

# **Stock Repurchase in Turkey: Event Study Application**

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Submitted to the  
Institute of Graduate Studies and Research  
in partial fulfillment of the requirements for the degree of

Master of Science  
in  
Banking and Finance

Eastern Mediterranean University  
September 2019  
Gazimağusa, North Cyprus

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## ABSTRACT

Share repurchases have become substitute for cash dividends. In a share repurchase program, a corporation buys back its own shares. It has been a common practice in the developed markets. However, the strict regulations in Turkey laws had not allowed the corporations to repurchase their shares until 2009. In 2011, the regulatory body in Turkey, Capital Markets Board has made it possible for all corporations listed on Borsa Istanbul Stock Market to carry out share repurchase programs.

There are many motivations for share repurchases, but the undervaluation signaling is the driving motivation for managers to implement a share repurchase program. Signaling has two kinds of use by managers; it indicates an undervaluation for the current stock price in the market and sends a positive signal to correct for this undervaluation.

The purpose of this thesis is to analyze whether share repurchase announcements has an effect on corporation's stock prices and to test the semi-strong efficiency of Borsa Istanbul (BIST) by using the traditional event study methodology. The data contains 19 non-financial corporations and 27 observations. The results show that there is a positive market reaction to share repurchase announcements and the driving motivation is the undervaluation signal. However, the results also show that the BIST stock market is not semi-strong efficient and for the case of share repurchases, a market overreaction is observed.

**Keywords:** Share repurchase, Borsa Istanbul, Event Study, Abnormal Return, Signaling, Undervaluation

## ÖZ

Hisse geri alımları, nakit temettünün yerini almış ve ayrıca şirketler için ödeme yöntemlerinin değiştirilmesinde önemli bir rol oynamaktadır. Hisse geri alımı, temel olarak şirketin piyasadan kendi hisselerini geri almasıdır. Küresel pazarlarda yaygın bir uygulama olarak kullanılmaktadır. Ancak, Türkiye yasalarındaki sıkı düzenlemeler, şirketlerin 2009 yılına kadar kendi hisselerini piyasadan geri almalarına izin vermemekteydi. 2011'de Sermaye Piyasası Kurulu'nun açıklanması ile Borsa İstanbul Menkul Kıymetler'de listelenmiş tüm şirketler hisse geri alımı yapabilecekti.

Hisse geri alımları için birçok motivasyon kaynağı bulunmaktadır. Ancak piyasaya mesaj verilmesi yaklaşımı yöneticiler için hisse geri alım programlarını gerçekleştirmeleri için önemli bir motivasyon kaynağı olmuştur. Piyasaya mesaj verme yöneticiler tarafından iki türlü olarak kullanılmaktadır; hisse senedinin değer düşüklüğüne işaret etmekte olup ayrıca yatırımcılara pozitif sinyaller göndererek hisse fiyatında artışa sebep olmaktadır.

Bu tezin amacı, hisse senedi geri alım duyurularının şirketlerin hisse fiyatları üzerinde bir etkisi olup olmadığını analiz etmek ve aynı zamanda olay incelemesi metodolojisini kullanarak Borsa İstanbul'un (BIST) yarı güçlü etkinliğini test etmektir. Çalışmada 19 finansal olmayan şirket ve 27 adet gözlem kullanılmıştır. Sonuçlar, hisse geri alım duyurularının, şirket hisseleri üzerinde anormal getiri sağladığına ve BIST'in yarı-güçlü verimlilikte etkili olmadığını ortaya koymaktadır.

**Anahtar Kelimeler:** Hisse geri alımı, Borsa İstanbul, Olay Çalışması, Anormal Getiri, Eksik Değerleme

## **ACKNOWLEDGEMENTS**

I would like to thank my supervisor Prof. Dr. Cahit Adaođlu for his help, advices and professionalism throughout the entire thesis. He was always guided me to reach my success to finish my thesis and showed endless patience during the period. I really appreciate his kindness and continuous support.

I am very thankful to my parents and my sister for their endless support, encouragement and trust. Without them, the achievement of this step would be impossible.

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## **LIST OF SYMBOLS AND ABBREVIATIONS**

AR	Abnormal Return
AAR	Average Abnormal Return
BIST	Borsa Istanbul Stock Exchange
CAR	Cumulative Abnormal Return
CAAR	Cumulative Average Abnormal Return
CMB	Capital Markets Board
EMH	Efficient Market Hypothesis
KAP	Kamu Aydınlatma Platformu / Public Disclosure Platform
OMR	Open Market Share Repurchases

# Chapter 1

## INTRODUCTION

### 1.1 Overview

Stock repurchase is a cash payout method that has been effectively used in many countries and US, UK and Japan are the most common examples. Historically, the changes in the rules and regulations have provided new methods for corporations to pay out cash to the shareholders. Managers' views share repurchases as a more flexible way to distribute excess cash to shareholders relative to cash dividend payments. According to Vermaelen (2005), Grullon & Ikenberry (2000) and Grullon & Michaely (2002), the significant increase in the share repurchase programs is triggered by the tax changes, shareholders' value maximization goal and the growth of employee stock ownership plans. In the literature, the main motivations behind the share repurchase programs are signaling, changing the capital structure and takeover deterrence.

The case for Turkey is different than other countries. The rules and regulations regarding the stock repurchase programs have come in to effect in recent years compared to other developed countries. In 2009, the regulations for stock repurchases are revised for corporations allowing them to repurchase their shares. The first repurchase transaction has taken place in the fourth quarter of 2010. This transaction is made by Sinpas Real Estate Investment Trust Corporation (SNGYO).

The aim of this thesis is to test the effect of the share repurchase announcements on the stock prices and to test the semi-strong market efficiency of the BIST. The data consist of 19 non-financial BIST corporations and the time period for the sample is 6 years from 2011 to 2017.

## **1.2 Methodology and Approach**

The traditional event study is used to be able measure and explain the market effect of share repurchase news. Researchers as well as accountants or economist prefer to use this methodology to measure the effect of an economic case or firm specific event on the value of the corporations. This methodology is developed by Fama, Fisher, Jensen and Roll (1969), and their aim was to study the market reaction to stock splits.

This methodology helps you to determine the effect of a specific event and to test whether the event causes any abnormal returns (ARs) on the value of the corporation. There are many models in order to perform the event study. In this thesis, the market model is used to generate average and cumulative average abnormal returns of the sample corporations. The chosen market index is the BIST 100 (XU-100). The most important step in the event study is the identification of the announcement date. Sometimes, it can be mixed with some other announcements on the same day or a close day. Relevant care has been carried out to avoid such confounding effects that may bias the results. The event study timeline is determined, namely the pre-event window, the event window and the post-event window which helps for a better observation of the effect of the event.

### **1.3 Structure of the Thesis**

The organization and the flow of the thesis as follows. Chapter two gives brief information about the stock repurchases around the world and in Turkey. In addition, the methods and motivations for the share repurchases are explained. Chapter three represents the information about the general aim of this thesis. It provides the data that used, methodology selected to measure the market reaction and also formulas for the market model is provided. The empirical outcome of the event study is explained, and shows whether the announcement has an effect on the security price of the selected corporations. Chapter four concludes the remarks of the thesis.

## **Chapter 2**

### **SHARE REPURCHASES**

This chapter briefly explains the general overview of share repurchases (i.e., also known as share buybacks), and the methods that corporations use to carry out the repurchase program and the managerial motives.

#### **2.1 The Basics of Share Repurchases**

Corporations can use their retained earnings for innovations and growing purposes or they simply return these cash flows to shareholders in terms of cash dividend payments. However, corporate payout methods or forms have evolved over time, especially since 1980s. The U.S. corporations have started to use share repurchases and have used them frequently and distributed great amounts of cash at an increasing trend. Grullon and Michaely (2002) show that share repurchases increased from 13.1% in 1980 to 104.4% in 1998 as a portion of total dividends. Share repurchases turn out to be an alternative pay out method and are more advantageous than cash dividends in some respects. In a little short span of a time, it has become an effective corporate payout method that is used globally by many countries such as US, Denmark, German, France, Japan and UK and recently, in Turkey. What have made share repurchases more advantageous for corporations and made dividend puzzle more complicated will be explained in this chapter.

In share repurchase payouts, corporation buys back some of the outstanding shares from the shareholders with the approval of corporation's board of directors.

Shareholders receive cash by selling their shares instead of receiving cash dividend payments. The reacquired shares either are kept in the corporation's treasury or may be sold again if corporation needs capital and chooses to do so by equity financing. However, the public announcement of share repurchase decision does not indicate a guaranteed commitment that the corporation will repurchase all the shares during the repurchase period that can take a couple of years.

Stock buybacks are used for distributing cash as mentioned above, and hence, decrease the number of shares available in the market for investors. Share repurchases increase the earnings per share (EPS) and create a signaling effect to recover price declines and provide liquidity. Especially, it is a sign of undervaluation of current stock value and the market reaction to share repurchase announcements is positive. Commet and Jarrell (1991), show that the degree of market reaction to the open market share repurchases is approximately 3%, which is the most popular method.

## **2.2 Share Repurchases in Turkey**

Turkey's Laws and Regulations did not allow the corporations to repurchase their shares until 2009. The era for share repurchases started with the announcement of Capital Markets Board's (CMB) decree published on 03.09.2009. The announcement states that public corporations that are trading in Borsa Istanbul (BIST) can repurchase their shares. However, according to the rule numbered 27/748, the amount of shares that can be repurchased is limited to 20% of the paid in or issued capital. In addition, if 20% limit is exceeded by the corporation, it has to resell the exceeded percentage of shares within 6 months. The procedure begins when corporation decides to carry out the repurchase program and it should follow a few steps before the actual implementation of repurchases. The corporation makes a public announcement in the

announcement category of special case disclosure. The public announcement is made at least 15 days before the meeting of the board of directors in which the share repurchase decision will be decided upon. This announcement is made publicly on corporation's web site as well as on Kamu Aydınlatma Platformu/Public Disclosure Platform (KAP, <https://www.kap.org.tr>). The public announcement contains the purpose of the repurchase program, the total amount and source of the fund allocated for the buyback, the maximum amount of shares that will be repurchased, the upper and lower price limits for shares that will be repurchased. For example of such announcement, see Appendix B. In addition, the procedure will be submitted for the approval of the corporation's Board of Directors. When the approval is received, there is another public announcement at 2 days before the beginning of share repurchase program for more information please see Appendix C. This announcement should include the reasons and the aims, the number of shares that will be repurchased and finally, the total funds that will be used for share repurchases. This special case disclosure is announced again on corporation's web site and also in KAP. After the repurchase program is finalized, repurchased shares can be held in treasury shares account for 3 years and if corporation keeps the shares more than 3 years, it has to resell the shares within 6 months or simply cancel them.

In 2011, the CMB of Turkey made a public announcement and abolished the principles about share repurchases numbered 27/748. Under the new principle decision numbered 26/767, the new maximum amount is determined as 10% of the paid-in/issued capital previously the limit was 20%. On July 1<sup>st</sup>, 2012, the new Turkish Commercial Code (Law no: 6335) entered into force. The new Turkish Commercial Code allowed private corporations to repurchase their shares and lays out the circumstances that require the



all corporations to safeguard their equity. The main purpose is to protect both the assets of the corporation and its creditors.

The “Geri Alınan Paylar Tebliği” regulation numbered II-22.1, which was disclosed publicly on the official gazette on 3 January 2014, guided corporations to better understand the rules and regulation related with the process. The length of the share repurchase program has increased from 18 months to 3 years and the program can be extended under special circumstances. In addition, the total amount of stocks that will be repurchased should not exceed the total amount of resources subject to profit distribution in the latest annual financial statement of the corporation. The latest regulation being in force was disclosed publicly on CMB’s web site and in the weekly CMB journal on 21.07.16. This regulation has allowed the publicly traded corporations to repurchase their shares form market without facing any limitations. Until the second announcement, publicly trading corporations in Turkey can perform share repurchase programs by only making special circumstances disclosure publicly.

### **2.3 Methods for Share Repurchasing**

The following section focuses on the most widely used share repurchase methods, which are fixed-price tender offers, dutch auctions and open market share repurchase methods. The first two methods are used if the aim is to retire a large portion of stocks in a very little time. Each repurchase method has its special characteristics and they can target different types of stakeholders. Moreover, the methods show a difference in the premium amounts paid to the shareholders, the length of the program and the signaling power.

### **2.3.1 Fixed-Price Tender Offer**

In a fixed-price tender offer, corporation sends out a prospectus to shareholders and contains all the information regarding to the tender offer. In this prospectus, corporation states that they offer to purchase a fixed number of shares at a fixed-price from its investors. The price of the shares is generally greater than the current trading price at the time of the offer. According to Welch (2009), this premium can be around 15% to 20%. The premium provides greater incentive and motive for the shareholders to tender their shares. If the tendered number of stocks are greater than the expected number of shares specified in prospectus and hence, the offer is oversubscribed, corporation can choose to buy back all the shares or repurchase rationed shares by using the pro rata basis. However, if the tendered number of shares is undersubscribed, corporation can choose one of the three alternatives. They can decide not to perform the repurchase program if it is legally stated in the prospectus; or increase the tender offer time in order to reach the desired volume or; lastly, they may only choose to buy the undersubscribed amount of shares from the shareholders.

The fixed-price tender offers have a strong signaling power in contrast to all share repurchase methods and it is the preferred method if the corporation aims to retire large block of shares in a short time. According to the study of Comment and Jarrell (1991), the fixed-price tender offer announcements result in a positive market reaction of around 11%.

### **2.3.2 Dutch Auction Tender Offers**

Dutch auction is another type of strategic share repurchase model and it is very identical to the fixed-price tender offer. Both methods show the management's attempt to buy back a specific number of shares and their real commitment in the program. If management wishes to retire large blocks of stocks in a short time, they use one of

these two methods. The difference between the two is that, in tender offer, every submitted share is repurchased at the declared fixed price. However, Welch (2008) explains that in dutch auction, corporation specifies a price range for the repurchase program and aims to pay the lowest premium paid for the tendered shares.

In dutch auction offers, corporation makes a call for the shares that are to be repurchased and asks the shareholders to put the value on shares they wish to tender and the number of shares they wish to tender. At the end of program, corporation forms the supply curve. According to study of Gay, Kale, & Noe (1996), corporation lowers the price to be able to repurchase all of the shares tendered in the offer and tries to minimize the stock price that will be paid out. If shareholder's bid is at or below that price, corporation repurchases their share back. If not, he or she stays as the shareholder of the corporation. The rules work same as in the fixed-price tender, and if the tendered shares exceeds the number of called shares, corporation purchase stocks back on a pro rata basis. If enough number of shares did not offered by investors, corporation can cancel the offer or may choose to purchase the submitted amount of shares at the maximum bid price.

In market reaction event studies, the dutch auction tender offer has on average 8% excess returns on the announcement day (Comment and Jarrel, 1991). It is less effective in terms of signaling power, and signals a weaker information of stock undervaluation relative to fixed-price tender offer since the management gathers the information from shareholders through the bidding process, and reveals less about their views on the true value of stock. If corporation wants to retire large blocks of shares and pay fewer premiums, then Dutch auction is preferred over the tender offer.

### **2.3.3 Open Market Share Repurchases**

In open market share repurchases (OMR), shares are purchased directly or with the help of intermediaries from the open market (i.e., secondary market) typically during a period two to three years. In the U.S., the share repurchase program begins with the Board of the Director's approval and later on, the details of the program are announced formally to the public. Shares are purchased back at the current market price and no premiums are paid in this method.

OMR is the most preferred method to repurchase shares compared to dutch auction and fixed-price tender offer in Turkey and any other countries. According to study done by Ikenberry, Lakonishok & Vermaelen (1995), approximately 90% of dollar value of share repurchases is executed by open market share repurchases between 1985 and 1993. The reason behind the popularity of OMR lies in the fact that it is an option for the management not an obligation whether to buy back the shares or not. In addition, corporation prefers to use this method when there is no rush to repurchase stocks, when they want to be flexible about the program size or duration. Finally yet importantly, it is a great option if no premium is willing to be paid above the market price. Vermaelen (2005) points out that, open market repurchases are cost effective compared to other models but in contrast, it has been facing volume and price restrictions. The corporation that undertakes either fixed-price tender offers or dutch action is able to buyback great amount of stocks within a short time. As a result, these two methods are advance than OMRs in the case of adjusting capital structure or avoiding a hostile takeover threat.

Both Comment and Jarrell (1991) and Vermaelen (1981) conclude that OMRs has the lowest average market reaction around 3% on the announcement date. The

undervaluation signaling power of OMR is the weakest one due to the flexibilities in the timing and pricing of the repurchase method. However, if firm repurchases more than 20% of their outstanding shares, as a result 6% percent of excess return is obtained by performing open market share repurchases (Commet and Jarell, 1991). To conclude, the announcement of open market repurchases can give the same signaling for stock undervaluation as dutch auctions.

## **2.4 Motivation for Share Repurchases**

According to the literature, several theories are put forward to clarify the motivations of management for the share repurchase programs. This section explains the theories and provide empirical evidence from the related literature.

### **2.4.1 Undervaluation Signal (Information Content)**

The predominant motivation is the information signaling. Managers have more information and inside knowledge about the future of corporation than outside shareholders. This asymmetric information between managers and outside investors provides incentives for managers to transfer their views to the market, especially in the case that shares are currently undervalued in the market. This undervaluation emphasizes that the current market value of shares are significantly below the intrinsic value. According to Ergin (2011), by announcing a share repurchase program, corporation sends a positive signal about the future to investors that the value of their share is higher than the current market price. In addition, the announcements of the stock buyback program signals the market, and results in a boost in the price of the shares. The power of the signaling is different for the each repurchase method as stated above in details. According to the finding of Pirgarip and Karacaer (2015), avoiding undervaluation is the most important motivation for Turkish corporations to perform stock repurchase programs.

### **2.4.2 Agency Cost of Free Cash Flows**

The agency cost of free cash flow theory had been developed by Jensen and Meckling (1976). Managers should aim to maximize the wealth of shareholders by increasing the market value of the corporation. However, this theory arises from the potential conflicts between managers (agents) and shareholders (principals). Managers can put their own interest in front than the shareholders' interests. For instance, Grullon and Ikenberry (2000) state that managers can allocate the excess cash in unprofitable activities such as projects that have negative net present values with the aim of "empire building". Managers would like to manage and control a bigger corporation which later gives them more managerial power and perks by increasing the resources under their control. Consequently, managers should be motivated to distribute the excess cash rather than wasting it. Jensen (1986) argues that in order to eliminate this conflict of interest, corporations should return any excess cash back to the shareholders as cash dividend payments or share repurchases. Last but not the least, a share repurchase program will reduce the risk of mismatching interests between managers and shareholders. By doing so, share prices increase and shareholders' wealth is maximized.

### **2.4.3 Capital Structure**

The capital structure of a firm is another motivation for share repurchase programs in order to tune the debt to equity ratios. In literature, there are many arguments about whether using share repurchases plays an important role in achieving optimal leverage ratio. According to Grullon and Ikenberry (2000), if a corporation aims to alter the capital structure, it can use share repurchases to fine-tune it. If a corporation performs a share repurchase program, it destroys equity and causes an increase in the debt content and decrease the equity in the share capital. As a result, the debt leverage

increases which typically results in an increased share price if the corporation is not facing higher marginal financial distress costs and has taxable income.

According to Baker, Powel and Veit (2003), capital structure shows a strong motivation for tender offer share repurchase method is preferred if the motivation is to alter the capital structure since it provides a sudden and dramatic change. However, for open market repurchase method, corporations prefer this method when they need small changes in the capital structure. The reason is that OMR usually takes several years to complete and repurchases small size of shares.

#### **2.4.4 Takeover Deterrence**

Takeover happens when one corporation or an investor, called as bidders buys enough number of shares of the target corporation to gain the control. As a result, a hostile takeover happens since the control of corporation is transferred to the acquiring corporation. Share repurchases is another motive for corporations to fend off a takeover. Billet and Xue (2007) corroborate this notion by finding that corporations with a greater probability of being a target in an acquisition are more expected to buy back stocks as shown by a statistically significant favorable link among the two variables.

Dennis (1990) combines the pre-announcement price effects and the empirical evidence, and shows that share repurchase programs provide effective resistance to an acquisition. However, share repurchases result in big losses for the shareholders of the target firm. In addition, Bagwell (1991) states that such share repurchases offer significant premiums, this motivates the hesitant shareholders of the target corporation to tender their shares for the higher prices. Those who do not submit their shares have the greater reservation prices in their hand. Therefore, corporation should offer higher

premiums to motivate those acquirers to tender their shares back to the corporation. Consequently, the acquisition cost increases for the potential acquirer but also the takeover risk is eliminated.

#### **2.4.5 Regulation of Taxes**

In a perfect tax-free economy, dividends and stock repurchases are perfect replacers for each other. In reality, dividends taxed as ordinary income and stock buybacks are taxed as capital gains. Historically, there have been significant differences between the dividend income taxation and capital gains taxation. The reason why taxation differs and is more advantageous for share repurchases is that investors must pay tax for the difference between the buyback price and the selling price classified as capital gain and they can also postpone the capital gains realization and thus postpone the payment of tax. Since tax burden on capital gains is lower, stock repurchase is less costly for both the corporation and the shareholders.

In literature, there are many arguments and explanations about which payout method to use considering the tax effect. Lie and Lie (1999) explore the personal taxation on the selection of corporations between the two payout methods. Using multiple proxies for the marginal tax levels experienced by investors, they discover that it is more probable that executives will distribute excess cash to shareholders through buybacks. In addition, they find that when holdings by institutional buyers are excessive, directors are much more likely to acknowledge tax implications on shareholders' wealth.

Hsieh and Wang (2008) find a favorable connection between shares repurchases and implied tax liabilities of insiders. According to their research, corporations prefer to use share repurchases as the payout form rather than dividends in order to save their



shareholders from tax liabilities. As a result, it is proved again that insiders are generally faced with significant tax liabilities for the dividends they receive.

In Turkey, stock repurchase are more tax efficient compared to cash dividend payments. A 15% withholding tax rate is applied for cash dividend payments but for the capital gains, tax rate is a maximum of 10% for both corporations and individual taxpayers (YKB, 2013).

## Chapter 3

# MEASURING MARKET REACTION TO SHARE REPURCHASE ANNOUNCEMENTS

This chapter gives brief information about the methodology and model used to evaluate the corporation's stock price reaction the share buybacks announcement. Empirical results and findings about the market reaction and efficiency of BIST stock market is explained through the end of this chapter.

### 3.1 Efficient Market Hypothesis and Event Study Methodology

Efficient market hypothesis (EMH) states that information is rapidly reflected in the value of the stock and stocks are traded at their fair values at all times. It is the new information that changes the stock price and since the new information is unpredictable, stock price changes follow a random walk. Thus, neither technical analysis nor fundamental analysis can be used to generate excess returns. The term "efficient market" is introduced to the literature by Fama (1965). Later on, Fama's (1970) article shed light on the EMH and turns it from theory to empirical work. In his article, capital market is regarded as efficient in three distinct sets of information; weak form, semi-strong form and strong form of efficiency.

The weak form EMH indicates that all historical prices are available to the public, and already presented in the price of the stock. As a result, using technical analysis to identify patterns and trends in the history of the stock values and volumes to forecast the future share prices should not work for shareholders to outperform the market.

The semi-strong form of EMH states that all publicly available fundamental information are immediately absorbed by the market and the share price reaches to new equilibrium level. The semi-strong form of EMH corporates with the weak form of EMH and broaden the assumption of the adjustment of the prices to the new information. The theory rejects the use of technical and fundamental analysis for investors to earn excess returns. Investors use fundamental analysis to study the overall economy, financial statements and management of the company and any other public information available to find the intrinsic value of the share. As a result, using company's financial reports should not assist to predict the potential price movements as such knowledge is already caught in the stock price in a competitive semi-strong efficiency market.

The strong form of EMH indicates that all public and private information including insider information is already reflected in the current share price of the company. This theory states that a company's managers and investors are not able to gain excess returns over insider information. However, this form of efficiency is considered as utopic given the fact that there are insider traders and they earn excess returns in the real world.

Later on, Fama (1991) wrote the second review paper and he proposes changes in titles of three forms of EMH by focusing on the ways to test them empirically. Instead of weak form efficiency, he chooses to use "test for return predictability", for semi-strong form, he chooses to use more common title "event studies", and for strong-form of efficiency, he chooses to use more descriptive title "test for private information".

The purpose of this thesis is to determine the effect of share repurchase program announcement on the firm's stock prices, completed by non-financial corporations listed on BIST between 2011 and 2017 by using event study methodology. In addition, this thesis investigates whether the BIST stock market is effective in semi-strong form of efficiency. Ball and Brown (1968) and FFJR (1969) introduced the event study methodology. Brown and Warner (1980 and 1985) describe and presents the basics of the methodology and how to perform event study. FFJR's paper is considered as the "methodological revolution" (Binder, 1998). Since FFJR, the form of event study methodology did not change fundamentally and it has been effectively used in economics, finance and accounting (Kothari and Jerold, 2004).

The semi-strong form of efficiency indicates that capital markets reflect all available fundamental information in corporations' stock prices. In this view of assumption, event study can help to understand if a particular event in the market or in the life of a corporation caused any reaction in the corporation's stock market performance and how fast the new fundamental information is incorporated in the stock price. In other words, an event may be firm specific such as share repurchase announcements or market wide, announcement of macroeconomic variables such as trade deficit that causes any abnormal movement in a corporation's stock price.

This thesis focuses on the semi-strong market efficiency by testing the market reaction to the announcements of share repurchases of corporations trading in Borsa Istanbul. Share repurchase is considered as a fundamental managerial decision and can be used for testing for semi-strong market efficiency. In the following sections, the thesis lays out the data, the methodology and the results.

### **3.1.1 Observations, Event Window and Announcement Date**

Event studies consist of three important periods; the estimation window, the event window and the post event window. Figure 1 guide for a better understanding of timing sequence of stated periods. To summarize Figure 1,  $T_0$  to  $T_1$  represents the estimation window, which sometimes referred to as the pre-event period or the control period. The estimation window helps us to evaluate the normal behavior of a corporation's stock return relative to the market index. It also reflects the problem free period and reflects the common movements in stock price. Importantly, event studies require the identification of the event date, the date on which the fundamental information is released to the public for the first time. Improvements and richness in the technology; made easier to access daily data is for better analysis in event studies. As a result, specification of daily closing price of the stock and market index data easily obtained from Finnet 2000 Plus. In this thesis, event day described as the announcement of the beginning of share repurchase program by corporation listed on BIST. It is important to correctly identify the event date and not mix it with any announcement made by corporation at the same or different day.

Event day is shown as day 0 on the timeline and event window presented as  $T_1 + 1$  to  $T_2$ . Event window usually starts and ends five or ten trading days before and after the actual event day. The main reason to use  $\pm 10$  days is to see or test if any news is leaked before the public announcement and to test how quickly the new fundamental information is integrated in the stock price. To sum up, event window helps to observe the actual market reaction to the event.

Lastly,  $T_2 + 1$  to  $T_3$  represents the post-event window. It allows observing the event's long-term effect. The length of the post-event window can change according to the type of event such as one month or years.

## THE EVENT STUDY TIME LINE

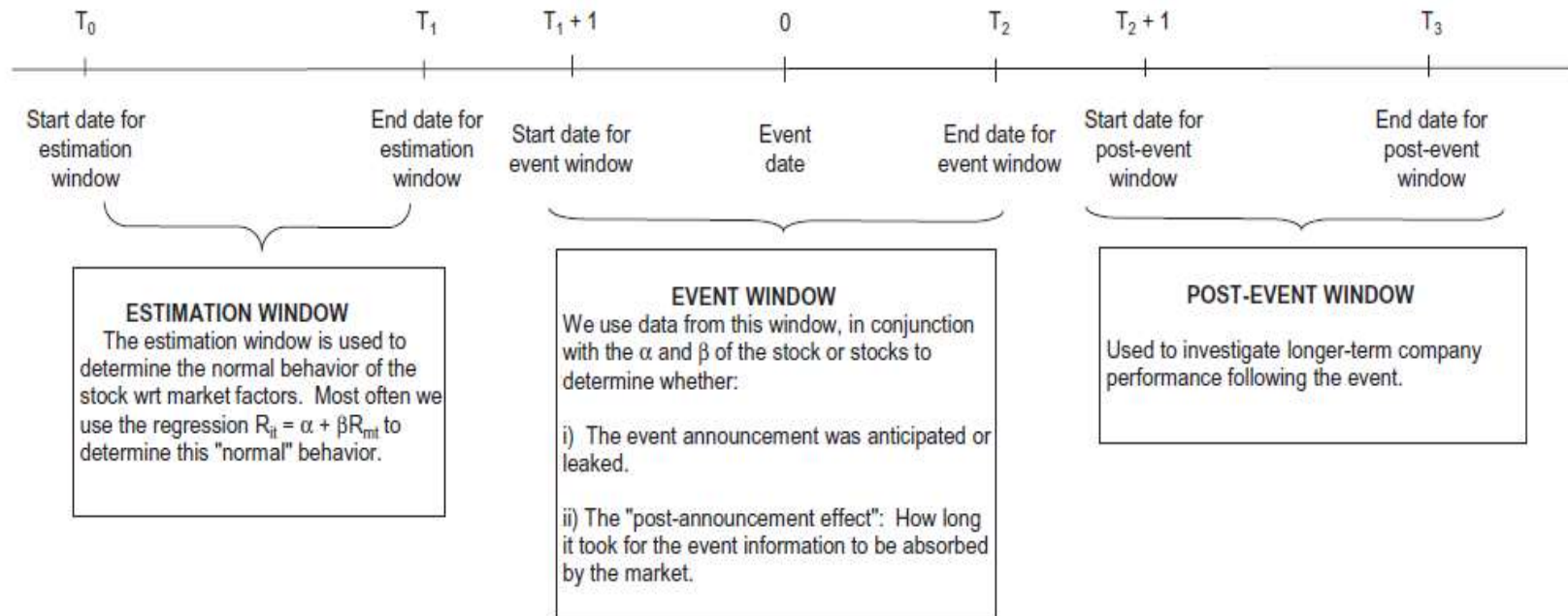


Figure 1: Time Line of Event Study  
Source: Benniga, (2014, p:332)

### 3.2 Data Description

All companies traded on Borsa Istanbul are obliged to share information that are important for the investors through the Public Disclosure Platform (KAP). The sample consists of non-financial corporations that are listed on BIST as financial corporations have different motivations in using share repurchases. The event days for each corporation are collected according to special case disclosures made on KAP. In order to form the data, the beginning year is 2011. The reason behind is that, between 2009 and 2011, only intermediary institutions and investment trust corporations were allowed to purchase their shares back. However, as explained in the previous chapter, new rule came in to force by CMB in 2011 and allowed all companies quoted on BIST to repurchase their own stock.

Table 1: Number of Share Repurchase Programs Completed by Corporations

Corporation	2011	2012	2013	2014	2015	2016	2017	Total
AKGUV				1	1			2
ARSAN						1		1
AVTUR						1		1
BIMAS			1		1	1		3
BIZIM							1	1
BLCYT						1		1
BMEKS		1			1			2
DAGI			1			1		2
DOAS						1		1
GEREL						1		1
JANTS						1		1
KATMR						1		1
LKMNH					1			1
LOGO		1	1		1			3
MARTI	1			1				2
SASA							1	1
TCELL						1		1
ULUUN						1		1
VANGD						1		1
Total	1	2	3	2	5	12	2	27



As it can be seen in Table 1, there is only one share repurchase by a non-financial corporation and stayed between 1 and 5 share repurchases followed by a big increase in 2017. In Table 1, the sample contains 27 observations and 19 different corporations from 2011 to 2017. For the corporations that performed share repurchase programs more than once in following year or the year before, a careful investigation is carried out. The reason behind is to not mix the event study time line since the data goes 200 days before the event day (0) and 30 days after the event day. In that sense, if a corporation performed two share repurchase programs in one year, only the earliest one is included sample. The aim is to reduce the unwanted noise in the results. The daily returns of the corporation's security and market index (BIST 100) for the event study time line hand collected from Finnet 2000 Plus and is analyzed by using excel. The announcements are collected from the Public Disclosure Platform (KAP).

### **3.3 Calculating the Abnormal Return (AR) for one Sample Observation and a Sample of Observations**

The methodology of the event study requires the examination of abnormal returns during the event window and the abnormal return measures the specific return to an event after declining the normal return. AR is the difference between the actual return over the event window and the normal return (expected return) over event window. The normal return explained as the expected return that the stock of the corporation would have as if the event did not occur. ARs gives out the appraisal of the event's impact on the stock return. In order to be able to calculate abnormal returns, firstly normal returns must be find. Normal returns can be calculated using various benchmarks. The widely used models are; the market model, the mean-adjusted model and the market adjusted returns model.

### 3.3.1 The Market Model

The market model is the most preferred model in the event studies (Fama et al., 1969; Stephens and Weisbach, 1998). In this thesis, the market model is estimated during the estimation window and is used for calculation of the expected rates of returns (i.e., normal returns) during the event window. According to the literature, the standard market model is developed by Brown and Warner (1980, 1985).

However, the market model does not make clear on how equilibrium security prices are established. In addition, it assumes that expected return of a share is a function of its systematic and unsystematic risk. The beta coefficient (slope coefficient) represents the systematic risk and the error term which is assumed to have a zero mean disturbance represent the unsystematic risk (firm specific risk) of the security. The anticipated daily rate of return of bond is given as in Equation 1:

$$E[R_{i,t}] = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \quad (1)$$

Where;

$E[R_{i,t}]$  is the expected rate of return of security  $i$  at a time  $t$

$R_{m,t}$  is the expected rate of return of market index at a time  $t$

$\alpha_i$  and  $\beta_i$  are the parameters estimates that are constant for security  $i$

$\varepsilon_{i,t}$  is the zero mean disturbance term (Error term, random disturbance term)

The parameters of the market model are calculated through the estimation window, which happens ahead of the event window. If the event window is from  $-20$  days and  $+20$  days, the estimation period used to generate parameters is from  $-200$  to  $-21$  days. Figure 2 helps for a better understanding of the estimation period days and the event window days.

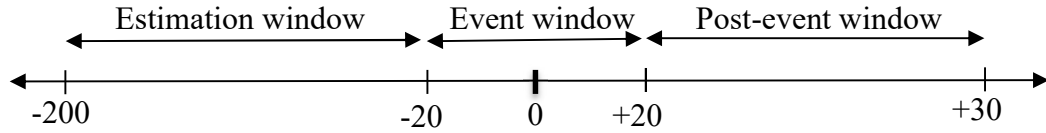


Figure 2: Graphical View of Estimation, Event and Post-Event Window

The estimated market model for a security  $i$  is stated in Equation 2:

$$R_{i,t} = \alpha_i + \beta_i * R_{m,t} + \varepsilon_{i,t} \quad (2)$$

Where;

$R_{i,t}$  is the return of security  $i$  at a time  $t$

$R_{m,t}$  is the return of market index at a time  $t$

$\alpha_i$  is the return from the asset that is not related to the market's return

$\beta_i$  is the return from a security explained by the market index's return

$\varepsilon_{i,t}$  is the error term

Lastly, the abnormal return is calculated during the event window as a measure of the event effect on the stock price. The abnormal return of the stock of corporation  $i$  calculated as given in Equation 3:

$$AR_{i,t} = R_{i,t} - [\alpha_i + \beta_{i,t}R_{m,t}] \quad (3)$$

Where;

$AR_{i,t}$  is the abnormal return of security  $i$  at a time  $t$

$R_{i,t}$  is the actual return of security  $i$  at a time  $t$

$[\alpha_i + \beta_{i,t}R_{m,t}]$  is the return predicted by the stock's  $\alpha$ ,  $\beta$  and market return

The average abnormal return (AAR) for  $N$  numbered stocks for each day in the event window at a time  $t$  is determined as in Equation 4;

$$\overline{AR}_t = \frac{1}{N} \sum_{i=1}^N AR_{i,t} \quad (4)$$

### **3.3.2 Selecting the Appropriate Market Index**

To predict the parameters for the estimation of the normal return, the appropriate stock market index for the market model should be chosen. According to the literature (Bartholdy et al., 2007; MacKinlay, 1997), it is suggested that a broad-based and value-weighted index should be selected. In event studies, the mostly used index is the S&P 500 Index in the U.S. and the FTSE Index in the U.K., both of which are broad-based and value-weighted indices. In addition, it is observed that some studies use different kind of indices in order to check for robustness of the results and the results are not sensitive to the selection of the stock market indices.

Basdas and Oran (2014) review 75 different event studies focusing on BIST corporations in Turkey and they find that the BIST-100 (XU-100) market index is the mostly index in the studies. Similarly, it is a broad-based and a value-weighted index. In this thesis, the BIST-100 (XU-100) market index is also used.

### **3.4 Calculating the Cumulative Abnormal Return for one Observation (CAR) and a Sample of Observations (CAAR)**

The cumulative abnormal return (CAR) is used as a measure of the all impact of ARs during the window for the case. CARs are also used to determine how the market identifies the shocks and to spot the uncertainty that causes fluctuations in the market. Simply, it is the summation of all ARs. However, CAR measures the cumulative market reaction for one observation in the sample. Equation 5 shows the calculation of CAR around the -10 to +10 days in the event window.

$$CAR = \sum_{t=-10}^{+10} AR_t \quad (5)$$

The cumulative abnormal return (CAR) for one sample observation over a period of time ( $t_1, t_2$ ) is calculated as in Equation 6. The test for the statistical significance for the ARs over a period is calculated as follows in Equation 8.

$$CAR = \sum_{t=t_1}^{t_2} AR_t \quad (6)$$

The average Cumulative Abnormal Return (CAAR) over a period of time  $t_1$  to  $t_2$  for a sample of observations is calculated as in Equation 7.

$$CAAR = \sum_{t=t_1}^{t_2} AAR_t \quad (7)$$

The CAAR is a helpful measurement to analyze the aggregate effect of abnormal returns. In addition, CAAR is useful if the effect of the event in the event window is not captured only on the event day.

### **3.5 Testing the Statistical Significance of Abnormal Returns on any given Event Day for one Observation (AR) and for a Sample of Observations (AAR)**

The t-statistic is used to test the significance of abnormal returns and its tests the null hypothesis of no abnormal returns. The value of the t-statistic is calculated by dividing the daily abnormal returns by the standard error of the market model. The formula for testing the t-statistics for the AR is as given in Equation 8:

$$\text{Test – statistics on event day } t = \frac{AR_t}{s(AR_t)} \quad (8)$$

Where the standard deviation of abnormal returns calculated as in Equation 9.

$$S(AR) = \sqrt{\frac{1}{T_0-1} \sum_{t=1}^{T_0} AR_t^2} \quad (9)$$

Where;

$T_0$  is the number of days in the estimation period

a and b represents the estimation period

The formula for testing the t-statistics for the AAR is as given in Equation 10;

$$\text{Test – statistics on event day } t = \frac{\overline{AR}_t}{s(\overline{AR}_t)} \quad (10)$$

The standard deviation of average abnormal returns calculated as in Equation 11;

$$s(\overline{AR}_t) = \sqrt{\frac{(\sum_{t=a}^b (\overline{AR}_t - \overline{\overline{AR}})^2)}{|a-b|}} \quad (11)$$

Where;

a and b stands for the estimation period

The calculation for the  $\overline{\overline{AR}}$  given in the Equation 12;

$$\overline{\overline{AR}} = \frac{1}{|a-b+1|} \sum_{t=a}^b \overline{AR}_t \quad (12)$$

### **3.6 Testing the Statistical Significance of Cumulative Abnormal Returns for one observation (CAR) and a sample of observations (CAAR)**

The formula for statistical test for the CAR is given in the Equation 13.

$$t - \text{test} = \frac{CAR}{s[AR_t] * \sqrt{T}} \quad (13)$$

Where T is calculated as in Equation 14;

$$T = t_2 - t_1 + 1 \quad (14)$$

The statistical test for cumulative abnormal return for (t1,t2) is given in Equation 15.

$$\overline{CAR} = \sum_{t=t_1}^{t_2} \overline{AR}_t \quad (15)$$

In addition, statistical significance for the cumulative abnormal returns are calculated in Equation 16;

$$t - \text{test} = \frac{\overline{CAR}}{s(\overline{AR}_t * \sqrt{T})} \quad (16)$$

### **3.7 Empirical Results and Analysis**

To measure the stock price response to the share buyback news, event study methodology is carried out. The ARs for each 27 observations are calculated and then are combined to determine the average response for the entire sample. For the Excel spreadsheet of the relevant calculations, see Appendix A that includes the results of abnormal returns, AARS, and CAARs. Statistical tests are used to test the significance of the ARs and CARs around the event window of  $\pm 10$  days relative to share announcement day 0.

Table 2 represents the daily average abnormal returns (AARs), t-test and significance levels within the event window of 21 business days. According to the t-test results, on days -7, -5, -4, and -3 there are statistically negative average abnormal returns (AAR) indicating the repurchase corporations are performing poorly. This kind of poor performance can indicate that the stocks are undervalued leading to announcement of a share repurchase on event day 0. Moreover, the percentage of positive abnormal returns (% count > 0) for 27 sample observations are less than 50% indicating that a considerable number of sample corporations have negative abnormal returns before the announcement day.

Table 3 shows the cumulative average abnormal return (CAAR), t-test and p-values for different periods during the event window. The CAAR for the periods, (-10, 1) and (-5, -1) are statistically random and have values of negative returns (-6.3% and 5.3%) respectively. This supports the finding that the sample corporations perform poorly before the announcement day and managers are not happy with the valuation of market. It reinforces the motivation that managers think that their corporation stocks are being undervalued by the market.

Table 2: Significance Levels of Average Abnormal Returns (whole sample)

Window	% count>0	AAR	t-value	Significance	CAAR
-10	63%	0.0007	0.15		0.0007
-9	56%	-0.0019	-0.43		-0.0012
-8	41%	0.0070	1.57		0.0058
-7	41%	-0.0148	-3.34	1% LEVEL	-0.0090
-6	44%	-0.0017	-0.37		-0.0107
-5	26%	-0.0135	-3.05	1% LEVEL	-0.0242
-4	30%	-0.0178	-4.03	1% LEVEL	-0.0420
-3	52%	-0.0119	-2.68	5% LEVEL	-0.0539
-2	44%	-0.0053	-1.19		-0.0592
-1	44%	-0.0041	-0.92		-0.0633
0	70%	0.0369	8.32	1% LEVEL	-0.0264
1	56%	0.0157	3.55	1% LEVEL	-0.0107
2	37%	-0.0092	-2.07	5% LEVEL	-0.0199
3	37%	-0.0042	-0.95		-0.0241
4	37%	-0.0027	-0.62		-0.0268
5	33%	-0.0015	-0.34		-0.0283
6	52%	0.0072	1.63		-0.0211
7	52%	0.0029	0.65		-0.0182
8	37%	-0.0016	-0.37		-0.0198
9	37%	-0.0046	-1.04		-0.0244
10	48%	0.0019	0.42		-0.0225

In the event window, the highest AAR is obtained on the event day 0, which is the day of the news published and the day after the announcement which is the day 1. As Table 2 shows, statistically significant positive average abnormal return (Day 0: 3.7%, t-test:



8.32) at the end of announcement day indicates that stock buyback news are viewed favorably by the market. Accordingly, if an investor invested in the stock day before the announcement day, have a gain of about 3.7% at the end of the announcement day. The positive reaction of the market is observed until the end of the day +1(Day 1:1.52%, t-test: 3.55).

In Table 3, the CAAR(0,1) turns out to be 5.261% and is statistically significant. On these two days, there is a cumulative positive market reaction to share repurchase announcements. In addition, the percentage of positive abnormal returns (% count>0) on Days 0 and 1 for 27 sample observations are greater than 50% indicating that a considerable number of sample corporations have positive ARs after the announcement day.

However, the positive market reaction of days 0 and 1 is followed by a statistically significant negative return on Day 2 and it is -0.92%. Even though there are negative average abnormal returns in the coming days, they are small in magnitude and are statistically insignificant. The negative market reaction can be interpreted as a correction to the market reaction on days 0 and 1. In other words, the market overreacted on days 0 and 1.

The preceding finds are also supported by the results of CAAR(0,1), CAAR(0,5), and CAAR(0,10) in Table 3. All of them are positive and statistically significant. The CAAR(0,1) of 5.261% is the cumulative positive market reaction. However, the initial cumulative market reaction has overreacted and has been corrected in the following days. This is supported by the findings that CAAR(0,5) and CAAR(0,10) have lower values relative to CAAR(0,1) and this is a result of market correction. In the end, the

CAAR from day 0 to day 10 is 4.069%, a positive overall market reaction to stock buyback announcements.

Table 3: Cumulative average abnormal returns (CAARs)

Period	CAAR	t-value	p- value	Significance
CAAR(-10,-1)	-0.06331	-4.51915	0.00013	1% LEVEL
CAAR(-5,-1)	-0.05258	-5.30823	0.00002	1% LEVEL
CAAR(0,1)	0.05261	8.398457	0.00000	1% LEVEL
CAAR(0,5)	0.03497	3.222509	0.00352	1% LEVEL
CAAR(0,10)	0.04069	2.769303	0.01043	5% LEVEL
CAAR(-10,+10)	-0.02262	-1.11423	0.27578	

Figure 3 shows how the AARs and CAARs behave during the event window. The trends in the figure support our empirical findings. For instance, AARs experience have negative returns before day 0; and CAARs reaches the highest negative number and positively affected by the positive AARs on days 0 and 1. Overall, Figure 3 supports the positive market reaction to share repurchase announcements and the stock price performance of sample corporations are considerably negative before the announcement. There is a market reaction on days 0 and 1 followed by market correction in the coming days.

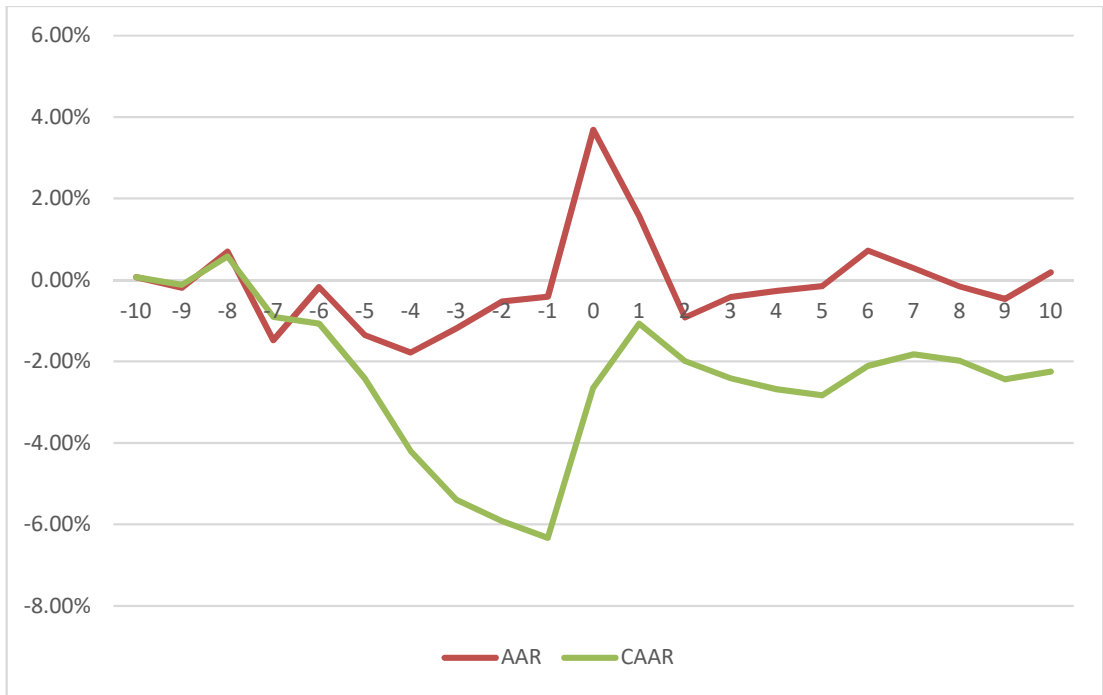


Figure 3: AARs and CAARs during the Event Window

## Chapter 4

### CONCLUSIONS

Stock repurchase has become an important corporate finance tool and a widely preferred payout method. In different parts of the world, corporations have preferred this flexible financial opportunity to distribute excess cash through share repurchase programs rather than paying out in cash dividends. The most common drive for the share repurchase programs is the undervaluation signal and reducing volatility (Pirgarip and Karacaer, 2005). There are many studies in the literature that tries to explain the motivations of share repurchases such as capital structure, undervaluation, takeover deterrence and wealth transfer hypothesis. In addition, many studies tries to explain the effect of the announcements of share repurchase or dividend payment programs. However, there are still no single result to be able to explain the price impact of this kind of announcements on the share prices of the corporations.

In Turkey, restrictions in laws and regulations had not allowed the corporations to buyback their stocks from the open market. However, initially, the announcement of CMB's in 2009 allowed the intermediary institutions and investment trust corporations to repurchase their shares from the market. In 2011, the rules and regulations in Turkey were generalized for all corporations and corporations have started to actively use this payout method.

This thesis examines the effect of stock repurchase news on the corporations' stock prices completed by non-financial corporations between 2011 and 2017. By using the event study methodology, it is tested whether BIST stock market is semi-strong form efficient. The data consist of 27 observations of 19 different non-financial corporations in Turkey. By using the market model as explained in Chapter 3, relevant calculations are carried out to determine the abnormal returns and statistical tests are used to test the validity of the proposed explanations. The event window of 10 days before and 10 days after the event is observed for all corporations; and AARs and CAARs are presented for a better understanding.

The results show that there is a positive market reaction to share repurchase announcements. Investors react positively to the share repurchase announcements. The effect of the announcement continues until the end of day 1. In fact, a positive cumulative market reaction is found for the period (0, +10). At the end of day 10, the cumulative positive effect is around 4.1% and is statistically significant.

For the period before the repurchase announcements, sample corporations have poor performance relative to the market performance and it is an indication that the stocks of sample corporations are underpriced. This supports the motivation of undervaluation signal and managers announce share repurchase programs to correct for the undervaluation problem in the stock market.

The results also fail to support that the BIST is semi-strong form efficient for the case of stock buyback announcements. Theoretically, on the event day, the stock market should absorb all the information and further market reactions should not be observed

in the coming days. However, it is found that the BIST stock market overreacts to share repurchase announcements and the market reaction continues until the end of day 2.

The investors and policy makers can use such announcements to obtain abnormal returns from their investments. In this case, since there is an increase in security prices at the day 0 and day 1 as observed from this thesis, investors can sell their shares back to corporation for slightly higher prices. In addition, if corporations can use the share repurchases at the correct time they can contribute the market efficiency. As a result, information asymmetry problem can be eliminated.

## REFERENCES

- Ball, R. and Brown, P. (1968) an Empirical Evaluation of Accounting Income Numbers, *Journal of Accounting Research*, 6, 159-137.
- Brown, S.J. and Warner, J.B. (1980) Measuring Security Price Performance, *Journal of Financial Economics*, 8, 205-258.
- Brown, S.J. and Warner, J.B. (1985) Using Daily Stock Returns, *Journal of Financial Economics*, 14, 3-31.
- Bagwell, L. S. (1991). Share Repurchase and Takeover Deterrence. *The Rand Journal of Economics*, 72-88.
- Binder, J.J. (1998) the Event Study Methodology since 1969, *Review of Quantitative Finance and Accounting*, 11, 111-137.
- Baker, H. K., Powell Gary, E. & Veit, E. T. (2003) Why companies use open-market repurchases: A managerial perspective. *Quarterly Review of Economics and Finance*, 43, 483-504.
- Billett, M., & Hui Xue. (2007). the Takeover Deterrent Effect of Open Market Share Repurchases. *The Journal of Finance*, 62(4), 1827-1850. Retrieved from <http://www.jstor.org/stable/4622318>

Bartholdy, J., Olson, D., & Peare, P. (2007). Conducting Event Studies on a Small Stock Exchange. *The European Journal of Finance* 13, pp. 227 - 252.

Basdas, U., & Oran, A. (2014). Event Studies in Turkey. *Borsa Istanbul Review*, 14(3), 167-188.

Benniga, S. (2014) *Financial Modelling*. Cambirdge, London: MIT Press

Comment R. and Jarrell G., “The Relative Signaling Power of Dutch-Auction and Fixed Price Self-Tender Offers and Open-Market Share Repurchases,” *Journal of Finance* 46, (September 1991), pp. 1243–1271.

Denis, D. (1990). Defensive Changes in Corporate Payout Policy: Share Repurchases and Special Dividends. *The Journal of Finance*, 45(5), 1433-1456. Doi: 10.2307/2328744

David Ikenberry; Josef Lakonishok and Theo Vermaelen, (1995), Market under reaction to open market share repurchases, *Journal of Financial Economics*, 39, (2-3), 181-208

Erik Lie and Heidi J. Lie, (1999), the Role of Personal Taxes in Corporate Decisions: An Empirical Analysis of Share Repurchases and Dividends, *Journal of Financial and Quantitative Analysis*, 34, (04), 533-552

Ergin, E., (2011), İMKB Sirketleri İçin Yeni Olanak: Hisse Senedi Ger Satın Alımı, *Muhasebe Ve Finansman Dergisi*, Ocak, 66-74.



- Fama, E. F. (1965b), the Behavior of Stock-Market Prices, *Journal of Business*, 38(1), 34–105.
- Fama, E. F. (1970), Efficient capital markets: A review of theory and empirical work, *The Journal of Finance* 25(2), 383–417.
- Fama, E.F., Fisher, L., Jensen, M.C. and Roll, R. (1969). The Adjustment of Stock Prices to New Information. *International Economic Review*, 10 (1), 1-21.
- Fama, E. F. (1991), Efficient capital markets: II, *The Journal of Finance* 46(5), 1575–1617.
- Gay, G., Kale, J., & Noe, T. (1996). (Dutch) Auction Share Repurchases. *Economica*, 63(249), 57-80. Doi: 10.2307/2554634
- Grullon, G., and Ikenberry, D. L. (2000), What do we know about stock repurchases?, *Journal of Applied Corporate Finance*, 13, (1), 31-51
- Grullon, G., & Michaely, R. (2002). Dividends, Share Repurchases, and the Substitution Hypothesis. *The Journal of Finance*, 57(4), 1649-1684. Retrieved from <http://www.jstor.org/stable/3094520>
- Grullon G., Michaely R., and Swaminathan, B. (2002), Are Dividend Changes a Sign of Firm Maturity?, *The Journal of Business*, 75 (3), 387-424

- Hsieh J. and Wang Q. (2008): Insiders' tax preferences and firms' choices between dividends and share repurchases, in: *Journal of Financial and Quantitative Analysis* 43 (1), 213-244.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Jensen, M. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review*, 76(2), 323-329. Retrieved from <http://www.jstor.org/stable/1818789>
- Kothari, S.P. and Warner, Jerold B., (2004). The Econometrics of Event Studies. Available at <http://dx.doi.org/10.2139/ssrn.608601>
- MacKinlay, A. C. (1997). Event Studies in Economics and Finance. *Journal of Economic Literature*, pp. 13 - 39.
- Pirgaip, B. (2007) Why Do Firms Repurchase Their Stocks? Evidence from an Emerging Market. Available at SSRN:<https://ssrn.com/abstract=2977165>
- Pirgaip, B., & Karacaer, S. (2015). Short-term price effects of stock repurchases in Turkish capital markets. *International Journal of Economics and Finance*, 7(12), 29-43. <https://doi.org/10.2139/ssrn.2650418>

Stephens, C.P. and S.W.Weisbach. 1998. Actual Share Repurchases in Open-Market Repurchase Programs. *Journal of Finance*, 53, 313-333.

SPK (2009), 03.09.2009 tarihli Hisse Geri Alımına İlişkin Basın Duyurusu, <http://www.spk.gov.tr/Duyuru/Goster/200993/1>

SPK (2011), 11.08.2011 tarihli Hisse Geri Alımlarına İlişkin Basın Duyurusu, <http://www.spk.gov.tr/Duyuru/Goster/2011811/0>

SPK (2014), 03.01.2014 tarihli Geri Alınan Paylar Tebliği Hakkında Basın Duyurusu, <http://www.spk.gov.tr/Duyuru/Goster/20140103/2>

SPK (2016), 21.07.2016 tarihli Basın Duyurusu, <http://www.spk.gov.tr/Duyuru/Goster/20160721/0>

Sermaye Piyasası Kurulundan (2014) Geri Alınan Paylar Tebliği (II. 22.1) (Publication No.28871) Retrieved from: <http://www.resmigazete.gov.tr/eskiler/2014/01/20140103-4>

Vermaelen, T., 1981, "Common Stock Repurchases and Market Signaling: An Empirical Study," *Journal of Financial Economics* (June), 139-183.

Vermaelen T. (2005), "Share Repurchases", *Foundations and Trends in Finance*: Vol. 1: No. 3, pp 171-268. <http://dx.doi.org/10.1561/05000000007>

Vermaelen, T. (October 19, 2006). Share repurchases can be a good deal. Retrieved from, <https://www.ft.com/content/86993f38-5f7c-11db-a011-0000779e2340>

Yapı Kredi Bankası (2013). 2012 yılında elde edilen menkul kıymet gelirlerinin beyanı ve vergilendirilmesi. <http://www.yapikredi.com.tr/tr-TR/yatirim/2012>

## **APPENDICES**

## Appendix A: Sample Market Reaction Results

CORP.	ANN-DATE	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
TCELL	27-07-16	0.010	0.031	-0.013	0.030	-0.009	0.012	0.006	0.014	-0.004	0.012	-0.019	-0.024	-0.008	-0.005	-0.008	-0.005	-0.008	0.003	-0.002	-0.009	0.017
ARSAN	22-07-16	0.001	-0.010	0.009	-0.197	0.004	-0.010	-0.098	-0.004	-0.034	-0.003	0.065	0.028	-0.014	0.035	-0.010	-0.018	-0.003	0.020	-0.023	-0.013	0.007
LOGO	26-06-12	0.004	0.002	0.001	-0.013	0.000	0.005	0.015	0.009	-0.011	-0.028	0.027	0.013	0.028	-0.004	-0.030	-0.006	-0.009	0.018	-0.002	-0.004	0.001
LOGO	22-04-13	-0.002	-0.001	-0.004	0.001	-0.009	-0.014	-0.022	-0.063	0.021	-0.009	0.071	-0.006	0.005	0.033	-0.001	-0.009	0.012	0.010	0.010	0.014	-0.006
LOGO	21-09-15	-0.029	0.025	-0.002	-0.018	-0.037	-0.053	0.005	-0.002	-0.010	-0.012	0.060	-0.009	-0.009	-0.019	0.001	0.013	0.002	0.008	0.007	-0.010	-0.004
AKGUV	09-05-14	0.000	-0.093	0.075	-0.056	0.018	-0.001	0.019	-0.098	-0.042	-0.067	-0.023	0.000	-0.085	-0.079	0.141	-0.024	0.208	0.066	0.035	-0.113	-0.021
AKGUV	04-05-15	-0.004	0.002	-0.017	-0.035	0.020	-0.001	0.007	0.003	0.006	0.003	0.066	0.164	-0.070	-0.013	-0.015	0.017	-0.010	-0.012	-0.005	-0.014	-0.009
LKMNH	04-03-15	-0.008	-0.003	-0.003	-0.015	0.015	0.001	-0.022	0.004	0.012	0.011	0.123	-0.061	-0.029	0.011	-0.017	-0.011	0.006	0.009	-0.010	-0.012	0.021
BMEKS	29-02-12	0.000	0.014	0.101	0.017	-0.020	0.001	0.004	0.008	0.014	-0.005	0.112	-0.003	0.001	0.017	0.004	-0.001	-0.005	0.008	-0.005	-0.025	-0.033
BMEKS	02-09-15	0.009	-0.016	0.006	0.024	-0.023	-0.007	-0.015	0.015	0.019	0.017	0.076	-0.044	-0.002	0.003	-0.026	0.004	0.005	-0.002	-0.005	-0.016	0.001
BIMAS	27-12-13	0.009	0.004	0.013	0.003	-0.014	-0.006	-0.021	-0.008	-0.022	-0.005	0.035	0.028	-0.006	0.008	-0.005	-0.024	-0.021	-0.003	-0.025	0.005	-0.012
BIMAS	05-03-15	-0.003	0.009	-0.008	0.002	0.010	-0.001	-0.033	0.001	0.008	-0.065	-0.002	0.054	-0.005	0.002	-0.015	-0.009	-0.008	0.013	-0.004	0.025	-0.017
BIMAS	22-07-16	0.000	-0.009	-0.006	-0.004	-0.006	-0.010	0.000	-0.031	0.043	0.008	0.012	-0.002	0.011	-0.009	0.001	-0.013	0.007	0.008	0.009	-0.017	0.014
AVTUR	21-07-16	-0.006	0.002	-0.020	-0.020	-0.016	-0.014	-0.010	-0.056	0.051	-0.017	0.027	0.048	-0.021	-0.010	0.005	-0.017	-0.003	-0.001	-0.006	0.005	-0.004
BIZIM	03-02-17	0.004	-0.007	-0.014	-0.019	0.013	-0.002	-0.006	0.003	-0.008	-0.004	-0.005	0.035	0.025	-0.002	0.003	0.009	0.005	0.002	-0.009	0.002	-0.014
DOAS	22-07-16	0.003	-0.007	0.002	0.008	0.038	-0.053	-0.053	0.016	-0.003	-0.028	0.018	-0.001	-0.012	-0.011	-0.004	0.010	-0.020	-0.001	-0.010	0.004	-0.009
MARTI	12-08-11	-0.004	-0.006	-0.003	-0.007	-0.033	-0.053	-0.073	0.013	-0.051	0.033	0.003	0.025	0.011	0.002	-0.043	0.021	0.004	-0.017	0.012	-0.002	0.014
MARTI	18-06-14	0.004	0.006	0.028	-0.002	0.069	-0.054	-0.006	-0.009	-0.089	0.015	0.067	0.009	-0.010	-0.007	-0.013	0.000	0.008	-0.002	0.000	-0.005	0.036
KATMR	22-07-16	0.044	-0.009	-0.005	0.011	0.008	0.011	-0.061	0.024	-0.015	-0.023	0.063	0.042	0.066	-0.022	-0.019	0.050	0.036	-0.020	-0.018	0.035	-0.022
VANGD	21-07-16	0.008	0.004	-0.008	0.008	-0.001	-0.008	-0.012	-0.082	0.031	-0.013	-0.023	0.074	0.016	-0.007	0.013	-0.001	-0.001	0.002	-0.027	0.011	0.109
SASA	22-11-17	-0.003	0.006	-0.004	-0.029	-0.033	-0.015	-0.007	-0.010	-0.030	0.035	0.168	0.011	-0.042	-0.015	-0.031	0.055	0.025	-0.009	0.017	0.056	-0.025
GEREL	22-02-16	-0.013	-0.019	0.050	-0.017	0.008	-0.017	-0.033	0.003	0.019	0.017	-0.038	-0.001	0.003	-0.018	-0.002	-0.011	-0.025	-0.024	-0.010	-0.021	0.004
JANTS	29-11-16	0.014	0.019	0.000	-0.024	-0.051	0.015	-0.014	-0.028	-0.002	-0.010	-0.044	-0.040	-0.015	0.006	-0.007	-0.010	0.014	-0.009	-0.005	-0.017	-0.009
ULUUN	25-07-16	0.040	-0.025	-0.007	0.002	0.003	-0.047	-0.036	-0.022	-0.026	0.018	0.044	0.040	0.018	-0.013	0.004	-0.028	0.001	-0.009	-0.001	-0.012	0.005

DAGI	10-01-13	0.004	0.004	0.020	0.000	-0.001	-0.003	0.008	0.003	0.013	0.009	0.083	0.025	-0.032	-0.003	0.005	-0.018	-0.009	0.012	0.011	0.023	0.012
DAGI	25-07-16	0.011	0.009	0.019	-0.010	-0.040	-0.065	-0.036	-0.036	-0.086	0.012	0.038	-0.014	-0.047	-0.002	0.005	-0.006	-0.020	-0.012	0.001	-0.009	0.008
BLCYT	01-08-16	-0.077	0.014	-0.022	-0.041	0.041	0.024	0.013	0.010	0.055	-0.011	-0.009	0.033	-0.029	0.008	-0.009	-0.011	0.004	0.021	0.019	-0.004	-0.011
	AVG. AR	0.001	-0.002	0.007	-0.015	-0.002	-0.014	-0.018	-0.012	-0.005	-0.004	0.037	0.016	-0.009	-0.004	-0.003	-0.002	0.007	0.003	-0.002	-0.005	0.002
	t-value	0.152	-0.430	1.571	-3.340	-0.375	-3.053	-4.029	-2.684	-1.186	-0.917	8.325	3.553	-2.075	-0.953	-0.616	-0.340	1.630	0.651	-0.370	-1.039	0.419
	p-value	0.880	0.671	0.129	0.003	0.711	0.005	0.000	0.013	0.247	0.368	0.000	0.002	0.048	0.350	0.543	0.736	0.116	0.521	0.714	0.309	0.679
	sign. level				1%		1%	1%	5%			1%	1%	5%								
	std.AR)	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	n	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
	count>0	17	15	11	11	12	7	8	14	12	12	19	15	10	10	10	9	14	14	10	10	13
	% count>0	63%	56%	41%	41%	44%	26%	30%	52%	44%	44%	70%	56%	37%	37%	37%	33%	52%	52%	37%	37%	48%
	Window	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10

## **Appendix B: Example Format of Share Repurchase Program for General Assembly's Approval**

### **GERSAN ELEKTRİK TİCARET VE SANAYİ A.Ş.**

#### **GERİ ALIM PROGRAMI**

##### **GERİ ALIMIN AMACI:**

Sermaye piyasalarında meydana gelen dalgalanmalar neticesinde, Şirket hisselerimizin Borsada oluşan değerleri faaliyetlerimizin gerçek performansını yansıtmaması ihtimali ve bu nedenle yatırımcılarımızı korumak ve gerçek değere uygun fiyat oluşmasına katkı sağlamak amacıyla, Sermaye Piyasası Kurulu tarafından hazırlanmış olan II.22.1 Geri Alınan Paylar tebliği kapsamında önümüzdeki dönemde borsada oluşacak fiyat hareketlerinin takip edilmesi ve koşullar gerektirdiğinde Şirketimizin kendi hisselerini satın alabilmesi amaçlanmaktadır. Sermaye Piyasası Kurulu'nun yapacağı yeni düzenlemeler çerçevesinde bu politika revize edilecektir.

##### **GERİ ALIM PROGRAMININ UYGULANACAĞI SÜRE:**

Şirketin bu program çerçevesinde geri alım yaptığı payları elde tutma süresi azami üç yıl olarak belirlenmiş olup, bu süre içerisinde elden çıkarılmayan paylar sermaye azaltımı yapmak suretiyle iptal edilir.

##### **GERİ ALIMA KONU AZAMI PAY SAYISI:**

Geri alınabilecek azami pay sayısı Şirket'in paylarının yasal mevzuatın izin verdiği azami oran dikkate alınarak öngörülmüştür. Geri alınan payların nominal değeri, daha önceki alımlar dahil çıkarılmış sermayenin %10'unu aşamaz.

Buna göre, 50.000.000 adet ödenmiş sermayemizin %5'ine denk gelen 2.500.000 adet pay için üç yıl içerisinde elden çıkarılacak şekilde geri alım yapılabilir.



Geri alınan paylar bilançoda öz kaynaklar altında bir indirim kalemi olarak izlenir ve konsolide finansal tablo dipnotlarında gerekli açıklamalar yapılır. Belirlenen oran program süresi içerisinde sermaye artırımı yapılması veya Kurul kararlarında oluşabilecek değişikliklerle farklılaşabilir. Bu durumda yasal mevzuat uyarınca işlem yapılabilir.

Geri alınan payların toplam bedeli, kar dağıtımına konu edilebilecek kaynakların toplam tutarını aşamaz.

Geri alım programında belirtilen azami pay sayısına ulaşılması durumunda program sonlandırılır.

#### **GERİ ALIMI İÇİN ALT VE ÜST FİYAT LİMİTLERİ:**

Payların geri alımında uygulanacak alt fiyat limiti 1,00 TL, üst fiyat limiti ise 4,00 TL olarak belirlenmiştir.

Paylarımızın borsa fiyatının düzeltilmesini gerektirecek işlemlerin gerçekleşmesi durumunda, aynı düzeltme payların geri alınması için belirlenen alt ve üst fiyat limitlerine de uygulanacaktır. Bu şekilde düzeltmeye tabi tutulmuş alt ve üst fiyat limitleri özel durum açıklaması ile KAP'ta duyurulacaktır.

#### **GERİ ALINAN PAYLARIN SATIŞ ESASLARI:**

Geri alınan payların satışı Yönetim Kurulu'nun program süresi içerisinde alacağı karar ile belirleyeceği tarihlerde satılabilir. Yönetim Kurulumuz geri alınan payların tamamını elden çıkarmaksızın satışları sonlandırmakta yetkilidir

#### **GERİ ALIM İÇİN AYRILAN FONUN TOPLAM TUTARI VE KAYNAĞI:**

Geri alım için şirket kaynakları ve faaliyetlerinde elde edilecek kazançlardan yaratılacak azami 10.000.000 TL fon tutarı belirlenmiştir.

## **GERİ ALIM İÇİN YETKİLENDİRME :**

Yönetim Kurulu'na 36 ay süre ile yetki verilmiştir. Bu çerçevede, Şirketimiz alımlar için şirketimiz Yönetim Kurulu Başkanı Sn. Yüksel KARDEŞ yetkilendirilmiştir.

Genel Kurulumuz tarafından kendisine yetki verildiği tarihi takip eden 36 ay boyunca pay geri alımı ve alınan payların elden çıkartılması ile mevzuat uyarınca gereken işlemlerin yapılması konusunda yetkilidir. Bu yetki süresi içerisinde kalmak üzere, Yönetim Kurulumuz daha kısa süreli bir veya daha fazla geri alım programı gerçekleştirebilir.

### **PAY FİYAT BİLGİLERİ:**

Yıllık En Yüksek Fiyat :	3,47
Yıllık En Düşük Fiyat :	1,27
Yıllık Ağırlıklı Ortalama Fiyat :	2,35
Son Üç Aylık En Yüksek Fiyat :	3,47
Son Üç Aylık En Düşük Fiyat :	2,76
Son Üç Aylık Ağırlıklı Ortalama Fiyat :	3,04

## **GERİ ALIM PROGRAMININ ONAYA SUNULACAĞI GENEL KURUL**

### **TARİHİ:**

Hazırlanan Geri Alım Programı yapılacak olan ilk Olağan Genel Kurul Toplantısında Genel Kurul'un onayına sunulacaktır.

## Appendix C: Example of Share Repurchase Announcement

### LOGO YAZILIM SANAYİ VE TİCARET A.Ş.

#### **GERİ ALIM PROGRAMI (22.04.13)**

Açıklanacak Özel Durum/Durumlar:

Şirketimiz Yönetim Kurulunun 19.04.2013 tarih ve 2013- 7 sayılı toplantısında;

1. "İMKB'da İşlem Gören Şirketlerin Kendi Paylarını Satın Alımları Sırasında uygulanacak İlke ve Esaslar" çerçevesinde, İMKB' de oluşan hisse değerlerimizin Şirketimiz faaliyetlerinin gerçek performansını yansıtmaması nedeniyle gerek hissemizin fiyat dalgalanmalarını azaltmak gerekse mevcut piyasa koşullarını değerlendirmek için İMKB'de hisselerimizin geri alımını yapılabilmesine,
- 2.Geri alım için ayrılan fonun; Şirketin faaliyet konusu kapsamında ki şirket kaynaklarından ve faaliyetlerinden yaratılacak gelirlerden karşılanmak üzere toplam tutarının üst limitinin 5.000.000 TL olmasına, geri alınabilecek azami pay sayısı Şirket'in paylarının yasal mevzuatın izin verdiği azami oran dikkate alınarak öngörülmesine, bugün itibarıyla 2.500.000.000 adet ödenmiş sermayemizin % 4'ü olan 100.000.000 adet pay'ın 0 TL alt ve 5,5 TL üst fiyat limitleri içerisinde Gülnur Anlaş' ın 2 ay süreyle yetkilendirilmesine,
3. Geri Alım Programının, sürecin hissedarlarımız lehine daha iyi yönetilebilmesi için, Yönetim Kurulu kararı uyarınca uygulanmasına, bilahare yapılacak ilk genel kurulda, Geri Alım Programının uygulanması hakkında bilgi verilmesine,
4. Bu kapsamda Pay Geri Alma Programıyla ilgili bu Yönetim Kurulu kararımızın Özel Durum Açıklaması olarak duyurulmasına,
5. Pay Geri Alma Programının SPK' nın 26/767 sayılı ilke kararına uygun olarak Şirketimiz web sitesinde yasal gereklere uygun olarak duyurulmasına,
6. Pay Geri Alma Programı çerçevesinde uygulanan her bir pay geri alma işleminin Özel Durum Açıklaması olarak duyurulmasına

Oy birliği ile karar verilmiştir