ÇANKAYA UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
MASTER OF BUSINESS ADMINISTRATION

MASTER'S THESIS

THE EFFECT OF FOREIGN EXCHANGE POSITION
ON THE STOCK PERFORMANCE

AYŞEGÜL TAŞCI

FEBRUARY 2021

ABSTRACT
THE EFFECT OF FOREIGN EXCHANGE POSITION
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Ayşegül TAŞCI

M.B.A, Master of Business Administration

Supervisor: Prof. Dr. M. Mete DOĞANAY

FEBRUARY 2021, 45 pages

In its simplest definition, the exchange rate refers to the value of the national currency against a foreign currency. With the development of technology globalization has also increased and as a result, the importance of the exchange rates has also increased. With this respect, in an environment where economic uncertainty has increased with the effect of globalization, exchange rates have become one of the important indicators of the success of an economy. The purpose of this thesis is to investigate whether the sudden increases and decreases in the exchange rates has an effect on stock prices. In this context, event study methodology is used and corporations in 18 different industries whose stocks are included in BIST100 index in the years 2015-2017 are selected. Sixteen event days are determined on which sudden increase or decrese in USD exhange rate occured. As required by the event study average abnormal returns are calculated for the event window and cumulative average abnormal returns are calculated for certain intervals. Market model is used to calculate the expected (normal) returns. Parameters of the market model are estimated by running regression models. The values of the dependent and independent variables of the regression models come from the estimation window. It is expected to observe statistically significant negative abnormal returns on the day or the following days when sudden increase in the USD exchange rate occurs. Contrary, it is expected to observe statistically significant positive abnormal returns on the day or following days when sudden decrease in the USD exchange rate

occurs. It is also expected to observe cumulative average abnormal returns in line with above- mentioned expectations. We did not obtain sufficient statistically significant evidence from the event study to support our expectations. So, we can say that stand-alone effect of the sudden increase and decrease in foreign exchange rates on stock prices do not exist.

ÖZET

DÖVİZ POZİSYONUNUN HİSSE SENEDİ PERFORMANSI ÜZERİNDEKİ ETKİSİ

Ayşegül TAŞCI

Yüksek Lisans, İşletme Yönetimi
Danışman: Prof. Dr. M. Mete DOĞANAY
ŞUBAT 2021, 45 sayfa

Döviz kuru, en basit tanımıyla bir ulusal para biriminin başka bir ülkenin para birimi karşısındaki değerini ifade eder. Teknolojik gelişmelerle birlikte küreselleşme artmış ve bunun sonucunda, döviz kurunun önemi de artmıştır. Bu bağlamda döviz kuru, küreselleşmenin etkisiyle ekonomik belirsizliğin arttığı bir ortamda bir ekonominin başarısının önemli göstergelerinden biri haline gelmiştir. Bu tezin amacı, döviz kurlarındaki ani yükseliş ve düşüşlerin hisse senetleri fiyatlarına etki edip etmediğini araştırmaktır. Bu nedenle, olay çalışması yöntemi kullanılarak, hisse senetleri 2015-2017 yıllarında BIST100 endeksinde işlem gören 18 farklı sektörde faaliyet gösteren şirketler seçilmiştir. ABD Doları kurundaki ani artış veya düşüşün meydana geldiği on altı gün belirlenmiştir. Olay çalışmasının gerektirdiği gibi, olay penceresi kapsamında ortalama anormal getiriler hesaplanırken; kümülatif ortalama anormal getiriler ise belirli aralıklar bağlamında hesaplanmıştır. Beklenen (normal) getirileri hesaplamak için piyasa modeli kullanılmıştır. Piyasa modelinin parametreleri, regresyon yöntemiyle tahmin edilmiştir. Regresyon modellerinin bağımlı ve bağımsız değişkenlerine ait değerler, tahmin penceresinden elde edilmiştir. ABD Doları kurunda ani yükselişin meydana geldiği gün veya bunu takip eden günlerde, istatistiksel olarak anlamlı negatif anormal getirilerin görülmesi beklenmektedir. Bunun aksine, ABD Doları kurunda ani düşüşün meydana geldiği gün veya bunu takip eden günlerde, istatistiksel olarak anlamlı pozitif anormal getirilerin görülmesi beklenmektedir. Bunun yanı sıra, yukarıda belirtilen beklentiler

doğrultusunda kümülatif ortalama anormal getirilerin gözlemlenmesi beklenmektedir. Olay çalışmasından beklentilerimizi destekleyecek şekilde yeterli istatistiksel olarak anlamlı kanıt elde edilememiştir. Bu nedenle, döviz kurunda meydana gelen ani yükseliş ve düşüşün, tek başına hisse senetleri fiyatları üzerinde etkili olmadığını ifade edebiliriz.

Anahtar Kelimeler: Dolar kuru, hisse senedi performansı, Borsa İstanbul (BIST100) endeksi, olay çalışması, pazar modeli

ACKNOWLEDGEMENTS

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BIST   : Borsa İstanbul

TRY   : Turkish Lira

USD   : Dollar

TCC   : Turkish Commercial Code

CMB   : Capital Market Board

AR   : Abnormal Return

AAR   : Average Abnormal Return

CAR   : Cumulative Abnormal Return

CAAR   : Cumulative Average Abnormal Return

ER   : Expected Return

TCMB   : Türkiye Merkez Bankası-Central Bank Of The Republic Of Turkey

ISE   : Istanbul Stock Exchange

INTRODUCTION

As the world markets have a more global structure day by day, the importance of the exchange rate, which is the medium of exchange of international liquidity, has increased. Exchange rates have had a significant impact on the entire world economy. Thus, the fluctuations in the exchange rate are regarded as an indicator of the stability in the economy, just as they affect the course of economic activities. It has become more important to have information about the reasons for the exchange rate changes.

Foreign exchange management, which is defined as the most profitable and effective balancing of assets and liabilities denominated in foreign currency, is an important factor for companies. Sudden and large amount of changes in exchange rates (volatility) affect firms as much as they affect macro economies. As a result of the effects on the companies, exchange rate volatility also influences the stock prices. The aim of the companies is to keep the prices of their stocks at the maximum level for their investors. Investors, on the other hand, are constantly looking for alternative ways to get maximum profit for their capital.

In this study, the effect of sudden and large amount of increases and decreases in foreign exchange rates on stock returns are analyzed and the sudden and large amount of increases and decreases in exchange rates between the years 2015 and 2018 are used for this purpose. Sixteen different companies from the various industry groups in BIST 100 were selected. The effect of sudden and lage volume of change in exchange rates on the return of stocks are examined by analysing the stock returns of the companies in 18 different industries as a response to 16 sudden changes in exchange rates (events) by employing event study methodology. In recent years Turkish economy has expreienced high level of exchange rate volatility. BIST (İstanbul Securities Exchange) is one of the leading emerging market exchanges. Other emerging markets have sometimes also experienced high amount of exchange rate volatility. We believe that our study will make a modest contribution to related literature by revealing the effect of sudden and high amount of change in exchange rates on stock returns.

CHAPTER I

STOCK AND EXCHANGE RATE

1.1. STOCK DESCRIPTION, FEATURES AND BENEFITS
1.1.1. Definition of Stock and Its Properties

The time when the stock exchanges were established coincided with the time when the stocks began to change hands thorough trading. With the beginning of the maritime trade, the trading of stocks also began. After a while, the trading of stocks with increasing volume of transactions began to be made more securely and under record in organized exchanges instead of trading accomplished on over-the-counter markets. This development accelerated the establishment of stock exchanges.

Stock is one of the most popular type of security that comes to mind when it comes to investing in securities. Stocks are securities that corporations give to their shareholders in order to document their shares. In other words, stocks represent a certain portion of a corporation's capital. Stocks are issued only by corporations. Other types of companies are not allowed to issue stock. Investors become shareholders (in other words owners) of a corporation by buying the stock of that corporation. Stocks of the publicly held corporations are open to the investment of the general public and traded in an organized exchange. Owning stock also gives certain rights to the investor or the shareholder.

The main purpose of issuing stock is to meet the cash needs of corporations arising mainly from new projects. A corporation may also issue stock for other purposes such as paying off its debt or to strengthen its working capital and liquidity. Issuing stock causes cash inflow for the issuing corporation. At the same time, stocks provide investors a return. However, stocks do not promise fixed returns to their investors and the return to the investors may differ depending on the earnings and investment decisions of the corporations. Corporations must get permission from the Capital Markets Board (CMB) in order to issue stock to the general public. In this

case, shares are issued under the supervision of the CMB. Stocks, the most traded financial instruments in exchanges, are of great importance to corporations and investors.

Stock ownership provides some rights to its investor. We can list the properties of the stock as follows:

- The legal qualifications of stocks are determined by the Turkish Commercial Code (TCC) and the Capital Markets Law.

- Acquiring a share in accordance with the TCC means becoming a shareholder in that corporation's capital.

- Within the Company's Articles of Association, it is determined how many shares the capital can be divided into and how much of the capital each share represents.

- According to Article 389 of the TCC, if issued in various arrays and denominations, they cannot be less than 500 Turkish lira each. However, the administrative decision may be made according to the current conditions.

- Stocks are securities.

- Stocks that are traded in an organized exchange can be converted into cash easily. So they are very liquid.

- The return of the high-risk stocks (speculative stocks) is higher. Return of low-risk stocks are lower. So, there is a positive relation between risk and return in stoc investment. Higher return requires taking higher risk.

- Stock purchases in the primary market enable the investors to channel their savings into the real sector.

Stock owners (shareholders) have certain rights. These rights cannot be transferred. These rights are transferred to the new owner when the stocks are sold. Only preemptive right can be transferred without selling the stocks.

There are a number of rights and responsibilities defined by the TCC for the shareholders. The rights granted by the stock are as follows:

· Pursuant to Article 553 of the TCC; Dividend right; the right to receive dividend payment from the corporation's net income.

· Pursuant to Article 373-537 of the TCC; shareholders have the right to participate in management and vote in the general assembly of the shareholders.

· Pursuant to Article 394 of the TCC; shareholders have preemptive rights.

・Pursuant to Article 362 of the TCC; shareholders have the right to demand information from the management about the corporation's activities.

・Pursuant to Article 455 of the TCC; shareholder is entitled to participate in the liquidation balance.

The responsibilities of the shareholders are: Pursuant to Article 363 of the TCC; each shareholder must keep company secrets even if he/she has left the partnership afterwards. They also have a responsibility to fulfill their commitments and comply with the terms of the articles of association. Rights and responsibilities arising from the stock ownership may be transferred with the purchase and sale of the shares. Apart from this, there is no transfer of rights and responsibilities in the stock market.

Stocks are the most liquid financial instruments traded in securities exchange, so they are the most preferred instruments. They can be easily purchased and sold and easily converted into cash. Both investors and issuing corporations benefit from stock offerings. Corporations can acquire the funds necessary to grow, while the investors earn a return from stock investment. Many investors who want to invest their savings in stock market closely monitor the performance and activities of the corporations whose stocks they want purchase because they know more informed investment decisions result in more earnings. Stock performance of the corporations in the secondary market is important in order to attract more investors. In this way, stocks are a very important tool for both corporations and investors.

1.1.2. Advantages of Stock Investments

Stock markets provide benefits to the economy, corporations and the investors. The following are some significant advantages of stock investments:

- Stock investments are very liquid. In other words, stock market is very liquid. Investors can easily liquidate their investments in the stock market at a fair price.

- Stocks markets are organized markets. Stocks listed on Borsa Istanbul (BIST) stock market are traded in an organized exchange.

- Corporations can meet their fund needs by issuing stock. This way, stocks contribute greatly to the growth of a corporation.

- Trading of shares of a corporation on the stock exchange will increase the corporation's credibility and improve its image.

- Stock market enables the Investors to invest their saving in the stocks of large corporations and become their shareholders.

Shareholders also have certain rights when they purchase the shares of a corporation. The rights that stem from share ownership can be summarized as follows:

・ Allows shareholders to participate in the board of directors.

・ Stock market is a spot market and the investors can buy and sell the shares at any time in the secondary market.

・ Investing in stocks protects the investors against inflation. (Karan, 2004:308)

・ Stocks have two-way transactions. In other words, short-selling advantages exist in stocks, and short selling allows the investors to profit as the price of the shorted stocks fall.

・ Foreign investors can also invest into the local stock market. Investments of the foreign investors provide foreign currency to a country.

Because of these advantages stocks are one of the most popular financial instruments. Many investors purchase stock and many corporations issue stocks in order to benefit from these advantages.

1.2. FACTORS AFFECTING STOCK PRICES

1.2.1. Overview

There is not a single factor, like every financial instrument, that affects the stock price. The price of every financial instrument is affected by different factors. So the factors that affect the price of different securities vary. For example, the factors that affect the price of gold are different from those that affect stock price. Investors who invest in stock market should grasp the factors that affect stock prices in order to a sound investment decision.

Stock investments are long-term investments, so it is important that the investors are well aware of any price fluctuations that may occur in the long-term. Stock investments offer two types of returns, which are capital gain and dividend yield. Capital gain occurs when the investor sells the stock that she/he owns at a higher price than the amount paid when the shares are purchased.

In order to earn this capital gain, stock market transactions should be planned and executed wisely. Although stock prices fluctuate depending on supply and demand balance in general, there are two main reasons for fluctuations in the price of stocks. These factors are mainly the factors that affect company performance. These factors can be divided into two categories: micro and macro factors. Micro factors mainly stem from company and industry specific events. For example: the quality of management, demand of the product or service supplied by the corporation, financial position of the corporation growth opportunities and so on. Stock prices are affected by such factors as these also affect the performance of the issuing corporation. Macro factors mainly stem from the events in domestic and global developments or developments outside the corporation. Macro factors include global chaos, pandemics, recession, financial crises, geopolitical risks, etc. In short, the impact of company performance on stock price is very important. However, the performance of the issuing corporation is also affected by the situation in the sector, the country's economy and politics, central bank policies and the level of the exchange rate

Returns of other securities and commodities also affect the stock prices. For example, increasing demand for foreign currency or precious commodities may reduce the demand for equity securities and affect their prices. In this regard, foreign exchange rate is one of the important factors affecting stock prices (Aksooğlu and Yurdakul, 2002- Yılmaz, Güngör and Kaya, 2006). The exchange rate affects the entire economy but is more effective on corporations that have international operations (Önal, Doğanlar ve Canbaş, 2002, p.19-21). Global economic developments also have an impact on the stock price. Another factor that affects the stock prices is the investments made by foreign investors into the domestic stock market. It is important for the investors to know and interpret the factors that affect stock prices in order to make informed investment decisions. Stock prices and the factors affecting these prices are very important for both the buyers and the sellers.

Prices of stocks during a trading day constantly change. The strong forecasts for the direction of the prices enable the investors to earn a return. In order to earn reasonable returns, it is important to be well aware of the factors that cause an increase and decrease in stock prices.

In general, the prices of stocks are determined by supply and demand conditions, but other underlying factors must also be well known. Stock prices generally fall during economic downturn. Economic downturn affects the growth of companies and raises concerns. At the same time, stocks prices also fall during periods of interest rate hikes. The reason is the reverse relationship between interest rates and stock prices. In the event of natural disasters, stock prices may also fall. Basically, stock prices decrease as the investors rush to sell their stock holdings as a result of adverse prospects. Large amount of selling increases the supply of stock thus pressure the prices. On the other hand, the growth of the country's economy is the opposite of the reason for the decline. Growth of the country's economy means growth in companies. The growth of companies will increase profitability and stock prices will also rise. The increase in demand for stocks instead of commodities will also increase the price of stocks. The most important reason for the increase in stock prices is the increase in the performance and growth prospects of the issuing corporation. Growth expectations in revenue and profit of the issuing corporation create extra demand for the stock thus this increased demand causes the stock price to rise. Of course, company performance is also affected by the factors such as the country's economy, central bank policy, general politics and the level of the exchange rates.

Stock prices increase and decrease as a response to the factors such as supply and demand for the stock, economy, corporate news, expectations, speculation and manipulations, political events, major scandals, strong media, global events, natural disasters, war and terror events. If the factors that affect stock price are not taken into account, investment decisions will not be accurate and the investor will suffer losses.

1.2.2. Factors Affecting the Stock Prices in Turkey

Borsa Istanbul (BIST) is the only stock market in Turkey. It is formed by combining the Istanbul Securities Exchange, Istanbul Commodity Exchange, and Istanbul Gold Exchange. Currently, 491 companies are listed on BIST stock market. Almost every year in our country, new companies are listed on the stock market as a result of new public offerings. There are indices such as BIST30, BIST50, and

BIST100 to indicate the market performance. BIST indices provide information about the general condition of the stock market and the related industries.

There are company-specific factors and macroeconomic factors that have an influence on the prices of the stocks traded in Borsa Istanbul. Company-specific factors that affect the prices of the stock include company performance, dividends, revenues, profitability, board changes, appointment of new management, acquisition new assets, etc. (Imegi, 2014:81; Kurz et al., 2005). Macroeconomic factors are level of interest rates, inflation, exchange rates, money supply, gold prices, oil prices, foreign trade balance, industrial production index, and economic growth. In addition to macroeconomic and company-specific factors, factors such as political, market psychology, anomalies, insider trading, manipulation and speculation also affect stock prices.

All the factors explained above affect the Turkish stock market as they have an effect on the stock market of any other country.

1.3. FOREIGN EXCHANGE RATE
1.3.1. Exchange Rate and Exchange Rate Regimes

Foreign exchange rates are one of the important indicators that affect the economic activities. Currencies need to be converted to one to other due to the trade between countries and the use of different currencies in foreign trade transactions. Because of this need, the foreign exchange market has emerged. As international trade has gradually increased, the importance of foreign exchange markets and exchange rates has also increased.

Exchange rates are determined according to supply and demand conditions in the market. The exchange rate of a country's currency with the currency of other countries is called the exchange rate. For example: If the exchange rate is $1 = 5 Turkish lira, it means the value of 1 USD is equal to 5 Turkish lira (Inclined, 2019:268). Exchange rates are quoted two ways: bid and ask price. Bid price is used when the foreign currency is bought; ask price is used when the foreign currency is sold.

There are four categories of exchange rates: nominal exchange rate, real exchange rate, cross exchange rate and effective exchange rate.

- **Nominal Exchange Rate:** Value of the foreign currency against the national currency. Exchange rates quoted at foreign exchange kiosks and banks. (Inclined, 2019: 281) For example, USD/TRY = 6.84.

- **Real Exchange Rate:** Exchange rates that are adjusted based on the inflation difference of two countries. It can also be described as the purchasing power of the national currency in terms of a foreign currency. Calculation of the same goods as the nominal exchange rate of the two countries by comparing the current sales prices. (Inclined, 2019: 281)

- **Cross Exchange Rate:** Foreign currency exchange rate to another foreign currency. For example, Euro USD exchange rate is cross exchange rate for a Turkish company.

- **Effective Foreign Exchange Rate:** It is the weighted average of the exchange rates of national currency with the currencies of the countries that the country trades the most. There are two types effective exchange rates. One is a nominal effective exchange rate and the other is a real effective exchange rate. The nominal effective exchange rate is the weighted average of the Turkish lira in the currency basket of the countries with the highest volume in Turkey's foreign trade. The real effective exchange rate is the elimination of relative inflation effects from the nominal effective exchange rate. (Inclined, 2019: 281)

The exchange rate is affected by many factors such as economic conditions, politics and central bank policies. For example, economic uncertainty in our country will cause depreciation in the Turkish lira, while the exchange rate in the USD/Turkish lira will gain value. In exchange rate quoted as USD/Turkish lira, USD is the base currency Turkish lira is the counter or quoted currency. This quotation means how much quoted currency is required to obtain one unit of base currency. Political and economic stability increases the value of a country's currency while the opposite such as economic crises will lower the value of the currency. If the foreign exchange rate rises, the currency of the country will lose value (depreciated), but if conversely foreign exchange rate drops, the currency of the country will gain value

(appreciated). In Turkey, the exchange rate is determined in three different ways. These are the exchange rates of the Central Bank, the exchange rates of the banks and the private financial institutions and the market exchange rates.

Exchange rates are determined in different ways. They are called exchange rate systems or exchange rate regimes. Exchange rate systems are explained briefly at this point. There is fixed exchange rate system at one end and there is free or floating exchange system at the opposite end. The oldest fixed exchange rate system is the gold standard system. After the second world war, the Bretton woods system, which is a fixed exchange rate system, was implemented as an international money system. Considering that the different exchange rate systems constitute a range, there are many hybrid systems between fixed exchange rate system and floating exchange rate system. These systems can be grouped into three general headings. They are explained as follows:

· **Fixed Exchange Rate System:** The fixed exchange rate system fixes, as its name indicates, the value of the local currency against a foreign currency. The fixed exchange rate regime operates the best in the gold money system. In the gold money system, the value of each country's money is pegged to pure gold at a certain weight. But as it is explained above gold money system is not implemented today. Today, in fixed exchange rate system central banks determine the exchange rate. That is why the system is called fixed because central bank of a country fixes the exchange rates. Several countries including China implements fixed exchange rate system. The main purpose of the fixed exchange rate regime is to enable the central banks to determine the exchange rate by themselves. Furthermore, the other objectives of the fixed exchange rate system are to reduce exchange rate fluctuations by controlling inflation and thus increase the volume of international trade by eliminating uncertainties. The drawbacks of the fixed exchange rate system are problems in the application of financial and economic instruments for monetary policy decisions, and the systems inability to reflect the true value of the exchange rate.

· **Floating exchange rate system:** According to this system exchange rates are determined in the market based on the supply and demand. We can define total foreign currency demand as the balance of the value of total exports and imports.
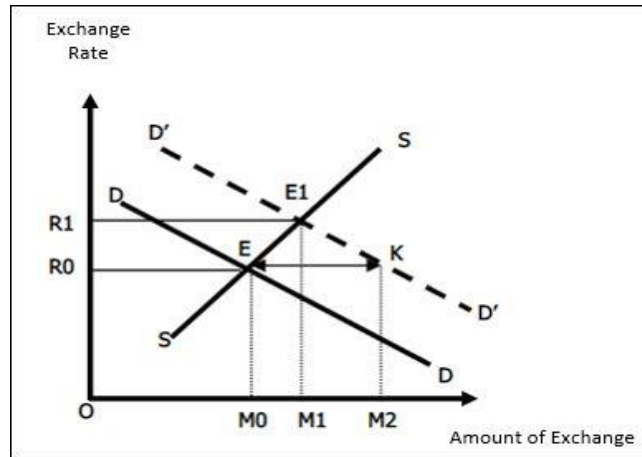
Figure 1: Foreign Exchange balance (Dinler, 2010:492)

Determination of foreign exchange rates are left to the functioning of supply and demand forces in the foreign exchange market in competitive market conditions. DD refers to foreign currency demand in the foreign exchange market, while SS refers to the balance point E for foreign currency supply and intersections. With a D'D' shift under the free exchange rate system, the exchange rates rise to R1 and the balance reaches E1 level. If the foreign exchange rate is to be kept at the R0 level, then the central bank should sell M0-M2 amount of foreign currency in foreign currency market. In the absence of central bank's intervention, the exchange rate will fluctuate without any restrictions. As shown in the graph below, fluctuations will be quite large.
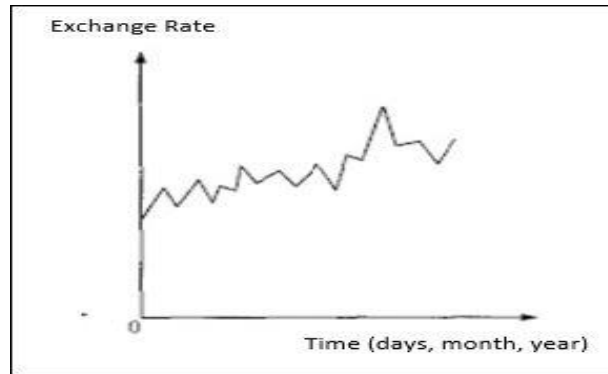
Figure 2: Rate Changes Chart

The advantage of the floating exchange rate regime is that it reflects the true value of national currency, and provides advantages such as balancing the balance of payments, independence of internal monetary policy, and reduced dependency on external reserves. The disadvantages include trade and investor deterrence, loosening control over inflation, unstable speculation, and so on. Implementation of the floating exchange rate system began in developed countries in the 1970s and in emerging countries in the 1990s. In the 1980s, Turkey switched to floating exchange rate regime and has now reached a freer position. (Inclined, 2019: 269) In particular, after the economic crisis in 2001 floating exchange rate system became the only foreign exchange rate system implemented in Turkey. (www.tcmb.gov.tr, Exchange rate policy, June 2020)

· **Mixed Exchange Systems:** This a system that has the characteristics of both the fixed exchange rate system and floating exchange rate system. These are managed floating, floating within the range, rolling range, fixed range, crawling peg, adjustable fixed exchange rate system, currency board system, dollarization and monetary union. Mixed systems arose from the need to give flexibility to fixed exchange rate system and the need to intervene in exchange rates when the volatility increases.

1.3.2. Factors Affecting the Foreign Exchange Rates

Foreign exchange rates are sensitive to different factors. The most common factors that affect the exchange rates are supply-demand, inflation, interest rates, capital, and political factors. One or more of these factors will have an impact on both international trade and the country's economy. Accordingly, they have also an

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impact on the corporations and their stock values. Therefore, it is very important to know these factors.

1.3.2.1.Supply-Demand Factor

It is the most important factor that affects the foreign exchange rate. The intersection of the supply and demand curves determines the exchange rate. If the foreign currency entered into the country is more than that of spent then there is excess supply of foreign currency. If the foreign currency spent exceeds the foreign currency entered into the country then current account deficit occurs. If the supply exceeds the demand, local currency appreciates. In the opposite case, if the demand exceeds supply local currency depreciates. In other words, supply-demand factors play the most important role in determining the foreign exchange rate.

1.3.2.2.Inflation

In a country with high inflation rates, the exchange rate of the country's currency is depreciated, leading to an environment of uncertainty in the country. Because of high inflation the prices of the goods manufactured in the country become higher compared to the prices of imported goods. This situation causes increase in demand for imported goods and foreign currency, and the increased demand for foreign currency increases the foreign exchange rates. In this respect, there is a strong relationship between the exchange rate and inflation. At the same time, the prices of imported goods are affected by an increase in the exchange rates, leading to an increase in prices and inflation. As a result, there is a direct relationship between inflation and the foreign exchange rates. Turkish economy has experienced this situation recently.

1.3.2.3.Interest Rates

Interest rates are another economic factor that affects the foreign exchange rates. Portfolio flows shift towards countries with high interest rates to earn higher return and naturally the currency of the country gains value as more and more amount of foreign currency enters the country for portfolio investments. In other words, the demand from local and foreign investors for local currency increases as interest rates increase. Investors sell the foreign currencies they have (in other words

convert foreign currency into local currency) and invest the local currency into domestic instruments. Thus, increased demand for local currency causes the local currency to appreciate. The decline in interest rates increases the demand for foreign financial assets leading to an increased demand for foreign currency, which causes domestic currency to depreciate and exchange rates to increase. Therefore, there is a negative relationship between interest rates and exchange rates. (Taylor, 1995)

1.3.2.4.Capital Factor

Today, not only the imports and exports but also the capital flows have an impact on the foreign exchange rates. Today, the volume of capital flows is higher than the volume of foreign trade and therefore the impact of capital flows on the exchange rates is very important. Here, capital flows in terms of foreign direct investments and portfolio investments must be distinguished. The former is long-term while the latter is short-term. While long-term capital flows constitute a positive role in the country's economy, short-term capital flows pose a problem. In this respect, the capital flows factor is very important in terms of foreign exchange rates.

1.3.2.5.Political Factors

Political factors as well as the economic factors have a significant influence in determining the exchange rates. The reason is that economic factors are not independent from the political factors. Economic policy, political uncertainties and policies adopted by the central bank are the main political factors that affect the foreign exchange rates.

These factors have profound impact on the foreign exchange rates. Knowing the effects of these factors on foreign exchange rates is very crucial.

1.3.3. Exchange Rate Risk

New risks have emerged in recent years with globalization and financial liberalization. One of them is the exchange rate risk. Exchange rate risk refers to the losses that may arise from changes in values of assets or liabilities denominated in foreign currencies as a result of fluctuations in foreign exchange rates. More specifically, it is the loss of companies suffers as a result of exchange rate changes. (Rodrigez. 1974:849)

Exporter and importer companies and foreign investors are exposed to foreign exchange rate risk. An unexpected change in the exchange rate may adversely affect the cash flows of companies or organizations, resulting in currency risk. For example, an importer has an obligation in foreign currency, but it does not have asset denominated in foreign currency. The company's cash flows are adversely affected by the increase in exchange rates. As a result of increase in foreign exchange rates, the company has to spend more local currency to acquire foreign currency, and the goods or services it imports become more expensive. This increases the company's foreign exchange risk. In particular, cash flows of the companies that import in foreign currency or have debts denominated in foreign currency deteriorate and also their costs increase. But there are measures that can be taken to reduce this risk. First of all, the factors that affect the exchange rates and the types of risks that are exposed to should be well known so that risk management can become easier for companies. The following factors affect the exchange rate: 1-) the nature of the exchange rate system applied in the country, 2-) the power of decision-makers in the foreign exchange market to affect the exchange rate, 3-) the country's balance of payments, 4-) the economic situation of the country and exchange rate movements in international markets. There are also three types of exchange rate risks. They are: 1. Transaction risk is the unpredictable future cash inflows and outflows of foreign currency transactions due to exchange rate fluctuations. 2. Accounting Risk is the impact of exchange rate fluctuations on companies' financial statements. 3. Economic Risk determines the company's value by influencing the company's future cash flows due to sudden fluctuations in foreign exchange rates. This means that the company's sales and potential competitiveness are also affected.

In order to minimize these risks, companies may use certain techniques and tools. Companies use these tools and techniques to manage risks and minimize losses by protecting them from exchange rate fluctuations. The importance of foreign exchange risk management also emerged.

1.3.4. The Impact of Globalization on Foreign Exchange Rates

The pace of globalization has increased in recent years due to technological developments, interactions of international markets, and capital flows. Today, companies are also affected greatly by the influence of these developments.

Developments in foreign exchange rates also affect the companies. Exchange rate changes have also an impact on the general economy.

The exchange rate is closely related to the globalization of finance and the liberalization of international capital flows, the transaction of fund supply and demand and financial market participants in more appropriate locations without being subject to geographical limitations. With globalization, international trade has also increased. The increase in international trade has increased the use of foreign currency, thus contributed to the fluctuations in foreign exchange rates.

For individual and institutional investors, the interaction between exchange rates and equity prices is crucial. Because the foreign exchange market will attract investors as an alternative market due to uncertainties in the capital markets, and investors will turn to the foreign exchange market for lower-risk returns. Some investors liquidate their stock investments in order to make an investment in foreign currency market. The attraction of foreign exchange markets as opposed to equity markets causes an increase in foreign exchange rates and a decrease in stock prices because of increased supply of stocks and increased demand for foreign currency. This situation lowers the stock prices and increases the exchange rates. It is important for the investors to determine the relationship between future foreign exchange prices and stock prices within certain margins in order to minimize losses and/or provide a reasonable return.

1.3.5. Sudden Changes in the Foreign Exchange Rate

Foreign exchange rates change rapidly. Changes in foreign currency affects the entire economy, from companies to consumers. The sudden and high-level of changes in the value of the foreign currency is called "exchange rate shock." Exchange rate shocks have effects that spread from inflation to interest rates, from imports and exports, ands to the stock market.

A change in the exchange rates affects both countries' economies and companies. Changes in foreign exchange rates have negative or positive effects on companies by influencing the value of foreign currency denominated assets and liabilities. In the same way, losses arising from foreign exchange risk can adversely

affect the costs of the companies and therefore their values. However, companies that manage their foreign exchange risks better and benefit from exchange rate fluctuations are more successful.

Companies want to maximize their value for their shareholders and try to increase the company value by trying to manage the foreign exchange rate risk in the best way possible. Accordingly, the companies that manage their foreign exchange risks best preserves their values. The management of the risks arising from sudden changes in foreign exchange rates in Turkey has recently become very important.

1.4. RELATIONSHIP BETWEEN FOREIGN EXCHANGE RATES AND STOCK PRICES

Foreign exchange rates are one of the important indicators that affects economic activities around the world. As a result of globalization, countries' interaction with international markets has accelerated. Technological developments have further increased this and helped foreign investors enter the other countries' markets faster. These developments have affected emerging countries positively or negatively. The instability in a country affects the economy of other countries that trade with that country's currency.

The price of one country's money in another country's currency is called "Exchange Rate." The Turkish lira price of the dollar is referred to as "dollar exchange rate." Changes in exchange rates affect the general economy as well as the companies (Mishra, 2004: 210; Phylactis and Ravazzolo, 2005: 1032). With these developments, it has become important to examine the relationships between exchange rates and the stock prices. Due to assets and liabilities denominated in foreign currency a change in the value of the national currency against foreign currency may result in a positive change in profit or adverse losses for companies. Adler and Dumas (1984: 42) claimed that the inputs used by companies in production were affected by exchange rate changes while carrying out their activities. Changes in foreign exchange rates are reflected in the company prices. This will affect the competitiveness of companies, for better or worse. Jorion (1990:334) examined the interaction of the foreign exchange rates of the multinational corporations in the US and found a significant relationship between the

share price and the exchange rate. Boyacıoğlu and Çürük (2016) examined the effect of the exchange rate on 42 companies in the manufacturing and trade sectors for 2006-2014 and found that the change in the real exchange rate had a positive impact on the return of shares. Turkey is an emerging economy and Euro and USD dollar are used for imports and exports. For this reason, values of these two currencies are very important for the companies and they also affect the valuation of stocks in the stock market. The main objective of the corporations is to maximize their stock value and thus maximize the wealth of their shareholders. Buberroot (1997) examined the interaction of foreign exchange rates and stock prices in developed countries, which are Japan, Canada, the UK, Switzerland, Germany, Australia, and emerging countries, which are Southern Korea, Turkey and Singapore by using Granger method. Overall, while Canada and Switzerland had a one-way causality relationship from stock prices to foreign exchange rates, the remaining developed countries did not have a causality relationship. In Southern Korea and Singapore, there is a one-way causality towards the foreign exchange rate to stock prices. There is a causality relationship for Turkey.

CHAPTER II

AN ANALYSIS OF THE IMPACT OF SUDDEN CHANGES IN FOREIGN EXCHANGE RATES ON STOCK PRICES

2.1. PURPOSE AND METHOD OF THE RESEARCH

A sudden increase in the USD exchange rate is expected to lower the prices of stocks and a sudden decrease in the USD exchange rate is expected to increase the stock prices. An inverse relationship is expected between USD exchange rate and stock prices. Volatility in stock market has always played an important role in investment decisions and market modeling. (Yılmaz, 1997: 26) This volatility makes the stock market risky. Therefore, this volatility in stock prices affect the decisions of the investors regarding the purchase and sale of shares. A sudden and sharp increase in exchange rates indicates an economic or political problem so the equity investors decide to sell their stock holdings because of perceived high risk. This move of the equity investors put downward pressure on stock prices. A sudden and sharp increase in exchange rates creates an expectation for the investors that the exchange rates will continue to increase. As a result of this expectation domestic investors try to take the advantage of high exchange rates and sell their stock holdings to buy foreign currency. As a result of the expectation that the foreign exchange rate will continue to increase foreign investors sell their stock holdings, convert the proceeds to foreign currency before the exchange rate becomes higher. The reverse expectations are true for a sudden and sharpe decrease in exchange rates.

This study aims to examine the impact of sudden changes in the USD exchange rate on the stock prices of the corporatipons in various industries in BIST 100. In this study, the method of event study with the market model is employed to investigate the relationship between the sudden change in USD exchange and the stock prices. Event study is preferred because this method is used to investigate the effect of an event on the stock returns. The event methodology also helps determine

the direction and magnitude of the effect of an event on change in the stock prices. (Serra, 2002:5) In short, the event study is a method that allows to draw conclusions on the impact of an event over a period or several periods. The event study method is commonly used in many areas such as accounting and finance, management, economy, marketing, information technologies, law, political science, operations and supply chain management.

Although the event study does not involve a single model there are generally four successive steps in the financial applications of event studies. These include: 1-) Identification of the event, 2-) Determination of the event window, 3-) Evaluation of the effects of the event, 4-) Creating and testing the model and concluding and interpreting the result (Eppli and Tu, 2005:120; Tuominen, 2005:51-59).

The dates for the sudden increase and sudden decrease in the exchange rate of the USD are first determined between the periods 2015 and 2017. Sixteen event days are determined. Eight of them show sudden increases in the USD exchange rate, while the other eight are related to sudden declines.

The event in question in this study is the sudden change in the USD exchange rate, and the event date is the day on which the event occurred. The event window is 10 days before and 10 days after the event (Mazgit, 2013). The time at which the event occured, the "t_0" is considered as the event date. There is no consensus on how much time the event window should cover before and after the event date "t_0".
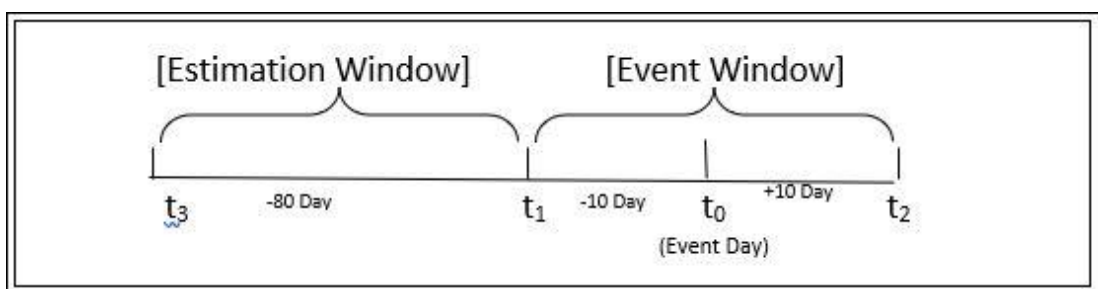
Figure 3: Estimation Window and Event Window in Event Study

Event study is employed to investigate the effect of the same event on different companies. The tests carried out in this method require a broad sampling of different companies' gains earned or losses incurred as a result of the same event

(Kaderli, et al. 2014: 53). Event study method requires that the event window and estimation window be established. This study used the stock returns of 18 companies in different industry sectors traded on BIST. Also, sudden and sharp increases and decreases dates in the US dollar exchange rate between 2015 and 2017 are also determined. These dates are accepted as event dates. Ten days before the event date and 10 days after the event date establishes the event window. The estimation window consists of a period before the event window. When determining the estimtion window it is important that the event window and the estimation window should not overlap. An estimation window is established in the study by going back 80 days from the last day of the event window.

In the case of the creation and testing of the model, the following steps are performed:

Step 1: Daily returns for each stock are calculated based on the closing prices of the stocks:

$R_{it} = P_{it} - P_{it-1} / P_{it-1}$

R_{it} = Return of ith stock at time t,

P_{it} = closing price of ith stock at time t and

P_{it-1} = Closing price of ith stock at time t-1.

Step 2: Market return is calculated by using the following formula

$R_{mt} = I_t - I_{t-1} / I_{t-1}$

R_{mt} = Return of the BIST 100 index at time t,

I_t = the closing value of the BIST 100 index at time t and

I_{t-1} = Closing value of BIST 100 index at time t-1.

Step 3: The equation of the market model is as follows:

$ER_{it} = \alpha_i + \beta_i R_{mt} + e_{it}$

ER_{it} = expected return of ith stock capital in period t,

Rmt = Return of the market index (BIST 100 index) in the period t,

α i = Return of ith stock when the market in the estimation window is stable,

β i= Calculated Beta coefficient in the estimation window fot stock i,

eit= Error term of stock i in period t.

Step 4: Calculating the abnormal return of the stock i in the period t:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$$

Step 5: Calculation of average abnormal return:

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{i,t}$$

N = number of all stocks

Step 6: Calculation of cumulative average abnormal return:

$$CAAR_T = \sum_{t=1}^{T} AAR_t$$

T = Average abnormal returns on day T in event window

In this study the calculations were made using these steps.

The hypotheses of the research are as follows:

H0A: The average abnormal returns of stocks equal to zero on the days around the start of the sudden rise in the USD exchange rates (AAR=0).

H1A: The average abnormal returns of stocks on the days around the start of the sudden rise in the USD exchange rates are different from zero (AAR $\neq$ 0).

H0B: The average abnormal returns of stocks equal to zero on the days around when the sudden decrease in the USD exchange rate begins (AAR=0).

H1B: The average abnormal returns of stocks on the days around when the sudden decrease in dollar exchange rates began to occur are different from zero (AAR $\neq$ 0).

H0C= Cumulative average abnormal returns of (-1.1), (-1.0), (0.1), (-5.0) and (0,-5) equal to zero in the periods when the sudden rise in the USD exchange rates starts (CAAR=0).

H1C = Cumulative averge abnormal returns of (-1.1), (-1.0), (0.1), (-5.0) and (0,-5) are different from zero (CAAR $\neq$ 0) for the periods on which the sudden rise in the USD exchange rates began.

H0D= Cumulative average abnormal returns of (-1.1), (-1.0), (0.1), (-5.0) and (0,-5) equal to zero in the periods when the sudden decrease in the USD exchange rates starts (CAAR=0).

H1D= Cumulative averge abnormal returns of (-1.1), (-1.0), (0.1), (-5.0) and (0,-5) are different from zero (CAAR $\neq$ 0) for the periods on which the sudden decrease in USD exchange rates began.

The equations for the t value to be calculated for hypotheses to be tested are given below.

The calculated t value for average abnormal returns is calculated using the following equation. $t = \dfrac{\text{AARt}}{\hat{\sigma}AAR}$

$$\hat{\sigma}\text{AAR} = \sqrt{\dfrac{\sum_{t=-89}^{-11}(AARt-AAR)^2}{78}}$$

The calculated t value for the cumulative average abnormal returns is calculated using the following equation.

$$t = \dfrac{\text{CAARt}}{\hat{\sigma}AAR\sqrt{(\text{T2}-\text{T1}+1)}}$$

When the calculated t values are greater than 2.57 for 1%, 1.96 for 5% and 1.645 for 10%, 1.57% for 1%, 1.96% for t distribution table, zero hypothesis will be rejected and alternative hypothesis will be accepted.

Statistically, when the average abnormal returns calculated are not zero, it will be concluded that sudden changes in the dollar exchange rate have an effect on changes in the stock price.

For the average abnormal returns obtained in the study;

If negative abnormal returns are obtained in the stocks on the days following the sudden rise in the USD exchange rate, it is determined that the sudden increase in the USD exchange rate has a negative impact on the stock market.

If positive abnormal returns are obtained in the days following a sudden drop in the USD exchange rate it determined that the drop in the USD exchange rate has a positive impact on the stock market.

If abnormal returns are not obtained in the stocks on the days following sudden drop in exchange rates and sudden rise in exchange rates, it will be concluded that the sudden changes in the USD exchange rate has no impact on the stock market.

2.2. LITERATURE REVIEW

This section covers literature review on event study in the world and in Turkey.

2.2.1. Application of Event Study in the World

The event study is simpler and more straightforward method compared to other econometric ethods. The main purpose of an event study is to measure abnormal and unexpected effects on prices arising from economic and political events. In addition, the event study provides us with information on the timing of the effects of events and the market structure. The reason this method is preferred is to provide us with long and short-term information on stock performance.

Dolly is the first scientist to conduct the first event study in 1933. Many studies had been conducted by employing event study until 1960, but important developments occurred after 1960. In 1968, Ball and Brown developed the method used in event studies today. They proved the hypothesis that earning announcements affected the stock prices by using the event study. On the other hand, Fama, Fisher, Jensen and Roll (FFJR) in 1969 initiated a revolution in event study, and they first calculated abnormal returns and average abnormal returns. Kothari and warner (2006,ch.1). Fama (1970) divided the information efficiency into three levels: weak form, semi-strong form and strong form. Weak form of efficiency asserts that

abnormal returns cannot be earned by using histrical volume and price data because current stock prices also contain this information. Semi-strong form of efficiency asserts that abnormal returns cannot be earned by using publicly related information about the issuing corporations because these iformation are reflected in current stock prices. Event study is used to test semi-strong form of efficiency. Announcements made public are used as events. Strong form of efficiency asserts that abnormal returns cnnot be earned by using insider information. Special information tests are conducted to test strong form of efficiency (Kurtay 2007, p.49-51). Brown and Warner in 1980-1985 formed the foundations of the event study to test market efficiency. The paper published in 1980 focused on the performance of using monthly data, while the article in 1985 described problems in the use of daily data. These names are important names for early analyses. In 1985, Horsky and Swyngedouw investigated the effect of company name changes on the stock price. In 1991 Chaney et al examined the effect of new product announcements on the stock price. The steps of event study are discussed and outlined by Mac Kinlay (1997).

Binder (1998) deals with the change of the estimation and event window separation in long data sets. Some important contributions to event study are as follows: Das, Sen and Sengupta (1998) studied effect of alliances, and the Subramani.M. and E.Walden (2001) examined the effect of e-commerce events on stock price. Other important studies include: Peterson (1989), MacKinlay (1997), Serra (2002), Kothari and Warner (2005), Cichello and Lamdin (2006) and Johnston (2007).

2.2.2. Event Study in Turkey

Many event studies have been conducted and contributed to the literature in Turkey. In event studies, effects of the initial public offerings, the impact of news, announcements of investment decisions, dividend payments, announcements of merger and acquisition decisions, announcements of intercompany cooperation, rating announcements, political events and macroeconomic developments have been investigated

Kıymaz (1999) investigated the impact of rumors on the stock performance of the companies operating in the manufacturing industry. Yazıcı and Muratoğlu (2001) investigated the impact of security recommendations published in the financial media

on the Turkish stock exchange. Mandacı (2003) analyzed the impact of the four elections between 1991 and 2002 on the ISE-100 through event study and concluded that stock returns around election days had abnormal returns. Çukur ve Eryiğit (2006) examined the effect of the merger and acquisition events occured in Turkish banking industry in 2006 and found that this event had a positive return on the exchange. Aygören and Uighar (2007) examined the impact of audit opinions on stock prices and concluded that the stock market has a semi-strong form of efficiency.

Kirkulak and Demirkaplan (2008) examined the effect of the merger announcements. It was found that following these merger and acquisition announcements, the positive trend in stock prices ended. Kaderli and Demir (2009) examined whether the investment decisions of 2008 had an impact on stock prices. Sakarya (2011) examined the impact of the rating announcements of the companies on stock prices. Furthermore, Sakarya has found that a good rating announcement has a positive effect on the stock price. Gülcan and Çakır (2012) examined the effect of the merger and acquisition announcements on the stock returns of the companies operating outside the finance industry between 2005 and 2009 and concluded that these announcements were effective. Babacan and Özer (2013) demonstrated the effectiveness of the voluntary disclosures of companies in ISE 100 on stock returns. Bozkurt et al. (2015) found that there were abnormal returns before and after the announcement of financial statement analyzes and that the Turkish capital market was not semi-strong efficient in this sense.

2.3. DATA

Daily closing prices of each stock are used in this study. BIST100 index is taken as the benchmark index in market model. Daily BIST100 index values are used in the research. Sudden increase in USD exchange rate dates: 15.04.2015, 8.06.2015, 6.11.2015, 18.07.2016, 9.01.2017, 11.01.2017, 25.01.2017, 9.10.2017. Sudden decline dates in the USD exchange rate are: 7.10.2015, 2.11.2015, 17.03.2016, 6.12.2016, 7.12.2016, 12.01.2017, 30.01.2017 ve 16.03.2017 Thus, eight suden increases in USD exchange rate and eight sudden decline in USD exchange rate are examined. Abnormal stock returns as a result of sudden increases in USD exchange rates and sudden declines in USD exchange rates are examined in this study.

CHAPTER III

FINDINGS

This study examines the effects of sudden changes in the USD exchange rates on stock prices of corporations operating in various industries identified in the BIST 100 and investigates the following events. The study employed the event study method. This method measures the positive and negative responses of the stock prices to sudden changes in USD exchange rates.

Corporations from 18 different industries whose stocks are traded on BIST are slected. Sixteen event dates between 2015 and 2017 are identified. Estimation and event windows cover 100 days. Event window is 10 days before and after the event date. Estimation window covers 80 days and starts from one day prior to the first day of the event window. The abnormal returns (AR) were calculated for each company during the event window (10 days, +10 days) and then the average abnormal returns (AAR) were calculated for 18 different companies. Finally, CAR and CAAR are calculated for (-1.1), (-1.0), (0.1), (-5.0) and (0,-5).

We have a total of 16 event dates. Eight of them show sudden increases in USD exchange rate, while eight show sudden declines. These dates are as follows:

Table 1: Sudden increase and decrease dates in dollar exchange rate.

Increase Dates	Decrease Dates
15.04.2015	7.10.2015
08.06.2015	02.11.2015
06.11.2015	17.03.2016
18.07.2016	06.12.2016
09.01.2017	07.12.2016
11.01.2017	12.01.2017
25.01.2017	30.01.2017
09.10.2017	16.03.2017

Daily actual stock returns of 18 corporations within the event window are calculated. Then expected returns are calculated by using the market model. Abnormal returns of these 18 stocks are calculated by using the actual returns and expected returns. Then, by averaging the abnormal returns of 18 stocks, the average abnormal returns (AAR) and average abnormal returns (AAR) and cumulative average abnormal returns between (1.1), (-1.0), (0.1), (-5.0) and (0,-5) are calculated. Table 2 shows the average abnormal returns and t values for the periods 10 days before and 10 days after the event dates. The cumulative average abnormal returns (CAAR) between the dates (-1,1), (-1,0), (0,1), (-5,0) and (0,-5) are shown in Table 4.

Table 2: Average Abnormal Returns Calculated 10 Days Before and 10 Days After the Event Days (Event is Sudden Rise)

Days	AAR1 (15.04.2015)	t value	AAR2 (08.06.2015)	t value	AAR3 (06.11.2015)	t value	AAR4 (18.07.2016)	t value
-10	0,001	0,171	-0,007	-1,712***	-0,002	-0,478	0	-0,079
-9	0,006	1,539	-0,001	-0,322	0	0,073	0	-0,11
-8	-0,002	-0,553	0,005	1,322	-0,006	-1,54	0	-0,11
-7	0	-0,002	-0,005	-1,195	0,001	0,26	0	-0,11
-6	0,003	0,767	-0,004	-1,082	-0,001	-0,13	-0,003	-0,826
-5	0,003	0,897	-0,007	-1,721***	-0,001	-0,184	-0,004	-1,321
-4	0,007	1,848***	0,003	0,662	-0,008	-1,934***	-0,003	-0,854
-3	0,006	1,435	-0,002	-0,615	0,01	2,328**	-0,001	-0,42
-2	0	0,105	-0,004	-0,936	0,001	0,232	-0,001	-0,354
-1	-0,002	-0,525	-0,003	-0,653	-0,001	-0,324	-0,003	-0,875
0	**0,004**	**1,037**	**-0,007**	**-1,625**	**0**	**0,002**	**0**	**0,059**
1	-0,004	-0,917	0,011	2,794*	0,006	1,398	0,002	0,479
2	-0,005	-1,25	-0,001	-0,3	-0,008	-1,881***	0,001	0,364
3	0,006	1,443	0,002	0,587	0,002	0,37	0	0,094
4	0,004	1,138	-0,001	-0,134	0,001	0,132	0	0,052
5	0,004	1,116	0,007	1,623	0,001	0,268	0,005	1,58
6	-0,001	-0,205	-0,004	-1,07	0,001	0,276	0,002	0,779
7	-0,006	-1,612	-0,003	-0,852	0,004	0,871	0	-0,145
8	-0,003	-0,876	0	-0,02	-0,003	-0,842	0,001	0,2
9	-0,002	-0,578	0	0,017	0,004	1,044	0,002	0,629
10	0,007	1,763***	0,011	2,751*	-0,001	-0,2	0,001	0,419

0.01(%1)* for 2,57, 0.05 (%5)** for 1,96, 0.10 (%10)*** for 1,645

On April 15, 2015, when the sudden rise in the USD exchange rate occurred, the lowest negative average abnormal return in 18 different stocks is on t+7 and the highest positive average abnormal return is on t-4 day. A positive return of 0.4 percent occurred on the date of the event. Positive returns on t-4 and t+10 days are statistically significant. Negative returns are reported on six days after the event day and positive returns are reported on four days after the event day. From now on when after the event day is stated it does not mean consecutive days but any day after the event day.

On June 8, 2015, when the sudden rise in the USD exchange rate occurred, the lowest negative average abnormal return in 18 different stocks is on t-5 and t-10 days and the highest positive average abnormal return is on t+1 and t+10 days. A negative return of 0.7 percent occurred on the date of the event. Negative average abnormal returns in t-10 and t-5 days are found to be statistically significant at 10 % level. Positive average abnormal return in t+1 and t+10 days are found to be statistically significant at 1 % level. Negative returns are reported on four days after the event day and positive returns are reported on four days after the event day.

November 6, 2015, when the sudden rise in the USD exchange rate occurred, the lowest negative average abnormal return of 18 different industries on the t-4 day and the highest positive average abnormal return on t-3 day. No returns occurred on event date. The negative average abnormal return in days t-4 and t+2 is found to be statistically significant at 10 % level, while the positive average abnormal return in t-3 day is statistically significant at 5 % level. Positive returns are reported on seven days after the day of the event and negative returns are reported on three days after the event day.

On July 18, 2016, when the sudden rise in the USD exchange rate of occurred, the lowest negative average abnormal return in 18 different stock is on t-5 day and the highest positive average abnormal return is on t+5 day. No returns occurred on the event date. No statistically significant daily abnormal return is found. No negative return is obtained on any day after the event day, while positive returns are obtained on seven days after the event day.

Table 3: Average Abnormal Returns Calculated 10 Days Before and 10 Days After the Event Days (Event is Sudden Rise) (Continued)

Days	AAR5 (09.01.2017)	t value	AAR6 (11.01.2017)	t value	AAR7 (25.01.2017)	t value	AAR8 (09.10.2017)	t value
-10	0,001	0,186	-0,001	-0,341	0,001	0,375	0,006	2,388**
-9	0,001	0,226	-0,001	-0,45	-0,012	-3,610*	0,009	3,986*
-8	-0,001	-0,363	0,003	1,131	0,009	2,716*	-0,01	-4,194*
-7	0	-0,116	0,006	2,084**	0,004	1,107	0,001	0,615
-6	0,002	0,511	0,004	1,32	-0,003	-1,077	0,003	1,221
-5	0,006	1,987**	-0,005	-1,677***	0	0,067	0,002	0,985
-4	0,006	1,838***	0,011	3,861*	-0,003	-0,929	0	-0,2
-3	-0,005	-1,697***	0,001	0,327	-0,001	-0,24	-0,003	-1,207
-2	0,012	3,653*	0,004	1,316	0,001	0,163	-0,001	-0,451
-1	0,001	0,162	0,002	0,56	0	-0,132	0	0,194
0	**0,005**	**1,53**	**0,002**	**0,585**	**-0,004**	**-1,172**	**-0,005**	**-2,161****
1	0,003	0,825	-0,011	-3,758*	0,002	0,542	0,002	0,983
2	0,001	0,242	0,009	3,191*	-0,001	-0,363	-0,002	-0,751
3	-0,013	-4,035*	0,004	1,395	-0,007	-2,279**	0,003	1,162
4	0,01	3,196*	-0,003	-1,017	0,009	2,820*	0,004	1,852***
5	0,005	1,662***	0,001	0,245	-0,005	-1,649***	0,003	1,362
6	-0,002	-0,755	-0,003	-0,882	-0,004	-1,39	-0,001	-0,271
7	0,001	0,168	0	-0,086	-0,002	-0,542	0,004	1,812***
8	-0,002	-0,605	0,001	0,342	0,002	0,478	-0,006	-2,405**
9	-0,001	-0,286	0	0,044	-0,008	-2,482**	0	0,095
10	0,001	0,295	-0,003	-1,165	0,001	0,347	0,003	1,105

0.01(%1)* for 2,57, 0.05 (%5)** for 1,96, 0.10 (%10)*** for 1,645

On January 9, 2017, when the sudden rise in the USD exchange rate occurred, the lowest negative average abnormal return in 18 different industries was on t+3 and the highest positive average abnormal return was on t-2. A positive return of 0.5% occurred on the date of the incident. Positive average abnormal return on t-2 is statistically significant at 1 % level, on t-5 day is statistically signinificant at 5 % level, on t-4 and t+5 days are statistically significant at 10%, while negative average abnormal return on t-3 day is statistically significant at 10%. negative average abnormal return on t+3 day is statistically significant at 1%. Negative returns are reported on four days after the day of the event and positive returns are reported on six days after event day.

On January 11, 2017, when the sudden rise in the USD exchange rate occurred, the lowest negative average abnormal return in 18 different industries is on t+1 and the highest positive average abnormal return is on t-4. A positive return of 0.2 percent occurred on the date of the event. Positive average abnormal return on t-7 day is found to be statistically significant at 5 % level and negative average abnormal return on t-5 day is statistically significant at 10 % level. Positive average abnormal returns on days t-4 and t+2 are statistically significant at 1% level, while the negative average abnormal return on t+1 day is statistically significant at 1% level. Negative returns are reported on four days after the day of the event and positive returns are reported on four days after the event day.

On January 25, 2017, when the sudden rise in the USD exchange rate occurred, the lowest negative average abnormal return in 18 different industries is on the t-9 day and the highest positive average abnormal return is on the t+4 days. A negative return of 0.4% occurred on the date of the event. Negative average abnormal returns on t+9 and t+3 is found to be statistically significant at 5 % level, and on t+5 is found to be statiscally significant at 10 % level. Negative average abnormal return in t-9 days is found to be statistically significant at 1% level. Positive average abnormal returns on t-8 and t+4 days are statistically significant at 1 % level. Negative returns are reported on six days after the day of the event and positive returns are reported on four days after the event day.

On October 9, 2017, when the sudden rise in the USD exchange occurred, the lowest negative average abnormal return in 18 different industries is on t-8 day and the highest positive average abnormal return is on t-9 day. A negative return of 0.5% occurred on the date of the event. The negative average abnormal return on the day of the event is statistically significant at 5 % level. Positive average abnormal returns on t-10 is statistically significant ant 5 % level, on t+4 and t+7 days are statistically significant at 10 % level. Negative average abnormal return on t+8 day is found to be statistically significant at 5%. Positive average abnormal return on t-9 days was found to be statistically significant at 1 % level. Negative average abnormal return on day t-8 is found to be statistically significant at 1 % level. Negative returns are reported on three days after the event date and positive returns are reported on six days after the event date.

Table 4 shows the cumulative average abnormal returns of the stock prices of the corporations in 18 different industries as a result of the sudden increase in the USD exchange rate on eight different dates.

Table 4: Cumulative Average Abnormal Returns of Stock for Sudden Increase in USD Exchange Rates

Period	(15.04.2015)	(8.06.2015)	(06.11.2015)	(18.07.2016)	(09.01.2017)	(11.01.2017)	(25.01.2017)	(09.10.2017)
CAAR (-1,1)	-0,002	0,002	0,004	-0,001	0,008	-0,008	-0,002	-0,002
t value	-0,234	0,298	0,621	-0,194	1,454	-1,509	-0,44	-0,568
CAAR (-1,0)	0,002	-0,009	-0,001	-0,003	0,005	0,003	-0,004	-0,005
t value	0,362	-1,611	-0,228	-0,577	1,197	0,81	-0,922	-1,391
CAAR (0,1)	0	0,005	0,006	0,002	0,008	-0,009	-0,002	-0,003
t value	0,085	0,827	0,99	0,381	1,666***	-2,244**	-0,445	-0,833
CAAR (-5,0)	0,019	-0,02	0	-0,012	0,024	0,014	-0,007	-0,007
t value	1,958	-1,996**	0,049	-1,537	3,051*	2,030**	-0,916	-1,16
CAAR (0,5)	0,01	0,012	0,001	0,008	0,011	0,002	-0,007	0,006
t value	1,048	1,203	0,118	1,073	1,397	0,262	-0,857	0,999

0.01(%1)* for 2,57, 0.05 (%5)** for 1,96, 0.10 (%10)*** for 1,645

Table 4 shows that the cumulative average abnormal returns (CAAR) on all dates when a sudden increase in USD exchange rate occurred for the intervals from one day prior to the event date to one day after the event day (-1,1), from one day prior to the event day to the day of the event (-1,0), from the event day to five days after the event date (0,5) for 18 different industries are found to the statistically insignificant. Positive cumulative average abnormal return for the sudden increase in the USD exchange rate on January 9, 2017 for the interval from the event day to one day after the event day (0,1) is found to be statistically significant at 10 % level and the negative cumulative average abnormal return when the USD exchange rate suddenly increased on January 11, 2017 for the interval from the event day to one day after the event day (0,1) is found to be statistically significant at 5 % level. Negative cumulative average abnormal return for the sudden increase in the USD exchange on June 8, 2015, and positive cumulative average abnormal return on January 11, 2017 are statistically significant at 5 % level for the interval from five days prior to the event day to the event day the event day (-5,0). Positive cumulative average abnormal return for the sudden increase in the USD exchange rate on

January 9, 2017 is statistically significant at 1 % level for the interval from from five days prior to the event day to the event day the event day (-5,0).

Table 5 and Table 6 show the the average abnormal returns of stocks of corporations in 18 different industries for 10 days before and 10 days after the sudden decrease in the USD exchange rate at four different dates each.

Table 5: Average Abnormal Returns Calculated 10 Days Before and 10 Days After Sudden Decrease in USD Exchange Rate

Days	AAR1 (07.10.2015)	t value	AAR2 (02.11.2015)	t value	AAR3 (17.03.2016)	t value	AAR4 (06.12.2016)	t value
-10	0	-0,079	0,008	1,893***	-0,01	-2,972*	0,002	0,88
-9	-0,001	-0,212	-0,003	-0,849	-0,003	-0,725	0,001	0,236
-8	-0,001	-0,212	0,003	0,643	0,002	0,571	0,007	2,669*
-7	0,006	1,327	-0,001	-0,155	-0,008	-2,197**	-0,002	-0,943
-6	-0,002	-0,54	-0,002	-0,443	-0,001	-0,39	-0,002	-0,979
-5	-0,001	-0,134	0	0,11	-0,004	-1,101	-0,001	-0,205
-4	-0,005	-1,199	-0,006	-1,514	-0,005	-1,344	0,002	0,807
-3	0	0,047	0,001	0,3	-0,001	-0,167	-0,007	-2,829*
-2	-0,009	-1,948***	0	-0,093	0,005	1,491	0,009	3,404*
-1	0,001	0,125	-0,001	-0,145	0	-0,075	0,002	0,781
0	**-0,006**	**-1,395**	**-0,008**	**-1,899***	**-0,006**	**-1,631**	**0,006**	**2,496**
1	0,004	0,792	0,01	2,380**	-0,003	-0,948	-0,001	-0,281
2	-0,002	-0,551	0,001	0,273	0,002	0,695	-0,006	-2,328**
3	0,011	2,359**	-0,001	-0,29	0,005	1,416	0,001	0,501
4	-0,006	-1,296	0	0,038	-0,004	-1,134	0,002	0,848
5	0,002	0,461	0,006	1,446	0,002	0,619	-0,003	-1,324
6	0,001	0,137	-0,008	-1,858***	0,003	0,81	0,001	0,46
7	-0,003	-0,572	0,002	0,413	0,003	0,768	0,004	1,568
8	0,007	1,528	0,001	0,172	0,001	0,411	0,005	2,036**
9	-0,004	-0,949	0,001	0,307	-0,002	-0,504	0,001	0,498
10	0,002	0,504	0,001	0,314	0	-0,047	0,003	1,213

0.01(%1)* for 2,57, 0.05 (%5)** for 1,96, 0.10 (%10)*** for 1,645

On October 7, 2015, when sudden decrease in the USD exchange rate occurred, the lowest negative average abnormal return of 18 different industry stocks is on t-2 day and the highest positive average abnormal return is on t+3 days. A negative avrage abnormal return of 0.6% occurred on the date of the event. The positive average abnormal return on t+3 day is statistically significant at 5 % level and negative average abnormal return on t-2 day is found to be statistically

significant at 10 % level. Negative returns are reported on four days after the day of the event and positive returns are reported on six days after the event day.

On November 2, 2015, when a sudden decrease in the USD exchange rate occurred, the lowest negative average abnormal return of the stocks in 18 different industries is on the event day and on day t+6. The highest positive average abnormal return is on t+1. A negative return of 0.8 % occurred on the date of the event. The negative average abnormal return on the day of the event was statistically significant at the level of 10 % level. Positive average abnormal return on t-10 day is found to be statistically significant at 10 % level. Negative average abnormal return on t+6 day is found to be statistically significant at 10 % level. The positive average abnormal return on t+1 day s statistically significant at 5 % level. Negative returns are reported on the two days after the event date, and positive returns are reported on the seven days after the event date.

On March 17, 2016, when a sudden decrease in the USD exchange rate occurred, the lowest negative average abnormal return in 18 different industries is on t-10 day and the highest positive average abnormal return is on t-2 and t+3 days. A negative return of 0.6 % occurred on the date of the event. Negative average abnormal return on t-7 day is found to be statistically significant at 5% level and negative average abnormal return on t-10 day is significant at 1 % level. Negative returns are reported on three days after the event date and positive returns are reported on six days after the event date.

On December 6, 2016, when a sudden decrease in the USD exchange rate occurred, the lowest negative average abnormal return of 18 different industries is on t-3 day and the highest positive average abnormal return is on t-2 day. A positive return of 0.6 % occurred on the date of the event. The positive average abnormal return on the day of the event was statistically significant at 5 % level. The positive average abnormal return on t+8 day is statistically significant at 5 % level and negative average abnormal return on t+2 day is found to be statistically significant at 5 % level. Positive average abnormal return in days t-8 and t-2 are statistically significant at 1 % level. Negative returns are reported on three days after the event day and positive returns are reported on seven days after the event day.

Table 6: Average Abnormal Returns Calculated 10 Days Before and 10 Days After Sudden Decrease in USD Exchange Rate (Continued)

Days	AAR5 (07.12.2016)	t value	AAR6 (12.01.2017)	t value	AAR7 (30.01.2017)	t value	AAR8 (16.03.2017)	t value
-10	0,001	0,22	-0,003	-0,947	0,004	1,027	0	-0,037
-9	0,007	2,642*	0,004	1,214	-0,003	-0,857	0,012	3,033*
-8	-0,002	-0,952	0,006	2,057**	0	0,13	-0,003	-0,694
-7	-0,003	-0,987	0,004	1,206	-0,003	-0,954	0,002	0,52
-6	-0,001	-0,219	-0,007	-2,333**	0	-0,076	0,002	0,525
-5	0,002	0,789	0,012	3,924*	0	0,129	0,002	0,572
-4	-0,007	-2,832*	-0,001	-0,279	0	0,099	0,005	1,324
-3	0,009	3,376*	0,004	1,236	-0,005	-1,291	0,001	0,148
-2	0,002	0,764	0,003	1,159	0,002	0,617	0,004	1,107
-1	0,006	2,474**	0,005	1,549	-0,001	-0,344	0,001	0,154
0	**-0,001**	**-0,292**	**-0,01**	**-3,206***	**-0,006**	**-1,598**	**-0,002**	**-0,475**
1	-0,006	-2,331**	0,008	2,730*	0,009	2,551**	-0,001	-0,213
2	0,001	0,484	0,004	1,252	-0,005	-1,402	-0,001	-0,229
3	0,002	0,831	-0,004	-1,219	-0,004	-1,169	-0,001	-0,223
4	-0,003	-1,331	-0,001	-0,432	-0,001	-0,316	0,002	0,54
5	0,001	0,444	-0,003	-0,935	0,001	0,223	0,001	0,172
6	0,004	1,548	-0,001	-0,247	-0,008	-2,241**	-0,004	-1,103
7	0,005	2,013**	0,001	0,298	0,002	0,447	-0,001	-0,342
8	0,001	0,482	0	0,058	-0,003	-0,782	-0,002	-0,574
9	0,003	1,195	-0,004	-1,496	0,001	0,237	0,005	1,392
10	0	0,074	0,002	0,619	-0,005	-1,473	-0,001	-0,376

0.01(%1)* for 2,57, 0.05 (%5)** for 1,96, 0.10 (%10)*** for 1,645

On December 7, 2016, when a sudden decrease in the USD exchange rate occurred, the lowest negative average abnormal return of 18 different industries is on t-4 day and the highest positive average abnormal return is on t-3 day. A negative return of 0.1 percent occurred on the date of the event. Positive average abnormal returns on days t-1 and t+7 is statistically significant at 5 % level. Negative average abnormal return on day t+1 is found to be statistically significant at 5 % level. Positive average abnormal returns on days t-9 and t-3 are statistically significant at 1 % level. Negative average abnormal return on day t-4 is found to be statistically significant at 1 % level. Negative returns are reported on the two days after the event day, and positive returns are reported on seven days after the event day.

On January 12, 2017, when a sudden decrease in the USD exchange rate occurred, the lowest negative average abnormal return of 18 different industries is on the event day and the highest positive average abnormal return is on t-5 day. A negative return of 1 % occurred on the date of the event. The negative average abnormal return on the day of the event was statistically significant at the level of 1 % level. Positive average abnormal return on t-8 day and negative average abnormal return on t-6 day are found to be statistically significant at 5 % level. Positive average abnormal returns on t-5 and t+1 day are statistically significant at 1 % level. Negative returns are reported on the five days after the day of the event and positive returns are reported on the four days after the event day.

On January 30, 2017, when a sudden decrease in the USD exchange rate occurred, the lowest negative average abnormal return of the stocks of 18 different industries is on day t+6 and the highest positive average abnormal return is on t+1 day. A negative return of 0.6 % occurred on the event day. The positive average abnormal return on t+1 and the negative average abnormal return on t+6 days are statistically significant at 5 % level. Negative returns are reported on the six days after the day of the event and positive returns are reported on four days after the event day.

On March 16, 2017, when a sudden decrease in the USD exchange rate occurred, the lowest negative average abnormal return of the stocks of 18 different industries is on day t+6 and the highest positive average abnormal return is on t-9 day. A negative return of 0.2 percent occurred on the date of the event. The positive average abnormal return on t-9 day is statistically significant at 1 % level. Negative returns are reported on seven days after the day of the event and positive returns are reported on three days after event day.

Table 7 shows the cumulative average abnormal returns of the stock returns of the corporations in 18 different industries as a result of a sudden decrease in the USD exchange rate on eight different dates.

Table 7: Cumulative Average Abnormal Returns of the Stocks for Sudden Decrease in USD Exchange Rate

Period	(07.10.2015)	(02.11.2015)	(17.03.2016)	(06.12.2016)	(07.12.2016)	(12.01.2017)	(30.01.2017)	(16.03.2017)
CAAR (-1,1)	-0,002	0,001	-0,009	0,008	0	0,003	0,002	-0,002
t value	-0,276	0,194	-1,532	1,730***	-0,087	0,619	0,352	-0,308
CAAR (-1,0)	-0,006	-0,008	-0,006	0,008	0,006	-0,005	-0,007	-0,001
t value	-0,898	-1,445	-1,207	2,318**	1,542	-1,172	-1,373	-0,227
CAAR (0,1)	-0,003	0,002	-0,009	0,006	-0,007	-0,001	0,003	-0,003
t value	-0,426	0,34	-1,824***	1,567	-1,855***	-0,337	0,674	-0,486
CAAR (-5,0)	-0,02	-0,013	-0,01	0,011	0,011	0,013	-0,008	0,011
t value	-1,839***	-1,323	-1,154	1,819***	1,747***	1,789***	-0,975	1,155
CAAR (0,5)	0,002	0,008	-0,003	0	-0,006	-0,005	-0,006	-0,002
t value	0,151	0,796	-0,401	-0,036	-0,897	-0,74	-0,698	-0,174

0.01(%1)* for 2,57, 0.05 (%5)** for 1,96, 0.10 (%10)*** for 1,645

Table 7 shows that cumulative average abnormal returns (CAAR) belonging to 18 corporations in 18 different industries are not statistically significant for the interval from the event day to five days after the event day (0,5) on all dates where the USD exchange rate suddenly decreased. Positive cumulative average abnormal return is statistically significant at 10 % level for the sudden decrease in the USD exchange rate on December 6, 2016, for the interval from one day prior to the event day to one day after the event day (-1,1). Positive cumulative average abnormal return is statistically significant at 5 % level for the sudden decrease in the USD exchange rate on December 6, 2016, for the interval from one day prior to the event day to the event day (-1,0). Positive cumulative average abnormal returns are statistically significant at 10 % level for the sudden decrease in the USD exchange rate on December 6, 2016, December 7, 2016 and January 12, 2017 for the interval from five days prior to the event day to the event day (-5,0). Negative cumulative average abnormal return is statistically significant at 10 % level for the sudden decrease in the USD exchange rate on July 10, 2015 for the interval from five days prior to the event day to the event day (-5,0). Negative cumulative average abnormal returns are statistically significant at 10 % level for the sudden decrease in the USD exchange rate on March 17, 2016 and December 7,2016 for the interval from the event day to one day after the event day (0,1).

CHAPTER IV

CONCLUSIONS

This study investigates the effect of sudden increases in the USD exchange rate and sudden decreases in the USD exchange rates on stock prices and thus stock returns. Accordingly, the closing values of BIST100 index and the closing prices of the stocks from 18 different corporations operating in different industries are used. Event studu is used and 16 event days (eight for increses and 8 for decreases) are determined. Event window covers 10 days before and 10 days after the event day. Estimation window for the market model cover 80 days prior to the last day of the event window.

Market model is used to determine the expected (normal) returns. Market model requires that regression analyses be performed to estimate the parameters used to calculate the expected returns. Regression analyses use data from the estimation window. Expected returns from the market model and the actual returns are used to calculate the abnormal returns (AR) for each stock. Average abnormal returns (AAR) and t values associated with averahe abnormal returns are calculated by taking the average of the abnormal returns of the stocks belonging to 18 corporatins for each event day. Cumulative average abnormal returns (CAAR) for periods from one day prior to the event day to one day after the event day (-1,1), from one day prior to the event day to the event day (-1,0), from the event day to one day after the event day (0,1), from five days prior to the event day to the event day (-5,0), from the event day to five days after the event day (0,5) and t values associated with them are calculated.

It is hypothesized that the average returns of 18 stocks from different industries would decrease on the day and following the day of sudden increases in the USD exchange rate. When the findings are examined, the average abnormal returns of the stocks on the day of the event are negative except on December 6, 2016 when there is a sudden increase in the USD exchange rate, but only the

negative average abnormal return on the day of the event is statistically significant is October 9, 2017. There are 6 statistically significant negative average abnormal returns after the event day. An examination of cumulative average abnormal returns reveals that there are not sufficient number of statistically significant cumulative average abnormal returns for the intervals. These findings conclude that sudden increases in the dollar exchange rate do not affect the stock returns.

When the effects of sudden decreases in the exchange rate are analyzed, for event days of November 11,2015, March 17, 2016 and January 12, 2017 negative average abnormal returns are observed. Only positive and statitically significant average abnormal return is observed for the sudden decrease in USD exchange rate on December 6, 2016. When cumulative average abnormal returns are examined, positive cumulative average abnormal return is obtained only for the event day of December 6, 2016 for the intervals from the day prior to the event day to the day after the event day (-1,1) and from the event day to to one day after the event day (0,1). As a result, the evidence obtained from the analysis revals that the sudden decrease in the USD exchange rate does not affect the stock returns.

According to results of the analyses there is no sufficient evidence to accept H1 hypotheses. Accordingly, stand-alone effect of the sudden increase and decrease in foreign exchange rates on stock prices do not exist.

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