billion dollars)

Value / share	1996	2000	2005	2006	2007	2008	2009	2010	2011	2012
The Textile; Carpet and Apparel prod.	8.7	10.1	18.9	19.7	22.9	23.1	19.3	21.8	25	25.5
Textile Products	2	2.5	4.8	5.4	6.4	6.6	5.4	6.4	7.7	7.7
Share %	23.5	25.2	25.4	27.4	27.7	28.8	27.8	29.1	30.9	30.4
Carpets	0.3	0.3	0.7	0.7	1	1.2	1.1	1.3	1.6	2
Share %	3.5	2.9	3.5	3.8	4.3	5	5.6	5.8	6.4	7.8
Apparel Products	6.3	7.3	13.4	13.6	15.6	15.3	12.9	14.2	15.6	15.8
Share %	73	71.8	71	68.8	67.9	66.2	66.6	65.1	62.7	61.8

Source: The tenth development plan of Turkish textile.

3.6 Turkey's place in the world trade

Turkey, is more effective country in the world textile, carpets and apparel products exports than the general export. In 2012, from the total exports of worldwide export our world share is 0.8%, and the exports of carpets and apparel products could be remarkable with its share by 3.4%.

Table 3.5 Turkey's place in worldwide export and the textile and apparel products exports (billion dollars)

	2001	2005	2006	2007	2008	2009	2010	2011	2012
Total Exports	6119	10389	12043	13849	15989	12327	15055	18000	17981
Turkey	31.3	73.5	85.5	107.3	132	102.1	114	134.9	152.5
Share %	0.5	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8
Textile, Carpets and Apparel prod.	362.4	511.8	561.8	624	651.1	559.8	644.5	759.4	741
Turkey	10.4	18.9	19.7	22.9	23.1	19.3	21.8	25	25.5
Share %	2.9	3.7	3.5	3.7	3.5	3.5	3.4	3.3	3.4

Source: The tenth development plan of Turkish textile.

Worldwide textiles, carpets and garment products exports Turkey's effectiveness is decreasing since 2005. Between the years 2001-2005 the growth rate of exports in this industries, we could say that Turkey's growth rate numbers is the more increasing one, according to the world export growth rate increasing numbers. But In the period from 2005-2012, has recorded a lower increased rate ratio.

Table 3.6 Percentage change of world and Turkey's general export of textiles and apparel products (%)

Value / Changing	01 – 05	2006	2007	2008	2009	2010	2011	2012	05 – 12
Total Exports	69.8	15.9	15	15.5	-23	22.1	19.6	-0.1	73.1
Turkey	134.5	16.4	25.4	23.1	-23	11.6	18.4	13.1	107.6
Textile, Carpets and Apparel prod.	41.2	9.8	11.1	4.3	-14	15.1	17.8	-2.4	44.8
Turkey	81.8	4.3	16.3	0.5	-16	13.1	14.3	2.2	35

Source: The tenth development plan of Turkish textile.

The importance of Turkey's Sector place in world textile and clothing exports for Turkey's most active group in the textiles, carpets and clothing exports, especially to the significant increase in exports which recorded after 2005 was the carpets exports. Turkey forms a share of 13.8% from the world exports of carpets.

Despite Turkey's share of world apparel industry tends to decrease in the World apparel industry exports, Turkey continues to be an active player in this sector. Turkey's apparel products share in the world exports in 2012, were 3.4% percent. The share of textile products in Turkey is tend to rise in world exports so In 2012, Turkey's share in world exports of textile products has been recorded 3%.³

³ <http://ekutup.dpt.gov.tr/imalatsa/tekstil/öik668.pdf> Onuncu Kalkınma Planı Tekstil, Deri ve Giyim Sanayii Özel İhtisas Komisyonu Raporu(16.12.2014)

Table 3.7 Recording to sector basis Turkey's place in world textile, carpet and clothing products exports (billion dollars)

Value / share	2001	2005	2006	2007	2008	2009	2010	2011	2012
Total Exports of world's Textile; Carpet and Apparel prod.	362	512	562	624	651.1	560	645	759	741
Turkey	10.4	18.9	19.7	22.9	23.1	19.3	21.8	25	25.5
Share %	2.9	3.7	3.5	3.7	3.5	3.5	3.4	3.3	3.4
Textile Exports	149	196	208	225	229.1	188	233	278	262
Turkey	2.8	4.8	5.4	6.4	6.6	5.4	6.4	7.7	7.8
Share %	1.9	2.5	2.6	2.8	2.9	2.9	2.7	2.8	3
Carpets Export	8.2	11.7	12.8	14	14.2	11.8	14.1	15.5	14.5
Turkey	0.3	0.7	0.7	1	1.2	1.1	1.3	1.6	2
Share %	3.2	5.7	5.8	7.1	8.1	9.1	9	10.3	13.8
Apparel Export	206	305	341	385	407.8	360	397	466	465
Turkey	7.3	13.4	13.6	15.6	15.3	12.9	14.2	15.7	15.8
Share %	3.6	4.4	4	4.1	3.7	3.6	3.6	3.4	3.4

Source: The tenth development plan of Turkish textile.

3.7 Exchange rates currency applications in textile sector

Exchange is extremely important for the textile and garment industry, because sale and purchase in this sector are usually happens in dollar or euro, even if it's inside the domestic market. Therefore, foreign exchange risk is not just important for the exporter or importer companies it's also important for operating firms in the domestic market.

When examining Table 3.8 : we can see that U.S dollars in 2000, is 0.62 TL (the present value of TL). Gaining 96% value in the crisis of 2001, rising to 1.23 TL, and gained 23% value in 2002 so it reaches the value 1.51 TL, and had lost value in the years followed (except for 2006). And it is seen that it reaches the level of 1.29 TL in 2008. Euro in the same period 2000-2008 seen consistently gains value against the Turkish lira .while its 0.57 TL in 2000, it reaches 1.90 TL in 2008.

Table 3.8 Average exchange rates and changes ratio between 2000-2008

Years	USD / \$	Change %	EURO/€	Change %	Foreign Currency Basket	Change %	CBT Real Effective Exchange	Change %
2000	0.62		0.57		1.07		114.4	
2001	1.23	96.47	1.09	90.56	2.07	94.02	98.3	-14.07
2002	1.51	22.88	1.43	30.73	2.61	26.08	116.5	18.51
2003	1.49	-0.85	1.69	17.87	2.79	7.06	126.7	8.78
2004	1.42	-4.74	1.77	4.89	2.78	-0.26	132.4	4.43
2005	1.34	-5.73	1.67	-5.55	2.63	-5.65	143.1	8.15
2006	1.43	6.74	1.8	7.81	2.62	7.26	141.8	-0.96
2007	1.3	-9.06	1.78	1.21	2.67	-5.2	150.7	6.31
2008	1.29	-0.66	1.9	6.61	2.75	3.07	152.6	1.23

Source: Central Bank of Turkey

Table 3.9 Total export-import between 2000-2008 (million dollars)

Years	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total Exports	27.775	31.334	36.059	47.253	63.167	73.476	85.535	107.272	132.027
Total Imports	54.503	41.399	51.554	69.340	97.540	116.774	139.576	170.063	201.964

Source: The tenth development plan of Turkish textile.

When examining Turkey's total exports in the same period; despite the volatility of exchange rates we remarks the continuity of the increase in exports. While the increase in the U.S dollar from 2000 to 2008, is about 108%, the increase in the euro is 233% and the increase in foreign currency basket is about 157%. The increase of total exports level reaches 375% and the increase in total imports level is 271%. These changes in rates clearly show us that exports and imports not only depending on the exchange rate volatility.

Table 3.10 Textile exports-imports between the years 2000-2008 (million dollars)

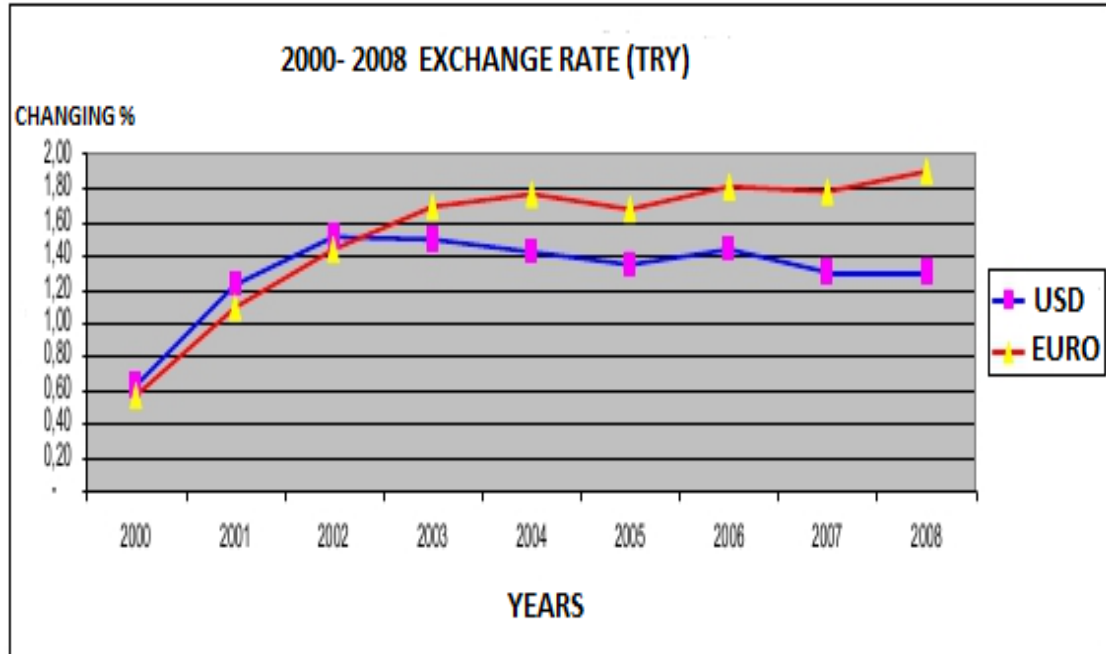
Years	2000	2001	2002	2003	2004	2005	2006	2007	2008
Textile Exports	10.102	10.397	12.156	15.122	17.605	18.900	19.716	22.934	23.050
Textile Imports	3.470	2.969	4.094	5.072	6.284	6.729	7.430	9.753	9.634

Source: The tenth development plan of Turkish textile

When we examined textile exports and imports in 2000 and 2008, in spite of the increase to 108% in U.S dollars and 233% in euro, the textile exports increases to 128%, while textiles imports increased to 178%. Despite the volatility of exchange

rates the textiles exports and textile imports has increased continuously during the period.

Figure 3.5 Exchange rates between 2000-2008



Source: Central Bank of Turkey.

If we consider that approximately two-thirds of textile exports are going to the EU, It is seen that the increase in the euro is much lower than increase in the textile exports. The other issue that attracts attention is; the increase in textile exports, is not parallel to the increase in total exports. During the same period while total exports increased 375%, the increase in textile exports has been 128%. This differentiation shows that Turkey's textile exports share reduced the in total exports.

3.8 The Stability of the exchange rate and exports

Export not only affected by the exchange rate it is also affected by other factors such as, input costs, productivity, production capacity, price policy, external demand and the structure of the international market. Therefore, just trying to increase exports by applying exchange rate policy will not always leads to Successful results.

When examining Table 3.11; the positive changes in exchange rates it seen that it's more than 90%. In 2001, textile exports increased by only 3%. While changes in the U.S dollar in 2002, is 22.88%, the change in euro 30.73%, the textile exports under the

changes in exchange rates increased by 17.45%.

In 2003, the U.S dollar exchange rate has remained almost constant while increased 17.45% in the euro, the textile exports have increased around 25%. Similarly in 2004 the decline in the U.S dollar by approximately 5%, and an increase of around 5% in the euro, the export of textiles has been increased 16%.

Stability seen in these two years of for the foreign currencies which has seen stability in these two years the textile exports, were less to be affected by changes in exchange rates, and has been shown a great numbers of increasing .

Tabele 3.11 The changing in foreign exchange rate and textile exports between 2000-2008

2000 - 2008 The average exchange rates and exchange ratio %					Between 2000- 2008	
					Turkish textile exports	
Years	USD /\$	Changing %	Euro	Changing %	TOTAL	Changing %
2000	623.704		573.942		10.039.783	
2001	1.225.412	96,47	1.093.683	90,56	10.345.136	3,04
2002	1.505.840	22,88	1.429.766	30,73	12.149.875	17,45
2003	1.493.068	- 0,85	1.685.301	17,87	15.181.626	24,95
2004	1.422.341	- 4,74	1.767.686	4,89	17.660.255	16,33
2005	13,408	- 5,73	16,695	- 5,55	18.569.666	5,15
2006	14,311	6,74	18,000	7,81	19.562.710	5,35
2007	13,015	- 9,06	17,782	- 1,21	22.600.842	15,53
2008	12,929	- 0,66	18,958	6,61	22.530.334	- 0,31

Source: Central Bank of Turkey.

There has been a significant fluctuation in exchange rates in 2005. However, despite the fall in the exchange rate of around 5%, the textile exports increased 5%. In 2006, changes in exchange rates have increased in the around 6-7% and again textile exports increased by about 5%. While The U.S dollar in 2007 fell around 9%, and the euro by 1% textile exports have increased more than 15%. There wasn't any significant change in the U.S dollar in 2008, the euro increased by 6.6% and there hasn't been recorded a significant change in our textile exports.

CHAPTER 4

AN OVERVIEW OF TURKISH EXCHANGE RATE POLICY

4.1 The economic policies between 1980 and 2001

It is noteworthy that the economy of Turkey start from the 80's began opening up politically its economy progressive to the world markets. The continuous program of editing continued in the next decade by reducing the barriers of trade, allow the foreign capital flow and currency. The main exchange rate policy of the authorities during this period was to reduction the domestic and foreign inflation rate differential which indicates the PPP theory which is a long term realistic goal for stabilization of currency. But during in the next decade the twin deficits and inflation increases while the Turkish Lira decreased value quickly against the USD. This resulted in the anchoring of the rate of exchange to drop the speed for each of the inflation and the rate of depreciation. However, this work would lead to a significant increase in external deficit as the currency would appreciate due to being the nominal substrate supported by high interest rates. At the beginning of the 90's the currency appreciation was stopped and the rate of currency was set to decline at least as the inflation rate which leads to the impairment. The main goal of this change was to reduction the external deficit. Reference should be made that this period represents a greater repulsion between the rate of exchange and financial policies. In economics dealing with large deficits, increasing amounts of short term public debts and structural problems that will lead to the 1994 crisis. The nominal currency rate reaction at that time with a 173% impairment as mentioned in the Berument et. al. (2004). The government should take new measures to stabilize instantly. The privatization process as the continuous struggle of liberalization lead the way for the next years. The second procedure was based a tightening of monetary policy for the period of post crisis. The years that followed saw the South East Asian crisis and the Russian crisis with the central bank to be able to maintain its currency policy of a crawling peg against a basket of the USD and DM with increases of the currency peg parallel to the expected

inflation.

The change against the currency basket also saw a change in 2000 from increasing the peg from expected inflation to target inflation of the central bank of Turkey. This came after the agreement with the International Monetary Fund to start a program of disinflation. It was based on carrying out the privatization process, new reforms in the tax system and debt management. But in order to achieve this aim there needed to be a high degree of fiscal discipline and central bank credibility. There was also a detailed 3 year program for the currency system where the first 18 months the currency would be pegged against a basket of USD and EUR with an announced daily increase of the predetermined inflation target. The future aim was heavily linked to the Wholesale Price Index and then fixed to 20% as shown in Kasman et. al. (2006). The next second 18 month period would include an expansion band to allow the smooth conversion of the creeping peg system of the first period into a freely floating system. The objective of this band system was to reduce the interventions of the central bank because it was committed not to interfere in any fluctuations within the bands. Though there were initial gains from a point view general macroeconomic like growth increase, lower of public debt ratios and inflation the system was very weak. The central bank had little credibility, major commercial banks had significant risks as result of currency mismatch all around the sector and this promoted increases in interest rates and dollarization that can mightily affect any gains in the process of disinflation. Particularly the problem of dollarization was hurting the efficiency of the program of disinflation. Oskooee *et. al.* (2003), stressed that by 2001, 60% of bank deposits were in foreign currency which reduced the cash ability authorities domination over liquidity in the market. Addition to these the authorities were not doing enough to carry out new repairs and financial policies. With high demand to USD, the central bank of Turkey provided the market the foreign currency through the use of its valuable reserves which is its main source to maintain the peg system. At the end of 2000, several bank runs took place which caused more concerns and high risks. Gençay et. al. (2006), states this period with the overnight interest rates quickly shooting high with foreign capital outflows taking place. But with increasing political unrest in the early of 2001, great loss of value of the stock market and limited foreign reserves the economy plunged into a financial crisis. The central bank was no longer able to conservatism on its currency peg commitments because of its decreasing foreign

reserves and on February 22, 2001 decided to the currency float. There were severe exaggeration in the rate of currency and reduction lasted for several months. The affair of great short term value loss is analysed in a detailed way in Cavallo et. al. (2004). From this date the system was coined like the managed float.

4.2 The period of freely floating from 2001 to 2009

After the crisis the currency was no longer designation as a nominal anchor to cash stability and the base money was the main tool. The central bank also stated that the level and trend of currency was no longer given main importance while volatility was much larger closely examined. The Turkish Lira was left trending upwards as Herrera et. al (2005), refers to but intervention did take place with less frequency. Using the preannounced sell and buy auctions channel and direct intervention, central bank of Turkey only interfered for smoothing extreme forex movements and meeting reserve requirements. The central bank gained higher independence and implement its policy under a more transparent way. With the freely floating system in place the policy was to use tacit inflation targeting system between 2002 and 2006 which would then be changed to outright targeting inflation policy. This period is analysed in Selçuk (2005) and Akyazı et. al. (2008). It should be said that the program was also very dependent on the stability of exchange rate hence any excess volatility in foreign exchange market that was not explained by basics was corrected by necessary intervention. But intervention would try to be as minimal as possible as the central bank tried not to be an active player with the currency more dependent on the supply and demand forces in the market. This showed that the rate of exchange was no longer going to be used as a policy tool. The central bank also acknowledged that there are other factors that determine these forces like international developments, market expectations, financial and monetary policies that are being carried out. At the first point of the program as pointed out earlier tacit targeting of inflation was implemented. There are several reasonable bases for this choice. First of all, it is well known that in times of chronic inflation it is very difficult to predict reliable inflation expectations and monetary indicators may not be an adequate measure. With the monetary authorities previously lacking credibility the central bank did not want to endanger its latterly installed program. Within less than a year the program acquired success because of political stability and applications of structural reforms in the banking strip. In the central bank of Turkey 2002 press release it was stated that there were reductions in the risks of

financial markets and lower levels of volatility in the forex markets. More importantly public debt ratios were decreasing and actual inflation was at a lower level than targeted inflation for three sequential years. Dollarization was also reduced referring to a more efficient monetary policy. With the amelioration of economic conditions and dampening of inflationary pressures the Turkish Lira acquired credibility which affected its value. By 2002, the central bank of Turkey expected a strong reverse currency substitution. Public feelings on the change of currency dramatically and many were exchanging their foreign currency denominated property to TL denominated assets. Further new investment decisions were increasingly implemented by using domestic investment products. This formed and surplus supply of USD also described as the supply shock in the USD/TL market. The central bank of Turkey took this as cause to implement a policy to increase its foreign reserves and clear the market at the same time. This can be seen reasonable since as an emerging economy Turkey was not immune from exogenous shocks. Progressively and without causing disarrangement new buy auctions were announced in 2003. These buy auctions including sell auctions all had predetermined rules like price and amount agreements for the sake of not causing any speculations. By 2005, another step would be taken by announcing the programs of auction from one year ahead. The beginning of 2006, the Central Bank of Turkey moved to a clear inflation targeting scheme with 3 year periods and the 2003 CPI taken as the base year. A full explanation of the framework is given in Özatay (2009). This period came with external shocks due to US financial crisis led to global liquidity lack and increasing volatility in the markets of currency. Energy and commodity prices were also increasing addition to inflationary pressures in the domestic market. With the high possibility of stagnation in developed countries the central bank of Turkey at specific periods reduced its buy auctions in the spot and options market and sometimes tentatively pendent it fully. Parallel to this the central bank also used other policy tools to get over the foreign currency deficiency like doubling the bargain limits of participating banks and lessening the reserve requirements from 11% to 9% in 2008. There were also announced sell auctions in 2006 and 2008 to help dampen any speculative price formation in the markets.

CHAPTER 5

METHODOLOGY AND RESULTS

5.1 Data

The data set used in this study includes 15 textile companies which have been listed in Borsa Istanbul. The data of these companies between 2009-2013 were collected quarterly and manually from the financial reports of these companies, these reports were collected manually from the public disclosure platform website.

In addition, the data of exchange rate of USD and EURO of these companies were taken quarterly from the central bank of Turkey. Here, the exchange rate on the last business day of each quarter are considered relevant for that quarter.

Mainly, we use the existence of the euro and dollar because it is the common foreign currency for all the 15 companies which included in our study, and according to the other foreign currency assets dollar and euro ratio are higher.

One of the problems that have been faced in this study that not all the variables were in the same currency, so for that reason it was necessary to turn all the data set to Turkish lira. In order to make all data in this analysis are measurable within a single currency only. The second problem was that not all companies in this study equal in terms of commercial and profit level as well as in terms of trade volume and the technology techniques which used in production and not all of them have the same financial structure. Therefore, to solve this problem the data was scaled back to the total assets and again to net sales and this made the study more easier and logical and opened the door in order to make all companies measurable and comparison.

5.2 Panel Data Methodology

It could be mentioned that there is two basic approaches used in the regressions performed with panel data, these are ; Fixed Effects Model (FEM) and Random Effects Model (REM). Before examining this two models, we will try to define generally

panel data regression models. For this reason, we will take the below 'k' variable as a basic general model:

$$y_{it} = \beta_{1it} + \beta_{2it} + \dots + \beta_{kit} X_{kit} + \varepsilon_{it} \quad 5.1$$

Where, $i=1,2,\dots,G$ denotes for individuals

and $t=1,2,\dots,n$ denotes for time.

Besides, the error terms denoted ε are assumed that they have zero mean and homoskedastic variance of this equation. That is, $E[\varepsilon_{it}] = 0$ and $Var[\varepsilon_{it}] = \sigma^2\varepsilon$.

In addition to this, coefficients from β_{2it} to β_{kit} denotes for the slopes of the equation changing with respect to variables, which are also unknown. They may vary for different volumes and different time periods. However, within the model estimates the fixed term of model, slope coefficients and along with their standard errors several assumptions are made. Depending on this assumptions it is possible to estimate five different models (Judge and others, 1985: 515). This models are:

1. Both constant and slope coefficients cannot change with respect to time and individual effects. But, error terms can change according to both time and individual effects. They indicate differences of either individual and time effects.
2. While slope coefficient is constant, constant term changes according to individual effects but it remain constant over time.
3. Slope coefficient is constant, constant term it may changes according to both individual effects and time.
4. Both constant and slope coefficients can change according individual effects.
5. All coefficients can change according to both time and individual effects.

As Judge et al (1985) and Gujarat (2003) mentioned, the 2 and 4 numbered models, can be classified depending on whether they are constant, random or varying coefficients.

5.3 Fixed effects model

fixed effects is model (FEM) one of the simplest model used to estimate panel data. the FE model is more appropriate when focusing on a specific set of N firms (N countries or households) that are not randomly selected from the large population. In the FE model, separate intercept terms α_i are estimated for each individual firm; hence when N is large this can use up degrees of freedom very quickly. In this model, the differences behavior between individuals tries to demonstrate the differences in the intercept term.

However, the slope coefficient is assumed to be constant in this model. In this model, constant term is called also (group-specific constant term). As Greene 's specified, The constant coefficient can be changed according to the individuals but remains constant by the time. So in FE model, the unobserved individual effects is considered to be associated with the explanatory variables (Greene, 2003: 285). Therefore, differences between individuals in the regression function is modeled as a parametric change. the fix effects model could be represent as follow:

$$y_{it} = \bar{\beta} + \alpha_i + \beta_{2it} X_{2it} + \dots + \beta_{kit} X_{kit} + \varepsilon_{it} \quad 5.2$$

$i=1,2,\dots,G$ and

$t=1,2,\dots,n$

in the equation (5.2). $\beta_{1i} = \bar{\beta} + \alpha_i$ denotes for the term of errors which belong to individual effects; $\bar{\beta}$ however shows that average slope effects. α_i indicates constant individual effects which differentiate from individuals to individuals.

What would be the appropriate estimation method to be used in the estimation of the equation (5.2), depends on α_i whether it is constant (fixed) or random. if α_i constant its 'Least Square Dummy Variable', which is also called as Fixed Effects; But if its random then we need to use (Random effects model) (Judge et al, 1985: 519).

In the equation (5.2), If there is relationship between the explanatory variables and the error term, FE considered to be appropriate model. Because in this case the estimates will not be drift. Furthermore, if the (G) is small and the number of observations (n) is big, FE model is still be preferable.

5.4 Random effects model

Contrary to what is accepted in the FE model, if the individual effects of the explanatory variables in the model are not related, and assumed to be randomly distributed according to the individuals it is more convenient to do modeling accordingly to random effects. (Greene, 2003: 293).

There for in the equation (5.2) the β_{1i} is not fixed (constant), and β will be a random variable with mean, In this case, constant term value for each individual will be $\beta_{1i} = \beta + \mu_i$ in this case μ_i , will be the random error term with zero mean and constant variance. And we could write RE model is as follows:

$$y_{it} = \bar{\beta} + \beta_{2it} X_{2it} + \dots + \beta_{kit} X_{kit} + \varepsilon_{it} + \mu_i \quad 5.3$$

OR ;

$$y_{it} = \bar{\beta} + \beta_{2it} X_{2it} + \dots + \beta_{kit} X_{kit} + u_i \quad 5.4$$

As it is shown in the equation (5.3), error terms for individuals are represented as (u_i) which is compounded error terms and (μ_i) random errors for whole panels denoted with (ε_{it}) . While the RE model's basic assumptions are:

1. Specific to individual and panel error term has a normal distribution. ;

$$\varepsilon_{it} \sim N(0, \sigma_{\varepsilon_i}, \sigma_{\mu}) \text{ and } \mu \sim N(0, \sigma^2_{\mu})$$

2. Individual error terms are not associated with the each other or the panel error term.

$$E(\mu_i \varepsilon_{it}) = 0$$

$$E(\mu_i \mu_j) = 0 \quad (i \neq j)$$

$$E(\varepsilon_{it} \varepsilon_{is}) = E(\varepsilon_{it} \varepsilon_{jt}) = E(\varepsilon_{it} \varepsilon_{js}) = 0 \quad (i \neq j; t \neq s)$$

The main differences between the FEM and REM could be seen by comparing the (5.2) and (5.3) numbered line equations, in the fixed effect model, each had their own individual section intercept term. While intercept term in RE model all the individuals gives the average fixed term (β). While error term (μ_i) represents the random deviation

from the average constant term. Effective estimation method used to estimate the the random model is generalized least squares (GLS) method. If in the panel data the number of cross-sectional units are big and the time period (n) shorter than the (G), random effect model according to fix effect model provides more efficient estimates. On the other hand, if the number of (n) is big and (G) is small, very little difference is expected between the two estimation results and FEM is more appropriate to use. However, if the number of (n) is small and (G) is bigger, it is expected a significant difference between the two estimation results, In this case, if we believe that cross-sectional units were taken randomly from the a larger sample then FE model is considered a more appropriate model (Gujarati, 2003: 650-651).

5.5 Panel Data final methodology

In this study, we preferred to use panel data approach because it allows for heterogeneity in individuals (firms, regions and countries) which is absent when using aggregated time series data. It also give more variability, which often leads to less collinearity among variables, while cross sections of time series provide more degrees of freedom and more efficiency (more reliable parameter results) when estimating models. Another advantage for this approach is that the dynamics of adjustment are better handled using panels especially in micro-based studies involving individuals, and more complicated models can be considered involving fewer restrictions.

Panel data methods according to Baltagi (2004) is performed with both fixed and random effects. To choose between two possible prediction models some statistical tests are carried out. To decide if the fix effect model or random effects model is appropriate the "Hausman specification test" will be used. and in this test checking for any correlation between the error component u_i and the regressors in a random effects model. And this is one of the most important problems of econometrics is essentially related with the problem of endogeneity. If the explanatory variables in panel data models apart from the individual effects and is associated with the error term Random effects model can not be used (Greene, 2003). And Fixed Effects model should be preferred instead. Fixed effects models are models that can allow endogeneity. Rejecting the null hypothesis indicates that the fixed effects model should be preferred on random effects model.

5.6 Model Specification

In this study , which will be used panel data analysis is going to be modelled as follows:

$$Export_{it} = \beta_0 + \sum_{i=0}^m \beta_{1it} * EXCHANGE_{it} + \sum_{i=0}^m \beta_{2it} * TOTALFOREIGN_{it} + \sum_{i=0}^m \beta_{3it} * CFOP_{it} + \sum_{i=0}^m \beta_{4it} * NPL_{it} + \mu_i + \varepsilon_{it} \quad 5.5$$

In this equation variables are explained as below:

EXPORT : Foreign sales scaled by total assets for current quarter. (TRY) .⁴

EXCHANGE: Quarterly exchange rate against the Turkish lira, USD or Euro.

TOTALFOREIGN: Net total foreign currency position of the firm scaled by total assets for current quarter, turned to Turkish Lira (US net assets*exchange rate or Euro net assets*exchange rate).

CFOP: Cash flow from operations scaled by total assets for current quarter.(TRY)

NPL: Net profit and loss scaled by total assets for current quarter. (TRY)

⁴ due to the difference between the total export and overseas sales number , to be more specification in this study we took the foreign sales numbers only which is divided and less than total exports.

μ_i is individual effect of firm i which are listed below:

COMPANY NAME	
1	Akin textile company
2	Arsan textile trade and industry
3	Birko tetile trade and industry
4	Birlik textile
5	Bossa group of commerce and industry business.
6	Istanbul Idaş flooring industry
7	Karsu textile industry and trade
8	Kordsa global, industrial yarn and cord manufacturing and trading company
9	Lüks velvet trade and industry
10	Mensa industrial commercial and financial investments
11	Menderes textile industry and trade
12	Söktaş textile industry and trade
13	Sönmez cotton industry
14	Yataş beds and duvets industry and trade company
15	Yünsa wool industry and trade company

ε_{it} is error term that includes firm specific and time specific residuals. In this equation, time specific effects being quarterly are not controlled due to financial reports has certain seasonal effects, which are results from financial reporting system. Due not to control time specific effects, both random effects and fixed effects model only cover firm specific effects denoted with μ_i .

5.7 Descriptive Statistics

Firstly, for this study case a data set were created in the panel data structure. In order to have a balanced panel data of all the data in the dataset there mustn't be more than about 8% missing data. However, our data set is threshold value has less missing data and has been realized as 2.3%. The results, which will be addressed in this study as quarterly, therefore it must be be in total of 300 pieces of data. But only 7 observations could not be found.

Table 5.1 Panel Data Structure

firm:	1, 2, ..., 15	n	=	15
time:	2009q1, 2009q2, ..., 2013q4	T	=	20
Delta(time) = 1 quarter				
Span(time) = 20 periods				

The variables in the dataset are abbreviated as follows:

exus: exchange rate (US Dollars).

exeu: exchange rate (Euro).

exports_ta and _ns: foreign sales(exports) (scaled by total assets and net sales).

totdollar_ta and _ns: foreign net assets in U.S dollar (scaled by total assets and net sales).

toteuro_ta and _ns: foreign net assets in Euro (scaled by by total assets and net sales).

cfop_ta and _ns: cash flow from operations (scaled by total assets and net sales).

npl_ta and _ns: net profit and loss (scaled by total assets and net Sales).

Descriptive statistics for these variables are presented in two tables (see Table 5.2 and Table 5.3) : one is for scaled by total assets, the other one is for scaled by net sales. It includes minimum, maximum, median, mean, standard deviation and variance.

Table 5.2 Descriptive statistics (Scale: total assets)

variable	Min	median	mean	max	sd	variance
exus	1.4512	1.73045	1.71303	2.1343	0.1903255	0.0362238
exeu	1.945	2.2976	2.309955	2.9397	0.2409714	0.0580672
export_ta	0	0.0526487	0.1231607	0.7100286	0.1631656	0.026623
totdollar_ta	-.5367333	-0.0574974	-0.0887994	0.1600175	0.1329187	0.0176674
toteuro_ta	-0.5024796	-0.0056741	-0.0169355	0.4667206	0.1011007	0.0102214
cfop_ta	-0.0267842	0.0506962	0.0650701	0.3703282	0.0651879	0.0042495
npl_ta	-0.3257599	0.0027002	-0.0061715	0.1110817	0.0500228	0.0025023

As shown in the Table 5.2, the total currency assets for dollar and euro are often negative and therefore also their average is negative. Which means that textile firms are taking foreign loans from outside of Turkey and it could be noted that these firms are using dollar external debt more than the euro. Minimum of export can only be zero in accordance with finance theory. There is no missing variables in there. Variance determining fluctuation of sales is lower in euro than U.S dollar, because sales in dollar fluctuates more than Euro.

Table 5.3 Descriptive statistics (Scale: net sales)

variable	Min	median	max	sd	variance
exus	1.4512	1.73045	2.1343	0.1903255	0.0362238
exeu	1.945	2.2976	2.9397	0.2409714	0.0580672
export_ns	0	0.2213594	1	0.2655197	0.0705007
totdollar_ns	-88.98248	-0.1359631	22.39854	5.843806	34.15007
toteuro_ns	-5.157098	-0.0144463	10.11807	0.9179366	0.8426075
cfop_ns	-1.089341	0.1737939	0.4378917	0.1623048	0.0263428
npl_ns	-8.241866	0.0075223	10.81191	1.001589	1.00318

In table 5.3, the net sales for this time scale is been used , and because the net sales numbers are lower for almost all the firms the resulet numbers in this table rose to highest . Maximum of export can be 1 and it indicates that a firm or more than one do only exports. Namely, they can produce for foreign buyers rather than domestic ones. Variance for cash flow from operations is lower than net profit and loss, it says that the firms included in our dataset are affected more than internal financials rather than their operations.

5.8 Pearson correlations

Table 5.4 Pearson correlations (Scale: total assets)

variabeles	export_ta	exus	exeu	totdollar_ta	toteuro_ta	cfop_ta	npl_ta
export_ta	1.000	0.010	0.021	0.171	0.039	0.537	0.255
(p)	0.000	0.852	0.709	0.003	0.506	0.000	0.000
exus		1.000	0.924	0.115	0.007	0.099	-0.026
(p)			0.000	0.048	0.905	0.077	0.643
exeu			1.000	0.111	-0.013	0.140	-0.039
(p)				0.055	0.818	0.012	0.486
totdollar_ta				1.000	0.148	0.186	0.216
(p)					0.010	0.001	0.000
toteuro_ta					1.000	-0.038	0.089
(p)						0.511	0.125
cfop_ta						1.000	0.265
(p)							0.000
npl_ta							1.000
(p)							0.000

Table 5.5 pearson correlations (Scale: net sales)

variabales	export_ns	exus	exeu	totdollar_ns	toteuro_ns	cfop_ns	npl_ns
export_ns	1.000	-0.043	-0.028	0.090	-0.011	0.180	0.141
(p)	0.000	0.453	0.628	0.120	0.855	0.001	0.013
exus		1.000	0.924	0.106	0.032	0.037	-0.105
(p)			0.000	0.067	0.585	0.516	0.063
exeu			1.000	0.112	0.028	0.056	-0.138
(p)				0.054	0.633	0.322	0.014
totdollar_ns				1.000	0.275	-0.159	-0.703
(p)					0.000	0.006	0.000
toteuro_ns					1.000	-0.238	-0.255
(p)						0.000	0.000
cfop_ns						1.000	0.303
(p)							0.000
npl_ns							1.000
(p)							0.000

As shown in the 5.4 and 5.5 tables; P values are stated below of pearson’s correllation coefficients. If it is higher than 0.05, it is statistically significant at 0.05 percent. Correlation coefficient must be higher than -1, but lower than 1. Positive values indicate there is positive relationship between these two variables. On the otherhand, negative values indicate there is negative relationship between these two variables. In conclusion, the tables indicate that the strength of association between the variables is not high and as shown in the tables there is no high correlation between the variables.

5.9 Panel Unit Root test results

Table 5.6 unit root test

	export_ta		exusd		exeuro		totaldollar_ta		total euro_ta	
METHOD	staistic	prop	staistic	prop	staistic	prop	staistic	prop	staistic	prop
Levin, Lin and Chu	-2.07193	0.0809	-11.3089	0	-0.78585	0.216	-2.20913	0.0136	-1.39623	0.0813
Im, Pesaran and shin	-2.52837	0.0057	-8.19717	0	-1.59458	0.0554	-3.43373	0.0003	-1.83911	0.0329
ADF-Fisher chi-square	42.8804	0.0103	40.406	0	30.787	0.2363	19.1075	0.086	29.0102	0.0239
	cfop_ta		npl_ta		export_ns		totaldollar_ns		total euro_ns	
METHOD	staistic	prop	staistic	prop	staistic	prop	staistic	prop	staistic	prop
Levin, Lin and Chu	-1.44463	0.0743	-4.34605	0	-1.34145	0.0899	-7.02349	0	-2.86244	0.0021
Im, Pesaran and shin	-2.73894	0.0031	-4.26932	0	-2.68491	0.0036	-5.39993	0	-3.91928	0
ADF-Fisher chi-square	59.2452	0.0002	50.002	0	48.0801	0.0025	74.8361	0	31.5316	0.0115
	cfop_ns		npl_ns							
METHOD	staistic	prop	staistic	prop						
Levin, Lin and Chu	-1.32964	0.0918	-10.0861	0						
Im, Pesaran and shin	-3.53143	0.0002	-8.79309	0						
ADF-Fisher chi-square	58.4207	0.0003	28.791	0						
Test: Ho: panel date has unit root										
Ha: panel date has not unit root										

The unit root test was used in case there was more than one trend in the series. In order to test stationarity, there are various tests such as augmented Dickey-Fuller (ADF), and the Levin Lin and Chu, and LM, Pesaran and Chi tests. Therefore these tests were employed for each variable (Table 5.7). The null hypothesis was that the variable contained a unit root, and the alternative was that the variable was generated by a stationary process. According to the results we reject the null hypothesis which means there is no unit root between variables.

In the second part of the methodology, the main model was examined by random effects and fixed effects panel data models. Firstly, models are presented as normal and robust. Then in order to determine the model without endogeneity and to make the selection of the models, Hausman test was used. Therefore the selected model by Hausman test can be used in order to review the results.

5.10 Data scaled by total assets

In this section our data set is scaled by total assets and we will be using fixed effects model and random effects model and finally we will be testing it by Hausman test, and we will be applying that for both USD and EUR.

Table 5.7 Fixed and Random effects model (Scale:Total Assets)

	FEM	REM
export_ta		
exus	-0.062** (-2.76)	-0.062*** (-2.79)
totdollar_ta	-0.009 (-0.18)	0.000 0.000
exeu	-0.044** (-2.72)	-0.043*** (-2.67)
toteuro_ta	-0.149* (-2.05)	-0.133* (-1.82)
cfop_ta	1.468*** -3.01	1.456*** -2.95
npl_ta	-0.155 (-0.77)	-0.136 (-0.65)
Constant	0.132** -2.64	0.133*** -3.22
Observations	293	293
F	6.415	
p	0.006	
chi2		25.152
p		0.000
r2_a	0.362	0.254
LM test for autocorrelation		
chi2	0154666 0.694	0.32 0.5703
p		

t statistics in parentheses

Standart errors were robustified in results with White Heteroskedasticity-Consistency Std.Errors. Abbrevations:(aic:Akaike Information Criteria, bic:Schwarz-Bayesian Information Criteria, ll:Log-likelihood,F:F-Value, p:Prob>F, r2_s=Adjusted R-Square , (chi2:Chi-Square , p: Prob>Chi2,

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5.7, has been scaled with the total assets and fixed and random effects model was estimated as measured by the total dollar amount of foreign currency and the total euro amount. In this model. As it is shown in the table if the exchange rate of dollar and euro effect the export negatively. On the other hand the total asset of the firms is mainly negative, but not significant for the USD. Minus sign means that the firms are mainly taking loans from abroad or borrowers in foreign currency. But it's also notable that this variable is not significant and it has a marginal relationship with the export accordingz to the dollar but it is significant for euro. Breusch-Godfrey LM test for

autocorrelation shown that there is no autocorrelation in the model. After this step we will be decided by the Hausman test which model should be selected

Table 5.8 Hausman Test

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe01	re01	Difference	S.E.
exus	-.0616105	-.0619164	.0003059	.001704
totdollar_ta	-.008957	.0000803	-.0090373	.0169606
exeu	-.0438098	-.0432778	-.000532	.0008012
toteuro_ta	-.149428	-.1330338	-.0163942	.0181534
cfop_ta	1.467924	1.455907	.012017	.0189253
npl_ta	-.155451	-.1360629	-.0193881	.0148335
_cons	.1319779	.1329709	-.000993	.

b = consistent under Ho and Ha; obtained from Random Effects
 B = inconsistent under Ha, efficient under Ho; obtained from Fixed Effects
 Test: Ho: difference in coefficients not systematic
 $\chi^2(5) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 2.17$
 Prob> $\chi^2 = 0.8258$
 (V_b-V_B is not positive definite)

According to the Hausman test in Table 5.8, probability value $p > 0.05$ we accept the null hypothesis . Accordingly, the random effects model is valid model. But as it is indicated by several authors, such as Baltagi (2004) and Gujarati (2003), if the number of observations is large, but number of cross-sectional units are small, there will no significant differences between the results of fixed effects and random effects models. In this case, for the convinence of computations, fixed effcets model is usually preferred. Therefore, in our analysis, we prefer to use the fixed effcets model. When the results are carefully analyzed we could note that when exchange rate increases exports are decreasing. Cash flow from operations affects export positively as expected. R2 is relatively low, But Computed value of F-statistic is 6.415 with a probability value of 0.006 indicates that this F is highly significant .

Thirdly, our model is run with the variables scaled by net sales. Models are corrected with again White's Heteroskedasticity consistency estimator and run for both us dollars and euro. And we can notice that the exchange rate of dollar is more sensitive and fluctuation compared with the exchange rate of euro .

5.11 Data scaled by total of net sales

The fixe effects model and random effects model are realized by scaling the data for net sales . Then the Hausman tests are been used to determine without the problem of

endogeneity. Accordingly, the results are as follows:

Table 5.9 Fixed and Random effects Model (Scale:net sales)

	FEM	REM
export_ns		
exus	-0.102** (-2.62)	-0.102*** (-2.62)
totdollar_ns	0 (-0.31)	0 (-0.10)
exeu	-0.058* (-1.97)	-0.058** (-1.97)
toteuro_ns	-0.002 (-0.31)	-0.002 (-0.30)
cfo_p_ns	0.055 -0.71	0.061 -0.83
npl_ns	-0.01 (-1.26)	-0.009 (-1.20)
Constant	0.444*** -6.88	0.439*** -4.56
Observations	295	293
F	2.103	
p	0.146	
chi2		9.758
p		0.045
r2_a	0.02	0.011

t statistics in parentheses

Standart errors were robustified in results with White Heteroskedasticity-Consistency Std.Errors. Abbreviations:(aic:Akaike Information Criteria, bic:Schwarz-Bayesian Information Criteria, ll:Log-likelihood,F:F-Value, p:Prob>F, r2_s=Adjusted R-Square ,(chi2:Chi-Square , p: Prob>Chi2.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

At this stage, the Hausman test was performed and the results are included in Table 5.10.

Table 5.10 Hausman Test

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe03	re03	Difference	S.E.
exus	-.101521	-.1018031	.0002821	.0004748
totdollar_ns	-.0002735	-.0000892	-.0001843	.0001503
exeu	-.0583508	-.0584799	.0001291	.0003932
toteuro_ns	-.0015928	-.0015617	-.0000311	.0003671
cfop_ns	.0546034	.0605961	-.0059927	.0098582
npl_ns	-.0101871	-.0094445	-.0007425	.0006508
_cons	.4442319	.4393025	.0049294	.

b = consistent under Ho and Ha; obtained from Random Effects

B = inconsistent under Ha, efficient under Ho; obtained from Fixed Effects

Test: Ho: difference in coefficients not systematic

$\chi^2(4) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 1.81$

Prob>chi2 = 0.7712

(V_b-V_B is not positive definite)

Even though that the Hausman test chi-square value is very low and the probability value is greater than 0.05 therefore null hypothesis is not rejected, and it is better to choose random effects models. But in this case also the fixed effect model should be preferred due to the Baltagi (2004) and Gujarati (2003).

According to the results of the fixed effects model, the euro exchange rate affects exports less than dollar exchange rate. R² is also very low. However, all models were not statistically significant at level of 0.05 because the probability value is >0.05. R² value is reduced excessively, due to the results when the data is scaled with the total net sales it gives an less explanation to the total variance for export comparing to the data when scaled with the total assets. therefore it is more appropriate to build the results on the first method by examining the tests when the data is scaled by total assets.

CHAPTER 6

CONCLUSIONS

In general, exports of the textile company in Turkey negatively affected by the exchange rate. In fact, the increase of foreign exchange should increase sales and earn more money for companies. But this could be happened due to that companies are exporting goods and intermediate goods products more which shows the decline in sales theoretically, the decline in the Turkish currency rate strength against foreign currencies should leads to rise exports, but the surprise was that the analysis found that the relationship between these two variables are negative . this could be due to the fear of exporters to the volatility of exchange rates and to avoid commercial activities in this periods of volatility of exchange rates, or change the prices in order to reduce their exposure to the impact of exchange risk. In addition, for the impact of net foreign assets, we find that all the results that have appeared are negative, which indicates that the majority of companies conducting borrowing from abroad, or the value of the foreign debt of this companies in foreign currencies are large .according to the results we have studied, we find that the impact of the total foreign assets on exports may almost be marginal and does not have a significant or noticeable effect on exports.

On the other hand, cash flow from commercial operations coefficient is large and observant in this study. This means that the operating expenses on exports is high, and the rising in that margin indicates that they are more efficient - and this means that the operating expenses lead to the sales growth. in fact ,that is natural and expectable due to that the textile sector depends on orders over demand within certain seasons which leads to that the production of textile sector is more seasonal and variable during the annual session according to other sectors. It is also variable depending on the company's financial size and technological techniques used in this sector, and this may be due to the recession and movement activity in foreign markets and the preference of importers to import from Turkish companies, especially Under strong competition in global markets. we could say that the Turkish textile sector nowadays reached a very high level in development and become a competitor to world mark.

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