The Impact of Oil Prices on the Stock Returns of Textile Industry in BIST

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ABSTRACT

This thesis aims to search for empirical relationship between oil prices and stock returns in the textile industry. Borsa Istanbul (BIST) has been selected with this respect. Monthly data for the period, 1997-2011 has been applied to various econometric procedures. Johansen cointegration and error correction model results reveal that oil prices affect stock returns in the economic long term. Textile stock returns react to long term path by 19.77 percent speed of adjustment through the channel of oil prices. Our results also find that oil prices do have long term inspect in the overall BIST index; however, this impact is lower compared to that case in textile; and final finding of the study is that textile stock returns move parallel to oil price increases in the economic long term.

Keywords: Oil, Stock Returns, BIST

ÖZ

Bu tez çalışması tekstil sanayii'nde hisse senedi fiyatları ile petrol fiyatları arasındaki ilişkiyi incelemeyi amaç edinmiştir. Bu sebeble, Borsa Istanbul örnek olarak alınıp 1997 ve 2011 dönemini kapsayan aylık veriler kullanılmıştır. Johansen eşbütünleşme ve hata düzeltme modeli sonuçlarına göre, petrol fiyatları tekstil piyasası hisse senedi getirilerini iktisadi olarak uzun dönemde etkilemektedir. Hisse senedi getirileri, uzun dönem dengesine 19.77% hızla ve petrol fiyatları kanalı ile yaklaşmaktadır. Bu çalışmanın sonuçları, ayni zamanda, petrol fiyatlarının genel borsa endeksi getirilerini de etkilediğini ortaya çıkarmıştır. Fakat, bu etki, tekstil piyasasına olan etkiden daha düşük düzeydedir. Son olarak, varılan bulgulara göre, petrol fiyatları ile hisse senedi getirileri arasındaki etkileşimin "pozitif" yönde olduğu tespit edilmiştir.

Anahtar kelimeler: Petrol, Hisse Senedi Getirileri ,BIST

TO MY FAMILY

ACKNOWLEDGMENTS

I would like to express my utmost gratitude to Almighty Allah for giving me wisdom, knowledge, understanding and prosperity in my life.

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INTRODUCTION

1.1 Background

Stock market returns are affected by various factors in a macro and micro economic level. Oil prices could be considered as an impacting factor on economic activity. In addition, as Kling (1985) suggests although crude oil prices are statistically effective in the economic conditions, stock markets have not been aware of this effect before 1973. He suggests that oil price changes, especially an upward change, are affectively captured by the markets some months later. Similarly, he adds that these effects are observed as a decline in stock prices and accompanied with a decrease in real economic activity. Finally, he concludes that oil price shocks are followed months later by significant declines in the stock prices of some industries.

Stock markets traders price these factors according to different pricing theories. Asset returns are usually exposed to some levels of risk. Economists have been actively trying to capture the relationship between risk and asset returns by employing models. Among all the tested models, the Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory (APT) have been the most leading ones. Capital asset pricing models is mainly characterized by taking into account the mean and variance of returns. Subsequently, arbitrage pricing theory suggests a different way of explanation of the asset prices; it states that asset return is consisted of various factors which are linearly combined

The arbitrage pricing theory (APT) describes the price where a mispriced asset is expected to be. It is often viewed as an alternative to the capital asset pricing model (CAPM), since the APT has more flexible assumption requirements. Whereas the CAPM formula requires the market's expected return, APT uses the risky asset's expected return and the risk premium of a number of macro-economic factors. Arbitrageurs use the APT model to profit by taking advantage of mispriced securities. A mispriced security will have a price that differs from the theoretical price predicted by the model. By going short an overpriced security, while concurrently going long the portfolio the APT calculations were based on, the arbitrageur is in a position to make a theoretically risk-free profit.

According to the literature, APT models have been employed in many studies in order to investigate the macroeconomic variables affecting stock returns. For instance, Chen, Roll and Ross (1986) employ an APT model consisted of seven macroeconomic factors as the sources of systematic risk. The variables which are used in their study are industrial production, inflation, risk premium, term structure, market returns, consumption and oil prices.

1.2 Oil and Prices

No one can deny the significant impact of oil on an economy in recent years. The oil domination can be shown through the oil crises of the last fifty years. Oil is one of the natural resources which is has been dominated in most industries and involved in daily life. During the last fifty years, oil market has experienced crises. In 1973, OPEC decision triggered the oil crisis in which industrialized countries were imposed to an embargo. Consequently, oil market prices increased from $3 per barrel to $12. Moreover, the 1973-74 stock market crash accompanied with oil crisis

resulted in one of the most significant economic crashes after Great Depression. Figure 1.1 depicts the oil price volatility.

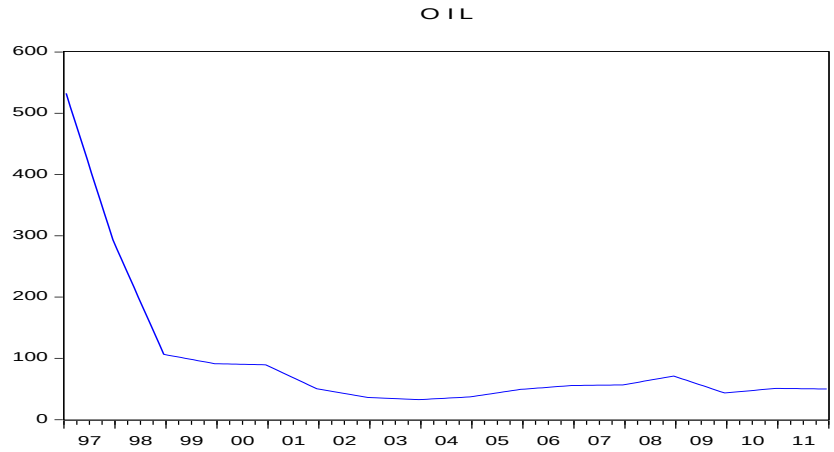

Figure 1.1: Monthly Oil Prices in USD form 1997 to 2011

Iranian revolution, in 1970s, caused the second oil crisis to happen. Iran oil production had been stopped so other countries were producing more to fill the gap. Therefore, oil prices increased from $15.85 p.b. to $39.50 in US market in a short period. In addition, Gulf War caused another disturbance in oil markets during 1990s. Oil prices exploded from $16.10 p.b. to $30 p.b. in August 1990. The last but not the least crisis is the 2000s' when Oil markets experienced a rising from $30 p.b. in 2003 to $147.30 p.b. in July 2008.

All mentioned crises imposed different economies in both macro- and micro- levels. Macro-level has been studied extensively. Hamilton et al (1983) study shows that Gross National Product (GNP) is negatively correlated with oil price fluctuations which triggered the US recession after the World War II. Similar studies over the period 1984-2004 by Guo et al (1996) reveal that Gross Domestic Product (GDP) is negatively affected by oil price fluctuations.

It is worth noting that price changes fluctuations are as one of the accurate assessment methods available to evaluate the rate of information flow in a financial market (Ross, 1989). Therefore, the ability of Oil Price Volatility (OPV) to forecast market volatility is highly precious.

Technically, studies are usually focused on either price levels or returns. Additionally, they are not inclusive of a large number of indices. Driesprong et al. (2008) study has recently investigated the oil price effects on a bigger number of indices than the previous studies. His study extensively looks into the issue that how the oil price fluctuations force stock market to move.

It is worth noting that price changes fluctuations are as one of the accurate assessment methods available to evaluate the rate of information flow in a financial market (Ross, 1989). Therefore, the ability of Oil Price Volatility (OPV) to forecast market volatility is highly precious.

Economically, as demand for oil increases, oil prices rise provided that there would be no changes in oil suppliers. The price increase affects both suppliers and demanders. The latter by increasing the operation costs which leads to less profit and dividends and the former decreasing the consumers income level and their ability to spend on other commodities.

Bashar and Sadorsky (2006) claim that oil prices are more determinant in developing countries' stock markets than in developed ones. Moreover, Park and Ratti (2008) argue that not only the real economy is significantly affected by the extreme changes in oil prices due to consumer behavior, but the results can be also applied to the

world stock markets. Therefore, oil prices evaluation has great importance. It is worth noting that price changes fluctuations are as one of the accurate assessment methods available to evaluate the rate of information flow in a financial market (Ross, 1989). Therefore, the ability of Oil Price Volatility (OPV) to forecast market volatility is highly precious. Economically, as demand for oil increases, oil prices rise provided that there would be no changes in oil suppliers. The price increase affects both suppliers and demanders. The latter by increasing the operation costs which leads to less profit and dividends and the former decreasing the consumers income level and their ability to spend on other commodities. Bashar and Sadorsky (2006) claim that oil prices are more determinant in developing countries' stock markets than in developed ones. Moreover, Park and Ratti (2008) argue that not only the real economy is significantly affected by the extreme changes in oil prices due to consumer behavior, but the results can be also applied to the world stock markets. Therefore, oil prices evaluation has great importance.

1.3 Goal and Contribution of this Thesis

The aim of this study is to find the long term relationship between oil price changes and Istanbul Stock Exchange returns in textile industries.There are a significant number of studies which investigate the impact of oil price changes on economy, however, there are not many researches concerning the combined impacts of oil prices and stock market indices. So, this thesis will analyze the possible mutual connection between Turkish textile industry price index, Istanbul Stock Exchange and world price of oil as an undeniable input for every manufacturing industry. In addition, many of studies are focused on developed countries but this study is

concerned about Turkey which has an emerging stock market (ISE) and has evolved as a major textile exporter to Europe and America.

1.4Structure of Study

The present thesis is organized as follow: Chapter 2 reviews the previous literature and discusses what has been done both theoretically and empirically. The 3rd. chapter introduces ISE and gives a brief summary of its history and operations. Chapter 4 presents the data which is going to be analyzed in this study and the methodology which is going to be employed. Then, chapter 5 summarizes the empirical results and is followed by chapter 6 which discusses conclusions.

Chapter 2

LITERATURE REVIEW

Oil price shocks have affected the world economy since World War II. Therefore, a significant part of the literature has been focused in this area. One can list lots of studies considering the association between petroleum prices, capital markets and the economy either in macro or micro level. In this chapter, a summary of the literature has been reviewed. In addition, hypothetical studies based on the influence of petroleum price shocks on economy and stock markets are reviewed. It is worth noting that price changes fluctuations are as one of the accurate assessment methods available to evaluate the rate of information flow in a financial market (Ross, 1989). Therefore, the ability of Oil Price Volatility (OPV) to forecast market volatility is highly precious. Economically, as demand for oil increases, oil prices rise provided that there would be no changes in oil suppliers. The price increase affects both suppliers and demanders. Moreover, Park and Ratti (2008) argue that not only the real economy is significantly affected by the extreme changes in oil prices due to consumer behavior, but the results can be also applied to the world stock markets. Therefore, oil prices evaluation has great importance.

There has been a growing trend in investigating the relationship between energy prices and stock prices in recent years. Oil price and stock markets researches can be categorized in several subgroups. This chapter presents a summary the previous critical findings for both return and volatility in the relevant literature.

Economically speaking, Hamilton (1983) concludes that the oil prices and macroeconomic variables are moving side by side together. He notifies that Gross National Product (GNP) is negatively correlated with oil price increases which caused recession in American economy during 1948-72.

Hamilton's study is followed by another research done by Kling (1985). He empirically analyzes the relationship between crude oil prices and the stock market for the period of 1973-82. In his study, he investigates the total activity of the stock market and also tries to document the relationships between crude oil prices and stock returns in some industry such as air transport, automobile and domestic oil industries. His findings show that the mentioned industries' stock prices decline significantly by an oil price shock.

The relationship between oil price volatility and stock market has been investigated systematically by Huang, Masulis and Stoll (1996) .In their study, an analysis of daily data of oil future over the period 1979-90 is done which is accompanied by a SP500 index analysis (as a market index for US). They find that except the oil company returns there are not any other significant correlations between oil futures returns and stock markets returns. Moreover, they also employ a VAR model that includes oil price, T-bills and stock volatilities and they conclude that oil price volatility results in petroleum stock index volatility but it does not affect other individual stocks.

Faff and Brailsfold (1999) have focused on Australian industries' equity return. They study the oil shocks impacts on the industry over the period 1983-96 by considering a model consisted of two factors; oil returns and real market returns. The

findings prove that oil price returns have a significant influence on cost expenditures of the tested industries. More specific, oil and diversified resources industries are being affected positively while paper, packaging, transportation and banking industries experience a negative impact.

Sadorsky (1999) study is another significant investigation related to oil volatility. He considers a model which includes oil prices, short term interest rates, industrial production and stock market returns over the period of 1947-96 taken from S&P500. His findings shows that oil prices shocks have a significantly negative impact on stock returns. This paper also analyzes asymmetric greater oil prices negative and shocks caused by volatility. It mentions that positive oil price shocks affect the economy than the ones. In other words, positive affects the production and returns more negative stock powerfully than the one. It is also worth adding that, specifically after 1986, the positive oil volatility interprets a higher proportion of the real stock returns than do the interest rates.

Sari and Soytas (2005) results seem to be different from the literature since oil price shocks do not appear to have significant impact on real stock returns in the Istanbul stock exchange.

In addition, Guo et al (2005) find that future Gross Domestic Product (GDP) is negatively affected by the oil price volatility over the period 1984-2004.Another economic-based study done by Gron warld et al. (2009) evaluates the Their study reveals that oil prices are consisted from numerous factors which lead to a significantly instable economy. In addition, their findings show that all the macroeconomic variables, tested in their study, respond negatively to oil prices fall.

The last but not the least finding is that there is a meaningful relationship between Kazakh oil market and its macroeconomics.

Canadian oil and gas companies' stock returns are investigated in a study by Boyer and Filion (2007). They analyze the financial factors of stock return and conclude that Canadian stock market returns are proportionally related to the profits gained by the Canadian energy stockholders. Similar researches are focused on how crude oil price is responding to the stock market returns movements. Miller and Ratti (2009) notify a long-run relationship during 1971-80 and 1988-99 in OECD countries. They conclude that the stock market indices are also influenced by oil price fluctuations over a long-term period. Zhu et al. (2011) study also covers the stock market reaction to oil prices for OECD panel as well as non-OECD countries. They evaluate the approaches of threshold co-integration to discover whether there is a connection between stock market returns and crude oil shocks. It is worth noting that price changes fluctuations are as one of the accurate assessment methods available to evaluate the rate of information flow in a financial market (Ross, 1989). Therefore, the ability of Oil Price Volatility (OPV) to forecast market volatility is highly precious. Economically, as demand for oil increases, oil prices rise provided that there would be no changes in oil suppliers. The price increase affects both suppliers and demanders. The latter by increasing the operation costs which leads to less profit and dividends and the former decreasing the consumers income level and their ability to spend on other commodities. Bashar and Sadorsky (2006) claim that oil prices are in developing countries' stock markets than in developed ones. the results can be also applied to the world stock markets. Therefore, oil prices evaluation has great importance.

Park and Ratti (2008) research complement the mentioned studies. They examine how oil volatility and price shocks affect stock markets. A broader sample (compared with the previous studies) of thirteen developed countries over the period of 1986-2007 is considered in their study. It is also notable that there is a negative oil price volatility impact affecting most of the tested countries. In addition, they run the same models again by considering the oil price shocks with oil price volatility and then they get that the impact of oil volatility becomes weaker (only significant in 7 out 0f 13 countries).The last point from their study which is worth noting is that asymmetric effects are only revealed in US and no evidence of such asymmetry is reported from European countries.

UK, France, and Japan are studied jointly in an article presented by Aloui and Jammazi (2009). They study the relationship between crude oil market shocks and the corresponding stock market reactions over a period from January 1989 to December 2007. The findings show that a significant role is played by the oil prices to trigger the instability of the stock market returns as well as the possibility of changes through the variance structure.

Eryiğit (2009) evaluates the dynamic relationship among oil price changes and Istanbul Stock Exchange (ISE). He employs the same model as Faff et al (1999) and builds a sample of 16 sectors in ISE over a period of 2004-08. He concludes that oil price affects several industry sectors such as electricity, wholesale, retail, insurance, metal products and etc. In addition, the findings show that some industries such as wood, paper, printing, insurance and electricity are affected positively.

Similarly, Most recently, Arouri and Nguyen (2010) have investigated the relationship between the oil market and stock markets. Their study reveals that the stock returns' responds to oil price fluctuations are based on their dependence on the oil sector.

Gogineni's study (2010) analyzes the impact of oil price changes on stock exchange returns. He suggests that by checking daily oil price changes one could conclude that the return of industries no matter highly or slightly oil-dependent is significantly affected by oil price fluctuations.

Similarly, Lee and Chiou (2011) gathered daily oil trade data from 1992 to 2008 and tested the effects of oil prices on stock exchange indices. They also evaluated the related regulations. Results show that when there is a lack of appropriate regulations, there is a negative relationship between oil prices and stock exchange indices.

2.1 Petroleum Impact on Economic Activity

Hamilton (1983) employs a seven-variable VAR system to analyze how US economy is affected by price shocks. His study reveals that economic recessions are highly related to oil price changes after World War II. It should be noted that one cannot conclude that oil price increases result in recessions, but oil price shocks are correlated with economic recessions and this relationship is statistically significant.

Similarly, Burbidge and Harrison (1984) test a VAR model consisted of seven variables. They plug in Japan the Canada monthly data of 1962 1982 and the results show that oil price movements are significantly considerable in US and UK while it is not significant in Japan, Germany and Canada. Moreover, price levels in US and

Canadian economies are affected in a relatively large extent while this impact is smaller in Japan, Germany and UK.

It is worth noting that price changes fluctuations are as one of the accurate assessment methods available affects both suppliers and demanders. The latter by increasing the operation costs which leads to less profit and dividends and the former decreasing the consumers income level and in developing countries' stock markets than in developed ones. Moreover, Park and Ratti (2008) argue that not only the real economy is significantly affected by the extreme changes in oil prices due to consumer behavior, but the results can be also applied to the world stock markets. Therefore, oil prices evaluation has great importance.

He examines the possible explanations of this result and tried to discuss them either as the problems in determining the sampling periods or in determining the particular VAR equations for the oil price; however, none of these explanations can be employed. His study comes to the point that as oil prices and economic factors are connected in a complicated way so in macro-level this relationship cannot be simply evaluated by oil price fluctuations.

2.2 Oil Prices and Stock Markets

2.2.1 The American Economy

Kling (1985) analyzes crude oil price fluctuations and investigates their relationship with stock market activities initial-stage good, are affected by oil price changes considerably determining the sampling periods or in determining the particular VAR

equations for the oil price; however, none of these explanations can be employed. His study comes to the point that as oil prices and economic.

A test conducted by Jones and Kaul (1996) shows that oil price increases after the war period and this effect influence stock markets of US, Canada, Japan and UK. They investigate the rationality of the stock prices in order to determine whether they are affected by released news about present and future cash flows.

Sadorsky (1999) employs an unrestricted VAR model in order to investigate the relationship between economic variables and oil prices. Economic variables include stock returns and are taken from US data. He decompositions introduces impulse variance and evaluate response in order to functions and interpret the possible relationship between economic variables and oil price shocks. His test is consisted of the following variables: the production rate of industries, interest rate according to Treasury Bills with 3 months maturity, price of oil, stock returns and inflation. Data frequency is monthly from January 1947 till April 1996. Then, he implicates unit root testing and finally tries to find if there exists any long-run relationship. The results show that oil price fluctuations are negatively correlated with real stock returns. Similarly, production industrial rates and interest are related positively with stock real returns.

2.2.2 Other Economies

In the previous section, U.S. and other big economies with large stock exchanges were discussed. A significant part of literature is focused on other countries. For instance, Gjerfgde and Saetghtem (19d99) analyze the macroeconomic between relationship factors and returns stock by Norway implementing a VAR using

multivariate data. They consider eight variables: returns stock, rates interest, production consumption index industrial, , inflation, the industrial foreign OECD production, exchange price rate, and oil. Firstly, they run unit root tests using ADF and PP versions of test and then they build a multivariate auto-regression (VAR) model. The results reveal that oil price fluctuations influence stock market positively while the interest rates effect is vice versa. In a similar research, Maghyereh (2004) investigates twenty-two emerging economies[1] to find the dynamic relationship between oil price shocks and stock market returns between 1998 and 2004. He introduces a proxy variable for oil price which is Brent crude oil price at the end of the day. After conducting unit tests root KPSS of ADF, and, he PP implements the vector auto-regression analysis. Results show that oil price shocks influence market stock returns markets emerging weakly in. Among these 22 countries only four of them (,South Malaysia Korea, Turkey Africa and) are affected by oil price shocks. He suggests that these results reveal that in contrary to previous studies in developed countries, stock markets in some emerging economies are not efficient enough to react as oil price changes. In addition, those countries' stock markets are not rationally affected by crude oil prices.

This chapter obviously shows that there are different approaches toward the subject of study which are varied among markets, countries, industries and employed methodologies.

[1] Argentina, Brazil, Chile, China, Czech Republic, Egypt, Greece, India, Indonesia, Jordan, Korea, Malaysia, Mexico, Morocco, Hungary, Pakistan, Philippines, Poland, South Africa, Taiwan, Thailand, and Turkey

Chapter 3

HISTORY OF BORSA ISTANBUL (BIST)

3.1 Introduction

The Borsa Istanbul (BIST) is the only formal exchange entity registered in Turkey established in April, 2013.In this new framework, Istanbul Stock Exchange (ISE, known also as IMKB), Istanbul Gold Exchange (IAB) and Derivatives Exchange of Turkey (VOB) are performing under the control of a single entity called BIST.

BIST started its operations with an initial capital of ₺ 423,234,000 (US$240 million) and its ownership is distributed as follow (ISE, 2013):

- 49% by Government of Turkey (Planned to be offered for sale in future)
- 41% by IMKB
- 5% by VOB
- 4% IMKB members
- 1% IMKB brokers
- 0.3 % IAB members

In this section of study, a review of the history of Turkish stock market is presented.

Istanbul Stock Exchange, established in 1986, has been the only independent corporation in Turkish economy which trades securities actively. Different types of securities such as bonds, revenue-sharing certificates, private sector bonds, equity, foreign bonds, mortgage-backed certificates and international securities are traded and insured by ISE. Moreover, it is active on workdays from 9:30 a.m. to 12:30 and

continues from 14:00 p.m. to 17:30 p.m. Orders are being sent to the system just after the opening between 9:30 and 9:40.During the opening session a single price call auction is announced. Then, auctions are added continuously and this process lasts up to 12:00 when it is the first session end. The system is off for a 2 hour lunch break. Second session starts working at 14:00 and trading is active until 17:30.

As it is shown in table 3.1, Istanbul Stock Exchange has been actively a member of different organizations:

Table 3.1: ISE Memberships

WFE	World Federation of Exchanges
FEAS	Federation of Euro-Asian Stock Exchanges (ISE founded FEAS in 1995)
FESE	Federation of European Securities Exchanges
ICMA	International Capital Market Association
ECMI	European Capital Market Institute
IOSCO	International Organization of Securities Commissions

ISE Memberships (Source: ISE Website)

The history of securities trading market dates back to the 19th century when a market was established in 1866 during the Ottoman Empire which was known as the Dersaadet Securities Exchange. Dersaadet Exchange attracted lots of European investments and was a favorite destination for European investors. However, by the formal public statement of the Turkish Republic, Istanbul Securities and Foreign Exchange Bourse started its operation under a new law and reorganized a new orientation in capital markets. The foundation of Istanbul Securities and Foreign Exchange Bourse was closely connected to the Great Depression period in 1929 and the effects of the World War II on the Turkish economy. Although these

consequences affected the market greatly, the industrial development in the following decades brought about the increasing trend of establishing joint stock publicly-limited companies. In addition, an organized plan of improvement was employed by the Turkey which was empowered by the legislative and institutional principles in 80's. This plan led to the introduction of new Capital Market Law in 1981. New law was only the beginning of a set of laws stated to reorganize the capital markets.

In 1982, a board, called the Capital Market Board, was founded to set up the Turkish securities market regulations. In order to inspect the securities exchanges, another law was employed in 1983. Finally, the parliament approved the establishment of Istanbul Stock Exchange in 1986 (ISE, 2013).

Turkish economy developments in 80s and 90s boosted all parts of business environment in Turkey. Specially, the liberalization movement affected the structure and the regulations of the financial markets in Turkey. The Decree No.32, enacted in August 1989, was one of the most determining reforms. New regulations attracted many international investors both institutionally and individually by lessening the restrictions which was used to against the capital profits for foreign investors in ISE. Foreign investors increased their investments in equities and the equity investments reached a record level of US$ 15,358 million in December 1999 (ISE, 2013).

Historically, the highest previous level was US$ 1,936 in December 1995, thus this increase represent a new era for ISE. Afterwards, foreign investors' holdings in ISE have increased dramatically from 9.3% of the market capitalization of ISE in December 1995 to 13.4% in December 1999 (ISE, 2013).

The ISE National-100 is the main indicator for showing the operation condition of the national market. This index interprets more than three fourths of the market with respect to the relationship between market capitalization and trading volume. It is worth noting that the ISE National-100 is constituted from the ISE National-50 and ISE National-30 indices. Other available indices could be listed as Shares Sector National-All Index Sector, and Sub- Indices, New Market Economy National Index, ISE Second Index Market and ISE Trust Investment Index.

It is worth noting that the only available option for traders is limit order. ISE tries to keep the post-trade transparency as high as possible, so five prices which are believed to be the best prices are displayed accompanied with the brokers' names on both sides of the market. Similarly, traders cannot send market orders and there are only a few situations when order revisions are allowed. In other words, an order cancellation is not possible where it is not the last order sent to the system. Last but not the least, order prices can be increased but not decreased.

3.2 Markets

In the framework of ISE, there are some main markets which are accompanied with a variety of sub-markets. Basically, four main markets are performing: Stock Market, Emerging Companies Market, Bonds and Bills Market and Foreign Securities Market.

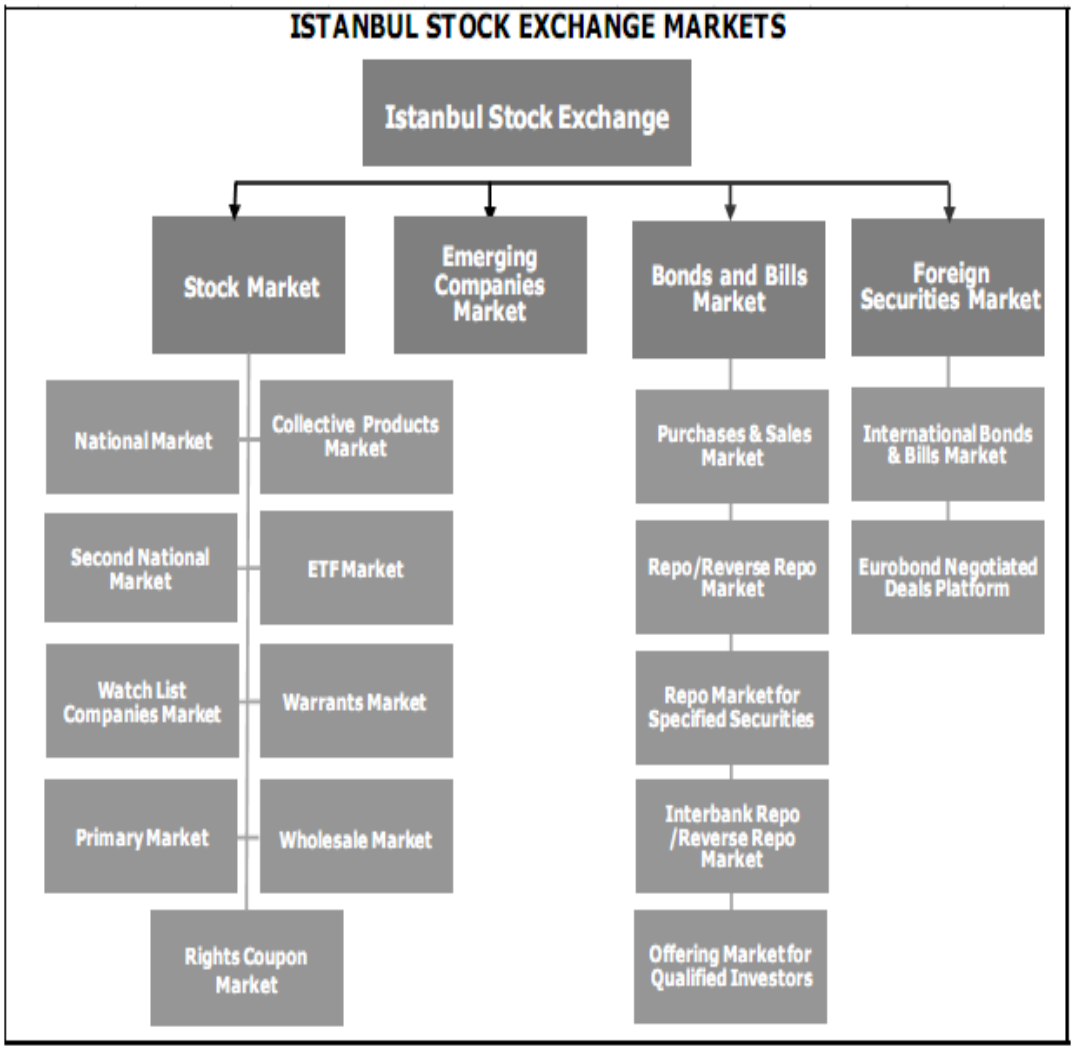

Figure 3.1: Different Types of Markets in Istanbul Stock Exchange

Source: TSPAKB Report of Turkey Capital Markets 2011
Istanbul Stock Exchange Markets

3.3 Trading

Istanbul stock exchange has started performing electronically since 1994. All trades have been done via computer since then. Trading in the main markets is done by auction method which the system matches the buy and sell orders automatically with a time priority. The orders are entered either by stations located at ISE or from the traders offices. It is an anonymous system and is also blind order system with a

T+1identification. Lot is the least possible trading quantity which a stock, right or an ETF can be requested by traders. Each lot is equal to 1 share with a 1 TL par value.

In 2010, CMB has decided to categorize the listed stocks into three groups as follow:

Group A: This category is consisted of equities which are neither B nor C.

Group B: This category includes equities which have a free float market capitalization of not more than TL 10 million and their floating shares are below 10 million.

Group C: These are equities which are listed on the Watch List Market. Usually, the number of free floating shares of this group is less than 250,000. Moreover, investment trusts which are priced more than double of their net asset value are considered in this group. (The Handbook of the Turkish Capital Markets 2011)

3.4 Regulation

One can also investigate the ISE regulations and market laws. For instance, securities which are presenting partnerships have some requirements that can be found in the Regulations of the ISE. These listing requirements are also under the regulation of the Capital Market Law.

Moreover, in order to get a listing of a security, shareholders of the corporation must be more than one hundred and there must be a public offering of at least 15% for the paid-in capital. Firms with less than three years from incorporation date are not allowed to get listing unless more than 25% of the capital is held by more than 100 shareholders, this period will be two years then. There is a board of administration which is responsible to evaluate the financial structure of the firm. In order to

approve a firm's financial structure, it must be at a level which can perform the activities rightly, for instance the company should have had a profit in the recent two years. Companies which are going to list their securities on the Exchange must submit a filled registration form that is consisted of basic information about their financial status, assets and liabilities, loss and profit statements and the attached right to their securities. Further information would be asked by the council in case of vagueness. The executive council has the right to delist the companies from the markets listings if their securities are not demanded in the last three months.

The ISE prepare several publications both in English and Turkish. For instance, one of the publications which is in Turkish is Daily Bulletin, incorporating the day's closing prices, high-low prices, number and volume of traded shares, the weighted average and the median traded prices. These daily bulletins are rounded up in weekly and monthly bulletins. In addition, a monthly bulletin is available in English. Moreover, there are semi-annual, quarterly and annual reports available in both languages. The last but not the least is the Yearbook of Companies which is bilingual, Turkish and English.

3.5 Textile Industry in Turkey

Textile has been known as one of the traditional industries in Turkey. This industry has gained a lot of success in global markets and domestic manufacturers are selling their products to international buyers. Therefore, a low value added production is available in the country.

Textile industry together with ready-made garment industry has a very important position in Turkish economy. Textile industry accounts for 40 percent of Turkish exports, employs about two millions workers, 21 percent of the industrial labor force.

In addition, the textile and clothing sector has a very important share in the total production, employment and exports in Turkey. Turkey is seventh among the countries exporting the most textile products and fourth among the countries exporting clothing in the world.

There are many universities and vocational schools in Turkey that train workers to be employed in this sector. The number of graduates from these schools is over the annual additional personnel need of the sector.

Textile companies are actively involved in the stock markets. There are many textile industries which offer different types of equities in Borsa Istanbul. As they hold high market capitalizations, their changes could affect the market significantly.

In this chapter, the ISE history was reviewed and a summary of structure and transactions in the ISE was shown. The Istanbul Stock Exchange was founded when Turkish economy was experiencing fundamental reforms and the development of the ISE resulted in development of Turkish economy. Different sectors are active in the ISE and they are affected by the market changes. In the subsequent chapters of this thesis, there are some questions to be answered about the impacts of oil price changes on the ISE textile listed companies.

Chapter 4

DATA AND METHODOLOGY

4.1 Type and Data Sources

This study uses monthly data for the period of 1997 to 2011. Variables which are investigated here are Textile Price Index, Istanbul Stock Exchange Index and Oil Price. Oil prices are extracted from statistical BP review of energy world published on June 2012. In addition, Istanbul Stock Exchange Index and Textile Price Index data are gathered from ISE website. Finally, it is important to notify that all data variables are converted into natural form in order logarithmic to Katırcıoğlu capture growth effects.

4.2 Methodology

This study employs three econometrics analyses to investigate the relationship within the mentioned variables. Firstly, Unit Root Tests are applied to test whether the variables have unit roots or not. In order to perform this stage, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are implemented. Afterwards, Co-Integration Tests are done to capture the possibility of long-time relationship between variables. For this purpose, Johansen and Juselius (1990) tests are employed.

4.2.1 Empirical Model

Many researchers have studied the impacts of oil shocks on stock market indices and they have employed different types of econometric analyses. This study is going to

investigate whether the oil price shocks affect the textile industries' indices which are listed on ISE or not. Hence, a functional relationship is suggested as below that may exist between variables in either two forms:

Textile = f (ISE, Oil) (1)

ISE = f (Oil, Textile) (2)

Where textile index (Textile) is a function of ISE index (ISE) and oil price (Oil).

It is worth noting that these models have been employed in the related literature. For instance, Kling's study (1985) has employed models such as above to investigate the relationship between oil prices and stock market behavior. In addition, Sadorsky (1999) has also used the similar models to study the oil price shocks and stock market activity. Therefore, we employ these models in order to investigate the relationship between oil prices shocks and Istanbul Stock Exchange behavior.

As mentioned earlier, logarithmic form helps us to capture growth impacts. Therefore, the functional relationships in the above equations can be presented in logarithmic form as bellow:

$$\ln \text{Textile}_t = \beta_0 + \beta_1 \ln \text{ISE}_t + \beta_2 \ln \text{Oil}_t + \varepsilon_t \quad (3)$$

$$\ln \text{ISE}_t = \beta_0 + \beta_1 \ln \text{Oil}_t + \beta_2 \ln \text{Textile}_t + \varepsilon_t \quad (4)$$

Where all variables are measured at period t and $\ln Textile_t$ is the natural logarithm of textile index, $\ln ISE_t$ is the logarithm natural of Stock Istanbul index Exchange and

ln Oil_t presents the natural logarithm of oil price. In addition, ε_t presents the error term. β_1 and β_2 are elasticities of ISE index and oil price respectively.

4.2.2 Unit Root Tests

While one is running a regression, he should be very careful about the variables in terms of being stationary or non-stationary otherwise the result will be a spurious regression. A spurious regression is highly misleading and causes false insights about the level of relationship among the parameters. Since we are aware of this problem, we should check the order of integration of our variables.

There are different types of unit root tests available in E-views. In this thesis, the Augmented Dickey–Fuller (ADF) test (Dickey and Fuller, 1979) the Phillips–Perron (PP) test (Phillips and Perron, 1988) are employed to investigate whether the series are stationary or not. In the following, these two unit root tests are discussed in detail by presenting the regression equations on which they are based.

- Augmented Dickey-Fuller (ADF) regression:

$$\Delta y_t = a_0 + \lambda y_{t-1} + a_2 t + \sum_{i=2}^{p} \beta_j \Delta y_{t-i-1} + \in_t \qquad (5)$$

Where y is the; t represents are trend; a stands for series intercept; ε_t = White Noise and p is the lag errors level. To make suggested sure Information that the in Akaike white noise type, it is to select the Gaussian number of lags or "p" by taking AIC (Criteria) into consideration (Katırcıoğlu et al., 2007). It is worth noting that over-

loading of estimated parameters to the model can result in the reduction of degrees of freedom so the test is not powerful anymore and can result in misleading inferences.

Unit root tests use t-statistics to check whether λ is significant or not. In order to test this, the null hypothesis is that the series is non-stationary (H_0 : λ=0). Both tests follow this rule. So, if we can reject the null hypothesis, it means that λ is statistically significant. On the other hand, if we cannot rejectH_0, then it is suggested that we should try the first difference of the series to see whether it is stationary or not. Therefore, to sum up, the series is actually tested by t-statistics. If the absolute value of the t-statistics for λ is larger than the absolute critical value, it represents that the series is stationary.

The series is either stationary or non-stationary. In econometrics literature, stationary series are called $I\ (0)$ and non-stationary series are called$I(n)$. $I(0)$ means that the series is stationary at the level form. $I(n)$ means that the series is not stationary at level form but if we take the $n^{th.}$ difference of the series, the series will become stationary. For instance, $I(1)$ means that the series is stationary at first difference.

In the process of testing the unit roots, researchers may fall in a trap of unknown data generating process. So, it is suggested that unit root tests be applied from the most general form or in other words the model with intercept and trend (Doldado, Jenkinson and Sosvilla-Rivero, 1990).The researcher has to be careful about the consequences of an inappropriate denying of a model with drift and trend otherwise the test consistency will be under question (Campbell and Perron, 1991). Similarly, it is shown in Enders study (1995) that these inappropriate tests can lead to the wrong outcomes.

PP test is known as a complementary of ADF test. Phillips-Perron test considers a new parameter which is called bandwidth introduced by Bartlett Kernel. PP test modifies the t-statistics of the coefficient from AR(1) in order to consider the serial correlation in ε_t (Katırcıoğlu et al., 2007). Therefore, the only difference between two mentioned unit root tests is in their method of dealing with serial correlation. So, it is suggested that PP test appears more robust according to serial correlations and time-dependent heteroskedasticity (Serletis, 2007).

4.2.3 Co-integration Tests

Unit root tests provide a comprehensive understanding of the variables which helps us to know the orders of integrations. When the variables are in the same order (unit test outcomes), a co-integration test is applicable. Hence, the co-integration test gives a validation of whether the variables have a long-run relationship or not. In this study, Johanson (1992) approach is employed to test the co-integration. This test is only applicable in the case that the variables are in the same order of integration. Trace statistics which is presented as an outcome of the test represents the number of co-integrating vectors or in other words relationships. The minimum vector requirement in order to have a co-integration relationship is one. Eigen-value is also reported in the test results but this indicator is not as reliable as the trace statistics (Katırcıoğlu et al., 2007).

The Johansen method is known as a contemporary method which results in more accurate outcomes than Engel and Granger (1987) approach. In addition, Johansen has a powerful potential which can regress a dependent variable regressors on a group of. The VAR model of this model can be presented as the following:

$$X_t = \Pi_1 X_{t-1} + \ldots + \Pi_K X_{t-K} + \mu + e_t \qquad (\text{for } t = 1, \ldots T) \tag{6}$$

Where $X_t, X_{t-1}, \ldots, X_{t-k}$ are representing the vectors of co-integration equations. In addition, π_1, π_2 , …, π_k parameters are coefficient matrices with P*P dimensions; μ shows the intercept vector and finally e_t is also a vector which catch random errors (Katırcıoğlu et al., 2007).

Supposedly, error terms do not have serial correlation and the number of lagged values is defined by this assumption. The number of co-integrating vectors determines π ranking. This process is done by the significance test of Eigen values (λ_i). Trace statistics can be drawn by using Eigen values which can be computed by the following equation:

$$\lambda_{trace} = -T \sum Ln(1 - \lambda_i), \; i = r+1, \ldots, n-1 \tag{7}$$

Null Hypotheses:

H_0: v = 0 H_1: v ≥ 1

H_0: v ≤ 1 H_1: v ≥ 2

H_0: v ≤ 2 H_1: v ≥ 3

4.2.4 Error Correction Method

When co-integration test or Johansen test certifies that series are co-integrated, error correction models (ECM) are helpful in finding the short-term associations. ECMs

are established on a basis that series are deviated from equilibrium only in short runs and they will behave correctly in the long run. Moreover, there are error correction terms for co-integrating vectors. In the absence of co-integration, Vector Autoregression (VAR) system can be employed to capture the short run effects. In other words, when there is not any co-integrating vector, there is not definitely any error correction term.

As Johansen test results show, the variables in this study are co-integrated. Therefore, the difference between the long run and short run levels of variables can be captured by introducing a vector error correction model.

When co-integration exists between variables, VECM (Vector Model Correction Error) will be established. This model identifies the -run deviation series short of variable form their long equilibrium -run (Narayan Smyth and, 2004). The following equations show the co-integration VECMs:

$$\Delta \ln Y_t = \alpha_0 + \phi_{11}^{p}(L)\Delta \ln Y_t + \phi_{12}^{q}(L)\Delta \ln X_t + \delta ECT_{t-1} + \mu_{1t} \quad (8)$$

$$\Delta \ln X_t = \alpha_1 + \phi_{21}^{p}(L)\Delta \ln X_t + \phi_{22}^{q}(L)\Delta \ln Y_t + \delta ECT_{t-1} + \mu_{2t} \quad (9)$$

Where:

$$\phi_{11}^{p}(L) = \sum_{i=1}^{P_{11}} \phi_{11,i} L^i \qquad \phi_{12}^{p}(L) = \sum_{i=0}^{P_{12}} \phi_{12,i} L^i$$

$$\phi_{21}^{q}(L) = \sum_{i=1}^{Q_{21}} \phi_{21,i} L^i \qquad \phi_{22}^{q}(L) = \sum_{i=0}^{Q_{22}} \phi_{22,i} L^i$$

Econometrically, Δ represents the operator of difference and L represents the operator of lag. In addition, (L)Δ = Δ -1. ECTt lnYt lnYt -1 is denoting the correction error term which is lagged. There are also μ_{1t} and μ_{2t}variables which are known are independent random errors which are serially correlated and have a zero mean with a finite covariance matrix. It is also worth noting that when ECT_{t-1} terms in equations (8) and (9) are statistically significant, the dependent variables have an approach to a finite limit which is the long-run relationship. Moreover, coefficients of the ECM models are representing short-run terms.

Chapter 5

EMPIRICAL RESULTS

5.1 Unit Root Tests

As mentioned in the methodology chapter, all variables have to be tested in order to determine that they are stationary or not. ADF and PP tests are employed and all variables should be tested in level and first difference form. Unit root test results are shown in Table 5.1.

Table 5.1: ADF and PP Tests for Unit Root

Statistics (Level)	ln Textile	Lag	ln Oil	Lag	ln ISE	lag
τ_T (ADF)	-2.84	(1)	-2.99	(1)	-2.48	(0)
τ_μ (ADF)	-1.47	(1)	-3.47	(1)	-2.07	(0)
τ (ADF)	1.11	(0)	-1.34	(1)	1.69	(0)
τ_T (PP)	-2.91	(4)	-2.97***	(9)	-2.61	(5)
τ_μ (PP)	-1.45	(3)	-4.53	(10)	-2.06	(4)
τ (PP)	1.00	(3)	-2.64	(10)	1.62	(4)
Statistics (First Difference)	Δln Textile	Lag	Δln Oil	Lag	Δln ISE	lag
τ_T (ADF)	-12.03*	(0)	-3.31**	(0)	-13.65*	(0)
τ_μ (ADF)	-12.07*	(0)	-2.83**	(0)	-13.56*	(0)
τ (ADF)	-12.01*	(0)	-2.69*	(1)	-6.42*	(2)
τ_T (PP)	-12.04*	(2)	-3.31**	(1)	-13.64*	(1)
τ_μ (PP)	-12.07*	(2)	-2.81**	(1)	-13.56*	(4)
τ (PP)	-12.03*	(3)	-2.65	(2)	-13.35*	(5)

Notes: Ln Textile represents monthly price index of textile industry; Ln Oil is monthly world oil price; Ln ISE is monthly index of Istanbul Stock Exchange. τT represents the without trend; τ is the most restricted model the most general to the least specific model by eliminating trend and intercept across the models (See Enders, 1995: 254-255). *, ** and *** denote rejection of the null hypothesis at the 1%, 5% and 10% levels most general model with a drift and trend; $\tau\mu$ is the model with a drift and respectively. Tests for unit roots have been carried out in E-VIEWS 7. without a drift and trend. Numbers in brackets are lag lengths used in ADF test (as determined by AIC set to maximum 3) to remove serial correlation and PP tests, unit root tests were performed in the numbers residuals. When using PP test, in brackets represent Newey-West Bandwith (as determined by Bartlett-Kernel). Both in ADF from

Econometrically, unit roots outcomes show that variables are not stationary because t-statistics of ADF and PP tests are less than critical values to reject the null hypothesis (H_0: The variable has unit root.) So, when the tests are repeated at first difference, this time the values are great enough to reject the null. Therefore, it can be said that ln Textile, ln Oil and ln ISE are stationary at their first difference or simply they are I(1).

5.2 Co-integration Analysis

When all variables are non-stationary, there is a possibility of long-run relationship between those variables. In order to test where this relationship exists or not, Johansen co-integration test is so helpful. However, Johansen test applies only where all variables are integrated by the same order of difference. The variables which are investigated in this study are all $I(1)$. In this study, there are two proposed models:

$$\ln \text{Textile}_t = \beta_0 + \beta_1 \ln \text{ISE}_t + \beta_2 \ln \text{Oil}_t + \varepsilon_t$$

$$\ln \text{ISE}_t = \beta_0 + \beta_1 \ln \text{Oil}_t + \beta_2 \ln \text{Textile}_t + \varepsilon_t$$

So, Johansen test is conducted in both models and the results are presented in Table 5.2.Johansen test results are consisted of two null (H_0) hypotheses. First one indicates that there is not any co-integration vector while the other one states that the co-integration vectors are less than or equal to one.

Test results show that trace statistics for the first hypothesis (H_0 : r=0) is greater than critical values both in 5% and 1% confidence intervals. So, this null hypothesis is rejected or in other words it states that there should be at least one co-integration vector. This situation exists for both proposed models. Therefore, according to the

Johansen co-integration test results, it is suggested that there is a long-run relationship between dependent and independent variables in both models. In other words, this long run relationship suggests that stock market movements, both ISE index and Textile price index, are periodically interacted with oil price movements. These findings are parallel with Kling's findings (1985).

Table 5.2: Co-integration Tests using the Johansen (1988) and Johansen and Juselius (1990) approach

Variables	Trace Statistic	5% Critical Value	1% Critical Value
(1) logTextile = f (logOil, logISE)			
H_0: r = 0	37.76*	29.68	35.65
H_0: r ≤ 1	16.64*	15.41	20.04
(2) logISE = f (logOil, logTextile)			
H_0: r = 0	37.76*	29.68	35.65
H_0: r ≤ 1	16.64*	15.41	20.04

Notes:

1. r denotes the of co- number vectors and * denotes integrating rejection of null hypothesis at the 5% level.

2. Akaike Criterion Information (AIC) and Criteria (SC) were order used to select the number of lags required in the co-integration test. Both gave the same Schwartz level of lag.

5.3 Error Correction Model Estimation

When variables are co-integrated, there is a long-run relationship between variables. Co-integration results show that there are long-run vectors for both proposed models. Therefore, it is necessary to determine the coefficients of the models and error correction models. The former is needed to determine the short term relationship while the latter is needed to estimate the error correction term (ECT). The following tables (Table 5.3 and 5.4) represent the level equation and error correction model results.

Table 5.3: Error Correction Model (First Model)

Cointegrating Eq:	CointEq1
LTEXT(-1)	1.000000
LOIL(-1)	0.210424
	(0.11459)
	[1.83628]
C	-9.281725
Error Correction:	**D(LTEXT)**
CointEq1	-0.197728
	(0.03477)
	[-5.68719]
D(LTEXT(-1))	0.112600
	(0.07300)
	[1.54238]
D(LTEXT(-2))	0.077626
	(0.07342)
	[1.05733]
D(LTEXT(-3))	0.075608
	(0.07168)
	[1.05473]
D(LTEXT(-4))	0.050323
	(0.07220)
	[0.69700]
D(LTEXT(-5))	-0.11605
	(0.07288)
	[-1.59228]

Table 5.3 (Continued)

Error Correction:	D(LTEXT)
D(LTEXT(-6))	0.145551
	(0.07605)
	[1.91388]
D(LTEXT(-7))	0.073925
	(0.07713)
	[-0.66068]
D(LOIL(-3))	-1.020258
	(1.00323)
	[-1.01697]
D(LOIL(-4))	-0.307421
	(0.98693)
	[-0.31149]
D(LOIL(-5))	-0.358343
	(0.98087)
	[-0.36533]
D(LOIL(-6))	1.611269
	(0.98270)
	[1.63964]
D(LOIL(-7))	-0.690374
	(0.75124)
	[-0.91898]
C	-1.261439
	(0.23724)
	[-5.31708]
LISE	0.127452
	(0.02363)
	[5.39466]
R-squared	0.256385
Adj. R-squared	0.179625
Sum sq. resids	2.215724
S.E. equation	0.119562
F-statistic	3.340077
Log likelihood	130.2073
Akaike AIC	-1.316364
Schwarz SC	-1.005274
Mean dependent	0.012433
S.D. dependent	0.132004

Table 1.4: Error Correction Model (Second Model)

Cointegrating Eq:	CointEq1
LISE(-1)	1.000000
LOIL(-1)	-0.101217 (0.63991) [-0.15817]
LTEXT(-1)	1.193475 (0.65340) [1.82657]
C	-19.33313
Error Correction:	**D(LISE)**
CointEq1	-0.023307 (0.00750) [-3.10742]
D(LISE(-1))	-0.212264 (0.13506) [-1.57160]
D(LOIL(-1))	0.657835 (0.42959) [1.53132]
D(LTEXT(-1))	0.232168 (0.13965) [1.66249]
C	0.029546 (0.01150) [2.56934]
R-squared	0.061009
Adj. R-squared	0.039298
Sum sq. resids	3.008484
S.E. equation	0.131871
F-statistic	2.810069
Log likelihood	110.5798
Akaike AIC	-1.186290
Schwarz SC	-1.096914
Mean dependent	0.019435
S.D. dependent	0.134542
Determinant resid covariance (dof adj.)	
Determinant resid covariance	
Log likelihood	
Akaike information criterion	
Schwarz criterion	

Different lag levels must be conducted, so in this thesis different lag levels are each proposed model. Results show that short-term coefficients are not statistically significant at all levels of α. Hence, the results can be categorized and discussed as below:

a. Model : $Textile = f\ (Oil, ISE)$

It can be inferred from this model ECM test that if oil price increases by 1%, textile price index increases by %0.2104 in the long-run. It is shown in Table 5.3 that error correction term (ECT) is -0.1977 which is statistically significant at 1% confidence interval. In other words, it states that short run values of textiles are converging to its long run equilibrium level by the adjustment speed of 19.77% per month by the contribution of the oil price. Economically, this adjustment speed is defined significant and is relevant with what is expected. (See Gujarati, 2003)

b. Model: $ISE = f\,(Oil,\ Textile)$

According to the table 5.4, the results show that, in the long-run, the oil price impact is not statistically significant while the textile price index is significant. It can be interpreted as 1% increase in the textile price index leads to 1.1934% increase in ISE index. In addition, oil prices do not affect ISE index in short-run. It is worth noting that the short run values of the ISE index is converging to its long run equilibrium level by the adjustment speed of 2.33% per month by the contribution of the textile price index. Although APT model suggests that macroeconomic factors impact stock returns effectively, this study's results reveal that ISE index is not affected by oil price not only in the long run but also in the short run. Istanbul Stock Exchange real

returns are not dependent on oil price shocks. Our results are parallel with Saru and Soytas finding (2005).

Chapter 6

CONCLUSIONS AND POLICY IMPLICATIONS

6.1 Conclusions

This research has concentrated on the empirical relationship between oil price shocks, Istanbul Stock Exchange index and Textile price index in Turkey which nowadays is recognized as an emerging economy. Two models are proposed in this research, so the results should be interpreted by analyzing both models' results.

First model ($\text{Textile} = f(\text{Oil}, \text{ISE})$) results suggest that oil price is in long run equilibrium with textile price index. Moreover, oil price values contribute to the adjustment of the long run equilibrium by the speed of 19.77% per month. The coefficient of `ISE index` is also statistically significant in the short run. The second model ($\text{ISE} = f(\text{Oil}, \text{Textile})$) also confirms that oil prices are in long term relationship with BIST stock index in general. However, ISE index is not heavily dependent on oil price changes. Speed of adjustment in this model is lower than that of the first model (2.33%).

Results of this present study reveal that oil prices exert higher impact on textile stock returns in Turkey compared to the overall stock returns. It is seen that stock returns are significantly affected from oil price changes in the world. This finding is important in the sense that Turkey is also a textile-exporter country; therefore, movements in international prices (including oil) will have significant impact on stock performances, therefore, investments and production volume in this sector.

This will also have an important impact on export performance of textile from Turkey. We believe that this finding can be helpful for mangers and investors in deciding how to diversify their portfolios.

At first glance, it might seem logical that higher oil price might negatively affect stock prices because the corporate earnings would be decreased. But it should be noted that a higher oil price in an oil importing country such as Turkey could be a sign of Turkish textile sector, or more widely economy, boom. Therefore, there is a long run relationship between oil prices and textile price indices. This relationship can be interpreted as the textile industry is in a boom in Turkey. Higher textile price index in the presence of higher oil price can be either because of a higher quality of business performance or because of higher demand in textile industry. On the other hand, negative shocks (if they exist) can be interpreted as the textile low quality of business performance or a lower demand in textile industry. In summary, the buyers prefer to buy from Turkish companies even in the time of high oil prices because they believe that they have a higher quality in their business than other competitors. In addition, the findings of this study showed that ISE index is not affected by the oil price shocks extremely because the oil price coefficient is not statistically significant.

6.2 Policy Implications

Turkey has been known as an emerging economy which has experienced lots of economic and political changes. By the beginning of 2000s, Turkey has successfully managed to maintain a certain level of stability in economic environment. Therefore, a pleasant political stability has helped a lot to adjust economic development and growth effectively. Textile industry is one of the most revenue generators in Turkish economy, so the sustainable development of this sector should be taken into account.

This study suggests that Turkey should continue its high quality of business performance in order to guarantee customers' satisfaction and loyalty. In this case, oil price shocks cannot affect textile industry even if there is an increase in oil prices. Hence, increasing R&D investments may be a possible policy implication by Turkey.

Moreover, Turkey can learn from its textile industry and develop other sectors as well. They have been exporting textile products all over the world successfully, so they can apply their policies in this sector to the other sectors. Therefore, Turkish economy will be more and more developed.

Finally, the results of this study show that textile industry price index affects ISE index significantly and this impact is positive. Firstly, the sustainable development of textile industry leads to a higher price index and consequently in a higher ISE index, ceteris paribus. Secondly, Turkey can implement some policies to reduce the dependence of industrial companies and especially high energy-intensive companies on oil in order to decrease the oil price shocks impacts.

REFERENCES

Burbidge, J., and A. Harrison. (1984). Testing for the Effects of Oil-Price Rises Using Vector Autoregression. International Economic Review 25: 459-484

Dickey, D. and Fuller, W. A. (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root, Econometrica, 49, 1057-1072

Eryiğit, M. (2009). "Effects of Oil Price Changes on the Sector Indices of Istanbul Stock Exchange.", International Research Journal of Finance and Economics.25: 209‐216.

Gjerde, Oystein and Saettem, Frode (1999). Causal relations among stock returns and macroeconomic variables in a small, open economy. Journal of International financial market, Institutions and Money 9:61-74

Gujarati, D. N. (2003). Basic Econometrics, 4th edn (New York: McGraw-Hill International).

Hamilton, J.D.(1983). Oil and the Macroeconomy since World War II. Journal of Political Economy 91:228-248

Hooker, M.A. (1996). What happened to the Oil price-Macroeconomy Relationship. Journal of Monetary Economics 38: 195-213

ISE (2013), Foreign Portfolio Investments in Turkey, http://www.ise.org/foreign-/portfolio.htm.

ISE (2013), ISE Monthly Bulletin, February 2002, http://www.imkb.gov.tr/aylik-bulten/subatbulten.htm.

Johansen, S. (1988). Statistical Analysis of Co-integration Vectors, Journal of Economic Dynamics and Control, 12, 231-254.

Jones, C.M., and G. Kaul (1996). Oil and the Stock Market", Journal of Finance 51:463

Kling, John L (1985). Oil price shocks and stock market behavior. Journal of Portfolio Management 12(1)

Köksal, B., (2012). An Analysis of Intraday Patterns and Liquidity on the Istanbul Stock Exchange, Central Bank of Turkey.

Maghyereh, Aktham (2004). Oil price shocks and emerging stock markets: a generalized VAR approach. International Journal of Applied Econometrics and Quantitative Studies 1(2) 27- 40

The Handbook of the Turkish Capital Markets 2011

Sadorsky, P., (1999). "Oil Price Shocks and Stock Market Activity." Energy Economics 21, 449-469.

Sari, R., Soytas, U. (2005). "The relationship between stock returns, crude oil prices, interest rates, and output: Evidence from a developing country. The empirical economics letter 5 (4), 205-220