The Relationship Between Stock Market Performance and Its Liquidity

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ABSTRACT

This thesis examines the macroeconomic determinants of stock market performance in Turkey during the period 1990-2019. Specifically, it examines the impact of gross domestic product, exchange rate, inflation and stock market liquidity on the performance of Turkish stock market. Currently, while theoretical and empirical literature revealed diverse views on the relationship between each determinant and stock market performance, no studies have been conducted with particular reference to the Turkish stock market given the significant role the Turkish market plays in the world. This thesis enriches existing literature by investigating the macroeconomic determinants of stock market performance in Turkey using the Johansen cointegration and VECM testing procedure. The results find that all our independent variables have a positive long-run impact on Turkish stock market performance. This thesis recommends that Turkish government has to sharpen the public expenditures through further investments. The Government of Turkey must attempt to keep its inflation rates at a stable level. Furthermore, the pivot of this thesis hovered around market liquidity therefore, having "larger capital markets" as well as allowing for "more technological innovation in trading" will contribute to intensification of the market liquidity which in turn can hone the Turkish stock market performance.

Keywords: Stock Market Performance, Gross Domestic Product, Inflation, Stock Market Liquidity, Exchange Rate, Turkey.

ÖZ

Bu tez, 1990-2019 döneminde Türkiye'deki borsa performansının makroekonomik belirleyicilerini incelemektedir. Spesifik olarak, gayri safi yurt içi hasılası, döviz kuru, enflasyon ve borsa likiditesinin Türk hisse senedi piyasasının performansı üzerindeki etkisini incelemektedir. Şu anda, teorik ve ampirik literatür her bir belirleyici ile borsa performansı arasındaki ilişki ile ilgili farklı görüşler ortaya koyarken, özellikle Türk borsasına atıfta bulunan herhangi bir çalışma yapılmamıştır. Bu çalışma, Johansen eşbütünleşme ve VECM test prosedürünü kullanarak Türkiye'deki borsa performansının makroekonomik belirleyicilerini araştırarak mevcut literatürü zenginleştirmektedir. Sonuçlar, tüm bağımsız değişkenlerimizin uzun vadede olumlu bir etkiye sahip olduğunu bulmuştur. Bu tez, Türk hükümetinin daha fazla yatırım yaparak kamu harcamalarını keskinleştirmesi gerektiğini önermektedir. Türkiye Hükümeti enflasyon oranlarını istikrarlı bir seviyede tutmaya çalışmalıdır. Ayrıca, bu tezin ekseni piyasa likiditesi etrafında şekillenmiştir, bu nedenle, "daha büyük sermaye piyasalarına" sahip olmanın yanı sıra "ticarette daha fazla teknolojik yeniliğe" izin verilmesi, piyasa likiditesinin yoğunlaşmasına katkıda bulunarak Türk hisse senedi piyasası performansını artıracaktır.

Anahtar Kelimeler: Menkul kıymetler borsası performansı, gayri safi yurt içi hasıla, enflasyon, borsa likiditesi, döviz kuru, Türkiye.

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LIST OF ABBREVIATIONS

ADF   test Augmented Dickey-Fuller test

AIC   Akaike Information Criteria

BIST   Borsa Istanbul stock exchange

EX   Exchange rate

ECM   Error Correction model

FDI   Foreign Direct Investment

INF   Inflation

ISE   Istanbul Stock Exchange

KPSS   Kwiatkowski, Phillips, Schmidt, and Shin

GDP   Gross Domestic Product

PP   test Phillips-Perron test

ST   Stock Traded

VAR   model Vector Auto Regressive model

VECM   Vector Error Correction Model

Chapter 1

INTRODUCTION

For several years scientific research at the academic level has centered on the relationship between economic activity and its power has developed the financial sector. This work was concentrated on the growth of economic activity and financial markets, including the study of Schumpeter (1911) which pinpoints the positive association between economic prosperity and financial circumstance. The objective of all this work is simply to study the impact of economic changes and market performance on the prices of different stocks at the stock market level. The performance of financial systems is measured through their ability to provide adequate financial indicators and financial information, mobilize resources and help manage other factors of production. A sound financial system will serve on the one hand to improve production and on the other hand the productivity of the market which, in turn, serve to create job opportunities and decrease the unemployment rate (economic impact).

The financial market is considered to be an essential body within the financial system at the global level, no one can neglect the impact of a good financial market within a developed economy. It serves to mobilize capital from different investors in different sectors. Therefore, the best place for investors to generate gains through investment in the shares of different listed companies and at the same time provide a hedge against possible losses due to inflation (North and Charles, 2011). It also represents several

critical indicators to analyze various issues, including the economic stability of the country in question. The latter directly and positively influences the share prices which in turn acts directly on stock market indicators.

The stock market is very active in terms of transaction volumes in developed countries compared to less developed countries as stock exchanges in developed countries have a greater participation in terms of listed companies compared to less developed countries. This participation makes market more dynamic and encourages citizens to invest their money in financial markets. Unlike less developed countries, where the volume of transactions is relatively low due to the limited number of listed companies. It has been noted that inflation and the state budget deficit, as well as the exchange rate evaluation, impact the macroeconomic stability that discourages investors from investing and depositing their funds in the financial markets. Studies have been carried out and have shown a positive correlation between the development of financial markets and economic growth after defining GDP as a control variable, as in the study by Levine (1996) or that of Sharma and Wongbangpo (2002), which showed the influence of interest rates on the financial market.

An asset is characterized as liquid when it is quickly negotiable into effective money. In the same way, a financial market is liquid when it contains a large number of buy and sell orders at several different prices and with low volatility. It is also the market's ability to trade a large volume of stock with the most fable impact on prices. Liquidity has been defined by Lybek (2002) in 5 essential dimensions which are narrowness, immediacy, depth, extent and resilience. This definition was taken up by O'Hara (2004), adding that each dimension is a field of research in its own right at the academic level. The high level of liquidity leads to high volatility in the financial

market, which can lead to losses for investors because each transaction carried out can lead to a very significant change in share prices, which can aggravate the investor's loss.

This thesis deals with the issue of the stock market performance in Turkey which is growing and developing year after year and provides a great opportunity for investors to earn remarkable profits. The benchmark index of Turkey's stock exchange Borsa Istanbul (BIST) showed its best January performance in the last 22 years amid rising risk appetite in global markets with the beginning of the New Year. The BIST 100 Index increased by 14.03 percent in 2019 and closed the month at 104,074 points. This increase marked the BIST 100's best performance since January 1997 when the index rose by 64.5 points (Borsa Istanbul).

With the beginning of 2019, the hunger risk rose as the U.S. Federal Reserve (Fed) kept up its timid tone, provoking a progression of assets to create markets. With the help from the Central Bank of Republic of Turkey's (CBRT) solid accentuation that it will keep up a tight money related strategy, the BIST 100 Index maintained its upward pattern and tried 106,000 focuses level, later withdrawing to 104,000 level on benefit deals.

On a monthly scale, each of the 21 sectorial files aside from transportation posted additions in January, with communication leading with a 20.42 percent increase. It was followed by holdings and investment with 18.76 percent and metal ware and machinery with 18.42 percent. The financial record, which shed 31.30 percent in esteem in the midst of increasing loan costs and drooping Turkish lira in 2018, increased 17.28 percent in January. Transportation was the main list that furious

speculators with a 1.27 percent retreat. Among the developing markets, BIST 100's performance was only surpassed by Argentina with an average rise of 20 percent and was followed by Russia at 13.64 percent (Borsa Istanbul).

A stock market is viewed as a liquid market when it has various buy and sell orders at different costs, the expense of transactions is insignificant, and the price volatility is low. This research aims to investigate the relationship between the stock market performance and its liquidity for the case of Turkey, data are be collected from Thompson Reuter's DataStream between 1990-2019, using time series analysis technique. The determinants of the stock market performance are exchange rate (USD), gross domestic product (constant 2010 US$), inflation (consumer price), Stocks traded total value (% of GDP).

Due to the lack of literature about the relationship between stock market performance and its liquidity to address the relationship between these two variables to contribute to a better understanding of the impact of stock market liquidity on its performance for the case of Turkey from 1990 to 2019. This study concentrated on the macroeconomic determinants of stock market performance in Turkey during the period 1990-2019. This study was meticulous on this period since, beyond the chosen period could challenge the preciseness and correctness of compiled data as, some required data was not simply available nor some indicators which were selected for this study, had been employed beyond that period.

The structure of this work as follow: chapter 1 explains the main purpose as well as the objectives and importance of the thesis. Chapter 2 represents detailed discussion of the theoretical and empirical literature. Chapter 3 reviews historical background of

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Turkish stock market and its current situation. Chapter 4 comprises the data and methodology used for this thesis. Chapter 5 indicates empirical findings of the analysis. Chapter 6 discusses conclusion and some policy recommendations.

Chapter 2

LITERATURE REVIEW

2.1 GDP and functionality of stock exchange

Indubitably, the contribution of stock market to economic prosperity has been praised simply due to the fact that it has substantial impact on economic units and other financial parameters which collectively, can lead to economic development within a country. Hence, in order to sustain the dynamic role of stock market, its functionality must be measured. It is indeed the optimal way to diagnose the factors behind its functionality and the scope of its influence; two determinants which can sharpen its performance. However, there always have been arguable debates on which parameters or dimensions of stock market performance must be taken into equation in order to gauge its performance. There have also, been couple of ongoing discussions, concentrating on the idea that which stock market dimensions should be singled out at the optimal parameters to measure its performance. The alliance between GDP known as gross domestic product and functionality of stock market have been scrutinized by the different scholarly literatures. Jareno and Negrot (2016) both investigated on the relationship between some micro- economic parameters and their impact on the performance of stock market in USA. Micro-economic parameters encompassing: gross domestic product, index of consumer price, interest rates, rate of unemployment and the indicator of production. The results of the study revealed that all the above-mentioned indicators had strong connection with functionality of stock market except the consumer value record. These results, also, have been reinforced by previous

studies. Islam et al. (2017) investigated on the association between functionality of the capital market in one hand, and micro-economic parameters in another hand. His case study was on Bangladeshi market stock exchange, deploying following indicators of GDP, index of consumer price, rate of inflation, foreign direct investment inflows. In this study, FDI was the mediator between all microeconomic parameters. At the same time, capitalization of market, turnover of market and total issued capital of Dhaka stock exchange, were all institutional mediators of capital market performance. The results of the study revealed how effectively the independent parameters known as variables/dependents could impact the dependent ones at what extent. Indeed, the discovery made it absolutely crystal clear that both institutional and macro-economic parameters had the ability to impact the performance of the capital market. In addition, through multiple regression investigation was proven that index of consumer price and gross domestic product, as parameters of micro-economy and total market capitalization as institutional parameter, were all substantial due to their co-efficient esteem.

Noormahayu et al. (2017) examined the association between stock market dividends in Malaysia and parameters of lending rate, rate of exchange, GDP and index of consumer price. In this examination, three different tests were applied entailing: cointegration test pf Johannsson, Vector error correction model and Granger causality test. So, the results demonstrated a short-run and a long-run association between Malaysia stock market dividends and its determining parameters. In this study, the Granger causality test suggested that both parameters of Gross domestic product and index of consumer price both have unidirectional causality to Kuala lumpur composite index. In addition, during the interval, there was also a unidirectional causality

between index of consumer price, Kuala lumpur composite index and rate of exchange rate towards lending rate. However, rate of exchange boasted a bi-directional causality towards Kuala Lumpur composite index. This examination indeed, perceived that in determining Kuala lumpur composite index dividends in Malaysia, all independent parameters entailing GDP, index of consumer price index, lending rate and rate of exchange, are crucial.

Ho & Sin-Yu (2017) examined the macroeconomic Determinants of Stock Market improvement in South Africa. The analysis was made according to Descriptive and theoretical prototypes for analysis & time series data. The results found that development of stock exchange market had a positive impact on the prosperity of economy. Similarly, Omodero & Mlanga (2019) found that the economic growth for the case of Nigeria contribute emphatically to improve the exhibition of the securities exchange.

2.2 Exchange rate & Stock market performance:

With the globalization of markets and strong growth in trade, the currency exchange rate has become a significant economic concept. The exchange rate depends on several factors, including national economic growth, export competitiveness, monetary supply and demand, inflation, deficit and debt of countries, etc.

In general, when a Central Bank increases its key rates, the exchange rate of its currency tends to appreciate immediately. The increase in interest rates makes investments in the area more attractive. Literature studies give mixed results for the link between the exchange rate and the behavior of the stock market.

The research was done by Muller and Verschoor (2006, 2007) on Asia and Europe adopted a broader strategy to the investigation by considering a gathering of nations rather than fundamentally inspecting one nation's monetary market against a few monetary forms. Muller and Verschoor (2009) examined the US value market with the adjustments in monetary terms from Asia and Latin America while Tian and Ma (2010) on the connection between returns on the Chinese financial exchange and changes in the trade paces of Hong Kong dollar/Yuan and USD/Yuan.

The relationship between oil prices, exchange rates and the stock market were also considered by Basher et al. (2012). They discovered that in the short term, positive interventions in oil prices would have a negative effect on stock costs and the US dollar exchange rates.

The relationship between Nigerian stock market performance and some macroeconomic determinants was studied by Emmanuel (2018): money supply, interest rate, exchange rate and inflation rate. The results showed that the exchange rate and inflation rate had no statistically important effects on Nigeria's stock market performance. The results of the cointegration test showed a co-integration relationship between the macroeconomic indicators and the performance of the stock market. This suggests that the variables have a long-run relationship. The results of the Granger Causality test showed that a uni-directional causality extends from money supply and exchange rate to success in the stock market.

The relationship between stock market performance in Malaysia and interest rate, consumer price index, exchange rate and price of crude palm oil was analyzed by Isa (2019). Using descriptive and analytical research designs and time series data

techniques, these variables were analyzed to establish a relationship with stock market developments based on a linear regression model. The regression evaluation showed that interest rates have a substantial negative relationship with the performance of the Malaysian stock market. Meanwhile, there has always been a positive association between index of consumer price and the Malaysian stock market exchange. Changes in the exchange rate and price of crude palm oil, however, have no major connection with changes in the performance of the Malaysian stock market. These findings enhance our understanding of the relation between the interest rate, the index of consumer prices, the exchange rate and oil prices and their impact as parameters on the functionality of the Malaysian stock market.

2.3 Inflation & stock market performance:

The value of the stocks largely depends on a number of variables. Therefore, isolating the impact of one of them, namely inflation, is not an easy task. Inflation causes a fall in bond prices and an increase in share prices where bond is a monetary asset, and the share is a real asset. However, among others, Michael (1971) checked the hypothesis of a favorable stock index-inflation relationship, leading to the opposite result. The relationship between stock market performance and inflation was explored in several other papers as follows.

Shreya and Sangeetha (2019) studied the effect of macroeconomic determinants on Indian stock market performance. As their macroeconomic determinants, the authors selected gold prices, silver prices, oil prices, interest rates, industrial production, exchange rate, inflation, money supply, forex reserves, and trade balance. While analyzing they used unit root test, Co-relation analysis, Multivariate Regression analysis, and Granger Causality test which they lead to significant relationship found

between the independent variables used in the study. There was a causality found from gold to Nifty 50, Silver to Nifty 50, Inflation to Interest rate, Interest rate to Money Supply, Gold to Forex Reserve, Gold to Trade balance, Gold to Exchange rate, Silver to Exchange rate, Exchange rate to Trade Balance.

Bolanle & Obalade (2018) analyzed the effect of macroeconomic variables (GDP, growth of the banking sector, liquidity of the stock market, foreign direct investment, inflation rate and savings rate) on the development of the stock market in Nigeria. The study examined both the short run and long run relationships among variables.

Tsaurai (2018) used inflation, trade openness, exchange rates, banking sector development as independent variables, and pooled ordinary least squares (OLS), fixed and random effects approaches, and he evaluated the influence of stock market development on emerging markets. Therefore, the study urges emerging markets to adopt policies that stimulate economic growth, FDI, development of the banking sector, deposits, and trade openness in order to improve their development in the stock market. The relationship between stock market performance and inflation rate, crude oil price, exchange rate, gross domestic product, and money supply in Malaysia was examined by Kamarulzaman and Zulkefli (2019). Results revealed that prices of crude oil, inflation and exchange rate can impact the Malaysian stock market. Else ways, this research also shows that both the gross domestic product and the supply of money have an insignificant relationship with the success of the Malaysian stock market.

2.4 Stock market liquidity & stock market performance:

According to Levine & Zervos, liquidity is described as the ease and speed at which financial specialists buy and sell stock market securities (1998). For high-return

ventures, long-run capital investments are constantly needed because of high default and liquidity risks., according to Garcia & Liu (1999). Usually, investors are unwilling to take such risks. Nevertheless, Levine (1991) found that investors are given the ability to rapidly change portfolios in liquid capital markets, which are cheap and this encourages long-term investments that are more profitable because of their lower risks. Yartey (2008) argues that, in support of the positive relationship between stock market liquidity and stock market growth, liquid markets afford investors access to their assets and increase their trust in stock market investment. Liquid markets thus help to increase capital allocation and improve long-term growth prospects. For more valuable activities, this promotes long-term investment. The more fluid the stock market, the higher the probability in the stock marketplace of making more savings. Stock market liquidity is represented by the value traded as a percentage of GDP. Compared to the scale of the economic system, this ratio calculates the valuation of equity transactions. Different findings on the relationship between stock market liquidity and stock market performance were obtained from literature studies.

Prasad & Kumar (2019) investigated market capitalization determinants in India and its effect on stock market liquidity as independent variables for this study revenue per capita. The findings indicate that, with the exception of political risk and inflation, the positive effect of determinants on stock market growth persists.

Owiredu, Oppong, & Asomaning (2016) examined the progress in the stock market and its relations with the following macroeconomic variables (GDP Per capita, domestic savings, liquidity of stock markets, development of financial intermediaries, Macroeconomic stability (inflation) and private equity capital flows with capitalization in financial markets). Macroeconomic stability (inflation) and private equity capital

flows with capitalization in financial markets). Their findings indicate that liquidity in the stock market has been found to ultimately support the growth of Ghana's stock exchange. Although most of the steps, with the exception of actual income and the output of financial intermediaries, are in place, have an impact on stock market growth, they have not been found to be substantially linked.

Chapter 3

STOCK MARKET IN TURKEY

3.1 Istanbul Stock Exchange

Nowadays, the international investment community is aware of the significance of emerging stock markets worldwide (Erdoğan, 2003). International finance cooperation, known as IFC accordingly, hails all markets in developing countries as emerging ones. The Borsa Istanbul, known as (BIST) is the heart of the Turkey's bourse of stocks market; an entity in which accommodates three different agencies entailing; The former Istanbul Stock Exchange (ISE), the Turkish Istanbul Gold Exchange (IAB) and the Turkish Derivatives Exchange (VOB). All these three agencies have been encapsulated in watchful eyes of BIST (Erdoğan, 2003).

Borsa Istanbul was launched as a corporate entity with a primary capital of 423,234,000 Turkish Lira (TL), estimated at roughly 240 million $, initiated its operation on April 5th, 2013. The company boasts an elegant logo, which embodies the conventional ottoman symbol of Istanbul (Tulip) and its slogan rallied behind this popular phrase; it is worth investing (Hürriyet Daily News. 2013-04-05. Archived from the original on 2019-12-14. Retrieved 2013).

Diverse entities hold stocks in Borsa Istanbul encompassing; government of Turkey (49%), Istanbul Menkul Kıymetler Borsası, known as IMKB (41%), vadeli işlem opsiyon Borsası known as VOB (5%). In addition, 4% belongs to IMKB members, 1%

IMKB brokers, and 0.3% IAB members. It has always been on the agenda from the beginning of the establishment time of Borsa Istanbul that all invested government shares will be ready to be sold (Güler, 2013).

3.2 The primary days of ISE in Istanbul, Turkey

The foundation of security exchange market, known as Istanbul Burse, is originated from the second half of 19th century. However, Turkey's primary stock exchange market, founded in 1866. This exchange market was exclusive since owned by ottoman empire dubbed as Derssadet securities exchange. Such security exchange engaged the attention of wealthy European investors as, they felt a mediocre place in the market, among other stock dealers. As a matter of fact, Derssadet security exchange could fulfill the profit-seeking desire of European financial backers who were digging for more dividends in the expansive stool exchange market (Najaf, 2016).

After collapse of ottoman empire and re-establishment of new turkey, in 1929 a new legislation proposed to acknowledge Istanbul bourse in the name of Istanbul securities and foreign exchange stock exchange (Najaf, 2016).

Novel enterprises began mushrooming up around the country thanks to Istanbul Bourse. The stock entity became popularly vibrant and began contributing substantially in obliging the financial needs of young investors across Turkey. However, its momentum dimmed due to some erratic contingencies entailing the phenomenon of 1929, known as Great depression and WW2 overseas which took a significant toll on financial stability of exchange market in Turkey. Industrial revolution had a profound impact on creation of joint stock exchange companies as

they exposed their stocks to the public, thus those lucrative stocks celebrated by a great deal of private and some institutional capitalizers (Kiymaz, 2000; Adaoglu, C. 2000). At the threshold of 1980s, a remarkable change occurred in Turkish capital market both at governmental and institutional level. New legislations were passed to help financial institutions come up with robust capital projection. In 1981 a new legislation under the title of capital market law came to force. Subsequently in its following year, a monitoring body to regulate and oversight the ISE was established. The new regulatory entity was named as; capital market board. As years passed by, more regulations inserted, upgraded and approved by the Turkish parliament. All these changes and amendments were sufficed for inauguration of formally Istanbul stock exchange at the end of 1985 (Öğüt et al., 2009; Kiymaz, 2000).

3.3 The Turkish stock Exchange, securities exchange or bourse

Turkey, as an agricultural nation with an arising economy, its financial exchange has captured some significant consideration (Ünvan, 2020). The world bank classifies those countries with the gross domestic product/capita below, 7620 US$ based on 90s era prices as developing countries. By such definition, Istanbul security exchange, namely (ISE) is an emerging market within the confines of a developing country (Erdoğan, 2003). It is not startling to confess that ISE, like other stock exchange markets, is susceptible to any political volatility and adverse macroeconomic circumstances (Muradoglu & Onkal, 1992).

ISE (Figure.1) is the sole facility in Turkey, in which assists commercial traders, shareholders and brokers to exchange bonds, shares, securities, equities, bills, Bonds, international securities and real estate certificates for the private sector or any other type of financially certified papers in any mode of domestic or international level.

Furthermore, stock exchange has the authority to accommodate the payment task of national incomes and dividends (Erdoğan, 2003; ISE.orgArchived2006-11-29).

A deeper inside into ISE doles us a better perspective over its operation since it has accommodated 320 national firms. Interestingly, there are two different time-schedules for trading as the stock exchange is absolutely preoccupied. The members of ISE either are estate brokers or stock/bond dealers affiliated to different national or international banks outside Turkey. All the price indices, throughout the trading sessions will get quantified and published on big screen through computers. However, dividends known as "returns indices" will get come up on big screens at the end of each wrap-up session.

There is a great variety of ISE indexes, encompassing ISE national-30.ISE National-50, ISE National All-Shares Index, ISE National-100 Business, Sub-Sector Indices, ISE National Second Market Index, ISE Emerging Economy Market Index, and ISE Investment Confidence Index.

3.4 Efficiency of Istanbul securities exchange (ISE)

Emerging economies within developing markets have been on the track of enormous growth and prosperity for a while. Their prosperity has generated a newly established uncharted territory in research world. This territory highlights the efficiency of exchange market.

A significant number of research bodies have taken place in the last two decades, discussing stock market productivity, employing market-related theories with regard to developed and some marked developing countries (Arshad et al., 2016).

Meanwhile, due to recent economic crises a new era of interest has tickled the mind of business research enthusiasts, who began raising this question that how much developing and emerging markets can resist loss of capital without collapse. Indeed, organization of Islamic conference member countries, known as (OIC), has been the subject of interest and scrutiny in this particular field interest (Aslam, & Haron,2020). OIC countries including Turkey, despite they have had great presence and contribution at international scale, yet very often they have been disparaged about their stock markets performance due to culprits of lack of cash and lack of infrastructures (Arshad et al., 2016).

There also have been other studies about efficiency of ISE. Some previously scholarly reviews, revealed on shortcomings or semi- robust efficiency while others, defied those results. In fact, those contradictory studies have underscored that Turkish stock exchange market is efficiently robust enough. Such discrepancy has been justified based on the impact level of microeconomic parameters on the activity of one country's stock exchange in this case, Turkey (Arshad et al., 2016; Rizvi et al., 2014).

3.5 Economy history of Turkey

International monetary Fund (IMF) has portrayed economy of Turkey (picture.1) as an emerging market economy. Furthermore, CIA world factbook (www.cia.gov) has named Turkey as a developed country, thus classified it as one of world developed economies. Although, Turkey has a lot to do in regard to eradication of poverty and instigation of equality in regard to fair distribution of wealth among all walks of lives, yet among world economists and political scientists, turkey is one of the newest industrialized countries around the globe (Etokakpan et al., 2020).

In regard to GDP, Turkey has the world 20th largest nominated GDP while based on purchasing power parity (PPP), 13 th largest GDP in the entire world. Since the country has been categorized in the group of industrialized worlds, thus in following industries Turkey seems to have had a significant lead; industries entailing: textile and fabric, agricultural products, driving vehicles, infrastructure materials, consumer electronic gadgets, kitchen utensils and indoors appliances (Balasubramanyam & Togan, 2016).

3.6 The relationship between Turkey's economy and its stock exchange market

Here, a short insight into relationship between these two variables; Stock market and economy status of a country with specific concentration on the case of Turkey.

In general, people around the world, they entertain that stock market movement represents the status of economy, so no exception to people who live in emerging economies with developed markets such as Turkey. In this regard they have this presumption that if stock market is climbing up, economy status is lifting up and conversely, if the stock market is depreciating, so the economy is.

Although, the stock market starts appreciating when the economy is booming since all those companies and industries in which guaranteeing the economy of the country, they own shares, bonds, equities and stocks in the exchange market, therefore, their equities gain weight and they start to make profit due to rise in economy. On the contrary, the bad performance of the stock market, seems that economy is staggering, leading to loss of corporate profits in the stock exchange. However, this is not genuinely true all the time. For instance; during the election seasons, most of the time, political parties start to manipulate the market, tamper with its values in order to rig

the game in favor of themselves, so despite the economy is doing well, but market starts signs of recession even worse, economic collapse (Pereira et al., 2018). It has been some cases of that in Middle East countries, however not that much significant in the case of Turkey, since their election results are tightly control and the oppositions do not reach that high platform of presentation (Cagaptay,2020). However, it has been a great deal of times that stock market has lost steam and manifested signs of recession while the economy has been thriving or there have been other times that the market has been on the rise while economy of the country has been on the edge (Pervez et al., 2018). Therefore, we can conclude that the economy of a country defines its market direction not otherwise. Similar to that, increment in values of stock indexes does not reveal a palatable economic condition around the globe, nor dent in the stock values will rage economic depression. So, this is the reality that regardless of the type of a country; developed, emerging or under-developed, has turned out to be true (BAŞER & Abdullah, 2018).

Chapter 4

METHODOLOGY

4.1 Data collection and its related sources

The data employed in this study, were annually- oriented data belong to the period between 1990-2019. Factors are exchange rate (USD), gross domestic product, inflation (consumer price) and Stocks traded total value (% of GDP) (ST). Data were extracted from Thompson Reuter's DataStream. GDP figures are in constant 2010 US$, ST is % of GDP and EX in (USD).

4.2 Methodology

Three kinds of analyses were used in this thesis. First, analysis which were executed by Augmented Dickey-Fuller, Phillips-Perron, Kwiatkowski, Phillips, Schmidt, and finally, Shin (KPSS) to test the exchange rate, GDP, INF, and STS all known as unit root tests. Secondly, the long-term equilibrium relationship between BIST 100 and its potential Causative agents of EX, GDP, INF and STS was tested using Johansen cointegration tests. Then the vector error correction model which improves the speed of estimation adjustment. Finally, Granger causality tests were used to establish the path of causality between the study variables.

4.2.1 Empirical Model

Several studies theoretically and empirically emphasized the factors that leads to the success of the stock market. Through the application of different econometric analyses, these determinants are checked. Current research indicates that in the case of Turkey, EX, GDP, INF and ST may be determinants of BIST100.

The functional relationship in this analysis can therefore be shown as follows:

BIST = f (EX, GDP, INF, ST) (1)

Where stock market performance (BIST) is a function of domestic credit (DC), exchange rate (EX), gross domestic product (GDP), inflation (INF), liquidity (ST).

In the following model, the logarithmic form of equation (1) is expressed as follow:

$Ln\ BIST = \beta0 + \beta1\ ln\ EX + \beta2\ ln\ GDP + \beta3\ ln\ INF + \beta4\ ln\ ST + \varepsilon\tau$ (2)

Where ln BIST is the natural stock market output log at time t; ln EX is the natural exchange rate log; ln GDP is the natural gross domestic product log; ln INF is the natural inflation log; ln ST is the natural stock trade log and e is the term for mistake. The coefficients β1, β2 β3and β4 give us elasticity in the long-term variables of EX, GDP, INF and ST, respectively.

4.2.2 Unit Root Tests

In order to test the stationary of seriousness in this paper, strategies such as "PP, ADF, KPSS" were collectively deployed. In general, the PP approach was deployed to find unit roots, which they seem to be replaceable for the ADF unit root test and gauge a residual variance which is strong enough for the correlation (Dicky and fuller, 19981; Philips and perron, 1998; and others).

Enders (1995) suggested that the most general model must be used while testing the variables unit roots (by including trend and intercept).

$\Delta y_t = a_0 + \lambda y_{t-1} + a_2 t + \sum_{i=2}^{p} \beta_j \Delta y_{t-i-1} + \epsilon_t$ (3)

Where the vector is y; t = trend; a = intercept; t = white Gaussian noise and p = the degree of lag.

According to Katırcıoglu et al. (2007), Akaike Information Criterion (AIC) is the most preferable criterion to set the lags number in the dependent variable or any other alternative tests for ideal lag to assert that the residuals are white noise. The presence of additional parameters evaluated produces a critical issue which decreases the degree of freedom.

In t-statistics and t-tests for l, the ADF, KPSS and PP tests specialize. In each ADF, KPSS and PP checks, the null hypothesis is that the sequence is non-stationary. Rejecting the null hypothesis suggests that the constant varies significantly from zero. If the series is at the stage non-stationary (we settle for Ho), then there is a tendency to make the key disparity to establish it stationary. If it's stationary, then the series is defined as I (0). If it is stationary in its first differentiated form, however, it is known as I (1). Furthermore, there is a possibility that researcher encounter some pitfalls by dejecting the null hypothesis as a result of creating savvy information via enigmatic approaches. Thereby, researchers can begin with unit root tests from the initial model known as chief model which has secured interception and patterns (Doldado et al., 1990). If the motions and patterns are dejected by mistake, the ability of the quest could attenuate to exceedingly low or even hit the zero (Campbell and Perron, 1991). Diminished power would navigate the scientists to come to conclusion with inconsistent results in the unit root process (Enders, 1995).

The PP test provides an adjustment of the AR (1) regression coefficient to the t-statistic to account for the serial association in εt (Katırcıoglu et al., 2007). The correction is non-parametric as we are using an approximation of the y factor distribution at recurrence zero and this is robust to the unknown form of heteroscedasticity and autocorrelation.

4.2.3 Johansen cointegration

The long-run relation between two variables is explained by the cointegration method. The initial step in the study is to decide the order of inclusion of each I (1) or I(2) sequence if they are not I (0). Then, we check the model's stability and the number of lags needed to be included. Finally, to estimate the long-term relationship between the dependent variable and the chosen independent variables, the Johansen cointegration test is used.

The analysis indicated that the variables used had a unit root problem and cointegrated order one. We need to approximate the Granger cointegration equation in the next step. An approximation of the following cointegration regression model is:

$$y_t = \beta_0 + \beta_1 x_t + z_t \tag{4}$$

The Johansen (1988) approach allows co-integrating vectors to be approximated among a group of so called regressors and some dependent parameter which has to deal with hitches and pitfalls resulting from the technique of Engel and Granger (1987) based on present criteria. In the following VAR model, the Johansen strategy can be expressed:

$$X_t = \Pi_1 X_{t-1} + \cdots + \Pi_k X_{t-k} + \mu + e_t \qquad \text{(for } t = 1, \dots T) \tag{5}$$

Where Xt, Xt-1, ..., Xt-K are level vectors and P variables lagged values I(1). coefficient matrices are $\Pi 1, \dots, \Pi K$ with dimensions of (PXP); μ can be an intercept vector3; while et is a random error vector according to scholar Katırcıoglu et al., 2007). The approximation of the number of lagged values happened due to the fact that error terms could not be auto-correlated. The location of P was the number of co-integrating vectors which quantified by by checking whether statistically important according to Johansen (1988) and Johansen and Juselius (1990) propose that trace

statistics are computed using Eigen values the following formula will measure the trace

statistics (λtrace)).

The position of Π is the number of co-integrating vectors that is found by testing the

statistical significance of the Eigen values (λi). (Johansen (1988), Johansen and

Juselius 1990) suggest that while computing trace test, eigen values will be used to

conclude the number of cointegrations:

$$\lambda_{trace} = -T \sum Ln\,(1 - \lambda_i), i = r + 1, ..., n - 1 \qquad (6)$$

and the null hypotheses are:

$$H0: v = 0 \qquad\qquad H1: v \geq 1$$

$$H0: v \leq 1 \qquad\qquad H1: v \geq 2$$

$$H0: v \leq 2 \qquad\qquad H1: v \geq 3$$

4.2.4 Error Correction Model

In accordance with the ECM method, when two variables, such as Yt and Xt, are

cointegrated, there must also be an error correction model that defines the short-run

dynamics or changes of the cointegrated variables towards their long-run equilibrium.

The EC model contains both the last cycle error and the lagged values of the first

variable variations. Let us take the ECM specification into consideration, which can

be written as follows:

$$\Delta y_t = \alpha_1 \Delta_{t-1} + \alpha_2 \Delta x_t + \phi z_{t-1} + \varepsilon_t \qquad (7)$$

$$\Delta x_t = \beta_1 \Delta x_{t-1} + \beta_2 \Delta y_t + \theta z_{t-1} + v_t \qquad (8)$$

Where, Zt-1 is the error of equilibrium. An important advantage of the ECM is that all

the considered variables are stationary and that standard OLS is also accurate. This

often includes both long-term and short-term data. Where α2 & β2 are the impact

multiplier (the short-term effect) that calculates the immediate effect of an Xt (or Yt)

modification on a Yt transition (or Xt). While, φ (or Θ) provides the data on the rate of change in cases of disequilibrium (long run).

4.2.5 Granger Causality Tests

The causality approach is explained as follows, according to Granger (1969); The question of whether y causes x is to understand how much of the present value of x can be simplified by prior x values and to decide if adding lagged y values can increase these estimates If x can be predicted from past x and y values than from past x values alone, x is assumed to be a Granger caused by y. One can evaluate the following equation for a basic bivariate model:

$$x_t = \alpha_0 + \sum_{i=1}^{n} \alpha_i \, y_{t-1} + \sum_{j=1}^{m} \beta_j x_{t-j} + u_t \tag{9}$$

$$y_t = \alpha_0 + \sum_{i=1}^{n} \beta_i x_{t-1} + \sum_{j=1}^{m} \alpha_j \, y_{t-1} + \varepsilon_t \tag{10}$$

Where; the null hypothesis here is that *y which does* not Granger causes *x* in equation 4 and *x* does not Granger causes *y* in equation 5.

Chapter 5

EMPIRICAL FINDINGS

5.1 Descriptive statistic

Taking into account a data set's mean, median, maximum value, minimum value, and standard deviation. The mean is the average value for each data series, the median is the middle value for each data series in the formula, and the maximum value is the highest value for each data set, while the minimum value is the lowest value for each data set. To calculate the dispersion in each data arrangement, standard deviation is used. It illustrates how unforeseeable or stable each variable is:

Table 1: Descriptive statistics

	LnBIST	LnEX	LnGDP	LnINF	LnST
Mean	4.419660	0.623125	27.19766	3.385590	3.115842
Median	5.451186	-0.338474	27.16953	3.589256	2.756462
Maximum	6.973777	5.832729	27.85525	4.107569	4.656006
Minimum	-1.021651	-1.782643	26.62398	1.661492	1.832738
Std.Dev	2.598489	2.137694	0.394903	0.616293	1.041501

Notes: Std. Dev Denote the standard deviation. Ln denotes the natural operator of logs

It is evident from the results of the descriptive statistics provided in Table 4 that LNGDP has the highest mean value of 27.19766, while LnEX has the lowest mean value of 0.623125. The median is 5.451186 for LnBIST; -0.338474 for LnEX; 27.16953 for LnGDP; 27.16953 for LnINF; 2.756462 for LnST. GDP has the highest (Maximum) value of 27.85525 recorded in 2019, LnEX, on the other hand, has the

lowest (minimum) value of -1,782643 reached in 2019. The highest standard deviation of 2.598489 is available for LnBIST. Among the variables considered in this analysis, stock market performance is therefore the most unpredictable.

5.2 Normality test

Table 2: Normality test results

	LnBIST	LnEX	LnGDP	LnINF	LnST
Jacque-bera	1.483783	0.175032	0.537812	0.323024	0.626390
Prob	0.4762	0.9162	0.7642	0.8509	0.7311

The test for normality is used to determine whether or not a data series is normally distributed. Under the null hypothesis of a normal distribution, the normality test is aimed at the alternative hypothesis of a non-normal distribution. In this research, the Jarque-Bera normality test was used to assess whether or not every sequence is normally distributed. The null hypothesis of a normal distribution is rejected at a 5 percent level of value in the Jarque-Bera test. Jarque-Bera statistics have a likelihood greater than 0.05 for each of the variables analyzed (LBIST, LGDP, LINF, LEXR, and LIST) from the normality test results provided in Table 5. For all the variables considered in the thesis, the null hypothesis of a normal distribution is therefore acknowledged. This means that the sequence of data (variables) is usually distributed.

5.3 Unit Root Test for Stationarity

Financial time series could display average trending activity. To examine integration assets of the sequence, stationery and unit root tests can be applied. Unit root tests have various power and size characteristics; multiple unit root tests were conducted to validate the order of variables being integrated. Table 5 shows the results of unit root tests.

Table 3: Unit Root Test Results00

Statistics (Level)	LnBIST	LnEX	LnGDP	LnINF	LnST
τt (ADF)	-0.5567	-2.6462	-2.4165	-0.9138	-2.9345
τ μ (ADF)	-2.6530	-5.2344*	0.2801	-1.0189	-3.0211*
τ(ADF)	0.5490	-1.8367	5.1369	-1.1148	0.7022
τt (PP)	-0.5285	-2.3951	-2.5007	-1.0634	-4.16524*
τ μ (PP)	-2.5843	-4.4124*	0.6113	-1.0505	-4.4635*
τ(PP)	0.8352	-3.4952	6.9575	-1.1148	0.9402
τt (KPSS)	0.1820*	0.1687*	0.15884*	0.1199	0.1829*
τ μ (KPSS)	0.6384*	0.6152*	0.7044*	0.5519*	0.5506*
Statistics (First Difference)	LnBIST	LnEX	LnGDP	LnINF	LnST
τt (ADF)	-5.3818*	-3.8219	-5.2645*	-4.6097*	-6.1542*
τ μ (ADF)	-3.7746*	-1.6670*	-5.3564*	-4.5975*	-5.7228*
τ(ADF)	-2.6881	-1.4851	-1.8627	-4.5654	-5.4771
τt (PP)	-5.6697*	-39914*	-6.2939*	-4.6076*	-6.7986*
τ μ (PP)	-3.8913*	-2.9057	-5.9100*	-4.6250*	-5.81445
τ(PP)	-2.7582	-2.0915	-3.1481	-4.5577	-5.4897
τt (KPSS)	0.0747	0.1455	0.1452	0.1831	0.50000*
τ μ (KPSS)	0.4341	0.4393	0.13508	0.2304	0.3249

Note: BIST stock market performance, EX exchange rate, GDP Growth domestic production Inflation, INF Inflation and ST stock traded (liquidity). All the data are used in logarithmic forms.τt refers to the general model with trend and intercept,τ μ is the model with intercept and without trend;τ is the limited model without trend and intercept.

According to unit root tests results, there was a consensus about the integration order I(1), we terminate that all of our factors are integrated order one I(1). Hence, since there were at least 2 tests for each variable confirming the integration order of our variables, so we can use the time series econometrics to conduct our analysis.

5.4 VAR model

After making sure that all of our variables are integrated order one I (1) we continue our analysis to the next step which is the establishment of stable VAR model. VAR

model is too sensitive to the number of lags so we need to make sure that we estimated the model with the correct lags number. Thereby, by looking to the lag length norm, (LR, FPE, AIC, SC, HQ) criterions presented in table 9, indicated that the number of lags to be included must be 1 lag.

Table 4: VAR Lag Order Selection Criteria

Lag	Log	LR	FPE	AIC	SC	HQ
0	-68.50589	NA	0.000159	5.444881	5.684851	5.516236
1	87.76128	243.0823*	9.90e-09	-4.278614	-2.838795*	-3.850480*
2	116.1403	33.63439	9.54e-09*	-4.528911*	-1.889244	-3.744000

Note * Indicates lag order selected by the criterion

Then we checked the stability by looking to the AR Root table which shows that all of the modulus was below one and by looking to the graph we saw that all of the dots where inside the graph or touching it from the inside part of the cycle but none of them outside the cycle so we conclude that our model is reliable and that our testing will continue. using the VAR model.

Inverse Roots of AR Characteristic Polynomial
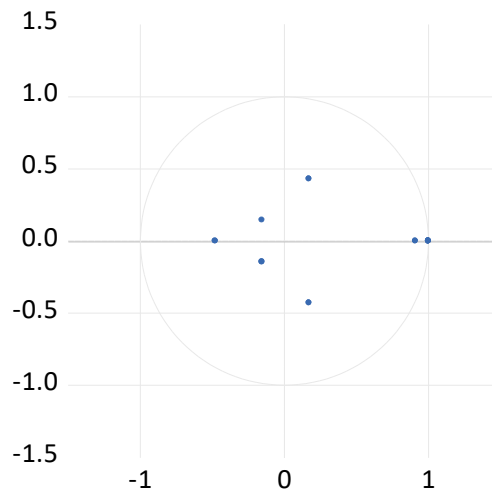
Figure 1: VAR graph

Table 5: AR Root table result

Root	Modulus
0.996807	0.996807
0.871679 - 0.202515i	0.894895
0.871679 + 0.202515i	0.894895
0.175801 - 0.673851i	0.696406
0.175801 + 0.673851i	0.696406
-0.450878 - 0.146313i	0.474023
-0.450878 + 0.146313i	0.474023
0.356123 - 0.257505i	0.439468
0.356123 + 0.257505i	0.439468
-0.073470	0.073470

No root lies outside the unit circle.

VAR satisfies the stability condition.

5.5 Co-integration Analysis

The next step is to verify the co-integration once the VAR model is stable and re-estimated with the correct number of lags. In order to examine the long-term

equilibrium relation between different variables the Johansson co-integration test is deployed.

Table 6: Cointegration Rank Test (Trace) results

		Unrestricted Cointegration Rank Test (Trace)		
Hypothesized		Trace	0.05	0.01
No. of CE(s)	Eigenvalue	Stat	Critical Value	Critical-test value
None * *	0.834375	111.3608	68.52	76.07
Max 1 **	0.675171	62.81404	47.21	54.46
Max 2 *	0.510779	32.45371	29.68	35.65
Max 3	0.385413	13.15030	15.41	20.04
Max 4	0.000244	0.006590	3.76	6.65

Note: Trace test indicates that there are 3 cointegration equations at 5%, 2 cointegration equations at 1% and () (*) refers to the rejected null hypothesis at 5% and 1% respectively

Table 7: Cointegration Rank Test (Maximum Eigenvalue) result

		Unrestricted Cointegration Rank Test (Maximum Eigenvalue)		
Hypothesized		Max-Eigen	0.05	0.01
No. of CE(s)	Eigenvalue	Stat	Critical Value	Critical value
None *	0.834375	48.54672	33.46	38.77
Max 1 *	0.675171	30.36033	27.07	32.24
Max 2	0.510779	19.30341	20.97	25.52
Max 3	0.385413	13.14371	14.07	18.63
Max 4	0.000244	0.006590	3.76	6.65

Note: Max-eigenvalue test indicates that there are 3 cointegration equations at 5%, 2 cointegration equations at 1% and (*), (**) refers to the rejected null hypothesis at 5% and 1% respectively

Table 6 represents trace test results as it indicated that there are 3 cointegrating equation(s) at the 5% level and 2 cointegrating equations at the 1% level. By looking to table 7, according to Maximum Eigenvalue test, it indicated that there is 2

cointegrating equation(s) at the 5% level and 1 cointegrating equations at the 1% level, we conclude here that there is a long-term relationship and we can peruse our analysis.

5.6 Level Coefficients and Error Correction Model Estimation

The ADF, Phillips-Perron and KPSS tests affirm that exchange rate, inflation, stock traded, Gross Domestic Product and BIST index are integrated of order one. The Johansen cointegration test verified that at least one cointegration relationship was present. It is clear that there is indeed a long-term partnership between them. once the cointegration between the time series has been identified. The vector auto regression (VAR) model is mis-specified in the first discrepancy, however, due to the effects of a common pattern. As such, despite a long-term balance relationship, there can be disequilibrium in the short run. Therefore, to establish a vector error correction mechanism, the model must have one cycle of lagged residuals from the vectors (VECM).

Table 8: Level coefficients in the Long run

Dependent variables	LNEX	LNGDP	LNINF	LNST	Intercept
LN BIST	-0.871546	-4.823537	-1.306193	-3.135006	141.6046
	(0.26747)	(0.97317)	(0.25571)	(0.53262)	

Notes: The digits in brackets are t-statistics for variables
*, **and *** significance level at 1%,5% and 10% levels, respectively

We found, according to the results of the Cointegrating equation, that there is a long-term relationship between our variables and the efficiency of the stock market, as we found that there is a statistically important relationship between GDP, EX, INF and ST with BIST. EX shows a positive relationship with BIST as every 1 percent increase in EX will lead to a 0.87 percent increase in BIST, GDP shows a positive relationship with BIST, and each 1 percent increase in GDP will lead to a 4.82 percent increase in

BIST. As every 1 percent increase in INF would lead to a 1.3 percent increase in BIST, INF shows a positive relationship with the BIST, similarly the ST shows a positive relationship with the BIST, and every 1 percent increase in ST contributes to a 3.13 percent increase in BIST.

Table 9: Error Correction Model

Regressor	Coefficient	Standard error	T-Stat
CointEq1	-0.121545	(0.05366)	[-2.26511]
Δ(LNBIST (-1))	0.408962	(0.25221)	[1.62150]
Δ (LNEX (-1))	0.187401	(0.43401)	[0.43179]
Δ (LNGDP (-1))	-1.685473	(1.66528)	[-1.01212
Δ (LNINF (-1))	-0.429879	(0.17689)	[-2.43022]
Δ (LNST (-1))	-0.699232	(0.28274)	[-2.47306
C	0.326783	(0.17442)	[1.87353]

	LNBIST
R-squared	0.567530
Adj. R-squared	0.437789
Sum sq. resids	1.474706
S.E. equation	0.271542
F-statistic	4.374337
Log likelihood	0.938265

Akaike AIC	0.449017
Schwarz SC	0.784975
Mean dependent	0.287250
S.D. dependent	0.362150

5.7 Heteroskedasticity

Heteroscedasticity problem related to the efficiency of the estimation as it destroys the property of minimum variance and produces inefficient variance which leads to misleading results & erroneous conclusions

Table 10: VEC Residual Heteroskedasticity Test

Chi-sq	Prob.
192.7155	0.2451

According to the white-heteroscedasticity test the probability is higher than all levels of significant which leads us to conclude that the hypothesis h0 that we fail to deny (homoscedasticity); so, there is no heteroscedasticity problem in our data.

5.8 Autocorrelation

Table 11: Serial Correlation LM test

Lag	LRE* stat	Prob.	Rao F-stat	Prob.
1	21.27216	0.6773	0.820627	0.6965
2	24.45210	0.4934	0.973584	0.5174

Referring to the serial correlation LM test table, none of the probabilities is more than the statistically significant level 5%, so we fail to deny the null hypothesis thereby we don t have autocorrelation in our model.

5.9 Granger Causality Test

Granger Causality test is executed at the time that co-integration and ECM analysis are executed and co-integration vectors between different variables are established. The study used the Granger Causality Test to assess if the stock market performance and the macroeconomic variables have a causal effect. The null hypothesis is dismissed at the 5 per cent stage of importance in Granger Causality. The model's null hypothesis illustrates the non-causality between variables. If H0 gets rejected, it signifies that   Granger-Causes is an independent variable not dependent.

Table 12: Granger Causality Tests under Block Exogeneity Approach Dependent variable: D(LNBIST)

Excluded	Chi-sq	df	Prob.
D(LNEX)	0.186440	1	0.6659
D(LNGDP)	1.024395	1	0.3115
D(LNINF)	5.905952	1	0.0151
D(LNST)	6.116008	1	0.0134
All	13.65858	4	0.0085

Table 12 indicates that there is a uni-directional relationship between our dependent variable BIST and the independent variables ST, EX, GDP, INF since (ALL) probability is significant at 5% level of confidence (long run), by looking to the table we can deduct that the probability of the variables ST and INF are equal to 0.0134 and 0.0151 respectively which leads to the conclusion that it is significant in short run.

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Chapter 6

CONCLUSION AND POLICY IMPLICATIONS

This thesis investigated the relationship between stock market performance and some macroeconomic determinants of stock market development in the long-run and short-run between 1990 and 2019 in the case of Turkey. As a result of unit root test, we found that all the variables are integrated order one I (1). The vector error correction model showed that 12% of BIST can be explained by the following independent variables Exchange rate, Gross Domestic Product, Inflation and Stock traded which refers to stock market liquidity. Our findings clearly indicated that our variables have a positive significant impact on stock market index in the long run model. Long term Granger causality tests showed that in the long run all our independent variable have a significant positive impact on our dependent variable. In the short-run inflation and liquidity have a positive impact on BIST, this led us to conclude that they have a uni-directional relation with the main variable.

The optimistic relationship between INF, GDP and ST shows that the growth in economic activity is causing stock prices to rise again and again. In the long term, the test results also indicate a positive relationship between EX and BIST. Since Turkey has an economy based on intermediate and final products, lira overvaluation makes imports cheaper and lowers output input costs. As a consequence, overvaluing lira causes the potential profitability of businesses, as indicated by Özer (2015). The optimistic inflation-BIST relationship supports the Keynesian approach's expectations.

Result of this study attested to the fact that there was a positive association between stock market exchange and inflation rate which was also consistent with the results of different studies (Falahat et al, 2012; Geetha et al, 2011; Omotor, 2010; Boyd et al, 2001; Boudoukh et al, 1994; Boudoukh and Richardson, 1993). Bekaert and Engstrom (2009) have found that actual stock returns and nominal bonds are strongly correlated. Thus, an increase in inflation rates would have a positive effect on stock and bond results in the event of economic instability and crises. The beneficial impact of the interest rate is predicted and shows that the rise in the interest rate allows the borrowing cost to decrease and therefore the existing and potential profitability of businesses to increase.

With regards to market liquidity, the results shown that it possesses a positive relationship with the stock market performance as it allows for more dynamic trading activities as well as encouraging investors to invest with higher amounts of capital.

Turkey is a developing economy that has faced a wide range of political and economic crises and has been able to stabilize its situation in the early 2000s, bring economic well-being that has led to economic stability and continued growth, and that stability has engaged the attention of foreign investors to invest in Turkish stock markets and its divergent sectors. Turkey, no matter what happens in other countries or territories, is now a secure investment zone for foreigners.

The improvement of the stock market performance requires the government to stimulate the economic growth by increasing the public investments and expenditures. In addition, the impact of inflation on the stock market performance found to be positive, but also a fluctuating inflation rates with very high or very low rates might

affect the stock market performance negatively, thus the government of turkey must attempt the keep its inflation rates at a stable level. having larger capital markets as well as allowing for more technological innovation in trading will contribute to increase the market liquidity which in turn improves the stock market performance. Government can also increase the interest rate and return on stocks in plausible rates which will encourage the investors to invest and that's will also increase the market liquidity which all works jointly to improve the stock market performance.

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