ISE REVIEW

Istanbul Stock Exchange

ISSN 1301-1642

Volume: 12 No:45

1985 2010

Yirmi Beşinci Yıl

Twenty Fifth Year

The Effects of Free float Rations on Market Performance:
An Empirical Study on the Istanbul Stock Exchange
Faruk Bostancı & Saim Kılıç

The Effect of the Transparency Level of the
ISE-Listed Banks on Liquidity
A.R. Zafer Sayar & Önder Kaymaz & Ali Alp

Calender Effects in the Stock Market and a Practice Related
To the Istanbul Stock Exchange Market (ISEM)
Mehmet Hasan Eken & Taylan Özgür Üner

The ISE Review

Quarterly Economics and Finance Review

On Behalf of the
Istanbul Stock Exchange Publisher

Chief Legal Advisor
Tangül DURAKBAŞA

Managing Editor
Dr. Ali KÜÇÜKÇOLAK

Editor-in-Chief
Saadet ÖZTUNA

Editorial Production & Printing
UFUK REKLAMCILIK
Maltepe Mah. Gümüşsuyu
Cad. Çiftehavuzlar Yolu
1. Matb. Sitesi No:1/68
Topkapı / İSTANBUL
Tel: 0212 544 92 30
Fax: 0212 544 92 29
www.ufukmat.com
Print Date: August 2010

This review is published quarterly. Due to its legal status, the Istanbul Stock Exchange is exempt from corporate tax.

Address of Administration: İMKB, Istanbul Stock Exchange, Reşitpaşa Mah. Tuncay Artun Cd. Emirgan 34467, Istanbul / TURKEY
Contact Address: İMKB (ISE), Strategy Development and Research Department, Reşitpaşa Mah. Tuncay Artun Cd. Emirgan 34467, Istanbul / TURKEY
Phone: (0212) 298 21 00 Fax: (0212) 298 25 00
Internet web site: http://www.ise.org
E-mail: saadet.oztuna@imkb.gov.tr

Online Access:

ISE REVIEW, Quarterly economics and Finance review published by the Istanbul Stock Exchange.

Starting with Volume 3 No: 10 issue (year 1999), full-text articles published in the ISE Review are now available through the Internet in pdf format.

Abstracts:

Abstracts of all articles published in the ISE Review are available through the ISE website. The database covers all abstracts of refereed journal articles published since 1997.

(1) http://www.imkb.gov.tr/yayinlar-html
(2) Select: ISE Review

For further informaiton, comments and suggestions please contact.
Tel: (90.212) 298 21 71

The ISE Review Price and Payment Information:
Hard Copy US$ 7.5 per copy (Issue No. 45)
Wire transfer to T. İş Bankası Borsa Branch

Account No. 1125 4599 (US$ account)
Please write the name of the publication and send us a copy of the receipt.
Please do not send cash.

Address: İMKB (ISE) Strategy Development and Research Department
Reşitpaşa Mah., Tuncay Artun Cad.
Emirgan 34467 Istunbul-TURKEY
Tel: +90 212 298 21 71 Fax: +90 212 298 21 89

The ISE Review

Volume: 12 No: 45

CONTENTS

The ISE Review is included in the "World Banking Abstracts" Index published by the Institute of European Finance (IEF) since 1997, in the Econlit (Jel on CD) Index published by the American Economic Association (AEA) as of July 2000, and in the TÜBİTAK-ULAKBİM Social Science Database since 2005.

The ISE Review Volume: 12 No: 45
ISSN 1301-1642 © ISE 1997

THE EFFECTS OF FREE FLOAT RATIOS ON MARKET PERFORMANCE: AN EMPIRICAL STUDY ON THE ISTANBUL STOCK EXCHANGE

Faruk BOSTANCI[*]
Saim KILIÇ[**]

Abstract

This study aims to examine the effects of free float ratios (i.e. the quantity of shares available to public) on market performance of stocks in Turkey. The data contains 199 listed firms on Istanbul Stock Exchange for the year 2007. The relationship between free float ratio and the dependent variables average daily closing price, price volatility and average daily trading activity is measured by regression models. Findings suggest that the market rewards higher floating ratio, that is, average daily closing price and trading activity is significantly higher for stocks with higher free float ratio. However, the price volatility or risk of a stock increases with free float ratio. Finally, the effect of free float ratio on these variables is measured by controlling size of firms through a multi variable regression model. According to regression results effects of floating ratio do not increase or decrease as the firm size increase or decrease.

I. Introduction

The law and finance studies show that countries can have greater stock markets in proportion to national incomes when the legal system protects efficiently corporate shareholders. The findings of these studies suggest that the common law tradition is in favour of capital markets whilst civil law tradition fails to stimulate capital market development. In common law countries corporations are

[*] Faruk Bostancı, Deputy General Manager of BOTAŞ (was an expert at the Capital Markets Board of Turkey). BOTAŞ, Bilkent Plaza A-2 Blok Bilkent/Ankara, Turkey.
Tel: 0312 297 20 00 E-mail: Faruk.Bostanci@botas.gov.tr.

[**] Dr. Saim Kılıç, PhD and Head of Inspection and Surveillance Board of Istanbul Stock Exchange (was a senior expert at the Capital Markets Board of Turkey).
Tel: 0212 298 21 00 E-Mail: saim.kilic@imkb.gov.tr

Key Words: Free float ratio, market performance, ownership structure, ISE
JEL Classification: G14, G35

characterized by diffused ownership structure which lead to “agency problem” between managers and owners whereas the concentrated ownership structure of firms lead to “expropriation problem” between controlling owners and minority shareholders in civil law countries. Therefore, an ownership structure study is context dependent.

The relation between ownership structure and corporate performance has been a popular subject for the researchers. Ownership structure studies mainly focus on firm performance like accounting profit or other variables related to financial statements of firms. On the other hand, free float ratio studies are essentially interested in the market performance of stocks like return on asset or liquidity. Free float ratio provides shortcut information about the ownership structure of a company. Low free float ratio indicates the concentrated ownership structure as well as a small shallow market for stocks of that company. Therefore, there are two possible types of effect of floating ratio: first, if the ownership is concentrated (or free float ratio is low) investors avoids from that stock because of the possibility of expropriation under the weak corporate governance structure; second, lower free float ratio means lesser quantity of shares is floating in the market which may lead to illiquidity in the market of that stock. Investors dislike illiquidity too. As a result, small floating ratio is likely to have value reducing effect on stocks with the insufficient demand of investors.

Turkey is a typical civil law country and provides appropriate settings to study effects of ownership structure in a less developed capital market. Turkish capital market is characterized by highly concentrated ownership structure of family firms or business groups, and relatively low level of investor protection. Initial owners of the firms are reluctant to offer more shares to the public in order not to lose their control. This decreases the quantity of shares available to public (free float shares) in the market. The free float ratios of listed companies are relatively low like other civil law countries and low floating ratio can be seen as symptom of weak investor protection.

In spite of the interest of investment community, there are limited numbers of academic studies which focus directly on the effects of free float ratio though there are numerous studies on ownership structure and firm performance. To our knowledge, this is the first published study that explores the relationship between free float ratio and stock market performance in Turkey. Within this framework, the rest of the paper is organized as follows. Section 2 reviews related literature. Section 3 identifies the hypotheses of the model. Section 4 explains data and

methodology. Section 5 summarizes the findings of the study. Section 6 concludes.

II. Literature Review

The recent law and finance studies show that the legal tradition of a country is the fundamental determinant for the efficiency of capital market in that country. There are two legal traditions that countries follow one or another, namely, common law tradition which is popular among Anglo-American countries and civil law tradition which is followed by many continental Europe countries such as France, Italy, and Spain. Some countries are in between the two legal traditions such as Germany and the Scandinavian countries though they are closer to civil law countries. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (hereafter LLSV, 1998) show that the laws in common law countries are the most successful in protecting shareholders, whereas the laws in French civil law countries provide the least protection. The most basic prediction is that poor investor protection discourages the development of financial markets. When investors are not protected from expropriation, they pay less for securities, making it less attractive for entrepreneurs to issue these securities. This is a reasonable explanation for why some countries have more valuable stock markets, larger number of listed companies per capita (LLSV, 2000).

In French civil law countries corporations typically exhibit concentrated ownership structure, generally, families or business groups hold the majority of the shares and thus the control through pyramidal structures and/or dual class shares. Therefore, the Anglo-American “agency problem” between owners and managers is replaced by “expropriation problem” between controlling shareholders and minority shareholders in civil law countries (Ararat and Ugur, 2003). Concentration of ownership is one of the offered solutions for the former problem whereas diffusion of ownership may be a remedy for the latter problem. Therefore, the relation between corporate performance and ownership structure is context dependent. The legal and institutional differences among countries lead to different governance problems and the remedies are varying according to context of country.

The law and finance studies enable us to understand the international differences among markets. However, findings of these studies need to be strengthened further by new evidences from emerging markets. Turkey is a typical civil law country (LLSV, 1998) in the sense that Turkish capital market is characterized by highly concentrated ownership structure of family firms or

business groups, and relatively low level of investor protection (Orbay and Yurtoglu, 2006). Pyramidal structures, cross-ownership, privileged shares and various other control mechanisms are used to control the firms by major shareholders (OECD Report, 2006). Initial owners of the firms are abstaining to offer more shares to the public in order not to lose their control. This decreases the quantity of shares available to public (free float shares) in the market. Thus, Turkey provides appropriate settings to study effects of ownership structure in a less developed capital market.

Yurtoglu (2000) examines the effects of ownership structure on Turkish firm performance for years 1990-1996. Three performance variables are employed for a sample of 126 non financial companies of ISE. These variables are the ratio of annual net profit to total assets, the market value of the firm to total assets and the dividend payout ratio which is, Yurtoglu argues, important in determining the return of investment made by minority share holders. Yurtoglu (2000) concludes that there is a statistically significant negative relationship between the three performance measures and the ownership concentration.

In another study on the relationship between performance and ownership structure for Turkish firms, Ozer and Yamak (2001) use the data of 204 firms listed on Istanbul Stock Exchange for the year 1999. These firms are characterized by highly concentrated ownership structure. On the average the largest shareholder has the 53.2 % of these firms. The financial companies are excluded from the initial data since they differ in terms of their operations and accounting standards. After this exclusion, they ended up with a final sample of 153 non-financial companies with concentrated ownership structure. They use ownership concentration, market control and owner identity as independent variable and debt pressure as control variable. The proportion of the shares that held by the largest shareholder is used as a measure for the ownership concentration. Market control variable is calculated as the percentage of dispersed ownership which may act as market control in companies with concentrated ownership. For owner identity variable dummy variables are used to identify the effects of different types of owners such as individuals, holdings, financial institutions, non-financial companies and so on. The control variable, the debt pressure which has a possible influence on ownership performance relation through the monitoring function of debt holders, is measured as the ratio of the debt-to-equity. Finally, performance which is the dependent variable of the study refers to return on asset, return on equity, sales profitability, sales growth and asset turnover of the companies under investigation.

The findings of Ozer and Yamak's (2001) study indicate that ownership characteristics have statistically significant effect only on return on asset, return on equity and partially on asset turnover. However, the effect is not significant on the other performance measures, namely, on the sales profitability and sales growth. For this set of data, performance seems to be not affected by the ownership level at all. The sample includes only highly concentrated ownership companies and beyond a certain level ownership concentration may not affect performance of a firm. Market control seems not to have disciplinary effects on firms' performance as opposed to expectations. As the ownership structure diffuses the return on asset and the return on equity measures of performance decrease significantly. Identity of owner seems to be significant effect on performance, for example, if the controlling shareholder is a holding company this has positive effect on performance of the company. In addition to holding companies, foundations, cooperatives and state agencies have positive effect on performance when they are controlling shareholder.

Yurtoglu (2003) analyses the ownership structure of listed companies on the ISE for the year 2001. The findings of this study are as follows: First, the companies exhibit highly concentrated ownership structure, families own directly or indirectly 80 % of all companies and control 242 of 305 listed companies. The control over firms is achieved through complex pyramidal ownership structures and through dual-class shares. Holding companies are the common form of company that controls several companies together. Holding companies have on the average 47 % of all the shares. Yurtoglu (2003) states that:

"…twenty-nine company charters allow for superior dividends for classes of shares held by controlling family and there are 16 companies, whose charters treat the controlling owners better than minority shareholders in case of bankruptcy. In 126 companies the absolute majority of the board of directors can solely be nominated by controlling owners and 52 companies allow their insiders to determine the composition of the supervisory board. The incidence of these additional mechanisms to enhance the corporate control underlines the fact that control is valuable and insiders are keen to protect it firmly"

Yurtoglu (2003) reports that the higher control and voting rights reduce the market values of companies whereas the higher cash flow rights lead to higher market values.

Gursoy and Aydogan (2002) study the relationship between ownership structure and the performance of non-financial firms listed on Istanbul Stock Exchange for the period of 1992-1998. They employ two groups of variables to measure the performance: the first group of variable is accounting based, namely, they are return on equity, return on total assets; the second group of variable is the market based variables, namely, they are price-to-earnings ratio and stock returns. They find that ownership concentration is positively related with market based variables but negatively related with the accounting based variables. In other words findings of this study suggest that as the ownership concentration of a company increases its accounting profit decreases but the market prices of stocks rise. Price return on equity is lower for family owned firms than the government owned firms. They observe that the total risk is higher for concentrated companies than the diffused companies whereas the market risk is lower for the former.

Gonenc and Hermes (2008) examine propping activities of business groups of Turkey. They use the data of the companies listed on the ISE for the period of 1991-2003 and divide the sample into two sub-periods as 1991-1999 and 2000-2003. They find that Turkish business groups use propping especially when the economy faces macroeconomic instability between 1991 and 1999. Their findings support the idea that private benefit of control is high for the countries where investor protection is weak.

Recently free float ratio is used to measure the relationship between ownership structure and firm performance. Previous ownership structure studies mainly focus on firm performance like accounting profit or other variables related to financial statements of firms while free float ratio studies are essentially interested in the market performance of stocks like return on asset or liquidity. Although there are numerous definitions of free float ratio, it can be simply defined as the ratio of a company's outstanding shares, which is available to the public in the market without any restriction on trading, to the total shares of the company. In some cases this definition is further narrowed by extracting the outstanding shares held by static owners like institutional investors or the government who are unlikely to sell their shares frequently in the market. In any case, free float ratio provides quick information about ownership structures of companies. In a cross country comparison of free float ratios, for example, the US and UK have the highest free float ratios 93.9% and 95.1% respectively, the average ratio for the developed world is 86.4% and 77.5% for the emerging markets as of 2001 (Gao, 2002). On the average 36.93 % of European shares are

free to trade, this percentage decreases to 14 % for France (Ginglinger and Hamon, 2007). This ratio is 32 % for the Turkish companies as of 2008.[1]

Starting from the late 1990s the global index providers have been taking into account the free float ratios of stocks. First, Morgan Stanley Capital International (MSCI) has changed the way of calculating the weights for its indexes in 2000 after experiencing the negative effects of ignoring free float ratio during East Asia financial crisis (Aggarwal, Klapper and Wysocki, 2005). Before the adjustment market indexes were weighted directly by the market capitalizations of stocks, omitting the proportion of stocks actually traded in the market. The free float ratio of stocks is used as a weight in calculating the market capitalizations of firms. The weight of a firm in the index increases in parallel to free float ratio of that firm. In this calculation MSCI calculates the free float by excluding the shares held by controlling shareholders such as family members, group firms, governments, investment funds, and management from the total shares outstanding. The details of MSCI's methodology of construction index are available on the official web site www.msci.com. The basic justification of the change in method of weight calculation is the negative impact of low free float ratios on liquidity. In some indexes, low free float stocks are directly excluded, for example, MSCI Global Investable Market Indices exclude the securities with free float ratio less than 15%.

Following the success of Morgan Stanley conversion, Standard and Poor's (S&P) adjusted US indexes according to free float market capitalizations of stocks in 2004. The S&P 500, S&P MidCap, S&P Small Cap were all affected by this adjustment (Matturri, 2004). Before that change, market capitalization used in S&P 500 was calculated by multiplying the number of outstanding shares and the price of stock, after the adjustment, market capitalization is calculated by considering only the amount of shares that are freely tradable in the market (Biktimirov, 2008).

Introduction of free float adjustments in global indexes is expected to be significant effects on fund managers. For example, passive investors are supposed to be more active and to re-adjust their portfolios according to new index adjustments and the active investors are forced to re-weight the stocks and sector positions due to these adjustments. The effects will be more prominent for the markets where floating shares are relatively low level. As a consequence, in these markets concentrated ownership structure will be relaxed by states, families or business groups (Nestor, 2000).

---

[1] Istanbul Stock Exchange web site www.ise.org

Lins and Warnock (2004) explore why the free float ratio is important for the international investors. They find that international investors consider the governance structure of the firm and the country when they are taking the investment decisions. They basically avoid from investing companies whose governance structure pave the way for expropriation, especially in the countries where investors are less protected. There are two possible reasons for this avoidance. First, investors avoid the expropriation risk because it is the risk of reduction in expected cash flow. Second, information asymmetry is greater for the firms which are controlled by a major shareholder which makes the firm more risky to invest. Therefore, low free float ratio or high ownership concentration is perceived as bad signal to invest.

Despite the growing interest of investment community in free float ratios of companies, there are limited numbers of academic studies which accounts directly the effects of free float ratios on firm performance. Among these studies, Wang and Xu (2004) examine the determinants of Chinese stock market returns by considering the free float ratio of publicly traded Chinese companies. In Chinese market higher free float means less government control or less uncertainty about the shares held by government. Since there is a possibility that the government sells the stocks that it holds, this situation increases likelihood of supply shock in the market of that share. In addition to the direct effect, they argue that higher floating ratio may be a signal of better governance since the minority owners are more likely to exercise their rights. If this is the case, better governance has positive impact on firm performance, thus, it is expected that higher float ratio is accompanied by higher returns. As a result they employ free float as a variable explaining the stock return with the other variables. They show that their three-variable model (market factor, size and free float) can explain 90 percent of the change in portfolio returns and the free float ratio is positively related with the expected stock returns. In another study of Chinese market, Cui and Wu (2007) expose that the expected returns of stocks are affected by firm size as well as floating ratio of shares (tradable shares). Higher free float ratio makes the market of stock more liquid and given the firm size, it leads to lower return in equilibrium. They explain the inconsistent result with previous study of Wang and Xu (2004) as the different models applied in the two studies. That is, Cui and Wu (2007) control for the size of all firm while Wang and Xu (2004) control for the size of tradable shares. Cui and Wu (2007) claims that as long as the total size of the firm is considered the free float ratio can become a measure of liquidity. Therefore, their results suggest that when the

model includes the liquidity effect of floating ratio the corporate governance effect is dominated by the liquidity effect.

The Hong Kong Monetary Authority (HKMA, Hong Kong's central bank) intervened in the stock market in 1998 by purchasing the shares and declared not to sell the shares after the intervention. The government intervention caused a dramatic decrease in the amount of the shares in the market. For Kalok et al. (2004) this situation provides an opportunity for examining the effects of a decline in floating shares. They find out that the trade volume of stocks, whose free float shares are contracted by the HKMA intervention, substantially declines in 1999 relative to the other shares of Hong Kong Stock Exchange. They use trade volume as a proxy for liquidity and this finding shows that government intervention leads to a negative impact on liquidity of stocks, though they do not find a similar relation between free float ratio and the price increase of the stocks.

Kaserer and Wagner (2004) use the data of German stock market and find a significant positive relation between the degree of free float and management benefit. They classify the German companies as little free float companies and high free float companies; in the comparison of the two types of companies they find that the absolute and relative increase in the management benefit is more significant for the high free float companies than the little free float companies. This result supports the idea that there is a greater agency conflict between principals (shareholders) and the agents (managers).

Ginglinger and Hamon (2007) use the data of French market to explore the relation between ownership concentration and market liquidity. They test the hypothesis that low free float ratio leads to low liquidity in the market. The first rationale behind the hypothesis is that when the floating ratio is small then the availability of shares in the market is small in quantity participation of investors will be limited, which reduces the trade activity (liquidity) in turn. Secondly, the low free float ratio means existence of block holder which has more access to insider information, the high probability of insider trading discourage the outside investor to invest and thus reduces the liquidity of the stock. They find that liquidity is significantly is low for small floating firms in the French stock market.

In the light of previous studies two effects of free float ratio on a stock's market can be identified. First, the low free float ratio may be interpreted as a signal for the weakness of firm level governance by investors who would pay less for the companies whose governance is weak. In this sense, stock price

returns reflect the investors' assessment towards a stock and it is a good indicator of how a firm perceived by the market (Gursoy and Aydogan, 2002). Second, free float ratio determines the market structure of the stock, that is, high free float ratio means more stock in quantity which increases trading activity (liquidity) in the market of that stock.

III. Hypotheses

The previous studies suggest that free float ratio significantly affect the market of a stock. Specifically, Wang and Xu (2004) show that floating ratio is positively related with the expected stock returns; Cui and Wu (2007) underline the liquidity effect of floating ratios in Chinese market. Kalok et al (2004) find that decreasing floating ratio substantially contracts the liquidity of stocks in Hong Kong market. Ginglinger and Hamon (2007) use the data of French market to investigate the relationship between free float ratio and liquidity. They conclude that this relationship is positive in French stock market. The free float ratio is a crucial concept for underdeveloped capital markets where the floating ratio difference among stocks is strikingly clear. In the same stock market while all shares of some firms are listed, some firms are represented by small number of shares. The distribution of free float ratios among stocks is much more homogenous for the developed capital markets (Gao, 2002).

The relation between ownership structure and firm performance has been subject of many studies. In fact, free float ratio is another way to look at ownership concentration, that is, low level of floating shares means high level of ownership concentration. Low free float ratio has two possible effects: the first effect is related with the corporate governance regime. It is expected to discourage investors to invest a firm with small floating ratio under the weak corporate governance structure because ownership concentration increases the probability of expropriation by controlling owners. The second effect is related with the market structure of the stock, that is, low free float ratio means small number of shares available in the market and thus a thin market structure for that stock. Following the previous studies, in this study the hypotheses are formulated by considering the two effects of free float ratio on Turkish stock market.

The first hypothesis tests the relationship between floating ratio and stock price returns. A similar hypothesis is tested by Kalok et al. (2004) for Hong Kong stock market though their findings do not indicate a significant relationship between the two variables. The rationale behind this hypothesis is that if floating ratio of a stock is small, then, both domestic and international investors would

not demand this stock because either small floating ratio is a signal for bad corporate governance or small number of floating shares in the market reduces liquidity. The lesser demand for small floating shares is then reflected by lower price returns in the market. Therefore, the first hypothesis is formulated as follows:

H1: Lower free float ratio causes lower price returns in the market**.**

The previous studies indicate that low level of floating ratio leads to a thin and shallow market structure for a stock. In such a market structure it is expected that small variations in trade volume may produce large variations in price returns of that stock. In other words, prices are expected to move up fast in the case of a demand push when there are small numbers of shares in the market. Similarly, a firm based negative shock would be more influential for the stocks with low free float ratio. Hence, the second hypothesis tests the relationship between floating ratio and price volatility and formulated as follows:

H2: Lower free float ratio causes higher price volatility.

The findings of the aforementioned studies of floating ratio show that free float ratio clearly positively affect liquidity of a stock. The relatively high number of shares increases the availability of shares to the investors, in turn, which makes the market of that stock more liquid. There are different proxies for liquidity but trade volume is most widely used to measure liquidity. In this study, number of contract is used to measure trade activity which is used interchangeably with concept of liquidity. The reason behind this choice is detailed in the methodology section. Consequently, like the other markets, the trading activity is expected to increase with floating ratio in the Turkish stock market and thus the third hypothesis is:

H3: Lower free float ratio causes lower trade activity measured by number of contracts.

The fourth and the last hypothesis deals with size effect in relation to previous hypotheses. That is to say, floating ratio is not the only determinant of the market size of a stock, rather, it should be considered together with the market value of a firm. Small floating ratio can be tolerated if the market value

of a firm is large enough but for small firms adverse effects of small floating ratio can be greater. Therefore, the fourth hypothesis is formulated as follows:

H4: The hypothesized relations above are more prominent for small size firms.

IV. Data and Methodology

The raw data on stocks have been obtained directly from the ISE[2]. The data contains daily closing prices, traded value, traded volume and number of contracts of all stocks in 2007. Although there are 319 stocks listed on the ISE in 2007, the following stocks are excluded from the analysis:

i) those which are not traded in "National Market" (or those which are traded in "Second National Market", "New Economy Market", "Watch List Companies Market")

ii) those which are not traded in all trading days throughout 2007. Some stocks were delisted for variety of reasons and some were newly listed in some day in 2007.

iii) those of which floating ratio has changed during 2007.

iv) those which belong to investment funds.

v) those which do not represent the ordinary shares, i.e., those which are privileged shares such as "A" class or "B" class shares.

The first exclusion ensures that all the stocks are traded in the same market and thus it eliminates the possibility that stock performance is affected by the different market structure. National market is the main market of the ISE and the stocks are normally traded in this market as long as they meet the listing requirements. The listing requirements are lowered for the companies which are listed on "Second National Market" or "New Economy Market" and "Watch List Companies Market" was established to list temporarily stocks of companies under special surveillance due to extraordinary situations related to the company. There are 27 stocks in total trading out of the National market in 2007. The second and third exclusions make the data homogenous, whilst the former is used to have same number of observations for all individual stock; the second one eliminates the double effect if the floating ratio of a stock has changed within the year. The investment fund stocks are also excluded because investment funds are established mainly to manage the stock portfolios and the

[2] The raw data is available on the official website of ISE, www.ise.org , see daily bulletins.

all investment fund certificates (share of the investment fund company), by their very nature, are open to public trading in the market. Finally, some stocks are representing the privileged shares and they are occasionally traded in compare to ordinary shares. Hence, these stocks are excluded from the data and representation of those companies is left to ordinary shares which coexist in the market with the other class shares.

After these exclusions, there are remaining 199 companies and thus the analysis of the free float ratio is based on these sample stocks. These data contains stocks from almost all sectors and sufficiently represent the Istanbul Stock Market. There are 249 trading days in 2007. Therefore our sample is made up of 49,551 observations, representing stocks of 199 companies.

This analysis aims to measure influence of floating ratios of stocks on their average price changes, price volatility and trade activity. Floating ratios of stocks are subject to change as the block holders buy or sell the shares, though this kind of transaction is, by definition, unlikely to happen frequently. The ISE indices are weighted by the free float ratios of stocks. ISE defines free float ratio as: “the ratio found by dividing the sum of nominal value of publicly held shares to the total nominal value of the all shares of the corporation”. In this study these free float ratios are used as a single value for each stock as an independent variable by calculating the average free float ratio of the beginning, mid and end of the year. However, if the average free float ratio of a stock had changed significantly, that is, more than 5% in comparison to mid-value of the year, then this stock is excluded from the analysis.

The first dependent variable, average daily price change (PC), is calculated for all stocks as follows. The daily closing price changes are calculated as a percentage increase or decrease of stock prices according to the previous day, then, the average value is calculated for all the trading days of 2007. For example, the average daily price change is -0,004% for the ACIBD stock, this means price of ACIBD decreases by -0,004 percent daily basis on the average in 2007. Thus, the formula for average daily price change is:

PC = Average Daily Price Change (%) = Sum of Daily Price Changes (%) / Number of Trading Days

The second dependent variable, the price volatility (PV) of stocks, is obtained for all stocks by calculating the standard deviation of daily closing price changes for 2007. Thus, the formula for the price volatility is:

PV = Price Volatility = Standard Deviation of Daily Price Changes (%)

The third dependent variable, the trade activity (TA) is measured as the number of contracts for each stock. The number of contracts is a better indicator of trade activity than the traded volume or traded value since it is not affected by the size (quantity or monetary value) of the transaction as opposed to traded volume or value. The number of contracts of a day gives the number of times that the buying or selling occurs in that day. The trade volume is about the magnitude of the trade but it does not tell about the number of buying and selling that constitutes the trade volume. For example, 100 unit of trade volume can be reached by one turn (one contract) or by 10 contracts each includes 10 unit of stock on the average. Obviously, there exists more trading activity in the latter case. Therefore, number of contract is used in this study to measure trading activity. The average of daily number of contracts is calculated for all the stocks. Thus, the formula for the trade activity is:

TA = Trade Activity = Total number of contracts / Number of Trading Days

Hypothesis 1 predicts that free float ratio (FR %) coefficient is positively associated with average daily price change (PC %). To test this hypothesis, the following simple regression model is employed:

$$PC_i\,\% = \beta_1 + \beta_2 * FR_i\,\% + \varepsilon_i$$

Hypothesis 2 predicts that free float ratio (FR %) coefficient is negatively associated with price volatility (PV %) of stocks. To test this hypothesis, the following simple regression model is employed:

$$PV_i\,\% = \beta_1 + \beta_2 * FR_i\,\% + \varepsilon_i$$

Hypothesis 3 predicts that free float ratio (FR %) coefficient is positively associated with trade activity (TA) of stocks. To test this hypothesis, the following simple regression model is employed:

$$TA_i = \beta_1 + \beta_2 * FR_i\,\% + \varepsilon_i$$

Hypothesis 4 predicts that the relations in the previous hypotheses are more prominent for small size firms than the large size firms. In order to test the fourth hypothesis, the firms are categorized as small, medium and large sizes according to their market values. Like the free float ratios the market values are calculated as the average market values of firms at the beginning, mid and end of the year 2007. The first and third quartiles of market values of firms are calculated and the market values below the first quartile are defined as "Small", the market values between the first and third quartile are defined as "Medium" and the market values greater than the third quartile are defined as "Large". To test this hypothesis, the following dummy variable regression models are employed:

$$PC_i = \beta_1 + \beta_2 * FR_i + \beta_3 * DLARGE + \beta_4 * DSMALL + \beta_5 * FR_i * DLARGE + \beta_6 * FR_i * DSMALL + \varepsilon_i$$

$$PV_i = \beta_1 + \beta_2 * FR_i + \beta_3 * DLARGE + \beta_4 * DSMALL + \beta_5 * FR_i * DLARGE + \beta_6 * FR_i * DSMALL + \varepsilon i$$

$$TA_i = \beta_1 + \beta_2 * FR_i + \beta_3 * DLARGE + \beta_4 * DSMALL + \beta_5 * FR_i * DLARGE + \beta_6 * FR_i * DSMALL + \varepsilon i$$

For robustness, dummy (0/1) variables DLARGE and DSMALL are used to indicate whether or not the size has significantly effect on the relation between the floating ratio and the dependent variables. The model measures the effects of size on both the intercept and the slope of the regression line. The dummy variables DLARGE and DSMALL are employed to measure the effect of size on the intercept of the regression line while FR*DLARGE and FR*DSMALL are present to measure the same effect on slope of the regression line. In all equations the regression line is drawn owing to the data of medium size firms, that is, β_1's and β_2's are the coefficients of medium size firms. Therefore, other coefficients (β_3, β_4, β_5, β_6) are about the positions of small or large size firms in relative to medium size firms.

V. Results

Table 1 reports the descriptive statistics for variables under investigation. Table indicates that the floating ratio distribution is slightly positively skewed as the mean market value of free float ratio (36.5%) is slightly greater than the median value (32.3%). The distributions of all the dependent variables also exhibit

slightly positive skew since in all the three distribution means are greater than the medians.

Table 1: Summary Descriptive Statistics for Variables

Variable	*Definition*	*Min*	*Max.*	*Median*	*Mean*	*S.D.*	*N*
FR	Free Float Ratios	1.0%	100.0%	32.3%	36.5%	20.3%	199
PC	Average Daily Price Change	-0.389%	0.738%	0.065%	0.100%	0.149%	199
PV	Price Volatility	1.339%	6.062%	2.523%	2.601%	0.681%	199
TA	Trade Activity	21	2,578	218	321	346	199

Table 2 provides descriptive statistics for the firm size. The most striking information provided by the Table is that sample firms vary significantly in firm size which is measured by market valuations. The average size in the large firm size class is 125 times greater than the average size in the small size class.

Table 2: Firm Size Measured by Market Valuation (Million YTL)*

Firm Size	*Definition*	*Min*	*Max*	*Median*	*Mean*	*S.D.*	*N*
Small	< First Quartile**	9.37	57.41	28.57	31.00	15.48	50
Medium	> First Quartile; < Third Quartile	61.73	704.00	186.75	247.79	175.18	99
Large	> Third Quartile	721.05	22,286.67	1,560.99	3,879.00	4,899.14	50
* YTL: New Turkish Lira, ** Q1= 59.57 million YTL, Q3= 712.53 million YTL							

Table 3 presents the summary of results of the regression of price change (PC %) on free float ratio (FR %). These results support the idea predicted in the Hypothesis 1, that is, average daily price change is positively related with the floating ratios of stock. First, the high F-value indicates robustness of the model. Second, the value of t-statistics ensures that the independent variable (FR %) and the dependent variable (PC %) have positive relation at 1% significance level. Therefore, the regression results suggest that market rewards the high floating ratios; as the floating ratios of firms increase the price return of their shares also increase.

Table 3: Summary Output of Regression of Price Change on Free Float Ratio

	Coefficients	*Standard Error*	*t Stat*	*F*	*R Square*	*Observations*
Intercept	0.0003	0.0002	1.4940	13.6963	0.0650	199
FR	0.0019	0.0005	3.7008			

Table 4 summarizes the results of regression of price volatility (PV %) on free float ratio (FR %). The regression results suggest that the relation between volatility and free float ratio is significant but it is not negative as postulated by Hypothesis 2. The rationale behind this hypothesis was that small floating ratio causes a thin market structure in which small variations in trade volume lead to large variations in price returns. The prediction does not hold, perhaps because Istanbul Stock Exchange itself so small market that only after certain levels of floating ratio individual markets of stocks become active and volatile. On the other hand, this result is compatible with the general principle of "high risk high return" when it is considered together with the previous results of price return. As a consequence, Hypothesis 2 is rejected by the regression results placed in Table 4.

Table 4: Summary Output of Regression of Price Volatility on Free Float Ratio

	Coefficients	*Standard Error*	*t Stat*	*F*	*R Square*	*Observations*
Intercept	0.0228	0.0010	23.7266	14.1116	0.0668	199
FR	0.0087	0.0023	3.7565			

Table 5 presents the summary of regression results of trade activity (TA) on free float ratio (FR %) and they are in consistent with the prediction of Hypothesis 3. That is, there is a statistically significant positive relation between trade activity (number of trade contracts) and the free float ratios of stocks at 1 % level. Not surprisingly, higher floating ratio leads to higher trading activity and thus more liquid markets for the stocks since it enlarges the market for individual stock.

Table 5: Summary Output of Regression of Trade Activity on Free Float Ratio

	Coefficients	*Standard Error*	*T Stat*	*F*	*R Square*	*Observations*
Intercept	101.2198	47.4305	2.1341	28	0.1248	199
FR	601.5768	113.5108	5.2997			

The following tables, Table 6, Table 7 and Table 8 contain the result of multiple regression which aims to measure the size effect on the influence of free float ratio. Table 6 provides the regression results of average daily price changes (PC %) on the free float ratio (FR %) when the firm size is controlled. Remember that the model is:

$$PC_i = \beta_1 + \beta_2 * FRi + \beta_3 * DLARGE + \beta_4 * DSMALL + \beta_5 * FR_i * DLARGE + \beta_6 * FR_i * DSMALL + \varepsilon_i$$

Hypothesis 4 predicts that the positive relation between PC and FR is more prominent for small size firms, because the adverse effects of small floating ratio is expected to be higher. However, the results in Table 6 do not indicate statistically significant influence of firm size on the effect of independent variable (FR). In the model, the signs of intercept coefficients (β_3 and β_4) are just as predicted though they are statistically insignificant and the signs of slope coefficients (β_5 and β_6) are opposite of what is expected: although it is not statistically significant large firm size has positive effect on the slope of regression whereas the positive effect of floating ratio on stock price return is less prominent for the small size firms and moreover this effect is statistically significant at 10 % level. Consequently, Hypothesis 4 is rejected in terms of floating ratio and average price return relationship.

Table 6: Summary Output of Multiple Regression of Price Change

	Coefficients	*Standard Error*	*t Stat*	*F*	*R Square*	*Observations*
Intercept	0.00012	0.00029	0.421	4.26896	0.09958	199
FR	0.00229	0.00071	3.228			
DLARGE	-0.00025	0.00050	-0.502			
DSMALL	0.00102	0.00055	1.854			
DLARGE*FR	0.00134	0.00132	1.014			
DSMALL*FR	-0.00243	0.00121	-2.004			

Table 7 summarizes the results of the regression which measures the relation between price volatility and free float ratios when the firm size is controlled. Remember that the model is:

$$PV_i = \beta_1 + \beta_2*FR_i + \beta_3*DLARGE + \beta_4*DSMALL + \beta_5*FR_i*DLARGE + \beta_6*FR_i*DSMALL + \varepsilon_i$$

The regression results do not support the idea that free float ratio is more effective for small firms in reducing volatility. If Hypothesis 4 holds then coefficients of large firms and small firms should be in different sign because as the firm size increases the volatility is expected to decrease. Nonetheless, the regression produces same signs for both firm sizes although they are not statistically significant except for coefficient of DSMALL which is significant at 10 % level. Therefore, Hypothesis 4 is rejected in terms of floating ratio and volatility of stock prices as well.

Table 7: Summary Output of Multiple Regression of Price Volatility

	Coefficients	*Standard Error*	*t Stat*	*F*	*R Square*	*Observations*
Intercept	0.02190	0.00131	16.759	6.48148	0.14377	199
FR	0.00887	0.00316	2.812			
DLARGE	0.00064	0.00222	0.287			
DSMALL	0.00572	0.00245	2.339			
DLARGE*FR	-0.00368	0.00587	-0.626			
DSMALL*FR	-0.00416	0.00539	-0.770			

Finally, Table 8 presents the regression results of the model that tests the size effect on the relation between floating ratio and the trade activity. Remember that the model is:

$$TA_i = \beta_1 + \beta_2*FR_i + \beta_3*DLARGE + \beta_4*DSMALL + \beta_5*FR_i*DLARGE + \beta_6*FR_i*DSMALL + \varepsilon_i$$

If the variations in floating ratio on trade activity is more prominent for the small firms, as predicted in Hypothesis 4, then the coefficients of small size firms (β_4 and β_6) are expected to be positive, whereas the coefficients of large size firms (β_3 and β_5) are expected to be negative. Nevertheless, the coefficients of both small and large firms have same sign in relative to medium size firms according to the regression results. That is to say, the intercept coefficients are positive but the slope coefficients are negative for both of them and all coefficients are statistically significant. Therefore, it cannot be said that as the firm size decreases the influence of floating ratio increases in terms of trading activity. As a result, once again the regression results do not support the Hypothesis 4.

Table 8: Summary Output of Multiple Regression of Trade Activity

	Coefficients	*Standard Error*	*t Stat*	*F*	*R Square*	*Observations*
Intercept	-66.21	63.55	-1.042	10.71946	0.21735	199
FR	1025.03	153.45	6.680			
DLARGE	343.43	108.15	3.175			
DSMALL	254.17	118.95	2.137			
DLARGE*FR	-617.97	285.65	-2.163			
DSMALL*FR	-829.54	262.32	-3.162			

To sum up, the regression results suggest first that free float ratios have significantly positive effect on price return on market. In other words, high free float ratio is rewarded by the investors in the market. Second, the relationship between free float ratio and price volatility is positive as opposed to expectation. The possible explanation is that market values are so small that only after certain levels of floating ratio the individual stocks have an active market which leads to volatility. Third, trade activity (the number of trade contracts) is significantly

positively affected by the floating ratio as hypothesized. Finally, the regression results do not support the idea that influence of floating ratio varies linearly as firm size increases or decreases.

VI. Conclusion

The relation between ownership concentration and corporate performance has been a popular subject for the corporate governance researchers. However, the research area has been dominated largely by studies of Anglo-American corporations. The law and finance studies show that the effect of ownership concentration is heavily context dependent. While for common law countries like the US and UK ownership concentration can be seen as a remedy for the "agency problem", for civil law countries like France, Italy, Spain, Turkey etc. ownership concentration itself leads to "expropriation problem".

Unlike the common law countries capital market is not primary source of corporate financing in the civil law countries. Stock markets are not well developed and market valuations of companies constitute a relatively small proportion of national incomes. Cross country studies show that relatively weak investor protection provided by legal system is the main reason for underdevelopment of capital markets in civil law countries. Investors are reluctant to invest in fear of being expropriated by major shareholders, which in turn increases the cost of capital for corporations. Controlling owners hesitate to go public because, either they do not want lose their control, or they believe that the insufficient market undervalue their shares. Putting all together, highly concentrated and centralized ownership structure result in small fraction of shares are freely floating in the market. Low level of floating shares leads to a thin and shallow market structure and thus illiquidity. That is why, the global index providers (Morgan Stanley, Standard and Poor's) started to use "free float ratios" as a weighting factor in calculating investability of stocks.

Although the free float ratio gives quick information about the ownership structure and despite of interest of investment community there are limited numbers of academic studies which focus on directly effects of floating ratio. In this study, the direct effects of free float ratio on stock price performance over the data of a typical civil law country are measured. Indeed, Turkish capital market provides appropriate settings to study effects of ownership structure in an underdeveloped capital market where investors are relatively less protected, ownership is highly concentrated and thus free float ratios are very low.

The data of 199 firms listed on Istanbul Stock Exchange are used to test the effect of free float ratio on stock price returns, price volatility and trade activity (liquidity) for the year 2007. Given the weak corporate governance structure of the market, as free float ratio decreases, willingness of investors, both domestic and international, to invest is also expected to decrease because either of increasing probability of expropriation or of tightening liquidity effect of small floating ratio. Regression results suggest that the relationship between stock price returns and free float ratio is significantly positive. In other words, investors of ISE are ready to pay more for the stocks with higher floating ratios. In addition to this finding, results also suggest that higher floating ratios lead to significantly higher trading activity (liquidity), which may explain higher demand of investors for those stocks. However, the risk, measured by price volatility, rises for the greater floating ratios. On the other hand, a size effect cannot be identified in the relations among variables. That is to say, influence of free float ratio on dependent variables does not increase or decrease as the firm size increases or decreases.

As a conclusion, these findings are compatible with the previous studies and prove that free float ratio does matter for the investors. Higher floating ratio implies higher market value for stocks, higher liquidity in the market and low cost of capital for corporations. Therefore, these results provide empirical evidence for the growing practice of weighting the stocks according to free float ratio for indexes. They support designing incentive measures to corporations and policy makers for higher floating ratios that decrease cost of capital and ensure capital market development. Although the regression results of this study robust and clear, the regressions depend on one year data which contains all the sectors and eliminates the free float variations within a stock, i.e., one floating ratio is assigned for every firm. Therefore, examining effects of free float ratio for different sectors or for firms whose floating ratios change substantially within a time horizon may yield interesting results for further studies.

References

Aggarwal, R.; Klapper, L.; Wysocki, P. D., "*Portfolio Preferences of Foreign Institutional Investors*", Journal of Banking and Finance, 29, 2005, pp. 2919-2946.

Ararat, M.; Ugur, M., "*Corporate Governance in Turkey: An Overview and Some Policy Recommendations*", Corporate Governance, 3 (1), 2003, pp. 58-75.

Beck, T.; Demirguc-Kunt, A.; Levine, R., "*Law, Politics, and Finance*", World Bank Policy Research Working Paper No. 2585, 2001, [Accessed 9th March 2008]. Available from World Wide Web: http://ssrn.com/abstract=269118.

Biktimirov, E. N.; "*The Effect of Demand on Stock Prices: Evidence from the S&P Index Float Adjustment*", 2008, [Accessed 11th June 2008]. Available from World Wide Web: http://ssrn.com/abstract=1101039

Cui, R.; Wu, Y., "*Disentangling Liquidity and Size Effects in Stock Returns: Evidence from China*", 2007, [Accessed 5th April 2008]. Available from World Wide Web: http://ssrn.com/abstract=910248

Denis, D. K.; McConnell J. J., "*International Corporate Governance*", Journal of Financial and Quantitative Analysis, 38 (1), 2003, pp. 1-36.

Dyck, A.; Zingales, L., "*Private Benefits of Control: An International Comparison*", The Journal of Finance, 59, 2004, pp. 537–600.

Friedman, E.; Johnson, S.; Mitton, T., "*Propping and Tunnelling*", Journal of Comparative Economics, 31 (4), 2003, pp. 732–750.

Gao, S., "*China Stock Market in a Global Perspective*", Research Report, Dow Jones Indexes, 2002, [Accessed 6th March 2008]. Available from World Wide Web: http://pages.stern.nyu.edu/~jmei/b40/ChinaIndexCom.pdf

Giannetti, M.; Koskinen, Y., "*Investor Protection and the Demand for Equity*", European Corporate Governance Institute Research Paper No. 64, 2005, [Accessed 6th March 2008]. Available from World Wide Web: http://ssrn.com/abstract=554522

Ginglinger, E.; Hamon, J., "*Ownership, Control and Market Liquidity*", Finance International Meeting Paper, 2007, [Accessed 5th March 2008]. Available from World Wide Web: http://ssrn.com/abstract=1071624

Gonenc, H.; Hermes, N., "*Propping: Evidence from New Share Issues of Turkish Business Group Firms*", Journal of Multinational Financial Management, 18 (3), 2008, pp. 261-275.

Gursoy, G.; Aydogan, K., "*Equity Ownership Structure, Risk Taking and Performance: An Empirical Investigation in Turkish Companies*", Russian and East European Finance and Trade, 38, 2002, pp. 5-24.

Kalok, C.; Yue-Cheong, C.; Wai-Ming F., "*Free Float and Market Liquidity: A Study of Hong Kong Government Intervention*", Journal of Financial Research, 27 (2), 2004, pp. 179-197.

Kaserer, C.; Wagner, N. F., "*Executive Pay, Free Float, and Firm Performance: Evidence from Germany*", CEFS Working Paper No. 6, 2004, [Accessed 18th March 2008]. Available from World Wide Web: http://ssrn.com/abstract=650621

Klapper, L.; Love, I., "*Corporate Governance, Investor Protection, and Performance in Emerging Markets*", Journal of Corporate Finance, 10, 2004, pp. 703-728.

La Porta, R.; Lopez-de-Silanes, F.; Shleifer, A., "*What Works in Securities Laws?*", The Journal of Finance, LXI (1), 2006, pp. 1-32.

La Porta, R. ; Lopez-de-Silanes, F. ; Shleifer, A. ; Vishny, R. W., "*Law and Finance*", Journal of Political Economy, 106, 1998, pp. 1113-1155.

La Porta, R.; Lopez-de-Silanes, F. ; Shleifer, A., "*Corporate Ownership around the World*", Journal of Finance, 54, 1999, pp. 471–518.

La Porta, R.; Lopez-de-Silanes, F.; Shleifer, A.; Vishny, R. W., "*Investor Protection and Corporate Governance*", Journal of Financial Economics, 58, 2000, pp. 3-27.

La Porta, R.; Lopez-de-Silanes, F.; Shleifer, A.; Vishny, R. W., "*Investor Protection and Corporate Valuation*", Journal of Finance, 57, 2002, pp. 1147-1170.

Lins, K. V.; Warnock, F. E., "*Corporate Governance and the Shareholder Base*", FED International Finance Discussion Papers, 816, 2004, [Accessed 18th March 2008]. Available from World Wide Web: www.federalreserve.gov/pubs/ifdp

Matturri, J. A., "*Standard and Poor's Free Float Adjustment: An Analysis of Impact*", Northern Trust Global Investments Report, 2004, [Accessed 13th March 2008]. Available from World Wide Web: www.northerntrust.com

Nenova, T., "*The Value of Corporate Voting Rights and Control: A Cross Country Analysis*", Journal of Financial Economics, 68, 2003, pp. 325-351.

Nestor, S., "*Corporate Governance Trends in the OECD Area: Where Do We Go From Here?*", Working paper, OECD, 2000, [Accessed 19th March 2008]. Available from World Wide Web: http://www.oecd.org/dataoecd/6/55/1873098.pdf.

Ndikumana, L., "*Financial Development, Financial Structure and Domestic Investment: International Evidence*", Journal of International Money and Finance, 24, 2005, pp. 651-673.

OECD Report, Corporate Governance in Turkey: A Pilot Study, 2006, [Accessed 5th April 2008]. Available from World Wide Web: http://www.oecd.org/bookshop?9264028633

Orbay, H.; Yurtoglu, B., "*The Impact of Corporate Governance Structures on the Corporate Investment Performance in Turkey*", Corporate Governance: International Review, 14, 2006, pp. 349–363.

Ozer, B., Yamak, S., "*The Role of Market Control on the Relation between Ownership and Performance: Evidence from Turkish Market*", EFMA 2001 Lugano Meetings 2001, [Accessed 15th March 2008]. Available from World Wide Web: http://ssrn.com/abstract=268089

Simon, J.; La Porta, R.; Lopez-de-Silanes, F.; Shleifer, A., "*Tunnelling*", American Economic Review, 190, 2000, pp. 22-27.

Wang, F.; Xu Y., "*What determines the Chinese stock returns?*", Financial Analyst Journal, 60, 2004, pp. 65-77.

Yurtoglu, B., "*Ownership, Control and Performance of Turkish Listed Firms*", Emprica, 27, 2000, pp. 193-222.

Yurtoglu, B., "*Corporate Governance and Implications for Minority Shareholders in Turkey*", Journal of Corporate Ownership and Control, 1, 2003, pp. 72-86.

The ISE Review Volume: 12 No: 45
ISSN 1301-1642 © ISE 1997

THE EFFECT OF THE TRANSPARENCY LEVEL OF THE ISE-LISTED BANKS ON LIQUIDITY

A.R. Zafer SAYAR[*]
Önder KAYMAZ[**]
Ali ALP[***]

Abstract

As the financial markets globalize, the need for banks to collect funds from capital markets has increased; as an immediate consequence, the IPOs of Turkish banks have gained importance in terms of transparency and investor protection. Employing the data obtained from Istanbul Stock Exchange, we empirically investigate the effect of transparency level on the liquidity in the banking industry. We find that there is a significant and robust relationship between 'transparency level' and 'liquidity'. The same direction also applies to the link between bank (assets) size and secondary offerings at a lower level of significance. We could not find though an evidence reporting any relationship of banks' stock liquidity with ADR issues and BRSA-induced APR. Yet, the explanatory power of the model where the effect of APR on liquidity is controlled is documented to tend to increase.

I. Introduction

That the decision-making authorities in the financial markets could yield viable decisions is closely up to the quality of the financial information available in the market. Quality financial information is such a suspect which is accessed by all the market participants timely and identically; or namely, is one of the

---

[*] Dr. A. R. Zafer Sayar, Coordinator, TURMOB; Part-Time Instructor at TOBB ETU Department of Business.
Tel: 0312 232 50 60 E-Mail: zsayar@turmob.org.tr zsayar@etu.edu.tr

[**] Asst. Prof. Dr. Önder Kaymaz, İzmir University of Economics, Department of Business, Sakarya Cad. No: 156, Balçova, İzmir.
Tel: 0232 279 25 25 E-Posta: onder.kaymaz@ieu.edu.tr.

[***] Prof. Dr. Ali Alp, TOBB ETU, Department of Business, Söğütözü Cad. No:43, 06560 Söğütözü, Ankara.
Tel: 0312 292 40 00 E-Posta: aalp@etu.edu.tr.

Keywords: Transparency Level, Banking Industry, Liquidity, International Financial Reporting Standards (IFRSs), Istanbul Stock Exchange (ISE).
JEL Codes: G21, G30, M41, M48

indispensable covenants underlying transparent markets that do not exhibit any asymmetric information problem. Asymmetric information or information asymmetry in the financial markets points to the state wherein one of the transacting parties has a particular (superior) information on a certain transaction while the other transacting party does not possess (lacks of) that particular information. In the banking sector, studies on the information asymmetry and on how to take care of it yet stand as one of the hot issues markets lay emphasis to (Erdoğan, 2008). In order to increase the level of transparency or public disclosure in the financial markets and hence to solve the information asymmetry problem this way, regulatory authorities feel more responsible on developing new standards and arranging respective regulations more and more. In so doing, having more liquid, deeper and advanced financial markets is being aimed in an international scale. Along this, it is of importance to figure out (a) transparency levels of the banks whose stocks have started to be quoted to the stock exchange through going in to public and (b) how this influences their liquidity frames.

The fact that banks have been concentrating on the capital markets to obtain funds has brought along the responsibility of presenting transparent information on their performances to all interest groups, including their shareholders and creditors at the front. That the capital markets-specific supervision and the oversight at the top level have gained a more importance in the recent years has recorded some developments on reconstructing the issues such as corporate governance, internal control systems and cost/risk management.

In terms of banks, the said developments have even been of more viability as they suggest banks to get funds at cheaper cost relative to their market competitors. Likewise, in the report (1998) entitled 'Enhancing Bank Transparency' issued by Basel Committee on Banking Supervision, it is advocated that, a bank with a well and transparent governance will be high likely to be more successful in the capital market it operates. The given report further proposes that a bank with a relatively higher risk exposure will probably have such an investor profile who expects to get a higher return or a higher compensation for risk premium.

Furthermore, the committee mentioned above made some important decisions directing the banking applications. These decisions have stipulated the banks to adopt and enforce the accounting standards that are in line with the international standards and to possess accurate, reliable, transparent and high-quality transparency systems. The reason underlying the intuition of the committee is to ensure the rights of the bank investor and to mitigate information

asymmetry problem that may arise between the investors of the bank and the bank management.

Indeed, as the ANNEX-1 depicts, the basic two purposes deriving the capital market regulations are 'investor protection' and 'enhancing the market quality'. With this awareness, the objective of this study is to show the link between the arrangements (regulations) governing the investor protection and the market quality. The degree of liquidity is considered to measure the increasing market quality and the level of transparency.

The rationale of the relevance between the liquidity and the transparency is that the asymmetric information caused by inadequate transparency leads to the problem of adverse selection between the sellers and the buyers, therefore to increase in transaction costs. Leuz and Verrecchia (2000) documents that adverse selection reduces liquidity. They imply that since increased transparency decreases the asymmetric information, as the transaction cost will shrink in the secondary markets, the liquidity increases.

Similarly, Diamond and Verrecchia (1991) suggests that (i) the demand for the stocks of the transparent enterprises has increased, (ii) the liquidity of those stocks has registered large amounts and (iii) cost of capital have decreased. Further, Chipalkatti (2001, 2002) has shown that, once bank stocks have high liquidity in the market, banks will realize significant economic contributions besides having a motive (willingness) to disclose their information voluntarily, despite being costly.

In the two other important studies where the influence of the transparency on the degree of cost of capital of corporations was examined, Botosan (1997) and Welker (2001) have contended that the corporations conveying more public information have a lower cost of capital relative to the others. In addition, Botosan and Plumlee (2000) has conjectured that cost of capital adversely relates to transparency level in the annual reports.

The studies that have been cited so far clearly show the connection between transparency and liquidity. They also implicitly address to the question of why banks need to be more transparent, particularly in the reconstruction periods they get through. However, it could also be that as a consequence of banks disclosing their assets and liabilities pertaining to the banking activities in their financial statements and becoming extremely transparent, investors may be exposed to relatively more intensive and less transparent supply of information. For instance, Morgan (2000) indicates that banks are less transparent than the other firms, following this, the results arrived by rating agencies in the course of rating

vary a lot. Therefore, that the investors are being exposed to excessive transparent information (intensive transparency) may not be perceived as a sign of a better management of a bank. Conversely, it may rather create the impression that existing asymmetric information is increasing, risk management strategies of the bank are highly complicated and that the corporate governance system of the bank is inadequate. Because of this misperception in the market, the liquidity of the bank's stocks may decline. If the banks are really less transparent, will the previously discussed relations between the market quality and transparency still remain as they were? Unlike Morgan, sampling New York Stock Exchange, Flannery, Kwan and Nimalendran (1998) have argued that banks do not possess any operational characteristics that read necessarily different from those of other businesses that are running in the real sector.

As a matter of fact, like each investor, the investors wishing to invest in bank's stocks should have in first place all sorts of information that may affect their investment decisions. Even more, that the risks stemming from banks' unique features and transactions read high numbers apparently implies the need for a full and accurate transparency. Moreover, as the importance of transparency is ever increasing, for the purposes of ensuring transparency, banks strive for adopting more technical applications particularly in their risk calculations (Chipalkatti, 2001 and 2002).

The connections among the benefits, mainly the liquidity increase through the transparency provided to the market, have been the subject-matter of the modern theoretical and empirical research across the world. But, the subject has yet not been comprehensively debated in our territory. Concerning this, Healy and Palepu (2001) highlights that there is yet a plenty of unanswered questions left on addressing the relations between transparency and the advancement of capital markets. Bushman, Piotroski and Smith (2001) underlines that the economic outcomes of the corporate transparency need to be examined. Therefore, it is strongly believed that examining the relations between the level of transparency and the liquidity, this paper contributes to the accounting literature. The rest of this paper is hence organized as follows. The next section describes the dataset and sample selection. Section three defines and examines the hypotheses and the variables construction. Section four presents the empirical results, and eventually section five concludes with some remarks.

II. Dataset and Sample Selection

In the years following 1980, Turkish financial system has recorded important transformations and innovations; a special emphasis was devoted to the banking industry in performing financial reforms. Within this process, banks tended to make improvements in their internal structures, to become specialized in their operating businesses, to employ qualified personnel and to deploy new instruments and techniques. It is observed that starting from the second half of 1980s on, banks concentrated on capital market activities and started to collect funds from capital markets, and to go public.

Observations concerning a total of 12 banks such as Akbank, Yapı KrediBank, Turkish Foreign Trade Bank, Turkish Development Bank, Turkish Industrial Development Bank (TIDB), Garanti Bank, IsBank, Tekstil Bank, Finansbank, Alternatifbank, Sekerbank and Turkish Economy Bank, whose stocks are traded in Istanbul Stock Exchange (ISE), constitute the data set of our study. The sampling period covers the years of 1992-2002 and annual data have been taken as a basis. Given this, the number of observation regarding each public bank (N) is expected to be 132. The observations on the banks before their going public cannot be incorporated naturally though they go public within the data period (Annex-2). For instance, for Alternatifbank in the years between 1992-1994, it has not been possible to calculate the liquidity (turnover ratio) being the dependent variable, which is embedded in the research model. That is because Alternatifbank started to be traded in 1995 in ISE. As the same case applies to Sekerbank (1997 being the start year of trade) and to Turkish Economy Bank (2000 being the start year of trade), the number of observations amounts 116.

Simple and multiple regression methods are used in testing the relations between the banks' liquidities and their transparency levels. SPSS statistical program is utilized in applying the models and the test method relying on regressions. After the identification of the hypothesis and the models, variables to be used in these models are defined.

III. Empirical Analysis: Hypotheses and Variables Construction

It is planned that this study will put forth the relations between the transparency levels of the public banks by years and their liquidities. The examined body of literature has contended that there is a positive association between the transparency and the liquidity. This study questions the existence of the identical relationship.

Table 1: Variables of the Research Model

Dependent Variable	Liquidity
Independent Variables	X_1= Transparency X_2= Size *Dummy Variables* X_3= Issuance of Depositary Receipts in a Foreign Country (ADR) X_4= Accounting Practices Regulation (APR) X_5= Secondary Public Offerings (SPO)

Accordingly, the dependent variable of the study model has been determined as liquidity. We see that in the literature, different approaches have been followed in measuring the liquidity. Liquidity that has several definitions may be generally defined as having abundant seller of and buyer for a stock in a market, as having abundant number of transactions in narrow price intervals with quite a few downward or upward deviations (Schwartz, 1991) or as being a high level of easy trade (Hasbrouck and Schwartz, 1998).

As the definitions vary, one of the most recognized indicators of the liquidity measurable on different basis is the turnover ratio. The turnover ratio is calculated as the following formula (Karan and Karacabey, 2003)[1]: Turnover Ratio = Transaction Volume / Market Capitalization

In the above formula, transaction volume refers to the aggregate amount of the values obtained through multiplying the number of the stocks in the transactions performed for each stock with transaction price; market capitalization stands for a security's value set out in the market, apart from its nominal value.

On the other hand, in the measurement of the liquidity, Glosten and Milgrom (1985), Welker (1995), Affleck-Graves, Callahan and Chipalkatti (2002) and Chipalkatti (2001 and 2002) calculated the amount of asymmetric information amount through using the spread between bid and ask prices. Frost, Gordon and Hayes (2002) used the average transaction volume and the mean of average transaction amount.

[1] S&P, Emerging Stock Markets Review

In this study, in the measurement of the liquidity being the dependent variable, the turnover ratios of the public banks' stocks by years were used. The turnover ratios of 12 banks pertaining to the years of 1992-2002 are shown in Table-2, the transaction volume and the market capitalization data used to calculate the turnover ratio are given in Annex-3 and Annex-4 respectively. All the data were obtained from annual ISE Reports and the turnover ratios of Alternatifbank, Sekerbank and Turkish Economy Bank prior to their going public (pre-1995 years for Alternatifbank, pre-1997 years for Sekerbank and pre-2000 years for Turkish Economy Bank) are not included.

Table 2: Turnover Ratios of the Banks' Stocks (%)

BANKS	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992
Akbank	74,29	131,40	204,03	41,94	57,95	16,62	8,68	6,97	3,46	3,38	3,09
Alternatifbank	141,53	74,25	235,69	81,72	187,66	106,86	148,99	53,19	-	-	-
Dışbank	147,33	179,58	406,64	69,66	114,08	58,95	29,19	242,78	118,57	123,11	2,06
Finansbank	539,94	231,73	195,27	79,73	83,32	46,44	35,68	58,13	29,89	12,46	5,30
Garanti Bankası	396,21	312,91	417,99	51,26	91,50	19,12	6,89	9,00	6,53	10,63	25,21
İş Bankası	180,48	56,45	93,96	23,01	63,86	14,34	48,16	115,98	98,20	93,24	19,81
Şekerbank	49,97	2,36	37,97	16,63	51,85	97,64	-	-	-	-	-
Kalkınma	10,21	8,48	7,90	1,53	38,04	17,16	23,61	6,53	7,08	1,86	1,46
TEB	262,10	179,72	138,13	-	-	-	-	-	-	-	-
Tekstil Bankası	45,22	33,15	26,49	13,70	193,55	55,71	26,42	65,89	18,08	3,67	15,02
TSKB	101,80	66,67	128,25	38,92	79,36	24,53	56,29	6,33	88,56	45,90	5,45
Yapı Kredi	907,27	253,79	402,14	54,99	113,13	33,78	64,18	363,53	115,55	70,37	57,37

Banks' transparency levels are independent variables of the model. Although Cooke and Wallace (1989) stated that transparency is an abstract concept, therefore it cannot be directly measured, they suggested that a proper transparency index or a transparency scoring table which scores the degree of the information disclosed to the public by an enterprise may prove to be beneficial in measuring the transparency. As a matter of fact, measuring an enterprise's transparency level through transparency scoring tables has turned out to be a method deployed in a number of studies. For instance, Çürük (2001) in his study examined the compliance degrees of the public real sector enterprises with International Accounting Standards and EU Acquis by establishing a similar scoring table to meter the transparency level of those enterprises. Moreover, in a study made by Frost, Gordon and Hayes (2002), the transparency level of the sampling countries' stock exchanges have been measured following the same method.

Accordingly, it is thought that as for transparency, the measurement of competency and quality of the public banks' annual financial statements and reports can be doable by designating a transparency scoring table to individually measure the transparency level of each and every single bank. The said table that is similar to the transparency index developed by Botosan (1997) and Zarzeski (1996) and tailored for industrial enterprises essentially comprises a list of information that is found in the bank's annual financial statements and reports (independent audit and annual activity reports) and is considered if disclosed (Chipalkatti 2001 and 2002).

Within this framework, in order for the measurement of transparency level, a transparency scoring table encompassing the information presented in the banks' annual financial statements and reports has been designated (Annex-5). Banks' financial statements and reports have been obtained through the sources of Capital Markets Board and Istanbul Stock Exchange. It is expected that the banks adopting the understanding of an investor– focused transparency in their financial statements and reports register high transparency scores.

In establishing the table found in Annex-5, (i) the information taken as a reference in the studies previously done concerning the subject (e.g. Chipalkatti 2001 and 2002), (ii) the information banks should disclose as Basel Committee on Banking Supervision stipulated as well as (iii) the information banks should disclose as stipulated in International Accounting Standard numbered 30[2] have been evaluated in combination. Following this comprehensive evaluation, information that is of 'addendum' to the points disclosed in accordance with the current banking legislations stipulating banks whose stocks are publicly traded, has been placed into the transparency scoring table. Basel Committee on Banking Supervision has developed six categories of information banks should disclose to accomplish a decent level of transparency. These are as follows:

1. Financial Statements,
2. Basic information on corporate governance,
3. Financial performance,
4. Financial position,
5. Risk management and
6. Information governing risk measurement (e.g. market risk, liquidity risk, transaction risk etc.) (Chipalkatti 2001 and 2002).

---

[2] Transparencys in the Financial Statements of Banks and Other Similar Financial Institutions

In this study a transparency scoring table of 50 points has been made, using the concerning main transparency criteria. Following Cooke (1989a and 1989b), Soh (1996), Al-Modahki (1996) and Haniffa (1998), the scoring was performed by assigning "1" point to the information disclosed by bank, "0" to the undisclosed one. In order not to make any wrong assessment on information that cannot be obtained through financial statements and independent audit reports, the annual activity reports disclosed by banks were thoroughly examined. Done this way, an attempt was made to avoid the risk to attribute "0" point to each undisclosed information in the financial statements and independent audit reports.

Cooke (1989a and 1989b), Soh (1996), Al-Modahki (1996) and Haniffa (1998) have got the eventual transparency score by proportioning the total score of the enterprise which is found by the method stated above to the score corresponding to the maximum amount of information the enterprise may disclose. In our study the maximum score will be 50 as it is expected that all information criteria forming the scoring table are disclosed by the bank. Accordingly, if a bank's score is 40 for instance, the transparency score will be 40/50 which makes 0.8. If it is 6, the score will read 6/50 which is 0.12, or if it is 50, then the score will equal 1. In order to make sure that all the variables in the model can be expressed in percentages, the resulting ratio is multiplied by 100. In other words, a bank whose transparency score is 40 will be coined as having a 80 % transparency level; a bank whose transparency score is 6 will have a 12 % transparency level or and a bank whose transparency score is 50 will be said to have a 100 % transparency level. For example, in our study, it was concluded that as Turkish Is Bank's transparency score in 2002 was 43 and it registered a transparency level of 86 %. An outlook of all the banks' transparency scores is presented in Table-3.

Table 3: Transparency Levels of Public (Istanbul Stock Exchange) Banks (%)

BANKS	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992
Akbank	86	60	62	20	18	16	14	14	14	14	14
Alternatif Bank	86	44	22	14	14	14	14	14	-	-	-
Türk Dış Ticaret Bankası	86	50	58	46	14	14	14	14	14	14	14
Finans Bank	82	46	68	34	36	50	60	14	14	14	14
Türkiye Garanti Bankası	88	48	52	38	48	44	38	40	14	14	14
Türkiye İş Bankası	86	38	46	34	34	32	14	14	14	14	14
Şekerbank	84	10	22	14	12	12	-	-	-	-	-
Türk Ekonomi Bankası	62	36	28	-	-	-	-	-	-	-	-
Tekstil Bankası	82	38	54	14	14	14	14	14	14	14	14
Türkiye Kalkınma Bankası	88	42	26	20	18	16	14	14	14	14	14
TSKB	72	36	26	18	18	18	18	18	18	18	18
Yapı ve Kredi Bankası	88	52	40	34	32	30	14	14	14	14	14

As to be seen from Table-3, transparency levels of the banks have increased by years. It is thought that perceiving this as a natural inference will be proper. Currently, as our banking regulations have been made in line with the international arrangements, important developments in the sense of transparency and increase in the information to be disclosed to the public have been experienced. However, the information that was disclosed by banks in the previous periods appears to be quite restrictive (insufficient) compared with that of today. As a matter of fact, while the page number of a bank's independent audit report was between 10-15 during the 1990s, nowadays it is about 65-75 pp. Particularly, as a cautionary result of the banking crises undergone early on, increase in the amount of information to be disclosed following the activities of compliance with the international arrangements further signifies the data in Table-3. Therefore, especially the transparency levels of the banks in the recent years materially differentiate from those observed in the previous periods. For example, while the transparency level of Turkish IsBank in 2002 was 86 %, it was 14 % between the years of 1992-1996. Departing from this, it is possible to arrive at the conclusion that the banks for a long period of time have not made any headway in the sense of transparency, or that not any regulations treating the problem have been drafted. Besides, considering that the principles compatible with international arrangements have been put into effect in the year 2002, it could be realized that the increases occurring in the transparency scores by previous years stem from the banks' voluntary transparencies. Indeed, in this period too, there have been no amendments made in the banking Statute in terms of transparency.

Another independent variable used in the model is the bank size. Big enterprises catch the attention of particularly institutional investors. Chipalkatti (2001 and 2002) in his study tested the hypothesis that the large banks own higher transparency levels and obtained positive results. Large banks, as every big enterprise, catch the attention of the institutional investors and the regulatory authorities more than ever and bring along their responsibility for more transparency.

Total assets are generally taken as a basis in the measurement of the size (Kıymaz, 1997). In order to express the model variables in terms of percentages, the total assets of each publicly-held bank are proportioned to the total assets of the whole banking industry (Table-4). Data were obtained from statistical reports of Banks Association of Turkey.

Table 4: Assets Sizes of Public Banks (%)

BANKS	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992
Akbank	11,1	10,1	7,1	6,0	6,5	6,0	5,2	5,7	6,0	5,4	5,6
Alternatif Bank	0,6	0,7	0,6	0,6	0,5	0,5	0,6	0,4	0,1	0,2	0,1
Finans Bank	2,3	2,0	1,9	1,9	1,4	1,4	1,0	0,9	0,5	1,6	1,0
Şekerbank	1,0	1,1	0,8	0,7	0,8	0,7	0,7	0,7	0,8	0,9	0,8
Tekstil Bankası	0,5	0,7	0,5	0,5	0,5	0,6	0,5	0,4	0,3	0,4	0,3
Türk Dış Ticaret Bankası	1,9	1,5	1,1	1,2	1,3	0,8	0,8	0,6	0,8	1,3	0,8
Türk Ekonomi Bankası	1,1	1,0	1,0	0,9	0,9	1,0	1,1	0,8	0,6	0,6	0,5
Türkiye Garanti Bankası	9,3	9,5	6,3	6,3	6,4	6,2	4,5	3,9	4,2	3,7	3,6
Türkiye İş Bankası	10,5	9,7	7,5	6,6	6,4	7,0	7,6	9,1	9,5	8,0	9,1
Yapı ve Kredi Bankası	8,2	9,1	7,2	6,8	6,6	6,4	6,2	7,1	6,9	6,7	6,2
Kalkınma Bankası	0,2	0,2	0,2	0,3	0,3	0,5	0,6	0,9	1,3	1,3	1,6
TSKB	0,7	0,4	0,3	0,4	0,4	0,6	0,8	1,1	1,5	1,3	1,3

Furthermore, in the study, three independent dummy variables were determined as banks' issuance of depositary receipts in a foreign country (ADRs), secondary public offerings and the Accounting Practices Regulation which was put into effect by the Banking Regulation and Supervision Agency.

Banks issuing the depositary receipts in foreign countries must respect the 'principles and essentials of transparency' of the country where the issuance will be realized. For example, if a bank operating its business in Malaysia is willing to issue the depositary receipts in New York Stock Exchange, like all other foreign banks, it has to adopt the rules set out by U.S. Securities and Exchange Commission in first place. In pursuant to these rules, it needs to get through a kind of transparency test containing a number of explanations such as risks, activity lines and so on and so forth.

In our study, it is analyzed, to what extent the fact that our banks issuing the depositary receipts in foreign countries (Annex-6) are subject to higher transparency rules different from our country's in issuance periods have affected the liquidities of the issuing banks in the said period in Istanbul Stock Exchange. Chipalkatti (2001 and 2002) examined the liquidity of the Indian bank titled ICICI Ltd. in Indian Stock Exchange during the period where the mentioned bank issued the depositary receipts in New York Stock Exchange. The scholar documented that the liquidity in the bank's stocks rose. Thus, it is expected that increasing transparency levels of our banks that issue the depositary receipts in foreign countries may have a positive impact on their liquidities.

In the study, the effect of the secondary public offerings of the banks in the sampling period on liquidity is examined as well. Along with the increasing transparency levels by years, having increases in the liquidity of the banks after

their secondary public offerings and therefore realizing reductions in their costs of capital are conceived to be likely, considering the empirical studies discussed hitherto. Investigating the existence of such an effect reveals another aspect of the study.

Finally, along with the promulgation of Accounting Practices Regulation published by Banking Regulation and Supervision Agency, to what extent the turnover ratios of the bank's stocks, thus their liquidities have been affected is investigated in this study. The Accounting Practices Regulation, which was published by the Banking Regulation and Supervision Agency in the official gazette with reiterated No: 24793 dated 22.06.2002 and stipulated new accounting standards for the banks, took effect on 01.10.2002. In accordance with the said regulation which was initiated to be applied by the banks, the transparency of the detailed breakdown of several financial statement information by the banks, particularly the explanations concerning the risk have become compulsory. Besides, the Banking Regulation and Supervision Agency has obligated the banks to report in quarterly periods. All the privately- and stately-owned banks founded in Turkey, starting from the date of 31.12.2002, must prepare their financial statements in compliance with the said Regulation which has been prepared for the purpose of making accounting standards followed in the banking industry closer to the International Financial Reporting (Accounting) Standards. Chipalkatti (2001 and 2002) in his study empirically tested the hypothesis that the rules governing transparency principles including the accounting standards in line with the international arrangements put into effect by the Reserve Bank of India have increased the liquidities of the Indian Banks. But, statistical tests have not verified the hypothesis.

IV. Empirical Analysis: Results

The relationship between the liquidities of the bank's stocks (turnover ratio) and the transparency levels of the banks is considered at length as follows.

4.1. The Relationship Between the Liquidity and the Transparency

In order to analyze liquidity and transparency relationship of the banks, a simple regression analysis was made. The regression analysis has been performed in that a correlation analysis between the turnover ratios of public banks pertaining to the period 1992-2002 and transparency levels. In the analysis, turnover ratio is employed as dependent variable and transparency level is treated as independent

variable. The summary of the results of the association between the liquidity and the transparency level is given below.

Table 5: Transparency Level-Liquidity Correlation Analysis

	Trunover Ratio	Transparency
Turnover Ratio	1	0,473
Transparency	0,473	1

When Table 5 is examined, as per the sampling period, we see that there is a correlation between the liquidities of the bank's stocks and the transparency levels of the banks at the rate of % 47,3.

Liquidity (turnover ratio) = 13,120 + 2,676*Transparency

t-Stat	(0,735)	(5,728)***
Adjusted R^2	%21,7	
F-Stat	32,808***	

(*) : Refers to 10% significance level.
(**) : Refers to 5% significance level.
(***) : Refers to 1% significance level.

As to be understood from the regression analysis above, along with the fixed term of 13,120 units, a positive or negative unit change at the level of banks' transparency levels affects the liquidity (turnover ratio) of the banks' stocks in the same direction as much as 2.676 units.

In addition, a high level (32,808) of the F test indicating the significance of the model also shows that the parameter of the model has a significant explanatory power. Besides, the adjusted R2 value is given to be 21,7 % in regression analysis, in which the turnover ratios of the bank's stocks in the years of 1992-2002 are used as a dependent variable and the transparency degrees of the banks in the years of 1992-2002 are used as an independent variable. 21,7 % of the variation in the liquidity of the bank's stocks is accounted for by the variation of the independent variables placed in the model.

4.2. The Relationship Between the Liquidity and the Bank Size

The summary of the results concerning the relation between the liquidity of the banks's stocks and its size of assets is given below.

Table 6: Bank Size-Liquidity Correlation Analysis

	Turnover Ratio	**Assets Size**
Turnover Ratio	1	0,250
Assets Size	0,250	1

When table-6 is examined, we see that there is a correlation of 25 % between the liquidities of the banks' stocks and their asset size, as per the sampling period.

Liquidity (Turnover Ratio) = 63,703 + 10,003*Size

t-Stat	(3,889)***	(2,752)***
Adjusted R^2	%5,4	
F-Stat	7,574***	

(*) : Refers to 10% significance level.
(**) : Refers to 5% significance level.
(***) : Refers to 1% significance level.

As to be understood from the regression result above, along with the fixed term of 63,703 units, a positive or negative unit change at the level of banks' assets sizes affects the liquidity (turnover ratio) of the banks' stocks in the same direction as much as 10,003 units.

The F test is higher than the table value (7,574), which indicates that the parameter of the model has a significant explanatory power. On the other hand, the adjusted R2 value has been found as 5,4 % in regression analysis, wherein the turnover ratios of the bank's stocks between the years of 1992-2002 are used as a dependent variable and the assets size of the banks in the years of 1992-2002 are used as an independent variable. 5, 4 % of the variation in the liquidity of the bank's stocks is explained by the variation of the independent variables placed in the model.

As per years, considering that the correlation coefficient of the turnover ratios of the bank's stocks and the banks' transparency levels is % 47, 3, the adjusted R2 value is 21, 7 % and the F test is 32,808, the effect of change in the

size of the banks on the liquidity of banks' stocks is lower than the effect of the change in the bank's transparency level in the sampling period. In other words, the explanatory power of assets size of the banks on accounting for the influence of the banks' stocks on their liquidity is relatively lower than transparency levels.

4.3. The Relationship of the Liquidity With the Bank Size and the Degree of Transparency

The summary of the results concerning the joint effect of the banks' assets sizes and their transparency levels on the liquidity of the banks' stocks are given below.

Table 7: Bank Size and Degree of Transparency–Liquidity Correlation Analysis

	Turnover Ratio	Transparency	Assets Size
Turnover Ratio	1	0,473	0,250
Transparency	0,473	1	0,213
Assets Size	0,250	0,213	1

Liquidity (Turnover ratio) = -0,99 + 2,488*Transparency + 6,254*Size

t-Stat	(0,052)	(5,260)***	1,868*
Adjusted R^2	%23,3		
F-Stat	18,506***		

(*) : Refers to 10% significance level.
(**) : Refers to 5% significance level.
(***) : Refers to 1% significance level.

When the coefficients of the parameters of the model are examined in combination with the findings obtained in the previous analysis, it is seen that the transparency effect over the liquidity of the bank's stocks declines (from 2,676 to 2,488).

In the regression analysis where the turnover ratios of the bank's stocks in the years of 1992-2002 are used as a dependent variable and the bank's transparency levels together with the sizes of assets are used as independent variables, the F test reveals a high value (18,506) and the adjusted R2 value

reveals 23,3 %. 23,3 % of the variation in the liquidity of the banks' stocks is explained by the variation of the independent variables set out in the model.

Examining the data gathered above, we can suggest that the explanatory power of the model increases when the banks' assets size and degrees of transparency are jointly used. However, it would not be quite appropriate to argue that there is a significant relationship between the bank size and the liquidity.

4.4. The Relationship of the Liquidity With the Secondary Public Offerings and the Degree of Transparency

The summary of the results concerning the joint effect of the banks' secondary public offerings and the transparency degrees on the liquidity of the bank's stocks are given below.

Table 8: Secondary Public Offerings and Transparency-Liquidity Correlation Analysis

	Turnover Ratio	Transparency	Secondary Public Offering
Turnover Ratio	1	0,473	-0,221
Transparency	0,473	1	-0,135
Secondary Pulbic Offering	-0,221	-0,135	1

Liquidity (Turnover Ratios)=45,614+2,554*Transparency+(43,285)*SPO

t-Stat	(1,877)*	(5,482)***	(1,943)*
Adjusted R^2	%23,5		
F-Stat	18,691***		

(*) : Refers to 10% significance level.
(**) : Refers to 5% significance level.
(***) : Refers to 1% significance level.

In the regression analysis where the turnover ratios of the banks' stocks in the sampling years of 1992-2002 are used as a dependent variable and the banks' transparency levels and the secondary public offerings are used as independent variables, the F test (18,691) appears to have a high value and the adjusted R2

value to have 23, 5 %. 23, 5 % of the variation in the liquidity of the banks' stocks is accounted for by the variation of the independent variables set out in the model.

4.5. The Relationship of the Liquidity With the Accounting Practices Regulation and the Transparency Degree

The summary of the results concerning the joint effect of the Accounting Practices Regulation and the transparency degrees on the liquidity of the banks' stocks are given below.

Table 9: Accounting Practices Regulation and Degree of Transparency–Liquidity Correlation Analysis

	Turnover Ratio	Transparency	Accounting Practices Regulation
Turnover Ratio	1	0,473	0,379
Transparency	0,473	1	0,778
Accounting Practices Regulation	0,379	0,778	1

Liquidity (Turnover ratio) = 15,666 + 2,555*transparency + 6,254*APR

t-Stat	(0,724)	(3,424)***	(0,834)
Adjusted R^2	%21		
F-Stat	16,289***		

(*) : Refers to 10% significance level.
(**) : Refers to 5% significance level.
(***) : Refers to 1% significance level.

The model reports that the effect of the Accounting Practices Regulation bringing up the principle of transparency for the banks on the liquidity of the banks' stocks is insignificant. However, the transparency level maintains its significance as it does in all the models.

On the other hand, in the regression analysis wherein the turnover ratios of the banks' stocks in the sampling period of 1992-2002 are used as a dependent variable and the Accounting Practices Regulation and the bank's transparency

levels are used as independent variables, the F test (18,289) appears to be high and the adjusted R2 value is 21 %. 21 % of the change in the liquidity of the bank's stocks has been accounted for by the change of the independent variables set in the model.

When the model results that are examined separately above are evaluated in a joint fashion, it will be seen that the banks' transparency levels have a powerful significance in explaining the liquidity of the banks' stocks being the dependent variable in the sampling period of 1992-2002. Moreover, the significance level of the model formed following the incorporation of the variable of secondary public offerings to the model where the link between the liquidity and the transparency is investigated is higher than the significance level of the model set up following the separate incorporation of the variables such as the bank size and the Accounting Practices Regulation. On the other side, in the models wherein the association between the transparency and the liquidity is measured, the bank size and the secondary public offerings as the model variables have a significant effect on the liquidity of the bank's stocks at the level of 90 %. But, the variable of the Accounting Practices Regulation has been found to have no positive effect on the level of the significance in terms of t-test.

4.6. The Relationship Between the Liquidity and All the Independent Variables of the Model

Adding other variables to the model is considered as beneficial to appropriately interpret the significance of the findings obtained so far. The summary of the relations between all the independent variables of our model and the liquidity of the banks' stocks being the dependent variable together with the dummy variables is shown as follows.

Table 10: All Independent Variables-Liquidity Correlation Analysis

	Turnover Ratio	Transparency	Assets Size	SPO	ADR	APR
Turnover Ratio	1	0,473	0,250	-0.221	-0,078	0,379
Transparency	0,473	1	0,213	-0,135	-0,067	0,778
Assets Size	0,250	0,213	1	-0,017	0,083	0,082
SPO	-0.221	-0,135	-0,017	1	0,18	-0,178
ADR	-0,078	-0,067	0,083	0,18	1	-0,086
APR	0,379	0,778	0,082	-0,178	-0,086	1

Liquidity (Turnover ratio)=33,859+2,211*Transparency+6,581*Size+(-41.528) *SPO+(-18,800)*(ADR)+13.082*(APR)

SPO: Secondary Public offering, ADR: Issuance of Depositary Receipts in a Foreign Country
APR: Accounting Practices Regulation

	Fixed Term	Transparency	Bank Size	SPO	ADR	APR
t-Stat	(1,259)	2,935***	1,948*	(1,831)*	(0,421)	0,237
Adjusted R^2	%24,1					
F-Stat	8,302***					

(*) : Refers to 10% significance level.
(**) : Refers to 5% significance level.
(***) : Refers to 1% significance level.

As to be seen from the upper regression results, along with the fixed term of 33,859 units, a positive or negative unit change at the banks' transparency levels influences the liquidity (turnover ratio) of the banks' stocks in the same direction as much as 2.211 units. The transparency appears to be significant as in each and every model, while the banks' assets size and the secondary public offerings have a low level of significance.

On the other hand, it has been observed that, in the regression analysis concerning the sampling years of 1992-2002, the F test (8,302) is high and that the adjusted R2 value is 24, 1 %. Hence, we may contend that 24, 1 % of the variance in the liquidity of the banks' stocks is explained by the variance of the independent variables the model draws on. Accordingly, it makes sense to posit that the model is significant in its entirety.

4.7 The Effect of the Accounting Practices Regulation on the Relationship Between the Liquidity and the Transparency

Even though the effect of the Accounting Practices Regulations on the liquidity is not found as significant above, we can examine the existence of its positive effect by comparing the said study covering the period of 1992-2002 with a similar study covering the period of 1992-2001. Indeed, the said regulation of Banking Regulation and Supervision Agency bringing high transparency principles to the banks was put into force as of 01.10.2002 and annual statements and reports were prepared in compliance with this regulation as well and announced to the public.

Within this framework, a multiple regression analysis was performed, where all independent variables except for the Accounting Practices Regulation were used. As of the years of 1992-2001, the results concerning the effect of the Accounting Practices Regulation on the link between the liquidity and the transparency level are presented right down below.

Table 11: The Effect of the Accounting Practices Regulation

	Turnover Ratio	Transparency	Assets Size	SPO	ADR
Turnover Ratio	1	0,408	0,199	-0.117	-0,067
Transparency	0,408	1	0,235	0,001	0,001
Assets Size	0,199	0,235	1	-0,017	0,1
SPO	-0.117	0,001	-0,017	1	0,179
ADR	-0,067	0,001	0,1	0,179	1

When table-11 is examined, it is seen that, as of the sampling period, there is a positive correlation of %40, 8 between the liquidity of the banks' stocks and the banks' transparency levels.

Liquidity (Turnover Ratio) = 25,800 + 2,357*Transparency + 3,418*Size + (-20.719)* SPO + (-21,820)*(IDRFC)

SPO: Secondary Public Offering ADR: Issuance of Depositary Receipts in a Foreign Country

	Fixed Term	Transparency	Bank Size	SPO	ADR
t-Stat	(1,225)	(4,105)***	(1,217)	(1,139)	(0,648)
Adjusted R^2	%24,1				
F-Stat	8,302***				

(*) : Refers to 10% significance level.
(**) : Refers to 5% significance level.
(***) : Refers to 1% significance level.

As to be understood from the regression analysis above, together with the fixed term of 25,800 units, a positive or negative change per unit at the banks' transparency levels affects the liquidity (turnover ratio) of the banks' stocks in the same direction as much as 2.357 units. Independent variables apart from the transparency do not seem to be significant.

On the other hand, in the regression analysis transcending the years of 1992-2001, the F test reads high (5,963) and the adjusted R2 value is 16, 2 %. 16, 2 % of the variation in the liquidity of the banks' stocks has been accounted for by the variation of the independent variables set in the model.

Considering that the F test (8,302) and the adjusted R2 (%24,1) values are found to be higher in the preceding chapter, it is appropriate to state that the Accounting Practices Regulation taking effect in 2002 rises the explanatory power of the model and the model proves to be effective in predicting the liquidity of banks' stocks being the dependent variable.

V. Conclusion

Following the previous studies in the literature examining the existence of the relationship between the transparency and the liquidity, the outcomes of our empirical investigation are geared towards reporting whether the findings of those studies do apply or not to the public banks whose stocks are traded in Istanbul Stock Exchange. The outcomes document that there is a significant relationship between the transparency and the liquidity in our territory as well.

Actually, in each and every model where the relationship between the liquidity of the banks' stocks and their transparency degrees is examined, the degree of relationship has been identified as both significant and robust. This consistently robust association suggests that the transparency and the effective transparency mechanism reduce the asymmetric information problem in the markets where banks' stocks, and therefore enhancing the liquidity of the concerning stocks through lessening transaction costs.

The same relationship is encountered in the model where the effect of the banks' size of assets on the liquidity of their stocks is analyzed as well, it is conjectured that the banks with an institutionalized structure and a notable size have a more liquid market than the banks without. It may be that as the large banks maintain a high rate of institutionalized investors in their customer portfolios and as transaction costs in associated with those institutionalized investors are lower compared to transaction costs in associated with individual investors, the liquidity has risen up.

However, when jointly evaluated with the transparency in a different model, the effect of the banks' assets size on the liquidity has not been found as significant. The reason might be that although large banks are under the supervision of a large interest group, including primarily the regulatory bodies, they could not have got institutionalized enough to achieve or enforce a more transparent information supply to contribute positively to the liquidity. Considering that the concept 'banking secrecy' in the current banking Statute keeps dominating, this leads us to think that the relationship of bank's assets size to transparency and hence liquidity has been getting weakened. Nevertheless, at a lower significance level, the effect of the bank's assets size on the liquidity is yet found as significant as we have seen early on.

In another model, the relationship of transparency and secondary public offerings to liquidity has been investigated. We have seen that secondary public offerings have no significant effect on the liquidity. Concerning this finding, we believe that this empirical study should be considered in combination with the external factors such as the crises in the years of 1994, 1998, 2000, and 2001 or the markets that were adversely affected after the earthquake in 1999. Accordingly, it is possible to assert that the interaction between the secondary public offerings and the liquidity of the bank's stocks may become silent owing to these abnormal periods in which the markets have been negatively driven. However, it must be kept in mind that the effect of the bank's secondary public offerings on the liquidity is significant at a lower level of significance. This significant influence operates in an inverse direction. In other words, at a lower level of significance, the secondary public offerings lessen the liquidity of the bank's stocks. At this point, it is also possible to conclude that the prices of the public offerings were established so high not to be realistic. Namely, an overpricing problem may be argued to be related to the declining liquidity.

Again, testing the relationship of transparency and BRSA-induced Accounting Practices Regulation being in line with the International Financial

Reporting (Accounting) Standards with liquidity resulted in an inconclusive outcome. Further, in the models where the conditions before and after the promulgation of the mentioned regulation are compared with each other, that the Accounting Practices Regulation was put into force in the year 2002 could not be found to have a significant effect on the liquidity of the bank's stocks. Nevertheless, we have also seen that the explanatory power of the model where the said regulation is deployed as an independent variable is higher than that of the model where the period before the regulation is analyzed.

On the other hand, as the relation of the banks issuing the depositary receipts (ADR) in the foreign countries with the foreign investors will develop, they are expected to tend to deliver more information to these investors. Therefore, it can be asserted that the liquidity of the issuing banks in Istanbul Stock Exchange may rise through getting influenced by this external occasion. Yet, in the models where all the independent variables are jointly examined, a significant relation was not encountered between ADR and the liquidity. This result may trigger to question that the advancement of transparency systems in the countries (U.S. and England) where the issuance happens could not be internalized as expected in terms of the investors in our country. In other words, it is believed that our investors are not yet ready for the transparent information of a high capacity and that the tendency to make investments relying on information did not get to high levels either.

When the points stated right above are considered altogether, it is conjectured that, in terms of the (public) banks whose stocks are traded in Istanbul Stock Exchange, the explanatory power of the transparency level being the independent variable on the liquidity being the dependent variable is robust in each significance level in all the suggested models. But, when considered with the transparency level, there has not been found any significant relationship between the other independent variables and the liquidity of the bank's stocks. Yet, it has been seen that at a lower level of significance, the bank size and the secondary public offerings (in an inverse direction) as well as the transparency have both material effects on the liquidity of the bank's stock. Within this framework, it may be argued that the transparency, the bank size and the secondary public offerings are all significant variables in controlling the effect on the level of the liquidity of the bank's stocks.

References

Affleck-Graves, J., C. Callahan; N. Chipalkatti, "*Earnings Predictability, Information Asymmetry and Market Liquidity*", Journal of Accounting Research, Vol. 40, No. 3, 2002.

Al-Modahki, J. S., "*An Empirical Study of Accounting Transparency Development in the Kingdom of Saudi Arabia*", Hull Üniversitesi Doktora Tezi, 1996.

Avgouleas, Emilios, "*The Harmonisation of Rules of Conduct in EU Financial Markets: Economic Analysis, Subsidiarity and Investor Protection*", European Law Journal, Vol. 6, Issue:1, 2000.

Beatty, Anne, K. E. Bin; K. Petroni, "*Differential Earnings Management to Avoid Earnings Declines and Losses Across Publicly and Privately-Held Banks*", Pennsylvania State University, Penn State University and Michigan State University, Working Paper, 2000.

Botosan, C.; M. Plumlee, "*Transparency Level and Expected Cost of Equity Capital: An Examination of Analysts' Rankings of Corporate Transparency and Alternative Methods of Estimating Expected Cost of Equity Capital*", Araştırma Çalışması, 2000.

Botosan, C., "*Transparency Level and the Cost of Equity Capital*", The Accounting Review, Vol. 72, No. 3, July 1997, pp. 323-349.

Brealay, Richard; A. Stewart, "*Principles of Corporate Finance*", Mc. Graw Hill Inc., New York, 1991.

Bushman, R., J. Piotroski; A. Smith, "*What Determines Corporate Transparency?*", University of Chicago ve University of North Carolina Tez Çalışmaları, 2001.

Caprio, G. Jr., G. G. Kaufman, D. M. Leipziger; W. C. Hunter, "*Preventing Bank Crises: Lessons From Recent Global Bank Failures*", Araştırma Raporu, EDI Development Studies, Washington D.C., 1998.

Chemmenur, Thomas; P. Fulghieri, "*A Theory of the Going Public Decision,*" Review of Financial Studies, Vol.12, Issue 2, 1995.

Chipalkatti, Niranjan, "*Market Microstructure Effects of Bank Transparency: A Preliminary Examination*", Indira Gandhi Üniversitesi Doktora Tezi, 2001.

----------, "Liquidity *Effects of Transparent Accounting Transparencys: The Case of Indian Banks*", NSE Newsletters Articles, www.nse-india.com, 2002.

Coffin, William F., "*Techniques to Lower the Cost of Capital in Today's Volatile Markets/Or How to Complete a Successful IPI, PIPE or Follow-on Offering in 2002*", Coffin Communications Group, Investor Relations Issues Alert, 2002.

Cooke, T. E., "*An Empirical Study of Financial Transparency by Swedish Companies*", Garland Publishing, 1989a.

----------, "*Transparency in the Corporate Annual Reports of Swedish Companies*", Accounting and Business Research, Vol:19, No:74, 1989b.

Cooke, T. E.; R. S. O. Wallace, "*Global Surveys of Corporate Transparency Practices and Audit Firms: A Review Essay*", Accounting and Business Research, Vol.20, No:77, 1989.

Çürük, Turgut, "*An Analysis of Factors Influencing Accounting Transparency in Turkey*", İMKB Yayını, İstanbul, 2001.

Diamond, D.; R. Verrecchia, "*Transparency, Liquidity and the Cost of Capital*", The Journal of Finance, Vol. XLVI, No. 4,1991.

Douglas, W. Diamond; G. R. Raughuram, "*Banks, Short Term Debt and Financial Crises: Theory, Policy Implications and Applications*", University of Chicago Graduate School of Business and University of Chicago, Working Papers, 2000.

Eichengreen, B., "*Crisis Prevention and Management: Any New Lessons from Argentina and Turkey?*", Global Development Finance, 1999.

Erdoğan, M., "*Bankacılık Sektöründe Asimetrik Bilgi: Sorunlar ve Çözüm Önerileri*", Dumlupınar Üniversitesi, Sosyal Bilimler Dergisi, Sayı:20, Nisan 2008.

Flannery, S. Kwan; M. Nimalendran, "*Market Evidence on the Opaqueness of Banking Firms' Assets*", Federal Reserve Bank of San Francisco Working Paper Series No. 99, 1999.

Florini, A. M., "*Does the Invisible Hand Need a Transparent Glove? The Politics of Transparency*", Annual World Bank Conference on Development Economics, Washington D.C., 1999.

Frost, Carol. A., E. A. Gordon; A. F. Hayes, "*Stock Exchange Transparency and Market Liquidity: An Analysis of 50 International Exchanges*", Araştırma Raporu, 2002.

Glosten, L., P. Milgrom, "*Bid, Ask and Transaction Prices in a Specialist Market with Heterogenously Informed Traders*", Journal of Financial Economics, 1985.

Gordon, V. Karels, S. Mann, S. Wilcox, "*Loan Loss Reporting, Early Transparency and Investor Reactions*", Journal of Economics and Finance, Vol:18 No:2, 1999.

Haniffa, R. M., "*Culture, Corporate Governance and Transparency in Malaysian Corporations*", Exeter Üniversitesi Doktora Tezi, 1998.

Hasbrouck; R. A. Schwartz, "*Liquidity and Execution Costs in Equity Markets*", The Journal of Portfolio Management, 1998.

Healy, P. M.; K. G. Palepu, "*Information Asymmetry, Corporate Transparency and the Capital Markets: A Review of the Empirical Transparency Literature*", Journal of Accounting and Economics, 2001.

Karacan, Ali İhsan, "*Bankacılık ve Kriz*" Finans Dünyası Yayınları No:1., 1996.

----------, "*Mali Piyasalar Üzerine Denemeler*", Creative Yayıncılık., İstanbul, 2002.

Karan, Mehmet Baha; A. A. Karacabey, "*Türkiye'de Sermaye Piyasasının Mali Sistem İçindeki Yeri, Sorunları ve Geleceği*", SPK Yayını, Ankara, 2003.

Kaufman, D.; G. Mehrez, "*Transparency, Liberalization and Banking Crises*", The World Bank, Policy Research Working Paper-2286, 2000.

Kıymaz, Halil, "*The Long-Run Performance of IPOs: Turkish Financial Sector Experience*", Treasury Journal, 1997.

Leuz,C.; R. Verrecchia, "*The Economic Consequences of Increased Transparency*", Journal of Accounting Research", 2000.

Ökte, Kutluğhan Savaş, "*Finansal Piyasalarda Asimetrik Enformasyon Problemi: Temel Kavramlar, Literatür ve Çözüm Önerileri*", 2001. (www.ceteriparibus.net)

Rahman, Z., "*The Role of Accounting Transparency in the East Financial Crisis: Lessons Learned?*", Paper for the United Nations Conference and Development, 1998.

Sayar, A. R.Zafer, "*Uluslararası Muhasebe Standartları Kapsamında Halka Açık Bankalarda Kamuyu Aydınlatma Aracı Olarak Mali Tablolar*", Muhasebe ve Denetime Bakış Dergisi, Yıl:1, Sayı:3., 2001.

----------, "*Oluşturulmakta Olan Türkiye Muhasebe Standartları Kurulu'nun Işığı Altında Türkiye'de Muhasebe Standartları'nın Mevcut Durumu ve Kamuyu Aydınlatma*", Muhasebe ve Denetime Bakış Dergisi, Yıl:2, Sayı:7, 2002.

----------, "*Bankaların Halka Açılması ve Banka Yatırımcılarının Korunması*", Sermaye Piyasası Kurulu Yayınları, Yayın No:146, Ankara, Aralık 2003.

----------, "*Halka Açık Bankaların Kamuyu Aydınlatma Seviyeleri ve Likiditeleri Üzerine Etkileri*", Active Bankacılık ve Finans Dergisi, Ocak-Şubat 2004.

----------, "*Uluslararası Finansal Raporlama Standartlarına Genel Bir Bakış: Standartların Gruplandırılması*", Yaklaşım Dergisi, Sayı 155, Kasım 2005.

----------, "*Uluslararası Finansal Raporlama Standartları Kapsamında Finansal Araçların Değerlenmesinde Makul (Gerçeğe Uygun) Değer Yaklaşımı: Uluslararası Arenada Tartışılan Görüş ve Öneriler*", Mali Pusula Dergisi, Sayı:14, Şubat 2006.

Sincich, Terry, "*Business Statistics By Example*", Fifth Edition, Prentice-Hall Inc., New Jersey, 1996.

Soh, C. S., "*Factors Influencing Company Information Transparency:An Empirical Study of Companies Listed on the Kuala Lumpur Stock Exchange*", Ph.D. Thesis, University of Warwick, 1996.

Van Greuning, Hennie, B. S. Btatanovic, "*Analyzing Banking Risk- A Framework for Assessing Corporate Governance and Financial Risk Management*", The World Bank, Washington D.C., 1999.

Welker, M., "*Transparency Policy, Information Asymmetry, and Liquidity in Equity Markets*", Contemporary Accounting Research, Vol. 11, No. 2, Spring 1995, pp. 801-827.

Attachment

Annex 1: The Objectives of the Regulations Made in Investor-Focused Capital Markets

Protection of Investors	**Increasing the Market Quality**
It is essential that the investors be provided with the important information and be protected by way of supervision - oversight. **Rulers** - Provide important information fort he investors. - Observe whether the market rules are followed or not. - Provent the fraudulent applications in going public,collectiong votes and calls. - Car efor the financial information to be comparable.	*It is essential that the markets be honest , have an effective operation and stay away from the harmful applications.* **Rulers** - Ensure the equality in accessing and using the informaiton. - Increase the liquidity and reduce the transaction costs. - Reinforce the investor's confidence. - Ensure the prices to reflect the real value.
General Principles • Cost Effectiveness: The benefit of the regulations suggested to the markets should be higher than their costs. • Flexibility: Regulations should not prevent the competition and the development of the market. • Transparent financial reporting and full explanation. • Foreign and Domestic Enterprises subjecting to the same regulations. *Source: SEC	

Annex 2: Start-to-Trade Years of the Sampled Public (listed) Banks in Istanbul Stock Exchange

PUBLIC BANK	BANK TYPE	IMKB Start Year of Trade
TÜRKİYE İŞ BANKASI	Privately Held	1988
TÜRKİYE SINAİ KALKINMA BANKASI	Publicly Held	1988
YAPI VE KREDİ BANKASI	Privately Held	1989
FİNANSBANK	Privately Held	1990
TEKSTİLBANK	Privately Held	1990
GARANTİ BANKASI	Privately Held	1990
AKBANK	Privately Held	1990
DIŞBANK	Privately Held	1990
TÜRKİYE KALKINMA BANKASI	Publicly Held	1991
ALTERNATİFBANK	Privately Held	1995
ŞEKERBANK	Privately Held	1997
TÜRK EKONOMİ BANKASI	Privately Held	2000

Annex 3: Transaction Volumes of the Bank's Stocks (Million TL)

		2002	2001	2000	1999	1998	1997
1	AKBNK	3.334.072.315	4.835.439.855	4.335.726.501	1.677.460.173	463.618.067	151.648.150
2	ALNTF	104.163.615	51.973.773	83.228.805	58.448.853	20.906.573	25.966.316
3	DISBA	280.094.867	383.220.164	370.043.444	142.795.702	52.478.202	19.543.546
4	FINBN	1.494.704.945	812.503.243	275.732.405	226.945.269	52.699.976	27.517.779
5	GARAN	6.744.533.262	6.219.176.562	4.075.436.864	1.092.833.194	356.837.548	78.390.739
6	ISCTR	6.363.568.959	3.706.436.824	5.777.108.780	1.671.709.909	664.384.081	272.192.363
7	SKBNK	29.241.459	2.073.340	15.094.934	7.734.208	7.440.555	9.177.769
8	TKBNK	28.711.859	38.154.536	25.462.345	15.736.332	15.787.919	4.117.416
9	TEBNK	182.264.775	282.356.776	239.858.666	-	-	-
10	TEKST	55.466.605	17.505.814	10.912.295	9.726.212	29.128.757	6.344.990
11	TSKB	41.740.013	24.128.321	37.706.075	19.928.965	11.427.768	3.618.145

		1996	1995	1994	1993	1992
1	AKBNK	23.049.833	4.809.064	2.180.109	845.318	162.145
2	ALNTF	4.163.419	730.035	-	-	-
3	DISBA	2.324.464	7.753.728	2.667.722	3.890.277	6.184
4	FINBN	3.791.390	2.819.320	1.106.088	468.450	24.389
5	GARAN	6.079.882	3.670.257	2.560.082	2.499.099	526.981
6	ISCTR	80.424.898	61.284.297	19.233.013	24.494.800	332.481
7	SKBNK	-	-	-	-	-
8	TKBNK	3.164.407	205.590	290.242	71.492	9.148
9	TEBNK	-	-	-	-	-
10	TEKST	1.347.266	1.301.295	347.973	37.065	15.016
11	TSKB	3.447.485	298.977	2.315.487	1.310.768	17.972
12	YKBNK	44.671.930	75.577.836	14.631.499	7.093.775	588.060

Annex 4: Market Capitalizations of the Bank's Stocks (Million TL)

		2002	2001	2000	1999	1998	1997
1	AKBNK	4.488.000.000	3.680.000.000	2.125.000.000	4.000.000.000	800.000.000	912.500.000
2	ALNTF	73.600.000	70.000.000	35.313.000	71.520.000	11.140.757	24.300.000
3	DISBA	190.120.000	213.400.000	91.000.000	205.000.000	46.000.000	33.150.000
4	FINBN	276.826.064	350.625.000	141.206.000	284.625.000	63.250.000	59.250.000
5	GARAN	1.702.257.805	1.987.500.000	975.000.000	2.132.000.000	390.000.000	410.000.000
6	ISCTR	3.525.859.875	6.565.394.000	6.148.274.000	7.263.594.000	1.040.407.800	1.898.775.000
7	SKBNK	58.520.000	88.000.000	39.750.000	46.500.000	14.350.000	9.400.000
8	TKBNK	281.250.000	450.000.000	322.500.000	1.028.231.000	41.500.000	24.000.000
9	TEBNK	69.540.000	157.106.000	173.644.000	-	-	-
10	TEKST	122.653.125	52.800.000	41.200.000	71.000.000	15.050.000	11.390.000
11	TSKB	41.000.000	36.190.000	29.400.000	51.200.000	14.400.000	14.750.000
12	YKBNK	1.034.473.953	3.347.934.000	1.730.393.000	4.019.705.000	486.630.893	474.525.097

		1996	1995	1994	1993	1992
1	AKBNK	265.500.000	69.000.000	63.000.000	25.000.000	5.250.000
2	ALNTF	2.794.500	1.372.500	-	-	-
3	DISBA	7.962.500	3.193.750	2.250.000	3.160.000	300.000
4	FINBN	10.625.000	4.850.000	3.700.000	3.760.000	460.000
5	GARAN	88.200.000	40.800.000	39.200.000	23.500.000	2.090.000
6	ISCTR	166.997.500	52.841.000	19.586.500	26.270.700	1.678.350
7	SKBNK	-	-	-	-	-
8	TKBNK	13.400.000	3.150.000	4.100.000	3.850.000	625.000
9	TEBNK	-	-	-	-	-
10	TEKST	5.100.000	1.975.000	1.925.000	1.010.000	100.000
11	TSKB	6.125.000	4.725.000	2.614.500	2.856.000	330.000
12	YKBNK	69.604.920	20.790.000	12.663.000	10.080.000	1.025.000

Annex 5: Transparency Scoring Table Used in Measuring the Banks' Transparency Levels

A	**Financial Statements**		**10**
1	Financial Statements		
		Income Statement	
		Balance Sheet	
		Statement of Changes in Shareholders' Equity	
		Cash Flow Statemnt and Profit Distribution Statement	
		Memorandum Accounts	
2	Financial information concerning the affiliate partnerships that do not fall into the scope of consolidation		
3	Independent audit report		
4	Consolidated Financial Statements		
		Financial Affiliate Partnerships	
		Non-financial Affiliate Partnerships	
5	Amendment on the basis of inflation		

B	**Basic information concerning the administration, business and corporate governance**		**15**
1	Analyses of the bank management regarding its market position, strategy, goal and objectives		
		Analysis on corporate objectives	
		Operating sector and general trends	
		Products and markets activities occasion	
		The bank's place in the market (market share)	
2	Bank's organizational structure-legal and administrative organization		
		Names, backgrounds and experiences of the Board members	
		Structure of Lower Level Management	
		Organizational structure	
3	Management's comments and analyses		
		Factors causing changes in the bank's performance compared with the previous years	
		Net interest income and comments on non-interest net income	
		Factors to affect the future performance	
		Investment expenditures	
		The effect of inflation on performance	
		Information concerning the liquidity situation of the bank	
		Information concerning the bank's financial situation	
		The effect of exchange rates, the effects of the change in rates	

C	**Financial Performance**	7
	Grouping of incomes and expenditures with respect to bank's functional structure (segmental reporting) *Horizontal analysis of the income statement* *Vertical analysis of the income statement* *Explanations on mergers, takeovers and the ceased activities* *Generally accepted financial rates* *The effect of the activity units on financial performance* *Explanations on the contractual parties*	

D	**Financial Situation (liquidity, capital and financial ability)**	5
	Breakdown of the assets and liabilities of balance sheet *Reasonable value of the assets, liability and the off-balance- sheet items* *Commitments* *Contingent liabilities* *Information concerning the capital structure*	

E	**Risk Management Strategies and Their Applications**	3
	General comments on risk management philosophy and policy -Risk evaluation methods and risk measurement models -Information on how to control the risks (use of derivatives) -Risk management structure	

F	**Credit Risk, Market Risk, Interest Rate Risk, Liquidity Risk**	10
	Total credit risk of the enterprise *Information on credit risk management* *Information on current credit and counter party's risks* *Details and quantities of the problematic credits, the probabilities of default on repayment* *Aging schedule on the overdue credits and advances* *Information on risk management process* *Value – at –risk information on the market and currency risks* *Information on currency risk* *The liquid assets position of the bank and the use of funds* *Information on the interest sensitive assets, liabilities and off-balance-sheet items*	

Annex 6: Banks Issuing the Depositary Receipts in the Foreign Countries

BANKS ISSUING THE DEPOSITARY RECEIPTS IN THE FOREIGN COUNTRIES					
Issuer	**Market of Trade**	**Stock per an ADR unit**	**Depository Institution**	**DR Type**	**Issue Date**
AKBANK – 144A	NASDAQ	1:200	Bank of New York	RADR	02.02.1998
AKBANK – REG S	LSE	1:200	Bank of New York	GDR	02.02.1998
FINANSBANK A.S. - 144A	NASDAQ	1:50	Bank of New York	RADR	10.07.1998
FINANSBANK A.S. - REG S	LSE	1:50	Bank of New York	GDR	10.07.1998
TURK EKONOMI BANKASI A.S. - 144A	NASDAQ	1:2000	Bank of New York	RADR	24.02.2000
TURK EKONOMI BANKASI A.S. - REG S	LSE	1:2000	Bank of New York	GDR	24.02.2000
TURKIYE GARANTI BANKASI	OTC	1:2000	Bank of New York	Aşama 1	01.11.1994
TURKIYE GARANTI BANKASI 144A	NASDAQ	1:2000	Bank of New York	RADR	01.11.1993
TURKIYE IS BANKASI A.S. - 144A	NASDAQ	2:5	Bank of New York	RADR	07.05.1998
TURKIYE IS BANKASI A.S. - REG-S	LSE	2:5	Bank of New York	GDR	07.05.1998
YAPI VE KREDI BANKASI - 144A	NASDAQ	1:1000	Bank of New York	RADR	26.06.1997
YAPI VE KREDI BANKASI - REG S	LSE	1:1000	Bank of New York	GDR	26.06.1997

The ISE Review Volume: 12 No: 45
ISSN 1301-1642 © ISE 1997

CALENDAR EFFECTS IN THE STOCK MARKET AND A PRACTICE RELATED TO THE ISTANBUL STOCK EXCHANGE MARKET (ISEM)

Mehmet Hasan EKEN[*]
Taylan Özgür ÜNER[**]

Abstract

Capital Market Efficiency states that stock prices cannot be predicted based on the information set containing past price movements, publicly available information and even inside information. In addition to this, it is impossible to attain returns higher than the market return. On the other hand, in related literature on market efficiency, there is empirical evidence that state that there are some unexplained market movements called "stock market anomalies". These anomalies that are studied in this paper those related to the "The Calendar Effects". Calendar effects mean that, seasonality can be seen at different days of the week, different months of the year and some parts of months in stock prices.

In this paper, seasonalities that are seen in financial markets throughout the world are researched for Istanbul Stock Exchange Market (ISEM). After investigating the related literature with regard to Efficient Market Hypothesis, existence of calendar effects in ISEM were researched with an empirical analysis during the period 04.01.1988 and 31.12.2007. The empirical results suggest that, "Day of the Week Effect", "Month of the Year Effect", "Turn of the Year Effect", "Turn of the Month Effect" and "Intra Month Effect" exists in ISEM. The empirical evidence found also states that it is possible to earn higher return than market return by using the alternative investment strategies related to Calendar Effect tested in this paper. That is to say that ISEM is not efficient.

---

[*] Assoc. Prof. Dr. Mehmet Hasan Eken, Kadir Has University, Institute of Social Sciences, Faculty of Economics and Administrative Sciences, İstanbul, Turkey.
Tel: 0212 533 63 61 E-Mail: mhasan_eken@has.edu.tr

[**] Taylan Özgür Üner, Akbank Istanbul-Aksaray Regional Head Office, İstanbul, Turkey.
Tel: 0212 455 72 53 E-Mail: ozgur.uner@akbank.com

Keywords: Capital Markets, Efficient Market Hypothesis, Anomaly, Calendar Effects.
JEL Classification: G10, G11, G14

I. Introduction

The hypothesis of efficient markets supposes that, as stated by Fama (1965) and Fama (1970), the share prices reflect the existing information completely and accurately, and a profit above the market cannot be had by means of using the existing information in the market. According to this hypothesis, in an efficient market, the prices have a random movement. The prices are stabilized since the new information is reflected in prices rapidly. Because the prices cannot be forecasted, a yield above the market is not possible by the purchase and sale strategies. The investors are rational and they act in accordance with the preference of low risk-high income. In his hypothesis of an efficient market, Fama (1970) divides the markets into three groups considering the information cluster reflected in prices. Those are the efficient markets named Weak Market[1], Semi Strong Market[2] and Strong Market[3].

The findings expressed as the observations that do not cohere with the theory seen in the market are called "Anomaly".[4] The theme discussed here, "The Calendar Effects" which are the time-based sub-branches of anomalies are expressed by Özmen (1997) and are described as the seasonal trends, periodicities at the share prices, emerging on the days of the week, the months of the year or the certain periods of the calendar and the possibility of repeating themselves is high for those trends and periodicities. The different activation of the share prices distinctly and continually, especially on certain time slots or periods in proportion to the other periods, conflicts with the theory of efficient markets seriously. The crucial point of the theory mentioned here is that it is possible to estimate the future yields by benefiting from the calendar effects and in this way, to acquire a yield above the average. In this paper, the calendar effects at the ISE will be discussed with arithmetic applications by making use of the long-term statistical data.

II. The Theoretic Framework and the Relevant Literature

The calendar effects are classified in two groups, generally, as "the calendar effects related to days and months". Concerning days and months, the calendar

---

1 Weak Form Efficiency: The reflection of the information pile belonging to the past of security on the prices.

2 Semi-Strong Form Efficiency: The reflection of the information pile of the past and all public information on the prices.

3 Strong Form Efficieny: The reflection of the information pile of the past and all public and non-public information on the prices.

4 Thaler (1987).

effects researched most for the world's markets and handled in this paper theoretically and statistically are these, "The Day of the Week Effect", "The Month of the Year Effect", "The Turn of the Month Effect", The Turn of the Year Effect" and " During the Month (Intra-Month) Effect".[5]

2.1. The Calendar Effects Related to Days - The Day of the Week Effect

French (1980) defines the Day of the Week Effect as the statistically significant difference between the average yields (or returns) of some of the days of the week, and the increase of yields from the first days until the last days of the week. Cross (1973) and Rogalski (1984) refer to the Day of the Week Effect as The Weekend Effect. According to the Weekend Effect, Fridays are the highest average yield days, and Mondays are the lowest, even the negative ones.

In the empiric studies made for the world's markets about the day of the week effect, Jaffe and Westerfield (1985) have determined that Monday is the lowest and most negative average yield day as statistically significant for the indexes of the USA Standard and Poors 500 (1962-1983), England London Stock Exchange (1950-1983), Austria (1973-1983), Canada Toronto (1976-1983), and Tuesday is the one for the Japanese Nikkei (1970-1983). When it comes to the highest yield days, Friday, the last trading day of week, is the one for Standard and Poors 500, Toronto, London Stock Exchange, Austria. And for the Nikkei index, the last trading day of week, Saturday is the highest one. In another study, Aggarwal and Rivoli (1989), Malaysia, Singapore, Hong Kong, the Philippines and the USA exchanges have been examined for the period between 1976 and 1988. They have determined the lowest average yield day as Tuesday for the Philippines' Exchange, and Monday for the other four exchanges. Moreover, they ascertained that the negative trend starting on Monday includes Tuesday. The highest average yield day is Friday for all five exchanges. In other studies concerning this subject, Brooks and Persand (2001) point to the being of the day of the week effect as the lowest average yield day, Tuesday, and the highest average yield day, Friday, in the exchanges of Malaysia, Taiwan and Thailand. Kohers (2004) has argued that the day of the week effect must be gone in consequence of the increase in the efficiency and profundity in 1990s, he has checked over his hypothesis by the means of various parametric and non-parametric tests, but he hasn't reached the conclusions

[5] Also See for the detailed information of theoric Framework and Relevant Literatue, Üner, T. Özgür. "Calendar Effect in the Istanbul Stock Exchange", Unpublished Master Thesis. Kadir Has University, Istanbul: 2008, pp. 39-82.

supporting his hypothesis. Hui (2005) has ascertained the weekend effect for the markets of Hong Kong, South Korea, Taiwan, Thailand, and Japan among the Asian Pacific markets and additionally for the USA markets. According to this, on Monday and Tuesday, the yields decrease, and from Wednesday to Friday, they increase gradually.[6] And in the studies for ISEM, Muratoğlu and Oktay (1993), Karan (1994), Balaban (1995), Dağlı (1996), Özmen (1997) Bildik (1996), Bildik (2000), Berument, İnamlık and Kıymaz (2004), Akyol (2006), Çinko (2006), Tuncel (2007) stated a common finding or evidence and statistically significant that the lowest average yield day is Monday and Tuesday, the highest average yield day is Friday, although the terms and periods researched are different.[7]

Among the probable reasons for the day of the week effect, some media investing the theory include "Investors' Behaviors", "Releasing the information to the public" (Systematic News Publishing or Broadcasting) and "The Bartering Terms".[8] Considering the investors' being an individual or institution processing information and types of making a decision, the differences in perception of risks and liquidity needs may cause a difference on the activeness of the investors in weekdays and also change the sale/purchase rates.[9] Beside this situation emerging as a conclusion of the investors' behaviors, systematization of information flow in weekdays and weekends, the tendency for explaining the bad news mostly at weekends or at the beginning of week, and good news on the second half of week is another potential reason for the differentiation of the yields among the days of week. In case of the bartering day's being at weekend, earning an extra interest profit might increase the yield of the last days of week. Moreover, the intensity of the fluctuations on the prices of Mondays might be

---

6 For the other empric studies supporting the Day of the Week Effect, See. Cross (1973), French (1980), Gibbons and Hess (1981), Rogalski (1984), Simirlock ve Starks (1986), (1989), O'Hanlon, Ward and Condoyanni (1987), Barone (1989), Kato (1990), Kolb and Rodriguez (1987), Lakonishok and Smidt (1988), Solnik and Bousquet (1990), Pinegar, Ravichandran and Chang (1993), Dubois and Louvent (1996), Ajari (2004).

7 For the studies of the Calendar Effects done for the ISE, See Appendix 1.

8 For the studies on the potential reasons of the Day of the Week Effect, See Aggarwal and Kishore (1994) Abraham and Ikenberry (1994), Lakonishok and Maberly (1990), Jain and Joh (1988), Miller (1988), Dyla and Holland (1990), French and Roll (1986), Fama (1965,1970), French (1980), Cross (1973), Özmen (1997), Aggarwal and Kishore (1994), Penman (1987), Dyla and Maberly (1988), Schatzberg and Data (1992), Damodaran (1989) Smirlock and Starks (1986), De Fusco, Mc Cabe and Yook (1993), Rogalski (1984), Lakonishok and Smith (1988), Fisher (1993), Chang, Pinegar and Ravichandran (1993).

9 For the potential formation process of the Day of the Week Effect as a result of the investors' behaviors of purchase and sale, See Appendix 2.

higher in proportion to the other days because of the extremely high bartering rates in ISEM and the continuation of trades and information flow in outer markets while the market in our country is closed over the weekends. As a conclusion of those potential reasons, the rates of risk and yield of the days differentiate; the investors might act differently on the days of week.

2.2. The Calendar Effects Related to Months

The most common type of anomaly related to months is "The Month of the Year Effect", in other words, "The January Effect". Rozeff and Kinlay (1976) define the month of the year effect as January's average yield being much higher than the other months' average yield, or comprehensively, the situation of the average yields of months' being different from each other. In the empiric studies about the month of the year effect, Gültekin and Gültekin (1983), analyzed the exchanges of seventeen countries, which represent the 95% of the world's markets for the period between 1959-1979. They discerned a strong January effect in fifteen countries including Germany, Australia, England, Japan, the USA and Canada. Throughout those seventeen countries, it is remarkable that after January, the highest yields are in December and the decline of prices runs from May and until November. In another study, Aggarwal and Kishore (1994) reached the point that in 14 countries out of the 18 they examined, the January yields are the highest ones, which are significant statistically.[10] In the studies made for ISEM, Muratoğlu and Oktay (1993), Karan (1994), Balaban (1995), Özmen (1997) Dağlı (1996), Bildik (2000), Akyol (2006) stated that the average yields of January are excessively higher than the other months' average yields.

The other important calendar effects related to months are "The Turn of the Month and The Turn of The Year Effects" The turn of the month anomaly is the expression of acquiring continual high yields between the last days of a month and the first days of the following month. When the turning of month effect contains December and January, then it is called "The Turn of The Year Effect". Fosback (1976) defines the turn of the month effect as the investors' tendency to purchase at the latest days of a month and going on this tendency during 4 or 5 days of the next month. Lakoniskok and Smidt (1988) examined a 90 year-period

[10] For the other studies supporting the Month of the Year Effect, See Rozef and Kinney (1976),), Gültekin and Gültekin (1983), Corhay, Hawawini and Michel (1987), Berges, McConnel and Schlarbaum (1984) Jaffe and Westerfield (1985), Kato and Schallheim (1985) , Van Den Bergh and Wessels (1985), Hawawini and Michel (1989) Reingaum and Shapiro (1987), Aggarwal and Rivoli (1989), Ho (1990), Cho and Taylor (1987), Eakins and Sewell (1993), Arsad and Coutts (1997), Aggarwal and Kishore (1994), Claessens, Dasgupta and Glen (1995).

of the New York Stock Exchange by the aspect of the turning of month effect. They concluded that the average yields of the last trading day of a month and the first three days of the following month are seven times more/higher than the average yield of all other days. Cadsby (1989), in his study for the Canada Exchange between 1977 and 1987, ascertained that in the last day of December and the first three trading days of January, the yields are above the normal standards.[11] Furthermore, Özmen (1997), Bildik (2000), Akyol (2006) found evidence supporting the existence of the turning of month and year effect in their studies for ISEM.

Another calendar effect related to months is "During the Month Effect", or "Intra Month Effect". By Arial (1987), the monthly anomaly is defined as the highly positive yield of shares until the period containing the beginning and first half of a month, and also the decrease in the yields from the second half to the end of a month in proportion to the first half. The existence of the intra month effect was ascertained by Arial (1987) for the USA exchanges, Jaffe and Westerfield (1989) for England, Canada and Australia exchanges, Arsad and Coutts (1997) for English exchanges.

Concerning the potential reasons of the calendar effects related to months, it is thought that the turn of the month effect may be caused by sales of risky and low yield-shares/stocks in a portfolio just within a month by the investors for taxation reasons, or for regulation of portfolio stabilization, and the cash flows' combining with the other funds advancing the liquidity such as salary on paydays, profit share, payment of premiums and orientation of them again to share purchases. When this situation occurs at the end of the year, then the turning of year effect might appear. Besides this, in January, since it is the New Year, the information flow is much more intensive, purchases depending on the expectations increase; moreover purchases increase for protection from insider trading. As a conclusion of all above, the yields upgrade and arise, so the month of year effect occurs. The declaration of financial statements about the firms by three month-periods cause yields depending on expectations to increase in the former months before the date of that declaration. And with the declaration of

[11] For the studies supporting the Turn of the Year Effect, See Keim (1983), Reingaum (1983), Roll (1983), Cadsby (1989), Jennergren and Sörensen (1989), Fosback (1976), For the studies supporting the Turning of the Month Effect, See Ziemba (1989), Cadsby and Ratner (1992), Aggarwal and Kishore (1994) Martikainen Perttunen and Puttonen (1995) and Ziemba (1994).

financial statements, the expectations come to an end, and the prices return their normal levels.[12]

III. The Data Set and the Model

The data which are used in numerical studies are the close index of Istanbul Stock Exchange (ISE)-100, belonging to the period between 4th of January 1988 and 31st of December 2007 and of which the quantity is 4.981. The daily yields used in statistical calculations would be defined as the percentile increase or decrease in the closing prices between one trading day and the following trading day.

$$R_t = P_t - P_{t-1}) / P_{t-1}$$

R_t = the percentile exchange rate of the index on day't'(the market yield),

P_t = the price of index on day't',

P_{t-1} = the price of index on day t-1

In numerical applications, for whole period and each year including the period of 4th January 1988-31st December 2007, the descriptive statistics would be calculated, mainly the rate of days' being negative or positive, the average yield, standard deviation and yield/risk ratio per unit risk. Then there would be interpretations and analyses by the findings acquired about the existence of calendar effects stated in a theoretical framework.[13]

---

[12] For the potential reasons of the Calendar Effects relevant to months; the Hypothesis of Tax Loss, See Bkz Arial (1987),, Dyla (1977), Roll (1983), Gültekin and Gültekin (1983), Keim (1983), Chang and Pinegar (1986), Reingaum and Shapiro (1987); For the Hypothesis of Holding the Cash Flows, See Ritter (1988). Thaler (1987) Arial (1987), Sick and Ziemba (1988), Dyle and Maberly (1992), For the Hypothesis of the Turning of Month Liquidty, See Ogden (1990); for the Hypothesis of adjusting and stabilizing Portfolios, See Ritter and Chopra (1989); For the Hypothesis of the Gainers and Losers, See Debont and Thaler (1985); For the Hypothesis of window dressed transactions, See, Haugen and Lakonishok (1988) and Ritter (1988); For the Information Hypothesis, or the Overreaction Hypothesis, See Rozeff and Kinney (1976),Chambers and Penman (1984), Penman (1987), Kros and Schoreder (1989); for the dates of the declaration of financial reports, see Balaban (1995).

[13] "The 't' test", the most common used test in the former studies in order to evaluate the statistical significance and importance of the data achieved in the study, will be applied in accordance with the periodicity analyzed. With the 't' test, by comparing the averages of the two groups, it is determined that either the difference is accidental or significant statistically. The fact that the 't' test is significant points out that the average/mean of the two serials are different from each other.

After the statistical examination, the annual and average yields of "Buy and Sell" strategy depending on the calendar effects and "Buy and Keep" market strategy would be compared with the purpose of determining the economical significance of each calendar effect. While the yields/gainings are being calculated, according to the strategy applied by supposing that there is a 100 units-portfolio at the very beginning of every year, the percentile difference between the starting value and ending value would be calculated for each week, month or period that the strategy contains. It would be supposed that it recognizes/materializes without bank commission and by the close value index of buy and sales. After every activation of buy and sale, the portfolio value would be determined again according to the percentile differentiation. And the new-calculated portfolio value would be used in every buy and sale activity. For each year, those activities would be carried on until the end of year. In this way, it would be possible to calculate the yields compoundly for each year in the 1988-2007 period. Moreover, the repo yields of strategies would be calculated for the days or months in which the portfolio would prop up as a result of buy and sales. The yields determined would be added to the portfolio yield stemming from share buy and sales. While the repo yields are being calculated, the data taken from the website of Central Bank of Turkish Republic, about the overnight interest rates of loaning belonging to 1988-2007 period would be used. The formula used while calculating the interest yield:

$$RY = \frac{SAPV * AARY * NDR}{36500}$$

Where, RY is annual repo yield of strategy, SAPV is strategy's average portfolio value belonging to relevant year, AARY is annual average repo yield and NDR: number of days with repo.

After the annual calculation of strategy yields, the numbers beating the market[14], the average portfolio yields of shares, yields per day/month, total portfolio yields occurring by the addition of repo yields would all be determined for whole period involving 20 years. Furthermore, at the end of the study, there would be a comparison for all strategies created.

[14] Beating market means that the yield of the strategy depending on calender effect is higher than annual yield of ISE 100 Indeks.

IV. The Empiric Findings/Evidences

4.1. The Evidences Related to Days (the Day of the Week Effect)

To ascertain the existence of the Day of the Week Effect in the ISE, first of all, the range of the positive/negative yields according to the days of week in 4th January 1988-31st December 2007 period is shown in Table 4.1 and Table 4.2.[15]

Table 4.1: The propensity of Days Being Positive and Negative in 1988-2007 periods

1988-2007	Positive Changing Rates (Number of day)	Percentage (%)	Ratio of Being Positive	Negative Changing Rates (Number of day)	Percentage (%)	Sum of Observation (Number of day)
Monday	479	18,13	%48,4	513	21,93	991
Tuesday	485	18,36	%47,9	513	21,93	998
Wednesday	542	20,51	%53,1	457	19,54	999
Thursday	560	21,20	%55,4	443	18,94	1.003
Friday	576	21,80	%57,7	413	17,66	990
Sum	2.642	100,00	%53,01	2.339	100,00	4.981

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

[15] For the Frequency Distribution and Percentage Portion Depending On the Yield Bands of 1988-2007 period, See Appendix 3.

Table 4.2: The Range of the Positive and Negative Changing Rates According to Days in 1988-2007

1988-2007	Number of Days	Share (%)	Number of Days	Share (%)	Number of Days	Share (%)	Number of Days	Share (%)	Number of Days	Share (%)
Positive Percentage Changes	**%0 -%1**		**%1-%2**		**%2-%3**		**%3-%5**		**>%5**	
Monday	151	17,04	117	17,16	69	16,08	78	19,40	64	26,34
Tuesday	163	18,40	135	19,79	78	18,18	73	18,16	35	14,40
Wednesday	178	20,09	147	21,55	85	19,81	83	20,65	49	20,16
Thursday	180	20,32	135	19,79	99	23,08	95	23,63	51	20,99
Friday	214	24,15	148	21,71	98	22,85	73	18,16	44	18,11
Sum	886	100	682	100	429	100	402	100	243	100
Negative Percentage Changes	**%0 -%1**		**%1-%2**		**%2-%3**		**%3-%5**		**>%5**	
Monday	146	17,55	144	21,92	78	20,80	81	27,36	63	35,20
Tuesday	182	21,88	145	22,07	86	22,93	66	22,30	34	18,99
Wednesday	155	18,63	146	22,22	69	18,40	55	18,58	32	17,88
Thursday	171	20,55	104	15,83	79	21,07	55	18,58	34	18,99
Friday	178	21,39	118	17,96	63	16,80	39	13,18	16	8,94
Sum	832	100	657	100	375	100	296	100	179	100

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

When the Table 4.1. is examined, for a total 4.981 observations between the dates mentioned above, it is clear that 47% of yields are negative and 53% of them are positive. Monday is the day on which the negative observations (513 days) are maximum, and the positive observations (479 days) are minimum among the other days of week. Friday is the day on which the negative observations are at a minimum level (413 days), the positive observations are maximum (576 days).

When Table 4.2 is examined, it is possible to reach a conclusion that there is a different structure and trend on the range of yields of Mondays and Fridays in proportion to the other days. The allocation of Mondays on the yield bands in which the positive yields prevail mostly is lower than the other days, the lowest/minimum (the maximum by absolute value); but the allocation on the bands on which the negative yields are seen is extremely high. This fact would decrease the average yield of Mondays, but increase the perception of risk. The allocation on the bands on which the positive yields prevail mostly is clearly

higher than the other days, but the allocation on the bands in which the lowest negative yields prevail is too low. This fact would increase the average yields of Fridays, and decrease the perception of risk on the other hand. In summary, the possibility of bad news-dominant information flow which also might cause great increase and decrease in index is higher on Mondays, and the evidences show that the information flow might increase the amount of fluctuations in markets. The data belonging to Fridays point that the information flow on those days is more uneventful and good news-dominant.[16] The descriptive statistics and investment strategies based on the day of week effect are given in Table 4.3 and Table 4.4.[17]

Table 4.3: The Descriptive Statistics Based on the Day of the Week Effect in 1988-2007

1988-2007	Monday	Tuesday	Wednesday	Thursday	Monday	All Days
Average Yields	-0,06%	0,04%	0,28%	0,37%	0,48%	0,22%
Standard Deviation	3,40%	2,80%	2,83%	2,86%	2,57%	2,91%
Kurtosis	1,8328	4,2506	4,7036	1,9878	4,4590	3,2467
Skewness	0,0896	0,6644	-0,0114	-0,0790	0,5847	0,1685
Minimum Yield	-14,62%	-9,46%	-18,11%	-13,12%	-11,34%	-18,11%
Maximum Yield	13,11%	19,45%	18,64%	12,52%	16,93%	19,45%
Observation	991	998	999	1003	990	4.981
Yield/Risk Rate	-0,0165	0,0153	0,0991	0,1305	0,1853	0,0768
Median	-0,14%	-0,10%	0,19%	0,27%	0,35%	0,15%
Statistical Significant (Result of t test)	%1	%5			%1	

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

[16] For the range of the greatest 20 increases and decreases according to days in the ISE, See Appendix 4.

[17] Also See Appendix 5. The Descriptive statistics of days of week according to the 5 year-subperiod.

According to Table 4.3, the daily average yield of the second half of the week consisting of Wednesday, Thursday and Friday (0,38%) is extremely higher than the average yield of the first half of the week including Monday and Tuesday (-0,01%). The day with the highest daily average yield of week is Friday as statistically significant and also 2.2 times higher than the all days (0,48%). The negative and low daily average yield-day of week is Monday as statistically significant (-0,06%)[18].

In all years in the 20 year-period, the average yields of Fridays are positive. Fridays are the day which the average yield is the highest one in 9 years; Mondays are the days of which the average yield is the lowest one in 9 years.[19] In this 20 years-period, the highest ratio of being positive is on Fridays compared to the other days of the week.[20]

According to Table 4.3, the day which has the highest risk or standard deviation is Monday, and the lowest one is Friday. When the yield/risk ratio expressing the yield per unit risk is examined, the yield/risk rate of Fridays is at the maximum levels (0,1853). The lowest or minimum level of yield/risk rate is on Monday. According to these results, a rational investor who knows that the yield per unit risk is low on Mondays would prefer to sell instead of purchase. And the investor who knows that the yield per unit risk on Fridays is high would prefer to purchase instead of sell.

---

[18] For the Average yield trends of days of week in 1990-2007 period, See Appendix 6.

[19] For the average yields of days of week according to years in 1988-2007 period, See Appendix 7.

[20] For the rates of being positive according to all periods and years, See Appendix 8.

Table 4.4: Investment Strategies Based on the Day of the Week Effect in 1988-2007 Periods

	MAIN STRATEGIES		OTHER STRATEGIES			ONE DAY STRATEGIES					ISE-100 INDEX
YEARS	Tuesday Closing BUY Friday Closing SELL	Monday Closing BUY Friday Closing SELL	Wednesday Closing BUY Friday Closing SELL	Monday Closing BUY Thursday Closing SELL	Friday Closing BUY Tuesday Closing SELL	Friday Closing BUY Monday Closing SELL	Monday Closing BUY Tuesday Closing SELL	Tuesday Closing BUY Vednesday Closing SELL	Vednesday Closing BUY Thursday Closing SELL	Thursday Closing BUY Friday Closing SELL	End of the Year ISE-100 Index Portfolio Value
1988	**73,86**	51,39	**100,60**	43,89	75,24	**108,15**	**69,57**	**73,42**	**85,92**	**117,08**	**55,56**
1989	251,93	429,43	147,52	386,19	235,40	138,10	170,46	170,77	132,67	111,20	**593,07**
1990	**152,45**	**157,62**	118,87	117,39	96,29	93,13	103,39	128,24	88,53	134,27	**146,81**
1991	**138,00**	117,74	130,79	70,71	94,32	110,55	85,32	105,51	78,54	**166,52**	**134,20**
1992	**165,18**	**140,27**	**125,84**	**126,94**	57,20	67,35	84,92	**131,26**	**113,88**	**110,51**	**91,65**
1993	293,95	329,99	194,94	245,85	175,73	156,54	112,26	150,79	145,24	134,22	**516,53**
1994	**182,08**	**162,39**	**168,90**	**139,64**	72,38	81,15	89,18	107,80	**145,24**	116,29	**131,79**
1995	**158,73**	**196,59**	138,19	**154,17**	92,51	74,69	123,86	114,86	108,37	127,52	**146,84**
1996	231,37	212,66	171,34	179,33	105,38	114,65	91,92	135,04	144,48	118,59	**243,82**
1997	294,18	291,04	207,87	222,93	120,21	121,50	98,93	141,52	159,22	130,55	**353,63**
1998	**87,81**	**80,61**	**109,91**	61,39	**85,73**	**93,39**	**91,80**	**79,89**	**83,71**	**131,30**	**75,28**
1999	349,72	384,65	243,55	230,45	167,40	152,20	109,99	143,60	145,91	166,91	**585,42**
2000	**108,21**	**159,75**	**98,33**	**149,12**	57,34	38,84	**147,63**	**110,05**	**91,79**	**107,13**	**62,05**
2001	**250,33**	**194,97**	**273,45**	**150,31**	58,34	74,91	77,89	91,54	**210,82**	129,71	**146,05**
2002	**153,89**	**113,22**	**166,52**	**102,11**	49,33	67,05	73,58	92,41	**150,18**	**110,88**	**75,24**
2003	162,51	**184,79**	156,73	133,29	112,60	99,03	113,71	103,69	113,05	138,63	**179,61**
2004	**138,62**	**145,35**	117,51	115,92	94,08	89,73	104,85	117,97	93,72	125,39	**134,08**
2005	135,67	145,27	137,52	124,22	117,41	109,65	107,07	98,66	117,59	116,94	**159,29**
2006	**118,22**	**116,97**	**121,44**	**118,20**	83,19	84,07	**98,95**	**97,35**	**122,72**	**98,96**	**98,34**
2007	**142,68**	135,87	133,79	114,65	101,76	106,87	95,22	111,53	107,95	118,51	**141,57**
Beating Market (Year)	**13**	**11**	**8**	**7**	**1**	**2**	**4**	**5**	**8**	**7**	
Average Portfolio Value**	**179,47**	**187,53**	**153,04**	**149,33**	**102,59**	**99,08**	**102,52**	**115,30**	**121,98**	**125,56**	**203,54**
Strategies' Number of Days	**3**	**4**	**2**	**3**	**2**	**1**	**1**	**1**	**1**	**1**	**5**
Yield per Day* (%)	**26,50**	**21,88**	**26,52**	**16,44**	**1,30**	**-0,92**	**2,52**	**15,30**	**21,98**	**25,56**	**20,71**

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

* Yield per Day= (Average Portfolio Value-100) / The Strategies' Number of Days.

** Beginning of the year portfolio value of ISE-100 Index and All strategies is 100 units

When Table 4.4 is examined, among the strategies that occurred as a result of statistical inferences relevant to the day of the week effect, the strategy which has the greatest number of beating market within 13 years is the "Buy at Closing on Tuesday, Sell at Closing on Friday" including Wednesdays, Thursdays and Fridays. The strategy which has the highest average stock portfolio value in a 20 year-period is, by the advantage of number of the strategy days which is four, "Buy at Closing on Monday, Sell at Closing on Friday". When the yields of the strategies per day are examined, the strategies with the highest and above-index-yield are the ones including Wednesday, Thursday and Friday.

If the years 1989,1993,1996,1997,1999 in which index gains excessively high yields are left out of the assessment, the results in Table 4.5 would be attained by regarding the portfolio values for only negative yield-years.[21]

[21] For the values in which the the purchase and sale commissions of the main investment strategies are included, See Appendix 9 and 10.

Table 4.5: Investment Strategies Based on the day of the Week Effect in the 1988-2007 Period Except Excessively/Extraordinary High Yield-Year: 1989,1993, 1996, 1997, 1999

	MAIN STRATEGIES		OTHER STRATEGIES			ONE DAY STRATEGIES					ISE-100 INDEX
	Tuesday Closing BUY Friday Closing SELL	Monday Closing BUY Friday Closing SELL	Wednesday Closing BUY Friday Closing SELL	Monday Closing BUY Thursday Closing SELL	Friday Closing BUY Tuesday Closing SELL	Friday Closing BUY Monday Closing SELL	Monday Closing BUY Tuesday Closing SELL	Tuesday Closing BUY Wednesday Closing SELL	Wednesday Closing BUY Thursday Closing SELL	Thursday Closing BUY Friday Closing SELL	End of the Year ISE- 100 Index Portfolio
Beating Market (Year)	13	11	8	7	1	2	4	5	8	7	
Average Portfolio Value **	144,55	140,19	139,71	114,80	83,18	86,57	97,80	104,28	114,13	123,31	118,56
Strategies' Number of Days	3	4	2	3	2	1	1	1	1	1	5
Yield per Day* (%)	14,85	10,05	19,86	4,93	-8,41	-13,43	-2,20	4,28	14,13	23,31	3,71

Negative -Yield -Years: 1988-1992-1988-2000-2002-2006

	MAIN STRATEGIES		OTHER STRATEGIES			ONE DAY STRATEGIES					ISE-100 INDEX
	Tuesday Closing BUY Friday Closing SELL	Monday Closing BUY Friday Closing SELL	Wednesday Closing BUY Friday Closing SELL	Monday Closing BUY Thursday Closing SELL	Friday Closing BUY Tuesday Closing SELL	Friday Closing BUY Monday Closing SELL	Monday Closing BUY Tuesday Closing SELL	Tuesday Closing BUY Wednesday Closing SELL	Wednesday Closing BUY Thursday Closing SELL	Thursday Closing BUY Friday Closing SELL	End of the Year ISE 100 Index Portfolio
Beating Market (Year)	6	5	6	4	1	2	4	5	5	5	
Average Portfolio Value **	117,86	110,37	119,99	100,28	68,01	76,48	94,41	97,40	108,03	112,64	76,35
Strategies' Number of Days	3	4	2	3	2	1	1	1	1	1	5
Yield per Day* (%)	5,95	2,59	10,00	0,09	-16,00	-23,52	-5,59	-2,60	8,03	12,64	-4,73

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.
*Yield per Day= (Average Portfolio Value-100) / The Strategies' Number of the Days.
** Beginning of the year portfolio value of ISE-100 Index and all strategies is 100 units.

According to the results of Table 4.5; in 13 years of the 15 year-period assessed, the yield of the strategy "Buy at Closing on Tuesday, Sell at Closing on Friday" is higher than the yield of index. Moreover, this strategy refers to that it has the highest average stock portfolio value. For the average yield per day, the only daily strategy of "Buy at Closing on Thursday, Sell at Closing on Friday" is at the first line. As a result, the years in which there are the external increases on index affecting the averages dramatically are left out, the average stock portfolio

values of the high yield-strategies rise above the portfolio values of index. Thus, the economical significance of the strategies becomes stronger. And, for the negative yield-years, except the strategies including Monday and Tuesday, the average portfolio yields and yields-per-day of all the strategies are higher than the average yield of index and mostly positive. After adding the repo yields to the strategies examined, the results on Table 4.6 are obtained.

Table 4.6: Investment Strategies Based on the Day of the Week Effect (Addition of Overnight Repo[22] Yields)

	MAIN STRATEGIES		OTHER STRATEGIES			ONE DAY STRATEGIES					ISE- 100 INDEX
YEARS	Tuesday Closing BUY Friday Closing SELL (%)	Monday Closing BUY Friday Closing SELL (%)	Wednesday Closing BUY Friday Closing SELL (%)	Monday Closing BUY Thursday Closing SELL (%)	Friday Closing BUY Tuesday Closing SELL (%)	Friday Closing BUY Monday Closing SELL (%)	Monday Closing BUY Tuesday Closing SELL (%)	Tuesday Closing BUY Wednesday Closing SELL (%)	Wednesday Closing BUY Thursday Closing SELL (%)	Thursday Closing BUY Friday Closing SELL (%)	End of the Year ISE-100 Index Portfolio Yield (%)
1988	**-14,12**	**-43,59**	**21,93**	-47,09	**6,18**	**53,26**	**3,80**	**8,58**	**11,08**	**64,13**	-44,44
1989	164,94	338,28	62,18	303,38	154,53	66,95	103,86	104,24	51,67	37,49	493,07
1990	**65,55**	**65,68**	34,78	32,18	19,64	31,08	42,37	**67,35**	7,95	**68,89**	46,81
1991	**60,14**	28,00	**64,46**	-15,17	15,76	**56,60**	31,53	**54,80**	9,43	**139,38**	34,20
1992	**84,87**	**48,56**	**49,96**	**42,84**	-29,06	**-0,38**	**19,67**	**81,48**	**44,76**	**53,34**	-8,35
1993	218,64	243,34	123,93	168,51	104,88	110,29	56,74	101,86	78,45	81,56	416,53
1994	**116,91**	**77,56**	**120,77**	**68,23**	6,92	**60,49**	**60,36**	**88,99**	**110,68**	**102,08**	31,79
1995	**92,18**	**115,43**	**78,66**	**86,12**	24,18	31,35	**95,80**	**94,18**	**54,49**	**102,63**	46,84
1996	**160,83**	126,74	109,24	104,73	34,86	75,85	44,98	98,63	90,12	79,38	143,82
1997	228,74	206,98	150,83	150,15	48,51	82,95	47,87	104,80	108,40	91,94	253,63
1998	**8,65**	**-9,13**	**41,36**	**-19,05**	**14,14**	**50,93**	**52,61**	**40,74**	**23,45**	**96,81**	-24,72
1999	282,83	303,31	183,69	160,46	98,59	108,08	69,12	108,21	89,51	131,22	485,42
2000	**28,14**	**73,40**	**28,87**	**74,71**	**-21,11**	**-29,41**	**118,45**	**60,88**	**30,00**	**62,32**	-37,95
2001	**183,09**	**109,47**	**229,38**	**74,21**	-23,25	15,10	29,32	41,71	**171,79**	**98,03**	46,05
2002	**68,59**	**19,41**	**91,20**	**14,36**	-35,38	**3,15**	**8,02**	**28,77**	**82,67**	**51,82**	-24,76
2003	75,30	**91,60**	75,63	45,47	26,00	24,43	45,01	33,77	35,68	71,50	79,61
2004	**45,26**	**48,60**	26,90	21,62	2,49	7,00	22,31	**37,34**	4,51	**45,81**	34,08
2005	40,42	47,72	45,01	28,44	23,56	21,55	19,63	10,22	26,18	31,06	59,29
2006	**22,96**	**19,26**	**28,72**	**22,63**	-10,98	-3,88	**11,37**	**9,87**	**32,10**	**12,26**	-1,66
2007	**48,71**	38,69	**42,63**	19,76	8,60	21,52	8,44	26,00	18,67	34,08	41,57
Beating Market (Year)	**14**	**12**	**11**	**8**	**3**	**7**	**8**	**11**	**9**	**12**	
Total Average Portfolio Yield (%)*	**99,13**	**97,47**	**80,51**	**66,82**	**23,45**	**39,34**	**44,56**	**60,12**	**54,08**	**72,79**	**103,54**

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.
*Total Average Portfolio Yield = (Average Stock Portfolio Yields + Repo (Repurchase) Yields

[22] Repurchase agreements, Overnight Interest Yield.

As a result of the addition of repo yields, the most market beating and most total average portfolio yield strategy is "Buy at Closing on Tuesday and Sell at Closing on Friday". Also, it is observed that other types of one-day investment strategies and repo possibilities and its numbers of overcoming the market has notably increased.

If the years 1989, 1993, 1996, 1997, 1999, when the index brought extremely high yields, are excluded in the table where repo yields are included and when assessed according to the negative effect years, the results in the Table 4.7 are obtained.

Table-4.7: Investment Strategies Based on the Day of the Week Effect in the 1988-2007 Period Addition of Overnight Repo Yields Except Excessively/Extraordinary High Yield-Year: 1989, 1993, 1996, 1997, 1999

	MAIN STRATEGIES		OTHER STRATEGIES			ONE DAY STRATEGIES					ISE-100 INDEX
	Tuesday Closing BUY Friday Closing SELL	Monday Closing BUY Friday Closing SELL	Wednesday Closing BUY Friday Closing SELL	Monday Closing BUY Thursday Closing SELL	Friday Closing BUY Tuesday Closing SELL	Friday Closing BUY Monday Closing SELL	Monday Closing BUY Tuesday Closing SELL	Tuesday Closing BUY Wednesday Closing SELL	Wednesday Closing BUY Thursday Closing SELL	Thursday Closing BUY Friday Closing SELL	End of the Year ISE 100 Index Portfolio
Beating Market (Year)	13	12	11	8	3	7	8	11	9	12	
Total Average Portfolio Yield (%)	61,78	48,71	65,35	29,95	1,85	22,85	37,91	45,65	44,23	68,94	18,56

Negative-Yield Years: 1988-1992-1988-2000-2002-2006

	MAIN STRATEGIES		OTHER STRATEGIES			ONE DAY STRATEGIES					ISE-100 INDEX
	Tuesday Closing BUY Friday Closing SELL	Monday Closing BUY Friday Closing SELL	Wednesday Closing BUY Friday Closing SELL	Monday Closing BUY Thursday Closing SELL	Tuesday Closing BUY Friday Closing SELL	Monday Closing BUY Friday Closing SELL	Wednesday Closing BUY Friday Closing SELL	Monday Closing BUY Thursday Closing SELL	Tuesday Closing BUY Friday Closing SELL	Monday Closing BUY Friday Closing SELL	Wednesday Closing BUY Friday Closing SELL
Beating Market (Year)	6	6	6	5	3	5	6	6	6	6	
Total Average Portfolio Yield (%)	33,18	17,99	43,68	14,73	-12,70	12,28	35,65	38,39	37,34	56,78	-23,65

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.
*Total Average Portfolio Yield = (Average Stock Portfolio Yields + Repo (Repurchase) Yields

As seen in Table 4.7, when the high yield years are excluded then in negative income years the gap between total portfolio yields and average yield of the index is widening highly in favor of the strategies. In summary; as the yearly yields of the index diminish, buy and sell strategies' profit power increases, also in periods this effect even strengthens when the economic conjuncture is bad. In the case of yearly yields' extreme increases compared to the average values, the power of buy and sell strategies beating the stock market diminishes. In other words, excluding the strategies made according to the day of the week effect and the peak years when the index showed extreme rises, it is observed that the possibility of attaining returns above the market rate increases, with the addition of repo returns the economic meaningfulness of the investment strategies and the economic significance of investment rise substantially. This finding brings forth the comment that the Istanbul Stock Exchange was not effective in strong form.

4.2. Findings Relating to the Months

4.2.1. The Month of the Year Effect

In order to define the presence of the month of the year effect in the Istanbul Stock Exchange, Table 4.8 is created to describe the statistics of monthly returns of the year.

Table 4.8: Define Statistics by Months of the Year in 1988-2007 Periods

	January	February	March	April	May	June	July	August	September	October	November	December
Ave. Yields	0,62%	0,18%	0,03%	0,32%	-0,03%	0,30%	0,13%	-0,04%	0,25%	0,26%	0,24%	0,45%
S. Deviation	3,46%	3,50%	2,90%	2,92%	2,65%	2,39%	2,50%	2,61%	2,70%	2,84%	3,12%	3,15%
Kurtosis	1,877	3,032	2,265	2,057	0,434	1,127	1,112	3,466	5,054	2,013	2,652	7,286
Skewness	0,251	-0,404	-0,026	0,216	0,009	0,536	0,170	-0,510	0,434	0,161	-0,006	1,012
Min. Yield	-10,80%	-18,11%	-12,49%	-10,45%	-8,31%	-6,40%	-9,01%	-13,12%	-11,34%	-11,19%	-14,93%	-11,85%
Max. Yield	15,14%	11,23%	12,05%	13,53%	8,02%	10,47%	10,13%	9,23%	16,93%	11,03%	12,52%	19,45%
Observation	407	386	425	389	419	418	429	423	426	419	420	420
Yield/Risk	0,178	0,050	0,009	0,110	-0,012	0,124	0,054	-0,015	0,093	0,091	0,078	0,142
Median	0,40%	0,30%	0,02%	0,13%	-0,09%	0,14%	0,02%	-0,06%	0,26%	0,06%	0,22%	0,24%

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

When the data in Table 4.8 is analyzed for the period 1988-2007, the month which had the average highest daily yield of the year is January being over three times higher with a value of 0.62%. January is followed by December (0.45%), April (0,32%), June (0.30%), October (0.26%), September (0.25%) and

November (0.24%). The month with the lowest average yield is August with an average -0.04%. After August, another month which has a negative average yield is May with -0.03%. n The average yields of the months of February (0.18%), July (0.13%) and March (0.03%) are also below all days average yield.[23]

In a period of 20 years, the yields of December for over 17 years and the yields of January for over 16 years are positive.[24] The months with the lowest number of average yields are March and May (9 years). Also, 10 months can provide a daily positive yield over 50% of the time, and the months with the top positive yield are January (56.6 %) and December (56%), the lowest yield are August (48%) and May (48.8%).[25]

When Chart-4.8 is evaluated in terms of risk levels, the most risky months are February, January, November and December, in that order. July is the month with the lowest risk level. Shortly, through the end of the year, the risk rises and in the first month of the next year, risk rises to the top level. When the months are evaluated, the month with the highest yield/risk percentage is January (0.178). This percentage is 2.3 times higher than all days. Except for January, other months with high yield/risk percentage are December (0.142), June (0.124), September (0.093), October (0.091) and November (0.078). For other months, this level is lower than the others (0.0768) and August is the month with the lowest yield/risk percentage (-0.015).

As a result, findings are concluded as month of the year effect supports the existence of month of the year effect in the ISE, and suggests that in addition to the period, in the last four months of the year and the first month of the year, it is highly probable to follow a seasonal trend, which includes April and June.

As it is in the day of the week effect, according to the statistical effects, the different trends in the index in the different parts of the year suggests that purchase and sell strategies depending on the month of the year effect are worth analyzing. The comparison of the results of the strategies shaped according to the month of the year effect and yearly index yields is shown in the next page in Table 4.9.

---

[23] For the months of the year yield graphic and the average per day yield based on the years see. Appendix 11, 1988-2007 period months of the years average daily yield trends and1988-2007 period yields for three months See Appendix 12.

[24] For the average yields for 5 years sub periods and Standard deviations please see Appendix13.

[25] 1988-2007 period for year based positive yield of the months rate see Appendix 14, for the month of the year effect distribution numbers See Appendix 15.

Table 4.9: Investment Strategies Based on the Month of the Year Effect in the 1988-2007 Period[26]

YEARS	January /September-December/ Portfolio Value	January /October-December/ Portfolio Value	January /December Portfolio Value	January/ April/ September-December/ Portfolio Value	January/ April/ June/ September-December/ Portfolio Value	ISE-100 Index Portfolio Value	Portfolio Yields (%)					ISE-100 Index Portfolio Yields
1988	108,8	102,4	114,7	89,3	75,7	55,6	**8,8**	**2,4**	**14,7**	**-10,7**	**-24,3**	-44,4
1989	257,3	152,8	149,4	175,1	213,1	593,1	157,3	52,8	49,4	75,1	113,1	493,1
1990	108,2	105,1	147,5	105,6	113,3	146,8	8,2	5,1	**47,5**	5,6	13,3	46,8
1991	171,3	192,4	139,3	151,3	149,7	134,2	**71,3**	**92,4**	**39,3**	**51,3**	**49,7**	34,2
1992	108,6	113,5	119,2	102,7	137,2	91,7	**8,6**	**13,5**	**19,2**	**2,7**	**37,2**	-8,3
1993	183,2	150,1	119,3	199,9	257,3	516,5	83,2	50,1	19,3	99,9	157,3	416,5
1994	104,8	98,8	94,0	105,8	141,9	131,8	4,8	-1,2	-6,0	5,8	**41,9**	31,8
1995	82,1	88,8	94,7	103,9	105,8	146,8	-17,9	-11,2	-5,3	3,9	5,8	46,8
1996	187,0	166,5	131,5	160,8	185,3	243,8	87,0	66,5	31,5	60,8	85,3	143,8
1997	286,7	218,9	197,1	193,6	225,5	353,6	186,7	118,9	97,1	93,6	125,5	253,6
1998	101,3	117,8	103,6	151,7	166,8	75,3	**1,3**	**17,8**	**3,6**	**51,7**	**66,8**	-24,7
1999	299,6	247,6	177,7	291,1	284,3	585,4	199,6	147,6	77,7	191,1	184,3	485,4
2000	79,0	91,4	118,6	110,2	98,4	62,1	**-21,0**	**-8,6**	**18,6**	**10,2**	**-1,6**	-38,0
2001	158,0	204,6	134,1	315,5	324,9	146,1	**58,0**	**104,6**	**34,1**	**215,5**	**224,9**	46,1
2002	104,4	112,8	75,0	110,5	99,5	75,2	**4,4**	**12,8**	**-24,0**	**10,5**	**-0,5**	-24,8
2003	170,6	151,8	135,6	184,4	176,3	179,6	70,6	51,8	35,6	**84,4**	76,3	79,6
2004	114,5	105,4	102,9	94,1	99,0	134,1	14,5	5,4	2,9	-5,9	-1,0	34,1
2005	140,9	130,6	114,3	120,6	128,8	159,3	40,9	30,6	14,3	20,6	28,8	59,3
2006	117,6	118,8	114,9	121,4	112,9	98,3	**17,6**	**18,8**	**14,9**	**21,4**	**12,9**	-1,7
2007	116,5	108,2	107,9	111,5	111,5	141,6	16,5	8,2	7,9	11,5	11,5	41,6
Average Portfolio Value*	150,0	138,9	124,6	149,9	160,4	203,5						
Beating Market (Year)	8	8	9	9	9							
Strategies' Number of Months	5	4	2	6	7	12						
Yield per Months (%)**	10,0	9,7	12,3	8,3	8,7	8,6						
Repo Advantage	7 Month	8 Month	10 Month	6 Month	5 Month	0 Month						
Total Portfolio Yield***	83,58	77,27	72,57	79,83	85,96	103,5						
Beating Market ******	12	11	10	11	11							

Note: The years that strategies beat market, After the addition of repo (repurchase) yield, are underscored

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

* Beginning of the year portfolio of ISE-100 Index and All strategies have 100 units.

** Yield per Month = (Average Stock Portfolio Value-100) / Strategies' Number of Months.

*** Total Portfolio Yield = (Average Stock Portfolio Value-100) + Repo Yields.

**** Number of the year that strategies beat market, After the addition of the average stock portfolio yield and repo yield.

---

[26] For the strategies purchase price is the day before the strategy covers ISE-100 index closing value, last transaction day the selling price strategy covers is the value of ISE-100 closing value. For instance; the expansion of the first strategy in the table Buy at the beginning of January, sell

As analyzing Table 4.9, it is observed that the strategies practiced bring yields only 9 times in a period of 20 years, but the profit of the strategies per month is higher than the index. As seen in the day of the week effect, in the years when the index brings negative effects (1988, 1992, 1998, 2000, 2002, 2006) all of the buy and sell strategies generally bring yields above the average level of the market. In the years when the index brought extremely high yields (1989, 1993, 1996, 1997, 1999) the buy and sell strategies could not beat the markets. When this five years in which high rises in the index observed are omitted, as supporting the existence of the month of the year effect in ISE, the average stock portfolio values of all the strategies and the yields per month are noticeably over the average portfolio values and yields per month.[27] When repo yields are added to the strategies; the market beating number of strategies rises to 12 years.

When strategies are evaluated one by one over a period of 20 years, the addition of the average stock portfolio yield and repo yield strategy with the highest total portfolio yield seems to be the "Buy at the Beginning of January, Sell at the End of January; Buy at the Beginning of April, Sell at the End of April; Buy at the Beginning of June, Sell at the End of June; Buy at the Beginning of September, Sell at the End of December" strategy. "Buy at the Beginning of January, Sell at the End of January; Buy at the Beginning of December, Sell at the End of December" strategy is the highest portfolio yielding strategy per month..

4.2.2. Turn of the Year Effect

As a result of analyzing the first ten transaction days of the January and last 10 days of December for ISE the[28] the defining statistics for the turn of the year effect on the periods defined are given in Table 4.10.

---

at the end of January; buy at the beginning of April, sell at the end of April; buy at the beginning of June, Sell at the end of June; buy at the beginning of September, Sell at the end of December" and the yield of this strategy for a period in this strategy signify the change between the closing value of the day before the strategy covers and last transaction day strategy covers for each different period in a year . As seen, this strategy has four different buy and sell period. When the purchase and sell numbers are low in a year, purchase and sell commissions are worthless.

[27] Except for the years 1989-1993-1996-1997-1999 the years with negative yield are: (1988-1992-1988-2000-2002-2006) For the strategies based on purchase and sell strategies see Appendix 16.

[28] 1988-2007 period end of December last 10 days –January first 10 days descriptive Statistics See Appendix 17.

Table 4.10: The Defining Statistics for the Turn of the Year Effect in the 1988-2007 Period

	During: December Last 2-January First 2 Transaction Day	During: December Last 2-January First 3 Transaction Day	During: December Last 2-January First 7 (Except 4. Transaction day) Transaction Day	During: December Last 3-January First 3 Transaction Day	During: All Days
Average Yields	1,50%	1,44%	1,34%	1,31%	0,22%
Standard Deviation	3,24%	3,38%	3,41%	3,24%	2,91%
Ratio of Being Positive	73%	71%	70%	68%	53%
Kurtosis	4,1350	3,1864	3,0611	3,3534	3,2467
Skewness	0,9030	0,9152	0,1978	1,0006	0,1685
Minimum Yield	-7,98%	-7,98%	-10,80%	-7,98%	-18,11%
Maximum Yield	15,14%	15,14%	15,14%	15,14%	19,45%
Observation	80	100	160	120	4.981
Yield/Risk Rate	0,4646	0,4252	0,3935	0,4051	0,0768
Median	1,41%	1,39%	1,17%	1,19%	0,15%
t Value	3,5518	3,6560	4,2309	3,7404	
p Value	0,000598	0,00435	0,000037	0,000289	
Statistical Significant (Result of t test)	%1	%1	%1	%1	

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

In the light of the data given in Table 4.10; the average yield of the period covering the last two transaction days of December and first two transaction days of January is 6.8 times higher than the all days' average yields with a value of 1.50%. Also, if these short periods of four days are excluded from the average calculations, all days daily average yield diminishes by 10%. The risk rate of this period is 11% above the whole period. Another very important finding is the days included in this period, bringing forth 73% of high level positive yield. In addition, the yield/risk rate of the period is 6 times higher than any other period in the year.

According to the results taken with the effect of the turn of the year effect; starting from the last three days of the year, especially the last two days, the yields rose; and even if the rising rate would be even higher and even if the rising speed diminished, the high yields carried on until mid-January. This seasonal trend supports the comment that the turn of the year effect is also valid of the ISE.

The results taken according to the strategies made depending on the turn of the year effect are given in Table 4.11.

Table 4.11: The Strategies Made Depending on the Turn of the Year Effect[29]

	December Last 2 January First 2 Day Portfolio Value	December Last 2 January First 3 Day Portfolio Value	December Last 3 January First 3 Day Portfolio Value	December Last 2 January First 7 Day Portfolio Value *	ISE-100 Index Portfolio Value	Yields of strategies and market (Index) (%)					The Share of the Strategy in the Index (%)			
1989	103,5	103,7	102,9	103,2	593,1	3,5	3,7	2,9	3,2	493,1	1%	1%	1%	1%
1990	119,0	121,2	123,2	143,6	146,8	19,0	21,2	23,2	43,6	46,8	41%	45%	50%	93%
1991	109,5	119,2	124,6	109,3	134,2	9,5	19,2	24,6	9,3	34,2	28%	56%	72%	27%
1992	102,0	104,1	101,6	109,1	91,7	2,0	4,1	1,6	9,1	-8,3	24%	49%	20%	110%
1993	104,1	105,3	104,7	106,3	516,5	4,1	5,3	4,7	6,3	416,5	1%	1%	1%	2%
1994	115,1	113,7	113,0	127,2	131,8	15,1	13,7	13,0	27,2	31,8	48%	43%	41%	86%
1995	95,4	96,5	97,1	95,5	146,8	-4,6	-3,5	-2,9	-4,5	46,8	-10%	-7%	-6%	-10%
1996	95,7	97,8	95,8	103,0	243,8	-4,3	-2,2	-4,2	3,0	143,8	-3%	-2%	-3%	2%
1997	109,3	111,3	112,5	117,3	353,6	9,3	11,3	12,5	17,3	253,6	4%	4%	5%	7%
1998	109,5	110,4	115,7	105,0	75,3	9,5	10,4	15,7	5,0	-24,7	38%	42%	63%	20%
1999	109,5	111,9	111,7	108,0	585,4	9,5	11,9	11,7	8,0	485,4	2%	2%	2%	2%
2000	117,6	112,5	120,6	128,8	62,1	17,6	12,5	20,6	28,8	-38,0	46%	33%	54%	76%
2001	99,5	111,0	109,1	128,0	146,1	-0,5	11,0	9,1	28,0	46,1	-1%	24%	20%	61%
2002	109,2	114,8	116,5	105,0	75,2	9,2	14,8	16,5	5,0	-24,8	37%	60%	67%	20%
2003	103,6	99,0	99,6	103,6	179,6	3,6	-1,0	-0,4	3,6	79,6	4%	-1%	0%	4%
2004	109,6	105,8	105,7	106,7	134,1	9,6	5,8	5,7	6,7	34,1	28%	17%	17%	20%
2005	101,8	99,3	99,5	105,6	159,3	1,8	-0,7	-0,5	5,6	59,3	3%	-1%	-1%	9%
2006	103,7	105,5	106,0	111,4	98,3	3,7	5,5	6,0	11,4	-1,7	222%	329%	362%	688%
2007	99,5	98,0	97,6	100,8	141,6	-0,5	-2,0	-2,4	0,8	41,6	-1%	-5%	-6%	2%
Average Portfolio Value	106,2	107,4	108,3	111,4	211,3	6,16	7,42	8,28	11,44	111,33	27%	36%	40%	64%
Strategies' Number of Days	4	5	6	8	260									
Yields Per Day **	1,55	1,48	1,38	1,43	0,39									

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.
* Except 4. Transaction Day of January
**Yield per Day= (Average Portfolio Value-100) / The Strategies' Number of the Days.

Analyzing Table 4.11 shows that the yields of the short-term strategies make up a reasonable amount of one year yield of the index are 3.5 or 4 times higher than the yields of all strategies per day. This situation strengthens the economic sensibility of the strategies defined according to the turn of the year effect.

---

[29] For the strategies purchase price is the ISE 100 index closing value on the previous day of the period and the selling price is the last transaction day of the period that the selling price strategy covers. For instance; the expansion of the first strategy in the table " Purchase last two transaction day of December -sell the first two transaction days of the January " and the yield of this strategy signify the change between the closing value of the day before the last two day of December and the second transaction day of the January . When the purchase and sell numbers are only one in a year, purchase and sell commissions are worthless.

When strategies are analyzed; "Buy at Closing Time of the day Before The Last 2 Transaction Days of December, Sell at Closing Time of the Second Transaction Days of January", whose yield per day are the highest; being positive for the 15 years of a 19-year period, it brought at the highest 19%, and at the lowest -4.6%, whit an average 6.2 yield. Also, within the 19 year-period, the share of the strategy in the index for 9 years is above 20%. In addition, the strategy whose average yield is the highest is the one that buys on the last 2 transaction days of December and sells during the 7 transaction days of January strategy.

4.2.3. Turn of the Month effect

When the first and last 8 transaction days of the months are analyzed,[30] it reveals that the statistical analyses of the data covering four days, i.e. the last two days of the month and the first two days of the following month, can be very useful. Also, when the last four days of the month are analyzed in terms of the previous parallelness to the work done for the ISE and world markets, the defining statistics for the turn of the month is shown in Table 4.12.

Table 4.12: The Defining Statistics for the Turn of the Month Effect

	During: Last Transaction Day of the Month - First 2 Transaction Days of the Following Month	During: Last Transaction Day of the Month - First 4 Transaction Days of the Following Month	During: Last 2 Transaction Day of the Month - First 2 Transaction Days of the Following Month	During: Last 2 Transaction Day of the Month - First 4 Transaction Days of the Following Month	During: Last 3 Transaction Day of the Month - First 4 Transaction Days of the Following Month	During: Last 4 Transaction Day of the Month - First 4 Transaction Days of the Following Month	During: All Days
Average Yields	0,59%	0,51%	0,50%	0,47%	0,41%	0,36%	0,22%
Standard Deviation	2,90%	2,98%	2,86%	2,94%	2,93%	2,94%	2,91%
Ratio of Being Positive	58,6%	56,9%	57,2%	56,3%	55,5%	54,6%	53%
Kurtosis	2,2150	3,7755	2,2507	3,6440	3,6778	3,5910	3,2467
Skewness	0,1085	0,5501	0,1735	0,5324	0,3759	0,2896	0,1685
Minimum Yield	-12,49%	-12,49%	-12,49%	-12,49%	-13,12%	-13,12%	-18,11%
Maximum Yield	15,14%	19,45%	15,14%	19,45%	19,45%	19,45%	19,45%
Observation	720	1.200	960	1.440	1.680	1.920	4.981
Observation	0,2038	0,1711	0,1757	0,1581	0,1398	0,1216	0,0768
Median	0,45%	0,37%	0,38%	0,33%	0,31%	0,27%	0,15%
t Value	3,7068	3,8796	3,3260	3,7730	3,2133	2,58726	
p Value	0,000248	0,000118	0,000815	0,000206	0,001335	0,010552	
Statistical Significant (Result of t test)	%1	%1	%1	%1	%1	%1	

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

[30] 1988–2007 Period month of the year last 8 days –following month first 8 days, descriptive statistics see Appendix 18.

As can be seen from Table 4.12, the period covering the last transaction day of the month and the first two transaction days of the following month is 2.7 times over the whole period's daily average yield, and is the most yield producing period of all. Also, when excluding this period from the average calculations of the period average daily yield of all days, the rate falls to 0.60%. This result is a finding that supports the existence of a "turn of the month effect" in the ISE. The risk rate in this period is on the same level of all other periods. The rate of a positive yield for the period is 58.6%, and is considerably more than the all days' positive rate of 11%. The risk bringing rate is 2.7 times more than all periods.

As a result of the statistical deductions made according to the turn of the month effect, the investment strategies depending on the turn of the month effect are shown in Table 4.13.[31]

[31] For the strategies purchase price is the ISE-100 index closing value on the previous day of the period strategy covers and the selling price is the closing value of last transaction day of the period strategy covers For instance; the expansion of the first strategy in the table " Buy last transaction day of the month-sell the first two transaction days of the following month" and the yield of this strategy signify the change between the closing value of the day before the last day of a month and the closing value of second transaction day of the following month .when calculating the yield of the strategy for a month every end of the month and the following month is considered as a seperate period and this transaction repeated for 12 times a year and will be calculated as a joint.When the purchase and sell numbers are low in a year, purchase and sell commissions are worthless.

Table 4.13: Investment Strategies Depending on the Turn of the Month Effect

YEARS	During: Last Transaction Day of the Month - First 2 Transaction Days of the Following Month Portfolio Value	During: Last Transaction Day of the Month - First 4 Transaction Days of the Following Month Portfolio Value	ISE-100 Index Portfolio Value	Strategies Portfolio Yields (%)		ISE-100 Index Portfolio Yields (%)	The Share of the Strategy in the Index (%)	
1988	90,01	72,94	55,6	**-10,0**	**-27,1**	-44,4	22%	61%
1989	166,27	177,11	593,1	66,3	77,1	493,1	13%	16%
1990	190,62	183,35	146,8	**90,6**	**83,3**	46,8	194%	178%
1991	106,56	102,14	134,2	6,6	2,1	34,2	19%	6%
1992	78,88	74,49	91,7	-21,1	-25,5	-8,3	253%	306%
1993	131,77	135,77	516,5	31,8	35,8	416,5	8%	9%
1994	143,03	189,70	131,8	**43,0**	**89,7**	31,8	135%	282%
1995	115,18	157,30	146,8	15,2	**57,3**	46,8	32%	122%
1996	136,57	145,61	243,8	36,6	45,6	143,8	25%	32%
1997	120,45	173,26	353,6	20,4	73,3	253,6	8%	29%
1998	100,30	94,87	75,3	**0,3**	**-5,1**	-24,7	1%	21%
1999	139,59	195,66	585,4	39,6	95,7	485,4	8%	20%
2000	100,02	129,70	62,1	**0,0**	**29,7**	-38,0	0%	78%
2001	141,01	169,62	146,1	41,0	**69,6**	46,1	89%	151%
2002	127,41	127,81	75,2	**27,4**	**27,8**	-24,8	111%	112%
2003	113,25	116,81	179,6	13,3	16,8	79,6	17%	21%
2004	127,21	127,85	134,1	27,2	27,8	34,1	80%	82%
2005	140,42	145,65	159,3	40,4	45,6	59,3	68%	77%
2006	114,40	108,46	98,3	**14,4**	**8,5**	-1,7	867%	510%
2007	106,40	108,57	141,6	6,4	8,6	41,6	15%	21%
Average Portfolio Value	124,47	136,83	203,55	24,47	36,83	103,54	98%	107%
Beating Market (Year)	7	9						
Strategies' Number of Days	36	60						
Yields Per Day*	0,68	0,61	0,41					
Repo Advantage	330 gün	305 gün						
Total Portfolio Yield (%)**	76,95	86,98.	103,54					
Beating Market * (Year)**	13	13						

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

Note: The years that strategies beat market, After the addition of the average stock portfolio yield and repo (repurchase) yield, are underscored

* Yield per Day =(Average Portfolio Value-100) / Strategies' Number of Days

** Total Portfolio Yield = (Average Stock Portfolio Value-100) + Repo (Repurchase) Yields

*** Number of the years that strategies beat market, After the addition of the average stock portfolio yield and repo (repurchase) yield

According to Table 4.13, despite the fact that the strategies created covered approximately 15% to 25% of the total working days of the year, in some years the yields of the strategies rise well above the annual yield of the index or

comprise the biggest part of the yield created. The daily yields of the strategies are higher than the index's per day yield. When it is considered that the strategies provide possibilities to repurchase yields over 300 days, with the repurchase earnings in the 13 years of the 20 year-period, strategies come to the level to beat the market. These results are the findings which support the economic significance of strategies depending on the turn of the month effect and that they are highly effective. Besides, during the 15 year period when an average yield was collected in the index, both strategies' average yield is much higher than the average stock portfolio yield of the index and the yields of the strategies are positive.[32]

4.2.4. During the Month (Intra Month) Effect

In order to analyze intra month effect in the ISE, Table 4.14 which contains the defining statistics of all the first and second halves of the months need to be taken into account.

Table 4.14: Defining Statistics of all the First and Second Halves of the Months in 1988-2007 Periods

	All Month's First Half *	All Month's Second Half **	All Periods
Average Yields	0,27%	0,17%	0,22%
Standard Deviation	2,90%	2,92%	2,91%
Ratio of Being Positive	52,66%	51,95%	52,30%
Kurtosis	3,2104	3,2691	3,2467
Skewness	0,3522	-0,0100	0,1685
Minimum Yield	-14,93%	-18,11%	-18,11%
Maximum Yield	19,45%	16,93%	19,45%
Observation	2486	2495	4.981
Yield/Risk Rate	0,0948	0,0589	0,0768
Median	0,18%	0,13%	0,15%

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.
*1-15 Calendar Day in a Month ** 16-31 Calendar Day in Month

When the statistics in Table-4.14 are analyzed, in the period of 1988-2007, all month's first half average yield, and second half average yield are above 60%. As for the risk levels, there is no significant difference among risk levels.

---

[32] Except for the years 1989-1993-1996-1997-1999 the years with the negative yield are: 1988-1992-1988-2000-2002-2006 for the purchase and sell strategy based on turn of the month effect See Appendix 19.

The ratio of the yield/risk rate of in the first half of the month to the second half's yield risk ratio is over 1.6 times. For the first half the yields average is 0.90% is January, and for the second half yields average of 0.41% yields, December is the first month.[33]

As a result of intra month effect and statistical outcomes, the basic strategies where the first and second half average yields of the high months include "buy at the beginning of January sell at the end of January; buy at the second half of February sell at the end of February; buy at the beginning of first half of the April, sell at the end of the second half; buy at the beginning of June and Sell at the end of July, buy at the beginning of September and sell at the first half of November, buy at the beginning of December and sell at the end of December. Table-4.15 shows the during the month effect the strategies results and the strategies made depending on the month of the year effect and their comparison.

[33] 1988-2007 For period transaction days of Month defining statistics See Appendix 20, for the yields of first and the second half of the months one by one See Appendix 21.

Table 4.15: The Strategies Related to During the Month Effect, the Strategies Made Depending on the Month of the Year Effect and Their Comparison

YEARS	The Strategy Related to During the Month Effect	January /September -December/ Portfolio Value	January/ April/ September-December/ Portfolio Value	January/ April/ June/ September-December/ Portfolio Value	ISE-100 Index Portfolio Value	Yields of Strategies (%)				ISE-100 Index Portfolio Yields
1988	82,4	108,8	89,3	75,7	55,6	**-17,6**	**8,8**	**-10,7**	**-24,3**	-44,4
1989	385,9	257,3	175,1	213,1	593,1	285,9	157,3	75,1	113,1	493,1
1990	156,7	108,2	105,6	113,3	146,8	**56,7**	8,2	5,6	13,3	46,8
1991	112,0	171,3	151,3	149,7	134,2	12,0	**71,3**	**51,3**	**49,7**	34,2
1992	108,9	108,6	102,7	137,2	91,7	**8,9**	**8,6**	**2,7**	**37,2**	-8,3
1993	242,0	183,2	199,9	257,3	516,5	142,0	83,2	99,9	157,3	416,5
1994	206,1	104,8	105,8	141,9	131,8	**106,1**	4,8	5,8	**41,9**	31,8
1995	124,8	82,1	103,9	105,8	146,8	24,8	-17,9	3,9	5,8	46,8
1996	198,2	187,0	160,8	185,3	243,8	98,2	87,0	60,8	85,3	143,8
1997	323,8	286,7	193,6	225,5	353,6	223,8	186,7	93,6	125,5	253,6
1998	122,7	101,3	151,7	166,8	75,3	**22,7**	**1,3**	**51,7**	**66,8**	-24,7
1999	407,5	299,6	291,1	284,3	585,4	307,5	199,6	191,1	184,3	485,4
2000	121,3	79,0	110,2	98,4	62,1	**21,3**	**-21,0**	**10,2**	**-1,6**	-38,0
2001	139,0	158,0	315,5	324,9	146,1	39,0	**58,0**	**215,5**	**224,9**	46,1
2002	109,1	104,4	110,5	99,5	75,2	**9,1**	**4,4**	**10,5**	**-0,5**	-24,8
2003	216,0	170,6	184,4	176,3	179,6	**116,0**	70,6	**84,4**	76,3	79,6
2004	117,5	114,5	94,1	99,0	134,1	17,5	14,5	-5,9	-1,0	34,1
2005	141,1	140,9	120,6	128,8	159,3	41,1	40,9	20,6	28,8	59,3
2006	121,9	117,6	121,4	112,9	98,3	**21,9**	**17,6**	**21,4**	**12,9**	-1,7
2007	131,6	116,5	111,5	111,5	141,6	31,6	16,5	11,5	11,5	41,6
Average Portfolio Value	178,41	150,0	149,9	160,4	203,5					
Beating Market	9	8	9	9						
Strategies' Number of Months	7,5 month	5 month	6 month	7 month						
Repo Advantage	4,5 month	7 month	6 month	5 month						
Total Portfolio Yield (%)**	104,35	83,53	79,13	85,96						
Beating Market **	13	12	11	11						

Source: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

Note: The years that strategies beat market, After the addition of the average stock portfolio yield and repo (repurchase) yield, are underscored for The Strategy Related to During the Month Effect

** Total Portfolio Yield = (Average Portfolio Value-100) + Repo (Repurchase) Yields

*** Number of the years that strategies beat market, After the addition of the average stock portfolio yield and repo (repurchase) yield.

When Table 4.15 is analyzed the strategy is seen that depending on the during the month effect 9 times in 20 years, with the addition of the repo yields, it is seen that 13 times it has brought yields above the market. This strategy is only one strategy that its total average portfolio yield is higher than Index average yields in 20 years. As a result, with the investment strategy that is based on the month of the year effect, the average stock income raised by 30% and this strategy provided a higher yield than any other strategies for over 15 years of the 20.

4.3. The Comparison of the Investment Strategies Based on the Calendar Effect

The comparisons made up to this point with regard to the investment strategies based on the calendar effects show that it would be useful for investors to make decisions according to the possible calendar effects.[34]

As a result of the period of 20 years' stock portfolio yield and the addition of the repo yield, the strategy with the total portfolio yield over the markets is "Buy at the Closing Time on Tuesday, Sell at Closing Time on Friday" strategy.

The strategy with the average highest stock portfolio yield is "Buy at Closing Time on Monday, and Sell at Closing Time on Friday". As a result, the additional of the repo yields total average portfolio yield is the highest investment strategy which is based on the during the month effect.

The strategy which has the average highest yield per day is "Buy at closing time of the day before the last transaction day of the months, Sell at closing time of the second transaction days of the following months" and "Buy at closing time of the day before the last transaction day of the months, Sell at closing time of the fourth transaction days of the following months. Also, "Buy at closing time of the day before the last 2 days of December, Sell at closing time of second days of January" (1.55%) and "Buy at closing time of the day before the last 2 days of December, Sell at closing time of third days of January" (1,48%) strategies and other strategies based on turn of the year effects bring much more yield than the other strategies and the per day yield of the index.

When the high yield years that are probable to come again in today's economic conditions are excluded, even if the term of investment for the strategies is shorter than the term of "Buy and Keep" market strategy; the fact that most of the strategies bring an average higher yield for portfolio than the index average yield is an exceedingly important and significant finding. When repo yields are added to the strategies, the yield advantages for investors even increase.

The strategy which brings higher yield than the market and brings the highest average portfolio yield for the 15 year-period is "Buy at the closing time on Tuesday, Sell at the closing time on Friday" is the week day investment strategy. The daily yields of the 17 strategies of all 20 are higher than the index's yield per day. Strategies that bring the highest average yield per day are the ones that bring 6-8 times more yield than the index per day, "Buy at closing time of the day before the last transaction day of the month, Sell at closing time of the second transaction days of the following month" and "Buy at closing time on

[34] For a comparison of the calender effects and the strategies made according to the calender effects, See Appendix 22, Appendix 23 and Appendix 24.

Thursday, and sell at the closing time on Friday". As a result of addition of the repo yields to the portfolio yields, significant strategies in terms of the market beating number and average portfolio yield are again "Buy at the closing time on Tuesday, Sell at closing time on Friday" and other types of strategies depending on the turn of the month effect

If all the conclusions are to be re-evaluated in today's market conditions for long term investments "Buy at the closing time on Tuesday, Sell at the closing time on Friday" investment strategy and even if not as successful as the first one, the strategies developed based on the intra month effect bring some advantages to investors as well. It is also concluded that, for the investors who would like to benefit from the short term purchase and sell opportunities and the yields of the alternative investment tools, for the periods when the interest rates are high, the strategies made depending on the turn of the year, and turn of the month effect, and day of the week effect which includes Thursday and Friday as well, prove to be useful.

V. Conclusion

In this study, between 4.01.1988-31.12.2007 period the ISE-100 index daily closing data are used to study the time-based anomalies depending on the days and months, often seen in the world financial markets. In other words, the existence of the calendar effects for the ISE was researched and in the period analyzed, findings supporting the clear existence of the day of the week effect, month of the year effect, turn of the year effect, turn of the month effect and intra month effect were found. Furthermore, the fact that investment strategies that bring higher yield than the market average support the statistical significance of the calendar effects based strategies. The findings supporting that the yields can be estimated based on the past prices, brings forth the comment that the market is not effective in weak form.

Investment strategies based on calendar effects indicates that when the years with high yields that are improbable to happen again in the index are excluded from the calculations, these strategies bring yields higher than the index. The addition of the repo yields to the strategies increases the extra returns. Not surprisingly, this indicates that the ISE is not efficient in the strong form as well. In summary, this study suggests the findings pertaining to the presence of calendar effects do not match with the theory in the case of ISE for the period of 1988-2007. However, it should not be forgotten that these studies and the findings related to the calendar effect only suggest a possibility, since there are various factors defining the prices and the studies on the calendar effect are based on scientific predictions about future.

References

Abraham, A.; D. Ikenbery, "*The Individual Investor and the Weekend Effect*", Journal of Financial and Quantitative Analysis, Vol. 29, 1994, pp. 263-277.

Aggarwal, R.; T. Kishore, "*Anomalies or Illusions? Evidence from Stock Markets in Eighteen Countries*", Journal of International Money and Finance, Vol. 13, 1994, pp. 83-106.

Aggarwal, R.; P. Rivoli, "*On the Relationship Between the United States and Four Asian Equity Markets*", Asian Economic Bulletin, Vol. 6, 1989, pp. 110-117.

Aggarwal, R.; P. Rivoli, "*Seasonal and the Day of the Week Effect in Four Emerging Markets*", Financial Review, Vol. 24, 1989, pp. 541-550.

Ajari, R., "*The Day of the Week Effect in Stock Returns Further Evidence from Eastern European Emerging Markets*", Emerging Markets Finance and Trade, Vol. 40-4, 2004, pp. 54-63.

Akyol, A., "*Calendar Anomalies in Istanbul Stock Exchange: Are They Still There*", www.ssnr.com, SSNR Electronic Library ID 311455, 2006.

Arial, R., "*A Monthly Effect in Stock Returns*", Journal and Financial Economics, Vol. 18, 1987, pp. 1611-1626.

Arsad, Z.; A. Coutts, "*Security Price Anomalies in the London International Stock Exchange: A 60 Year Perspective*", Applied Financial Economic, Vol. 19, 1997, pp. 455-464.

Balaban, E., "*Day of the Week Effect: New Evidence From an Emerging Stock Market*", Applied Economics Letters, Sayı 2, 1995, pp. 139-143.

Balaban, E., H. Candemir, "*İstanbul Menkul Kıymetler Borsasında Bahama Etkileri*", İşletme ve Finans, Vol. 113, 1995, pp. 93-104.

Balaban, E., "*Hisse senedi Piyasalarında Görülen Fiyat Aykırılıkları: Gelişen Bir piyasada Gün Etkisine Dair Yeni Betimsel Bulgular*", Türkiye Cumhuriyeti Merkez Bankası Araştırma Genel Müdürlüğü Tartışma Tebliğleri, No: 9504, 1995, pp. 77-105

Balaban, E., "*January Effect, Yes! What About Mark Twain Effect*", Türkiye Cumhuriyeti Merkez Bankası Araştırma Genel Müdürlüğü Tartışma Tebliğleri, No: 9509, 1995, pp. 199-214.

Balaban, E.; M. Bulu, "*Monthly Effect in an Emerging Stock Market*", Türkiye Cumhuriyeti Merkez Bankası Araştırma Genel Müdürlüğü Tartışma Tebliğleri, No: 9606, 1995.

Banz, R., "*The Relationship Between Return and Market Value of Common Stocks*", Journal of Financial Economic, Vol. 9, 1981, pp. 3-18.

Barberis, N., R. Thaler, "*A Survey of Behavioral Finance*", www. nber.org, No: 9222, 2002.

Barone, E. "*The Italian Stock Market Efficiency and Calender Anomalies*", Journal of Banking and Finance, Vol. 14, 1990, pp. 483-510.

Berges, A.; J. Mc Connel; G. Schlarbaum, "*An Investigation of the Turn of the Year Effect, The Small Firm Effect and the Tax-Loss-Selling Pressure*

Hypothesis in Canadian Stock Returns", Journal of Finance, Vol. 39, 1982, pp. 188-191.

Berument, H.; H. Kıymaz, "*The Day of the Week Effect on Stock Market Volatility and Volume: International Evidence*", Review of Financial Economic, Vol. 12, 2003, pp. 363-380.

Berument, H., A. İnamlık, H. Kıymaz, *"The Day of the Week Effect on Stock Market Volatility: Istanbul Stock Exchange"*, Department of Economic Bilkent University Working Paper, Ankara: 2004.

Bildik, R., Hisse Senedi Piyasasında Dönemsellikler ve İMKB Üzerine Ampirik Bir Çalışma, 1. Baskı, İMKB Yayınları , İstanbul: 2000.

Bildik, R., *"Day of the Week Effect in Turkish Stock and Money Market"*, www.ssnr.com, SSNR ElectronicLibrary ID 259222, 2001.

Bildik, R., *"Intraday Seasonalities and Stock Returns: Evidence from the Turkish Stock and Money Market",* www.ssnr.com, SSNR Electronic Library ID 251503, 2001.

Bildik, R., "*Are Calender Anomalies Still Alive: Evidence From the Istanbul Stock Exchange",* www.ssnr.com, SSNR ElectronicLibrary ID 598904, 2004.

Bildik, R., "*The Effect of Trading Halt and the Advantage of Intuitional Investors: Evidence from the Istanbul Stock Exchange"*, www.ssnr.com, SSNR Electronic Library ID 688941, 2004.

Black, F., "*Noise*", The Journal of Finance, Vol. 41, 1986, pp. 529-539.

Board, L.; M. Sutcliffe, "*The Weekend Effect in UK Stock Market Returns*", Journal of Business Finance and Accounting, Vol. 15, 1988, pp. 199-213.

Brooks, C., G. Persand, "*Seasonality in Southeast Asian Stock Markets: Some New Evidence on Day of the Week Effects*", Applied Economics Letters, Vol. 8, 2001, pp. 155-158.

Cadsby, B., "*Canadian Calender Anomalies and the Capital Asset Pricing Model*", A Reappraisal of the Efficiency of Financial Markets Guimaraes et. al. Springer-Verlag Berlin Heidelberg. 1989, pp. 199-226.

Cadsby, B.; Ratner, B., "*Turn of Month and Pre Holiday Effect on Stock Returns: Some International Evidence*", Journal of Banking and Finance, Vol. 16, 1992, pp. 497-509.

Chambers, A.; S. Penman, "*Timeliness of Reporting and the Stock Price Reaction to Earnings Announcements*", Journal of Accounting Research, Vol. 22, 1984, pp. 21-47.

Claessens, S.; S. Dasgupta, J. Glen, "*Return Behavior in Emerging Stock Markets*", Word Bank Economic, Vol. 9, 1995, pp. 131-151.

Chan, K., "*Can Tax-Loss Selling Explain the Seasonal in Stock Returns?",* Journal of Finance, Vol. 41, 1986, pp. 1115-1128.

Chang, E.; M. Pinegar, R. Ravichandran, "*International Evidence on the Robustness of the Day of the Week Effect*", Journal of Financial and Quantitative Analysis, Vol. 28, 1993, pp. 497-513.

Chang, E.; M. Pinegar, "*Return Seasonality and Tax-Loss Selling in the Market for Long-Term Government and Corporate Bonds*", Journal of Financial Economic, Vol. 17, 1986, pp. 391-416.

Chang, E., M. Pinegar, "*Another Look at Risk and Reward in January and Non-January Months*", Journal of Portfolio Management, 1990, pp. 82-83.

Çinko, M., "*Etkin Piyasa Hipotezi: İMKB'de Haftanın Günü Etkisi ve Tatil Anomalisi*", TİSK Akademi Dergisi, Vol. 2, 2006, pp. 117-129.

Clark, R.; J. Mc Connel.; M. Singh, "*Seasonalities in NYSE Bid-Ask Spreads and Stock Returns in January*", Journal of Finance, Vol. 47, 1992, pp. 1999-2014.

Connolly, R., "*An Examination of the Robustness of the Weekend Effect*", Journal of Financial and Quantitative Analysis, Vol. 24, 1989, pp. 133-169.

Condoyanni, L.; C. Ward; J. O'Hanlon, "*An Investigation of Daily Seasonality in the Greek Equity Markets*", A Reappraisal of the Efficiency of Financial Markets Guimaraes et. al. Springer-Verlag Berlin Heidelberg, 1989, pp. 229-257.

Corhay, A., G. Hawawini, P. Michel, "*Seasonality in the Risk Return Relationship: Some International Evidence*", Journal of Finance, Vol. 11, 1987, pp. 49-68.

Cornell, B., "*The Weekly Pattern in Stock Returns: Cash Versus Future A Note*", Journal of Finance, Vol. 40, 1985, pp. 583-588.

Cross, F., "*The Behavior of Stock Prices on Fridays and Mondays*", Financial Analysis Journal, Vol. 29, 1973, pp. 67-69.

Dağlı, H., Türk Hisse Senedi Piyasasının Takvim etkileri: Haftanın Günü ve Ay Etkileri, Sermaye Piyasaları Kurulu Yayını, İstanbul: 1996.

Damodaran, A. "*The Weekend in Information Releases: A Study of Earnings and Dividend Announcements*", Review of Financial Studies, Vol. 2, 1989, pp. 607-623.

De Bont, W.; R. Thaler, "*Does the Stock Market Overreact?,*" Journal of Finance, Vol. 40, 1985, pp. 793-805.

Defusco, R., "*Day of the Week Effect: A Test of the Information Timing Hypothesis*", Journal of Business Finance and Accounting, Vol. 20-6, 1993, pp. 835-842.

Dubois, M.; P. Louvent, "*The Day of the Week Effect: International Evidence*", Journal of Banking and Finance, Vol. 20, 1996, pp. 1463-1484.

Dyla, E.; C. Holland, "*Why a Weekend Effect*", Journal of Portofilo Management, Vol. 16, 1990, pp. 88-89.

Dyla, E., "*A Possible Explanation of the Weekend Effect*", Financial Analist Journal, May- June 1988, pp. 84-85.

Dyla, E., E. Maberly, "*A Possible Explanation of the Weekend Effect*", Financial Analysis Journal, Vol. 44, 1988, pp. 83-84.

Eakins, S.; S. Sewell, "*Tax-Loss Selling, Institutional Investors and the January Effect: A Note*", Journal of Financial Research, 1993, pp. 377-383.

Erbil, A., "*Stock Market Seasonality in the Istanbul Stock Exchange*", Unpublished Master Thesis**,** Bilkent Üniversitesi, Ankara: 1993.

Fama, F. E. "*Efficient Capital Market: 2*", Journal and Finance, Vol. 46, 1991, pp. 1575.

Fama, F. E., "*The Behavior of Stock Market Prices*", Journal of Business, Vol. 38, 1965, pp. 45-46.

Fama, F. E., "*Efficient Capital Markets: A View Theory and Empirical Work*", The Journal of Finance, Vol. 25, No:2, 1970, pp. 383-416.

Fisher, P., "*Good News, Bad News, Volume and the Monday Effect*", Journal of Business Finance and Accounting, Vol. 20-6, 1993, pp. 882-892.

Frankfurter, M., E. Mc Goun, "*Anomalies in Finance and What are They Good For?*", International Rewiew of Financial Analysis, Vol. 10, 2001, pp. 409.

French, K., "*Stock Returns and the Weekend Effect*", Journal of Financial Economics, Vol. 8, 1980, pp. 55-69.

Gibbons, M., P. Hess, "*Day of the Week Effect and Asset Returns*", Journal of Business, Vol. 54, 1981, pp. 580-596.

Gültekin, M., B. Gültekin, "*Stock Market Seasonality International Evidence*," Journal of Financial Economic, Vol. 12, 1983, pp. 469-481.

Hawawini, G., P. Michel, "*A Look at the Validity of the CPM in Light of Equity Market Anomalies: The Case of Belgian Common Stock*", A Reappraisal of the Efficiency of Financial Market in R. M. C Guimaraes, 1989, pp. 143-163.

Ho, K., "*Stock Return Seasonalities in Asia Pacific Markets*", Journal of International Financial Management and Accounting, Vol. 2, 1990, pp. 44-77.

Jaffe, J.; R. Westerfield, "*Patterns in Japanese Common Stock Returns: Day of the Week and Turn of the Year Effect*", Journal of Financial and Quantitative Analysis, Vol. 20, 1985, pp. 261-272.

Jaffe, J., R. Westerfield, "*Is There a Monthly Effect in Stock Market Returns? Evidence from Foreign Countries*", Journal of Banking and Finance, Vol. 13, 1989, pp. 641-650.

Jaffe, J., R. Westerfield, "*The Weekend Effect in Common Stock Returns the International Evidence*", Journal of Finance, Vol. 40, 1985, pp. 433-454.

Jain, P.; G. John, "*The Dependence Between Hourly Prices and Trading Volume*", Journal of Financial and Quantitative Analysis, Vol. 23, 1988, pp. 270-283.

Jennergren, P., G. Sörensen, "*Random Walks and Anomalies on the Copenhagen Stock Exchange in the 1980's*", A Reappraisal of The Efficiency of Financial Markets in R.M.C Guimaraes, 1989, pp. 261-284.

Jensen, M., "*Some Anomalous Evidence Regarding Market Efficiency*", Journal of Financial Economics, Vol. 6, 1978, pp. 95-96.

Karan, B., "*İstanbul Menkul Kıymetler Borsasında Hafta Sonu Etkisi*", Yaklaşım. Sayı 20, 1994, pp. 99-109.

Kato, K., "*Weekly Patterns in Japanese Stock Market*", Management Science, Vol. 36, 1990, pp. 1031-1043.

Kato, K., J. Schallheim, "*Seasonal and Size Anomalies in the Japanese Stock Market*", Journal of Financial and Quantitative Analysis, Vol. 20, 1985, pp. 243-260.

Keim, D., "*Size-Related Anomalies and Stock Return Seasonality*", Journal of Financial Economic, Vol. 12, 1983, pp. 13-30.

Kohers, G., "*The Disappearing Day of the Week Effect in the World's Largest Equity Markets*", Applied Financial Economics Letters, Vol. 11, 2004, pp. 167-171.

Kolb, R.; R. Rodriguez, "*Friday the Thirteenth: Part Seven a Note*", Journal of Finance, Vol. 42, 1987, pp. 1385-1387.

Lakonishok, J., E. Maberly, "*The Weekend Effect: Trading Patterns of Individual and Institutional Investors*", Journal of Finance, 1990, pp. 240-243.

Lakonishok. J., S. Smidt, "*Are Seasonal Anomalies Real?,*" Journal of Financial Economic, Vol. 13, 1984, pp. 435-455.

Lakonishok, J., S. Smidt, "*Are Seasonal Anomalies Real? A Ninety Year Perspective*", Review of Financial Studies, Vol. 1, 1988, pp. 404-425.

Martikainen, T.; V. Puttonen, "*Finnish Day of the Week Effects*", Journal of Business, Finance and Accounting, September 1996, pp. 1023-1036.

Miller, E., " *Why a Weekend Effect*", Journal of Portofilo Management, 1988, pp. 42-48.

Muratoğlu G.; T. Oktay, "*Türk Hisse Senedi Piyasasında Zayıf Etkinlik: Takvim Anomalileri*", Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Vol. 11, 1993, pp. 51-62.

Özmen, T., "*İstanbul Menkul Kıymetler Borsası ve Anomaliler*", Araştırma Raporu, Sermaye Piyasası Raporu, 1992.

Özmen, T., Dünya Borsalarında Gözlemlenen Anomaliler ve İstanbul Menkul Kıymetler Borsası üzerine Bir Deneme. 1. Baskı, Sermaye Piyasası Yayınları No: 61, Ankara: 1997.

Öztürkaltay, V., Hisse Senedi Piyasalarında Görülen Kesitsel Anomaliler ve İMKB'ye Yönelik Bir Araştırma, 1. Baskı, İMKB Yayınları, İstanbul: 2005.

Patell, J., M. Wolfson, "*Good News, Bad News and the Intra Day Timing of Corporate Disclosure"*, Accounting Review, Vol. 57, 1982, pp. 509-527.

Penman, S., "*The Distribution of Earnings News Over Time and Seasonalities in Aggregate Stock*", Journal of Financial Economics, Vol. 18, 1987, pp. 199-228.

Reingaum, R., C. Shaphiro, "*Taxes and Stock Return Seasonality: Evidence from the London Stock Exchange*", Journal of Business, Vol. 5, 1987, pp. 281-295.

Ritter, R., "*The Buying and Selling Behavior of Individual Investor at the Turn of the Year*", Journal of Finance, Vol. 43 1989, pp. 701-717.

Rogalski, R., "*New Findings Regarding Day-of-the Week Returns Over Trading Non Trading Periods; A Note*", Journal of Finance, Vol. 39, 1984, pp. 1603-1613.

Rogalski, R., "*New Findings Regarding Day of the Week Returns Over Trading and Non trading Periods*", Journal of Finance ,Vol. 39, 1994, pp. 1603-1614.

Rozef, M., W. Kinney, "*Capital Market Seasonality*", Journal of Financial Economics. Vol. 3, 1976, pp. 379-402.

Schatzberg, J., P. Data, "*The Weekend Effect and Corporate Dividend Announcements*", Journal of Financial Research, Vol. 15, 1992, pp. 69-76.

Shleifer, A., "*Inefficient Market: An Inefficient Markets: An Introduction to Behavioral Finance*", Oxford University Press, Oxford: 2000, pp. 12

Sias, R.; L. Starks, "*The Day-of-the Week Anomaly: The Role of the Institutional Investors*," Financial Analysts Journal, May-June 1995, pp. 58-67.

Simirlock, M., L. Starks, "*Day-of-The-Week and Intra Day Effect in Stock Returns*", Journal of Financial Economics, 1986, pp. 197-210.

Solnik. B.; L. Bousquet. "*Day of the Week Effect on the Paris Bourse*" , Journal of Banking and Finance, Vol. 14, 1990, pp. 461-468.

Thaler, R., "*Anomalies: The January Effect,*" Journal of Economic Perspectives, Vol. 1, 1987, pp. 197-201.

Thaler, R. "*Anomalies: Weekend, Holiday, Turn of the Month, and Intraday Effects*", Journal of Economic Perspectives, Vol. 1, 1987, pp. 169-177.

Tuncel, A., "*İMKB'de Haftanın Günü Etkisi*", Akdeniz Üniversitesi İ.İ.B.F Dergisi, Sayı 13, 2007, pp. 253-267.

Üner, Taylan Özgür, "*Calender Effect in the Istanbul Stock Exchange*", Unpublished Master Thesis. Tezi, Kadir Has üniversitesi, Istanbul: 2008.

Van Den Bergh, M., Wessels. E, "*Stock Market Seasonality and Taxes: An Examination of the Tax-Loss Selling Hypothesis*", Journal of Business and Accounting, Vol. 12, 1985, pp. 515-530.

Wong, K., "*Is There an Intra-Month Effect on Stock Returns in Developing Stock Markets?,*" Applied Financial Economics, Vol. 5, 1995, pp. 285-289.

Ziemba, W., "*Japanese Security Market Regularities: Monthly Turn of the Month and Year Holiday and Golden Week Effects*", Unpublished Manuscript, Yamaichi Research Institute, Tokyo: 1989.

Ziemba, W., "*World Wide Security Market Regularities*", European Journal of Operational Research, Vol. 74, 1994, pp. 198-229.

Internet Adress

http:// evds.tcmb.gov.tr.

http:// www.mkk.com.tr./MkkComTr./piyasa/istatistik_y.jsp.

http:// www.spk.gov.tr./yayın.aspx

http:// www.imkb.gov.tr/veri.htm

Appendices

Appendix 1: The studies of the Calendar Effects for the ISE

Researcher	Year	Period	Day of the Week Effect		Month of the Year Effect		Intra-Month Effect	Turn of the Month/ Year Effect	Standard Deviation	
			High	Low	High	Low			High	Low
ÖZMEN	1992	Jan .88- Feb 92	Friday	Thursday	January	March	First Half			
ERBİL	1993	1988-1991	Friday	Thursday	January	March				
MURATOĞLU and OKTAY	1993	1988-1992	Friday	Tuesday	January	March				
KARAN	1994	1990-1993	Friday	Tuesday	January	October				
BALABAN	1995	Jan .88- Aug. 94	Friday	Tuesday						
BALABAN	1995	1988-1993			January	October				
BALABAN and BULU	1996	Jan 88-Jun. 95					First Half			
DAĞLI	1996	Jan .88-July. 95	Friday	Tuesday	January	October				
BİLDİK	1996	1990-1995	Friday	Tuesday	January	October				
ÖZMEN	1997	Jan .88-Jun. 96	Friday	Tuesday	January	October				
ÖZMEN	1997	Jan .94-Jun. 96	Thursday	Pazartesi			First Half			
BİLDİK	2000	1988-1999	Friday	Tuesday	January	August	First Half	December Last 2- January First 3 Transaction Day	Monday	Friday
BİLDİK	2000	1994-1999	Friday	Monday						
BERUMENT İNAMLIK and KIYMAZ	2004	1988-2003	Friday	Monday						
AKYOL	2006	1988-2006	Friday	Monday	January	August		Last Transaction Day of the Month - First 4 Transaction Days of the Following Month		
ÇİNKO	2006	1990-2005	Friday	Monday						
TUNCEL	2007	2002-2005	Friday	Monday						

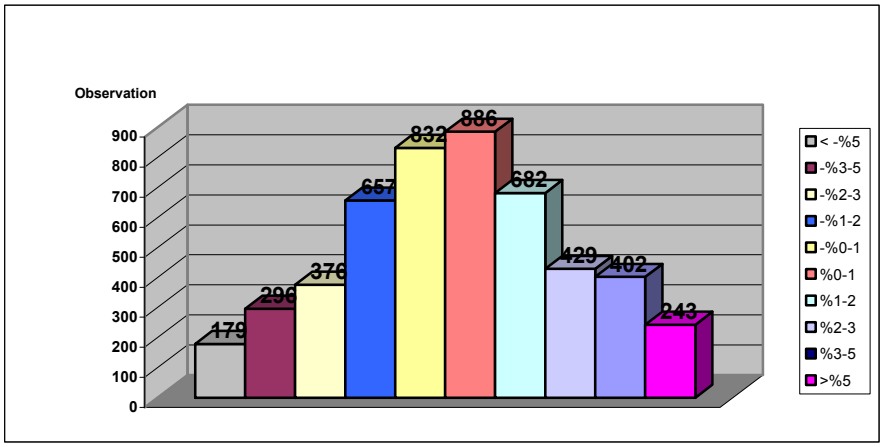
Sources: Üner, T. Özgür. "Calendar Effect in the Istanbul Stock Exchange", Unpublished Master Thesis. Kadir Has University, Istanbul: 2008. pp. 112

Appendix 2: The Potential Formation Process of the Day of the Week Effect as a Result of the Investors' Behaviors of Buy and Sale

INVESTOR	Processing Information Time	Types of Making a Decision		On the Activeness of the Investors in Weekdays	Stocks Firm Size	Buy/Sell Rate		Perception of Risks	
		Selling Decision	Buying Decision			First Half of the Week	Second Half of the Week	First Half of the Week	Second Half of the Week
INDIVIDUAL INVESTORS	Weekend	First Half of the Week – Generally being referred by themselves	Second Half of the Week- Generally being referred by stock broker	First Half of the Week	Small Size Firms	Low	High	High	Low
INSTITUTION INVESTORS	First Half of the Week	Second Half of the Week	Second Half of the Week	Second Half of the Week	Big Size firms	Nötr	High		
RESULT	**In First Half of the Week: Lower and Negative Yields / In Second Half of the Week: Higher and Positive Yields**								

Sources: Üner, T. Özgür. "Calendar Effect in the Istanbul Stock Exchange", Unpublished Master Thesis, Kadir Has University, Istanbul: 2008, pp. 60.
* First Half of the Week is including Monday and Tuesday. Second Half of the Week is including Wednesday , Thursday and Friday.

Appendix 3: The Frequency Distribution and Percentage Portion Depending on the Yield Bands of 1988-2007



Number of Observation	Yield Bands	Yields; % Share	Cumulative Distribution					
179	< -% 5	3,59%	46,95%					
296	-%3-4	5,94%	43,26%					
376	-%2-3	7,55%	37,41%					
657	-%1-2	13,19%	29,87%					
832	-%0-1	16,68%	16,68%	**34,5 %**	**61,3 %**	**77,5 %**	**91,5 %**	**100 %**
886	% 0-1	17,78%	17,78%					
682	% 1-2	13,69%	31,47%					
429	% 2-3	8,61%	40,08%					
402	% 3-4	8,07%	48,15%					
243	> %5	4,88%	53,03%					
4.981		100%						

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address

Appendix 4: Greatest 20 Increases According to Days in the ISE

DATE	YIELD	DAY	DATE	YIELD	DAY
05.12.2000	19,5%	Thursday	18.03.2003	11,6%	Thursday
06.12.2000	18,6%	Wednesday	23.02.1998	11,2%	Monday
18.09.1998	16,9%	Friday	24.01.1997	11,2%	Friday
04.01.2000	15,1%	Thursday	12.10.1998	11,0%	Monday
27.04.2001	13,5%	Friday	10.12.1999	10,9%	Friday
27.01.1997	13,1%	Monday	07.12.1990	10,8%	Friday
13.12.1999	12,6%	Monday	06.10.2003	10,6%	Monday
07.11.2002	12,5%	Thursday	14.06.1993	10,5%	Monday
30.03.2001	12,1%	Friday	26.11.1991	10,3%	Thursday
04.01.2001	11,6%	Thursday	05.11.2002	10,2%	Thursday

Greatest 20 Decreases According to Days in the ISE

DATE	YIELD	DAY	DATE	YIELD	DAY
21.02.2001	-18,1%	Wednesday	21.02.1994	-10,5%	Monday
11.11.1998	-14,9%	Wednesday	19.04.1993	-10,4%	Monday
19.02.2001	-14,6%	Monday	26.08.1999	-10,4%	Thursday
27.08.1998	-13,1%	Thursday	10.02.1994	-10,2%	Thursday
03.03.2003	-12,5%	Monday	10.01.1991	-10,2%	Thursday
17.12.1990	-11,8%	Monday	07.12.2000	-9,9%	Thursday
25.09.1998	-11,3%	Friday	19.08.1991	-9,6%	Monday
27.10.1997	-11,2%	Monday	24.02.1992	-9,6%	Monday
12.01.1998	-10,8%	Monday	28.10.1997	-9,5%	Tuesday
17.03.2003	-10,5%	Monday	24.11.1997	-9,4%	Monday

The Range of the Greatest 20 Increases and Decreases According to Days in the ISE

1988-2007	Greatest 20 Increases		Greatest 20 Decreases	
	Number of Days	(%) share	Number of Days	(%) share
Monday	6	30	11	55
Tuesday	5	25	1	5
Wednesday	1	5	2	10
Thursday	2	10	5	25
Friday	6	30	1	5

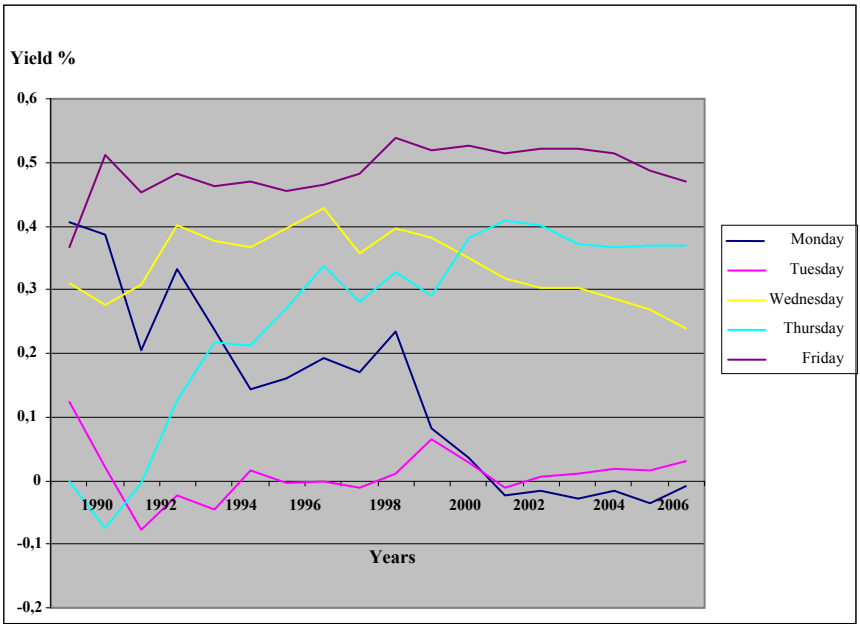
Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address

Appendix 5: The Descriptive Statistics of Days of Week According to the 5 Year-Sub Period

Days	Share of Foreigner is Low						Share of Foreigner is High					
	1988-1992			1993-1997			1988-2002			2003-2007		
	Average Yield	Standard Deviation	Number of Days	Average Yield	Standard Deviation	Number of Days	Average Yield	Standard Deviation	Number of Days	Average Yield	Standard Deviation	Number of Days
Monday	0,08%	0,0361	249	0,18%	0,0365	247	-0,46%	0,0379	245	-0,04%	0,0233	250
Tuesday	-0,002%	0,0302	250	0,08%	0,0259	248	-0,001%	0,0347	248	0,09%	0,0191	252
Wednesday	0,36%	0,0276	251	0,54%	0,0271	251	0,10%	0,0376	248	0,12%	0,0173	249
Thursday	-0,003%	0,0275	252	0,69%	0,0268	254	0,59%	0,0372	247	0,22%	0,0200	250
Friday	0,50%	0,0252	251	0,48%	0,0249	249	0,56%	0,0340	242	0,36%	0,0159	248
All Days	**0,19%**	**0,0295**	**1.253**	**0,40%**	**0,0286**	**1.249**	**0,16%**	**0,0365**	**1.230**	**0,15%**	**0,0193**	**1.249**

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

Appendix 6: The Average Yield Trends of Days of the Week in 1990-2007 Period



Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address

Appendix 7: The Average Yields of Days of Week According to Years in 1988-2007 Period

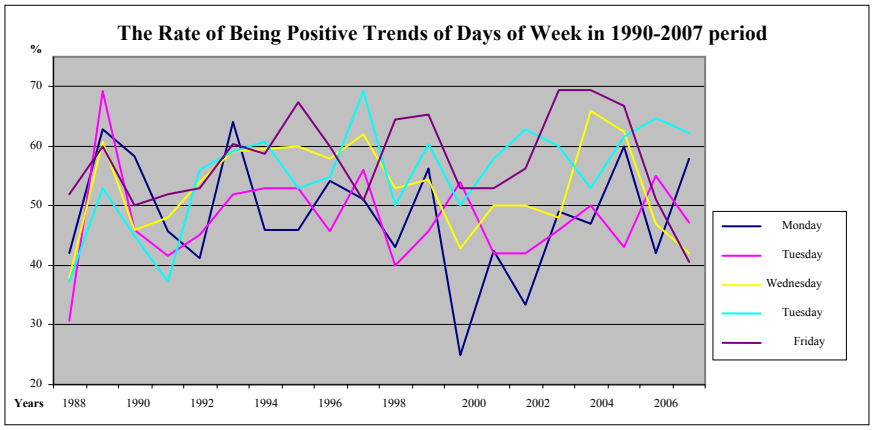
Years	Monday	Tuesday	Wednesday	Thursday	Friday	Observation
2007	0,72	0,25	-0,57	0,54	0,00	194
2006	-0,37	-0,04	-0,02	0,41	0,03	248
2005	0,19	0,14	-0,03	0,31	0,38	244
2004	-0,21	0,11	0,32	-0,1	0,53	249
2003	0,08	0,27	0,09	0,27	0,62	246
2002	-0,84	-0,56	-0,12	0,79	0,34	252
2001	-0,58	-0,47	-0,08	1,58	0,62	248
2000	-1,74	0,73	0,2	-0,15	0,28	246
1999	0,93	0,25	0,84	0,84	1,17	236
1998	-0,04	-0,12	-0,36	-0,29	0,64	248
1997	0,47	0,03	0,71	0,93	0,56	252
1996	0,31	-0,16	0,63	0,74	0,35	247
1995	-0,52	0,44	0,3	0,18	0,51	251
1994	-0,33	-0,18	0,24	0,76	0,34	253
1993	0,96	0,25	0,86	0,78	0,64	246
1992	-0,52	-0,47	0,44	0,28	0,21	251
1991	0,33	-0,29	0,17	-0,3	0,95	247
1990	0,46	-0,06	0,47	-0,32	0,51	247
1989	0,61	1,15	1,06	0,59	0,26	255
1988	0,15	-0,72	-0,6	-0,27	0,33	252
Average	**-0,06**	**0,04**	**0,28**	**0,37**	**0,48**	**4.981**

1988-2007	Number of Years that have Positive Average Yield	Number of Years that have Negative Average Yield	Number of Years that have the Highest Average Yield	Number of Years that have the Lowest Average Yield
Monday	11	9	2	9
Tuesday	10	10	2	6
Wednesday	13	6	1	3
Thursday	14	7	6	1
Friday	20	0	9	1
Sum			20	20

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address

Appendix 8: The Rates of Being Positive According to All Periods and Years

Years	Monday	Tuesday	Wednesday	Thursday	Friday	Observation
2007	57,9	47,2	42,1	62,2	40,6	194
2006	42,0	55,1	46,9	64,7	51,0	248
2005	60,0	43,1	62,5	61,7	66,7	244
2004	46,9	50,0	66,0	52,9	69,4	249
2003	49,0	46,0	47,9	60,0	69,4	246
2002	33,3	42,0	50,0	62,8	56,3	252
2001	42,6	42,0	50,0	58,0	52,9	248
2000	25,0	54,0	42,9	50,0	53,1	246
1999	56,3	45,8	54,4	60,4	65,2	236
1998	43,1	40,0	52,9	50,0	64,6	248
1997	51,0	56,0	62,0	69,2	51,0	252
1996	54,2	45,8	58,0	54,9	60,0	247
1995	46,0	52,9	60,0	52,9	67,4	251
1994	46,0	53,1	59,6	60,8	58,8	253
1993	64,0	52,0	59,2	59,2	60,4	246
1992	41,2	45,1	54,0	56,0	53,1	251
1991	45,8	41,7	48,0	37,3	52,0	247
1990	58,3	46,0	46,0	44,9	50,0	247
1989	62,8	69,2	60,8	52,9	60,0	255
1988	42,0	30,6	38,0	37,3	51,9	252
Average	**48,4**	**47,9**	**53,1**	**55,4**	**57,7**	**4.981**



Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address

Appendix 9: The Values in which the Buy and Sale Commissions of the Main Investment Strategies: "Buy at Closing on Tuesday, Sell at Closing on Friday"

Years	Strategy Portfolio Value	%0,01 Commission S.Portfolio Value	%0,01 Commission S. Portfolio Value	Strategy Portfolio Yield (%) (A)	%0,01 Commission S.Portfolio Yield (%) (B)	%0,01 Commission S. Portfolio Yield (%) (C)	ISE-100 Portfolio Annual Yield (%) (D)	Difference 1 =A-D (%)	Difference 2 =B-D (%)	Difference 3 =C-D (%)
1988	73,86	66,80	60,39	-26,14	-33,20	-39,61	-44,44	**18,30**	**11,24**	**4,82**
1989	251,93	227,67	205,63	151,93	127,67	105,63	493,07	-341,14	-365,40	-387,44
1990	152,45	137,97	124,80	52,45	37,97	24,80	46,81	**5,64**	-8,84	-22,01
1991	138,00	124,64	112,50	38,00	24,64	12,50	34,20	**3,80**	-9,56	-21,70
1992	165,18	146,56	132,33	65,18	46,56	32,33	-8,35	**73,53**	**54,91**	**40,68**
1993	293,95	271,60	245,35	193,95	171,60	145,35	416,53	-222,58	-244,93	-271,18
1994	182,08	164,15	147,89	82,08	64,15	47,89	31,79	**50,29**	**32,36**	**16,11**
1995	158,73	143,38	129,44	58,73	43,38	29,44	46,84	**11,89**	-3,46	-17,40
1996	231,37	209,08	188,82	131,37	109,08	88,82	143,82	-12,46	-34,75	-55,00
1997	294,18	265,37	239,23	194,18	165,37	139,23	253,63	-59,44	-88,26	-114,39
1998	87,81	79,27	71,51	-12,19	-20,73	-28,49	-24,72	**12,53**	**3,99**	-3,77
1999	349,72	317,42	287,94	249,72	217,42	187,94	485,42	-235,70	-268,00	-297,48
2000	108,21	97,90	88,17	8,21	-2,10	-11,83	-37,95	**46,16**	**35,85**	**26,12**
2001	250,33	226,22	204,31	150,33	126,22	104,31	46,05	**104,29**	**80,17**	**58,26**
2002	153,89	138,73	124,98	53,89	38,73	24,98	-24,76	**78,65**	**63,49**	**49,74**
2003	162,51	146,81	132,54	62,51	46,81	32,54	79,61	-17,09	-32,80	-47,07
2004	138,62	124,96	112,57	38,62	24,96	12,57	34,08	**4,55**	-9,12	-21,51
2005	135,67	122,29	110,16	35,67	22,29	10,16	59,29	-23,62	-37,00	-49,13
2006	118,22	106,76	96,35	18,22	6,76	-3,65	-1,66	**19,88**	**8,42**	-1,99
2007	142,68	127,73	115,06	42,68	27,73	15,06	41,57	**1,11**	-13,85	-26,51
Average	179,47	162,27	146,50	79,47	62,27	46,50	103,54	-24,07	-41,28	-57,0
Beating Market								**13**	**8**	**6**

(Addition of Overnight Repo Yields)

Years	Strategy Repo Yield	%0,01 Commission S.Repo Yield	%0,01 Commission S. Repo Yield	Strategy Total Portfolio Yield (%) (A)	%0,01 Commission S.Total Portfolio Yield (%) (B)	%0,01 Commission S. Total Portfolio Yield (%) (C)	ISE- 100 Portfolio Annual Yield (%) (D)	Difference 1 =A-D (%)	Difference 2 =B-D (%)	Difference 3 =C-D (%)
1988	12,02	11,44	10,97	-14,12	-21,76	-28,64	-44,44	**30,32**	**22,68**	**15,80**
1989	13,01	12,22	11,54	164,94	139,89	117,17	493,07	-328,13	-353,18	-375,90
1990	13,10	12,40	11,83	65,55	50,37	36,63	46,81	**18,74**	**3,56**	**-10,18**
1991	22,14	21,06	20,02	60,14	45,70	32,52	34,20	**25,94**	**12,50**	**1,68**
1992	19,69	18,62	17,68	84,87	65,18	50,01	-8,35	**93,22**	**73,53**	**58,36**
1993	24,69	23,38	22,06	218,64	194,98	167,41	416,53	-197,89	-221,55	-249,12
1994	34,83	32,94	30,91	116,91	97,09	78,80	31,79	**85,12**	**65,30**	**47,01**
1995	33,45	31,79	30,14	92,18	75,17	59,58	46,84	**45,34**	**28,33**	**12,74**
1996	29,46	27,79	26,31	160,83	136,87	115,13	143,82	**17,01**	-6,95	-28,69
1997	34,56	32,74	30,66	228,74	198,11	169,89	253,63	-24,89	-55,52	-83,74
1998	20,84	19,76	18,89	8,65	-0,97	-9,60	-24,72	**33,37**	**23,75**	**15,12**
1999	33,11	31,44	29,43	282,83	248,86	217,37	485,42	-202,59	-236,56	-268,05
2000	19,93	19,07	18,16	28,14	16,97	6,33	-37,95	**66,09**	**54,92**	**44,28**
2001	32,76	30,80	29,13	183,09	157,02	133,44	46,05	**137,04**	**110,97**	**87,39**
2002	14,70	13,89	13,12	68,59	52,62	38,10	-24,76	**93,35**	**77,38**	**62,86**
2003	12,79	12,13	11,47	75,30	58,94	44,01	79,61	-4,31	-20,67	-35,60
2004	6,64	6,30	6,00	45,26	31,26	18,57	34,08	**11,18**	**0,82**	-13,51
2005	4,75	4,49	4,25	40,42	26,78	14,41	59,29	-18,87	-32,51	-44,88
2006	4,74	4,50	4,27	22,96	11,26	0,62	-1,66	**24,62**	**12,92**	**2,28**
2007	6,03	5,71	5,41	48,71	33,44	20,47	41,57	**7,14**	-8,13	-21,10
Average	19,66	18,62	17,61	99,13	80,89	64,11	103,54	-4,41	-22,65	-39,43
Beating Market								**14**	**12**	**11**

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address

Appendix 10: The Values in which the Buy and Sale Commissions of the Main Investment Strategies: "Buy at Closing on Monday, Sell at Closing on Friday"

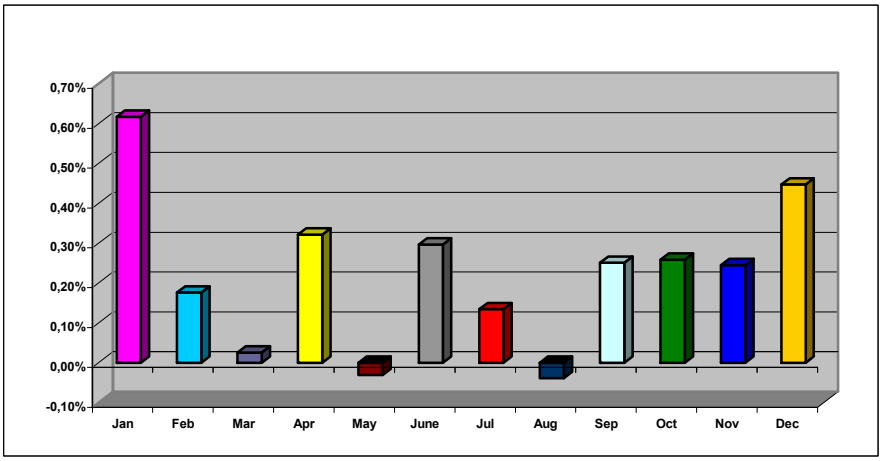
Years	Strategy Portfolio Value	%0,01 Commission S.Portfolio Value	%0,01 Commission S. Portfolio Value	Strategy Portfolio Yield (%) (A)	%0,01 Commission S.Portfolio Yield (%) (B)	%0,01 Commission S. Portfolio Yield (%) (C)	ISE-100 Portfolio Annual Yield (%) (D)	Difference 1 =A-D (%)	Difference 2 =B-D (%)	Difference 3 =C-D (%)
1988	51,39	46,36	41,82	-48,61	-53,64	-58,18	-44,44	-4,18	-9,20	-13,75
1989	429,43	387,51	349,47	329,43	287,51	249,47	493,07	-163,63	-205,56	-243,60
1990	157,62	142,65	129,03	57,62	42,65	29,03	46,81	**10,81**	-4,16	-17,78
1991	117,74	106,32	95,95	17,74	6,32	-4,05	34,20	-16,46	-27,88	-38,25
1992	140,27	124,64	112,52	40,27	24,64	12,52	-8,35	**48,62**	**32,99**	**20,88**
1993	329,99	303,22	273,94	229,99	203,22	173,94	416,53	-186,54	-213,31	-242,59
1994	162,39	146,37	131,85	62,39	46,37	31,85	31,79	**30,60**	**14,58**	**0,06**
1995	196,59	177,62	160,39	96,59	77,62	60,39	46,84	**49,75**	**30,78**	**13,55**
1996	212,66	192,16	173,52	112,66	92,16	73,52	143,82	-31,16	-51,66	-70,30
1997	291,04	262,00	235,74	191,04	162,00	135,74	253,63	-62,59	-91,63	-117,89
1998	80,61	72,76	65,63	-19,39	-27,24	-34,37	-24,72	**5,33**	-2,52	-9,65
1999	384,65	349,14	316,74	284,65	249,14	216,74	485,42	-200,77	-236,28	-268,68
2000	159,75	144,29	130,24	59,75	44,29	30,24	-37,95	**97,70**	**82,24**	**68,19**
2001	194,97	176,14	159,04	94,97	76,14	59,04	46,05	**48,93**	**30,10**	**12,99**
2002	113,22	102,03	91,89	13,22	2,03	-8,11	-24,76	**37,99**	**26,80**	**16,65**
2003	184,79	166,95	150,74	84,79	66,95	50,74	79,61	**5,18**	-12,66	-28,87
2004	145,35	131,02	118,04	45,35	31,02	18,04	34,08	**11,27**	-3,05	-16,04
2005	145,27	130,95	117,97	45,27	30,95	17,97	59,29	-14,02	-28,34	-41,32
2006	116,97	105,63	95,33	16,97	5,63	-4,67	-1,66	**18,63**	**7,29**	-3,01
2007	135,87	123,03	110,83	35,87	23,03	10,83	41,57	-5,70	-18,55	-30,75
Average	187,53	169,54	153,03	87,53	69,54	53,03	103,54	-16,01	-34,00	-50,51
Beating Market								**11**	**7**	**6**

(Addition of Overnight Repo Yields)

Years	Strategy Repo Yield	%0,01 Commission S. Repo Yield	%0,01 Commission S. Repo Yield	Strategy Total Portfolio Yield (%) (A)	%0,01 Commission S.Total Portfolio Yield (%) (B)	%0,01 Commission S. Total Portfolio Yield (%) (C)	ISE-100 Portfolio Annual Yield (%) (D)	Difference 1 =A-D (%)	Difference 2 =B-D (%)	Difference 3 =C-D (%)
1988	5,02	4,81	4,62	-43,59	-48,83	-53,56	-44,44	**0,85**	-4,39	-9,12
1989	8,85	8,31	7,80	338,28	295,82	257,27	493,07	-154,79	-197,25	-235,8
1990	8,06	7,66	7,28	65,68	50,31	36,31	46,81	**18,87**	**3,50**	-10,5
1991	10,26	9,75	9,28	28,00	16,07	5,23	34,2	-6,2	-18,13	-28,97
1992	8,29	7,84	7,44	48,56	32,48	19,96	-8,35	**56,91**	**40,83**	**28,31**
1993	13,35	12,63	11,91	243,34	215,85	185,85	416,53	-173,19	-200,68	-230,68
1994	15,17	14,28	13,46	77,56	60,65	45,31	31,79	**45,77**	**28,86**	**13,52**
1995	18,84	17,84	16,90	115,43	95,46	77,29	46,84	**68,59**	**48,62**	**30,45**
1996	14,08	13,34	12,64	126,74	105,50	86,16	143,82	-17,08	-38,32	-57,66
1997	15,94	15,02	14,04	206,98	177,02	149,78	253,63	-46,65	-76,61	-103,85
1998	10,26	9,77	9,35	-9,13	-17,47	-25,02	-24,72	**15,59**	**7,25**	**0,30**
1999	18,66	17,64	16,65	303,31	266,78	233,39	485,42	-182,11	-218,64	-252,03
2000	13,65	12,96	12,31	73,40	57,25	42,55	-37,95	**111,35**	**95,2**	**80,5**
2001	14,50	13,75	13,04	109,47	89,89	72,08	46,05	**63,42**	**43,84**	**26,03**
2002	6,19	5,86	5,52	19,41	7,89	-2,59	-24,76	**44,17**	**32,65**	**22,17**
2003	6,81	6,41	6,09	91,60	73,36	56,83	79,61	**11,99**	-6,25	-22,78
2004	3,25	3,11	2,91	48,60	34,13	20,95	34,08	**14,52**	**0,05**	-13,13
2005	2,45	2,32	2,20	47,72	33,27	20,17	59,29	-11,57	-26,02	-39,12
2006	2,29	2,18	2,13	19,26	7,81	-2,54	-1,66	**20,92**	**9,47**	**0,88**
2007	2,82	2,67	2,53	38,69	25,70	13,36	41,57	**0,88**	-15,87	-28,21
Average	9,94	9,41	8,90	97,47	78,95	61,94	103,54	-6,07	-24,59	-41,6
Beating Market								**13**	**10**	**8**

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

Appendix 11: The Months of the Year Average per Day Yield Graphic

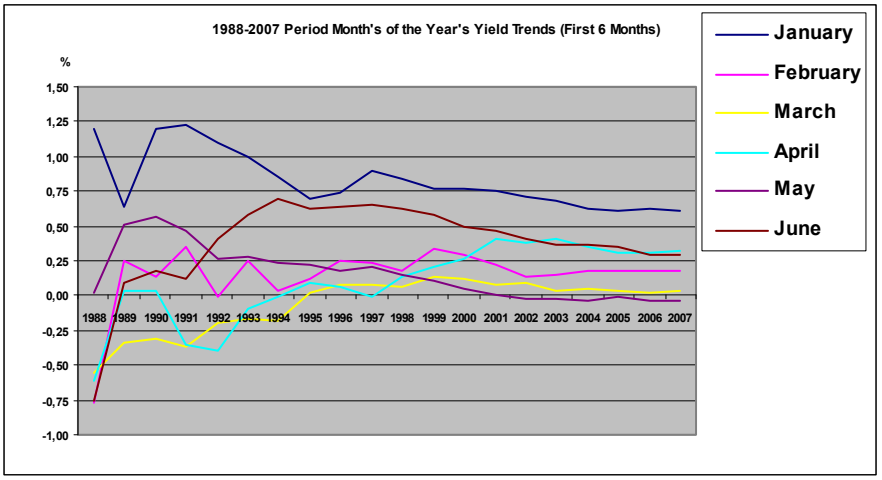


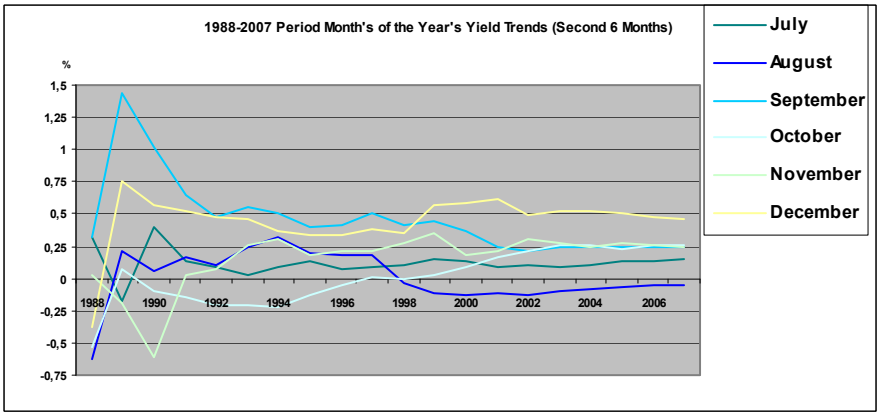
The Average per Day Yield Based on the Years

Years	January	February	March	April	May	June	July	August	September	October	November	December	Obsv
2007	0,26	0,12	0,38	0,57	0,23	0,01	0,63	-0,21	0,4	0,35	-0,33	0,14	194
2006	0,68	0,27	-0,38	0,12	-0,60	-0,3	0,1	0,15	-0,05	0,5	-0,29	0,12	248
2005	0,51	0,20	-0,44	-0,39	0,36	0,3	0,45	0,2	0,35	-0,19	0,98	0,23	244
2004	-0,35	0,55	0,3	-0,53	-0,25	0,24	0,35	0,21	0,39	0,22	-0,09	0,51	249
2003	0,3	0,34	-0,83	0,95	-0,05	-0,21	-0,12	0,46	0,54	0,9	-0,49	1,08	246
2002	-0,16	-0,98	0,29	-0,07	-0,39	-0,5	0,43	-0,32	-0,36	0,69	1,34	-1,2	252
2001	0,63	-0,74	-0,42	2,26	-0,51	0,18	-0,48	0,00	-1,31	1,21	0,81	0,96	248
2000	0,64	-0,16	0,05	0,99	-0,74	-0,5	-0,16	-0,23	-0,65	0,84	-1,91	0,79	246
1999	-0,01	2,13	0,82	0,95	-0,24	-0,07	0,78	-0,98	0,89	0,4	1,2	3,07	236
1998	0,22	-0,32	-0,01	1,64	-0,56	0,47	0,24	-2,23	-0,49	-0,05	0,93	0,07	248
1997	2,37	0,05	0,07	-0,67	0,56	0,76	0,23	0,07	1,24	0,51	0,13	0,82	252
1996	1,00	1,31	0,51	-0,17	-0,23	0,72	-0,45	0,09	0,55	0,6	0,55	0,32	247
1995	-0,33	0,72	1,45	0,85	0,16	0,1	0,4	-0,62	-0,36	0,51	-0,75	0,15	251
1994	0,00	-1,25	-0,22	0,45	-0,06	1,37	0,49	0,71	0,30	-0,34	0,57	-0,15	253
1993	0,46	1,55	-0,04	1,42	0,39	1,46	-0,25	0,99	0,93	-0,18	1,25	0,39	246
1992	0,58	-1,42	0,5	-0,52	-0,54	1,57	-0,12	-0,12	-0,19	-0,45	0,21	0,25	251
1991	1,31	1,01	-0,55	-1,56	0,14	-0,05	-0,69	0,48	-0,52	-0,3	1,97	0,4	247
1990	2,36	-0,12	-0,26	0,03	0,68	0,36	1,58	-0,28	0,16	-0,47	-1,46	0,16	247
1989	0,07	1,27	-0,14	0,68	1,00	0,92	-0,66	1,05	2,55	0,68	-0,39	1,88	255
1988	1,2	-0,77	-0,55	-0,61	0,02	-0,75	0,32	-0,63	0,32	-0,53	0,02	-0,37	252
Average	0,62	0,18	0,03	0,32	-0,03	0,30	0,13	-0,04	0,25	0,26	0,24	0,44	0,22

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

Appendix 12: 1988-2007 Period Months of the Year's Average Daily Yield Trends and 1988-2007 Period Yields For Six Months





1988-2007	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	LAST QUARTER
Average Yields	0,27%	0,19%	0,12%	0,32%
S. Deviation	3,30%	2,66%	2,60%	3,03%
Kurtosis	2,5574	1,4387	3,4603	4,3342
Skewness	-0,0373	0,2276	0,0461	0,4149
Observation	1218	1226	1278	1259
Yield/Risk	0,0821	0,0724	0,0445	0,1046
Median	0,23%	0,09%	0,07%	0,20%

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

Appendix 13: The Average Yields for 5 Years Sub Periods and Standard Deviations

Months	1988-1992			1993-1997			1998-2002			2003-2007			1988-2007		
	Average. Yield	S.Dev.	No. of Days	Ave. Yield	S.Dev.	No. of Days	Ave. Yield	S.Dev.	No. of Days	Ave. Yield	S.Dev.	No. of Days	Ave. Yield	S.Dev.	No. of Days
January	1,12%	3,60%	108	0,72%	3,69%	107	0,29%	4,12%	94	0,27%	2,02%	98	**0,62%**	**3,46%**	**407**
February	-0,01%	3,38%	101	0,45%	3,81%	94	0,01%	4,43%	99	0,27%	1,80%	92	**0,18%**	**3,50%**	**386**
March	-0,19%	2,58%	111	0,38%	3,04%	104	0,17%	3,21%	98	-0,21%	2,79%	112	**0,03%**	**2,90%**	**425**
April	-0,35%	2,22%	91	0,42%	3,43%	99	1,14%	3,64%	96	0,07%	1,85%	103	**0,32%**	**2,92%**	**389**
May	0,28%	2,76%	106	0,17%	3,10%	97	-0,49%	2,69%	108	-0,07%	1,95%	108	**-0,03%**	**2,65%**	**419**
June	0,40%	2,28%	101	0,87%	2,60%	103	-0,07%	2,75%	107	0,01%	1,73%	107	**0,30%**	**2,39%**	**418**
July	0,02%	2,39%	100	0,07%	2,44%	109	0,17%	3,26%	111	0,26%	1,64%	109	**0,13%**	**2,50%**	**429**
August	0,10%	3,22%	108	0,25%	2,01%	107	-0,72%	3,05%	100	0,17%	1,80%	108	**-0,04%**	**2,61%**	**423**
September	0,46%	2,74%	106	0,55%	2,08%	108	-0,35%	3,82%	105	0,33%	1,64%	107	**0,25%**	**2,70%**	**426**
October	-0,20%	3,18%	105	0,24%	2,84%	105	0,63%	3,08%	106	0,36%	2,09%	103	**0,26%**	**2,84%**	**419**
November	0,15%	3,18%	108	0,36%	2,59%	107	0,47%	4,28%	108	-0,02%	1,81%	97	**0,24%**	**3,12%**	**420**
December	0,36%	3,26%	108	0,32%	2,21%	107	0,72%	4,70%	108	0,43%	1,64%	97	**0,24%**	**3,15%**	**420**
All Days	**0,19%**	**2,95%**	**1253**	**0,40%**	**2,86%**	**1249**	**0,16%**	**3,65%**	**1230**	**0,15%**	**1,93%**	**1249**	**0,22%**	**2,90%**	**4981**

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

Appendix 14: 1988-2007 Period for Year Based Positive Yield of the Months Rate (%)

Years	January	February	March	April	May	June	July	August	September	October	November	December	Observation
2007	40,0	42,9	63,6	62,5	60,0	44,4	57,9	42,9	47,4	57,9	38,9	50,0	194
2006	70,6	60,0	39,1	60,0	50,0	50,0	38,1	45,5	50,0	68,4	47,6	52,4	248
2005	66,7	65,0	47,8	45,0	52,6	63,6	66,7	54,6	54,6	45,0	77,8	68,4	244
2004	45,0	58,8	60,9	42,9	50,0	63,6	68,2	61,9	63,6	55,0	45,0	66,7	249
2003	54,6	73,3	47,6	66,7	42,9	38,1	47,8	61,9	54,6	54,6	57,1	60,9	246
2002	52,4	38,9	57,1	52,4	43,5	40,0	60,9	38,1	42,9	59,1	52,4	45,0	252
2001	50,0	45,0	35,3	65,0	39,1	57,1	50,0	40,9	31,6	63,6	54,6	55,6	248
2000	52,6	38,1	44,4	60,0	36,4	50,0	47,6	36,4	38,1	59,1	36,4	43,8	246
1999	46,7	80,0	60,0	47,4	50,0	36,4	54,6	42,9	59,1	45,0	68,2	80,0	236
1998	55,6	55,0	50,0	75,0	40,0	54,6	52,2	33,3	40,9	40,0	57,1	52,2	248
1997	86,4	55,6	57,1	33,3	52,4	52,4	56,5	42,9	77,3	68,2	50,0	56,5	252
1996	59,1	56,3	57,1	47,4	45,5	70,0	30,4	42,9	66,7	61,9	66,7	55,0	247
1995	45,5	80,0	72,7	75,0	52,9	54,6	55,0	40,9	47,6	50,0	36,4	61,9	251
1994	47,6	40,0	47,6	42,9	55,6	68,2	66,7	63,6	63,6	42,9	77,3	50,0	253
1993	60,0	65,0	47,4	76,2	42,1	72,2	36,4	71,4	72,7	42,1	68,2	52,2	246
1992	54,6	40,0	59,1	31,6	40,0	68,4	47,8	47,6	45,5	42,1	61,9	56,5	251
1991	63,6	50,0	42,9	33,3	43,5	47,1	30,4	47,6	38,1	33,3	57,1	50,0	247
1990	72,7	45,0	45,5	50,0	56,5	42,9	70,6	40,9	50,0	40,9	27,3	50,0	247
1989	50,0	75,0	43,5	75,0	76,2	68,2	26,3	72,7	81,0	50,0	40,9	76,2	255
1988	57,9	38,1	34,8	33,3	47,4	22,7	44,4	31,8	54,6	38,1	45,5	36,4	252
Average	56,6	55,1	50,7	53,7	48,8	53,2	50,4	48,0	54,0	50,9	53,3	56,0	

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

Appendix 15: The Month of the Year Effect Distribution Numbers

1988-2007	Number of Years that have Positive Average Yield	Number of Years that have Negative Average Yield	Number of Years that have the Highest Average Yield	Number of Years that have the Lowest Average Yield	Number of Years that have Ratio of being Positive Higher than %50	Greatest 20 Increases	Greatest 20 Decreases
January	16	4	4	0	15	4	2
February	12	8	3	3	12	1	5
March	9	11	1	2	10	2	2
April	12	8	3	3	11	1	1
May	9	11	0	1	10	0	0
June	13	7	2	0	13	1	0
July	12	8	1	3	11	0	0
August	10	10	0	2	5	0	3
September	12	8	1	1	12	1	1
October	12	8	0	0	11	2	2
November	12	8	3	4	12	3	2
December	17	3	2	1	17	5	2

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

Appendix 16: The Strategies Based on Month of the Year Effect, Except for the years: 1989-1993-1996-1997-1999

	January /September-December/ Portfolio Value	January /October-December/ Portfolio Value	January /December Portfolio Value	January/ April/ September-December/ Portfolio Value	January/ April/ June/ September-December/ Portfolio Value	ISE-100 Index Portfolio Value
Average Stock Portfolio Value	119,1	122,8	114,4	131,9	136,1	118,6
Beating Market (Year)	8	8	8	9	9	
Number of the Str. Months	5	4	2	6	7	
Yield per Months*	3,8	5,7	7,2	5,3	5,2	1,6
Repo Advantage	7 month	8 month	10 month	6 month	5 month	
Total Portfolio Yield**	51,07	59,45	60,19	60,37	60,07	18,6
Beating Market ***	12	11	10	11	11	

The Years With Negative Yield are: 1988-1992-1988-2000-2002-2006

	January /September-December/ Portfolio Value	January /October-December/ Portfolio Value	January /December Portfolio Value	January/ April/ September-December/ Portfolio Value	January/ April/ June/ September-December/ Portfolio Value	ISE-100 Index Portfolio Value
Average Stock Portfolio Value	111,1	123,0	111,4	143,0	145,1	76,3
Beating Market	6	6	6	6	6	
Number of the Str. Months	5	4	2	6	7	
Yield per Months (%)*	2,2	5,8	5,7	7,2	6,4	-1,16
Repo Advantage	7 month	8 month	10 month	6 month	5 month	
Total Portfolio Yield (%)**	49,48	60,00	57,66	71,00	68,77	-23,6

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/Web address

* Yield per Month =(Average Stock Portfolio Value-100) / The Number of Strategy Months.

** Total Portfolio Yield = (Average Stock Portfolio Value--100) + Repo (Repurchase) Yields

*** Number of the year that strategies beat market, After the addition of the average stock portfolio yield and repo yield.

Appendix 17: 1988-2007 Period end of December Last 10 days–January First 10 Days Descriptive Statistics

Days	Average Yields	Standard Deviation	Yield/Risk	Rate of Being Positive (%)
January 10. Transaction Day	0,45%	2,88%	0,16	55
January 9. Transaction Day	0,73%	3,34%	0,22	50
January 8. Transaction Day	0,46%	3,91%	0,12	60
January 7. Transaction Day	1,38%	3,97%	0,35	65
January 6. Transaction Day	1,20%	3,79%	0,32	80
January 5. Transaction Day	0,98%	2,78%	0,35	55
January 4. Transaction Day	-0,63%	2,80%	-0,23	40
January 3. Transaction Day	1,17%	3,97%	0,29	65
January 2. Transaction Day	1,46%	2,97%	0,49	70
January First Transaction Day	1,69%	4,72%	0,36	70
December Last Transaction Day	0,85%	1,66%	0,51	70
December Last 2. Transaction Day	2,01%	2,98%	0,67	80
December Last 3. Transaction Day	0,69%	2,39%	0,29	50
December Last 4. Transaction Day	-0,18%	2,65%	-0,07	40
December Last 5. Transaction Day	-0,72%	3,16%	-0,23	35
December Last 6. Transaction Day	0,20%	1,74%	0,11	60
December Last 7. Transaction Day	0,35%	2,86%	0,12	55
December Last 8. Transaction Day	0,69%	2,19%	0,32	75
December Last 9. Transaction Day	0,89%	2,45%	0,36	65
December Last 10. Transaction Day	0,38%	3,62%	0,10	55

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/ Web address.

Appendix 18: 1988–2007 Period Month of the Year last 8 Days–Following Month first 8 days, Descriptive Statistics

Days	Average Yields	Standard Deviation	Yield/Risk	Rate of Being Positive (%)
F.Month's 8. Transaction Day	0,29%	3,24%	0,09	53,8%
F.Month's 7. Transaction Day	-0,02%	3,05%	-0,01	47,5%
F.Month's 6. Transaction Day	0,10%	2,66%	0,04	49,6%
F.Month's 5. Transaction Day	0,01%	2,71%	0,00	48,3%
F.Month's 4. Transaction Day	0,46%	3,00%	0,15	54,2%
F.Month's 3. Transaction Day	0,32%	3,20%	0,10	54,6%
F.Month's 2. Transaction Day	0,55%	2,75%	0,20	58,3%
F.Month's First Transaction Day	0,59%	3,26%	0,18	57,1%
Month's Last Transaction Day	0,64%	2,68%	0,24	60,4%
Month's Last 2. Transaction Day	0,24%	2,73%	0,09	52,9%
Month's Last 3. Transaction Day	0,08%	2,84%	0,03	51,3%
Month's Last 4. Transaction Day	-0,01%	2,95%	0,00	48,3%
Month's Last 5.Transaction Day	-0,09%	3,16%	-0,03	47,1%
Month's Last 6. Transaction Day	0,10%	2,87%	0,03	53,8%
Month's Last 7. Transaction Day	0,18%	2,75%	0,07	53,3%
Month's Last 8. Transaction Day	0,11%	2,91%	0,04	54,2%

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/Web address.

Appendix 19: The Strategies Based on Turn of the Month Effect, Except for the years: 1989-1993-1996-1997-1999

	Last Transaction Day of the Month - First 2 Transaction Days of the Following Month Portfolio Value	Last Transaction Day of the Month - First 4 Transaction Days of the Following Month Portfolio Value	ISE-100 Index Portfolio Value
Average Stock Portfolio Value	**119,65**	**127,28**	**118,57**
Beating Market (Year)	**7**	**9**	
Number of Strategy Day	36	60	
Yields Per Day (%)*	**0,54**	**0,45**	**0,07**
Repo Advantage	330 day	305 day	
Total Portfolio Yield (%)**	**70,37**	**73,70**	**18,57**
Beating Market (Year)***	**13**	**13**	

The Years with the Negative Yield are: 1988-1992-1988-2000-2002-2006

	Last Transaction Day of the Month - First 2 Transaction Days of the Following Month Portfolio Value	Last Transaction Day of the Month - First 4 Transaction Days of the Following Month Portfolio Value	ISE-100 Index Portfolio Value
Average Stock Portfolio Value	**101,84**	**101,38**	**76,37**
Number of Strategy Day	36	60	
Beating Market (Year)	**5**	**5**	
Yields Per Day (%)*	**0,05**	**0,03**	**-0,09**
Repo Advantage	330 days	305 days	
Total Portfolio Yield (%)**	**48,42**	**47,75**	**-23,6**
Beating Market (Year)***	**6**	**6**	

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/Web address

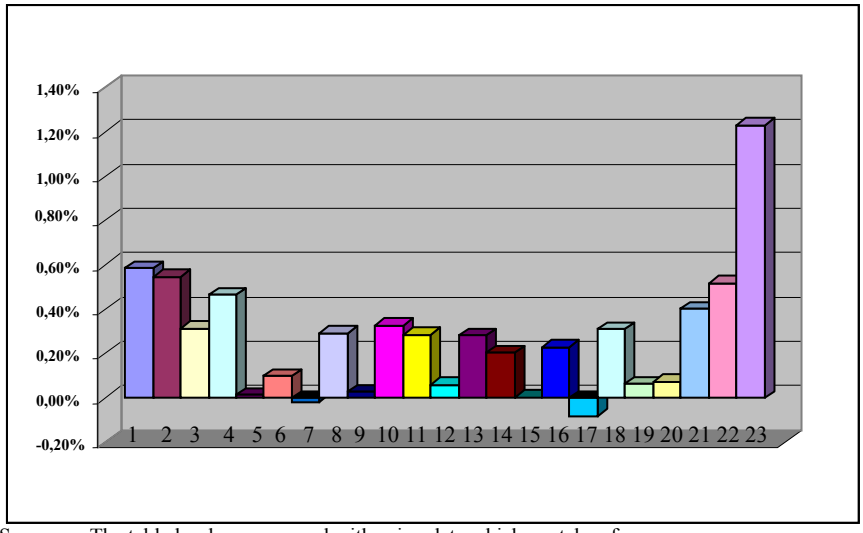
* Yield per Day =(Average Stock Portfolio Value-100) / The Number of Strategy days.

** Total Portfolio Yield = (Average Stock Portfolio Value-100) + Repo (Repurchase) Yields

*** Number of the years that strategies beat market, After the addition of the average stock portfolio yield and repo (repurchase) yield

Appendix 20: 1988-2007 Period Transaction Days of Month Defining Statistics

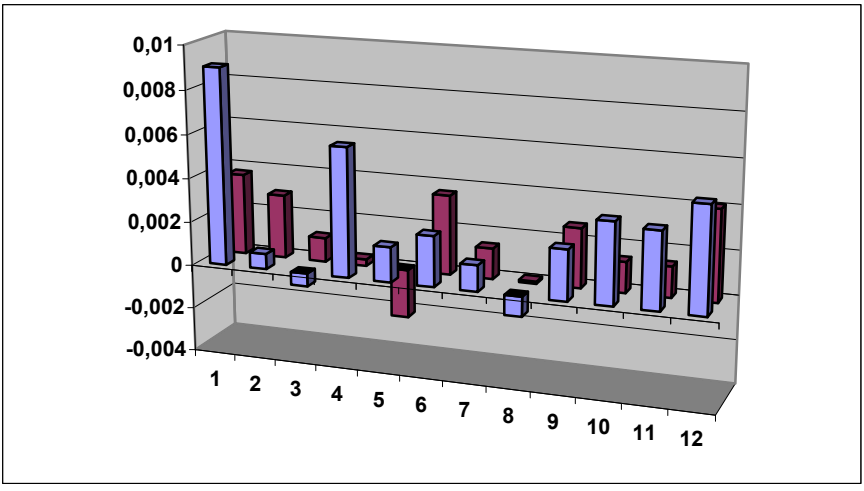
Days	Average Yields	Standard Deviation	Rate of Being Positive (%)	Yield/Risk	Observation
Month's 1. Transaction Day	0,59%	3,26%	57,1%	0,18	240
Month's 2. Transaction Day	0,55%	2,75%	58,3%	0,20	240
Month's 3. Transaction Day	0,32%	3,20%	54,6%	0,10	240
Month's 4. Transaction Day	0,46%	3,00%	54,2%	0,15	240
Month's 5. Transaction Day	0,01%	2,71%	48,3%	0,00	240
Month's 6. Transaction Day	0,10%	2,66%	49,6%	0,04	240
Month's 7. Transaction Day	-0,02%	3,05%	47,5%	-0,01	240
Month's 8. Transaction Day	0,29%	3,24%	53,8%	0,09	240
Month's 9. Transaction Day	0,03%	2,71%	46,1%	0,01	240
Month's 10. Transaction Day	0,33%	2,59%	56,6%	0,13	240
Month's 11. Transaction Day	0,28%	3,06%	52,5%	0,09	240
Month's 12. Transaction Day	0,06%	3,03%	46,3%	0,02	240
Month's 13. Transaction Day	0,28%	3,20%	53,8%	0,09	240
Month's 14. Transaction Day	0,21%	2,76%	54,6%	0,08	240
Month's 15. Transaction Day	0,01%	2,76%	54,2%	0,00	238
Month's 16. Transaction Day	0,23%	3,15%	52,3%	0,07	235
Month's 17. Transaction Day	-0,08%	2,77%	48,9%	-0,03	231
Month's 18. Transaction Day	0,31%	2,84%	52,9%	0,11	226
Month's 19 Transaction Day	0,06%	3,12%	50,7%	0,02	215
Month's 20 Transaction Day	0,07%	2,72%	47,8%	0,03	201
Month's 21 Transaction Day	0,40%	2,29%	56,0%	0,17	159
Month's 22 Transaction Day	0,52%	2,60%	54,7%	0,20	95
Month's 23 Transaction Day	1,23%	1,51%	73,9%	0,81	22



Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/Web address.

Appendix 21: The Yields of First and the Second half of the Months One by One

Days	Average Yields	Standard Deviation	Yield/Risk	Rate of Being Positive (%)	Observation
January First Half	0,90%	3,57%	0,25	60,85%	189
January Second Half	0,37%	3,35%	0,11	52,75%	218
February First Half	0,07%	2,97%	0,02	54,15%	205
February Second Half	0,29%	4,02%	0,07	55,25%	181
March First Half	-0,06%	3,01%	-0,02	48,78%	205
March Second Half	0,11%	2,80%	0,04	51,36%	220
April First Half	0,59%	2,70%	0,22	56,65%	203
April Second Half	0,03%	3,13%	0,01	50,00%	186
May First Half	0,16%	2,58%	0,06	47,34%	207
May Second Half	-0,22%	2,71%	-0,08	49,06%	212
June First Half	0,23%	2,34%	0,10	50,24%	207
June Second Half	0,36%	2,44%	0,15	54,98%	211
July First Half	0,12%	2,65%	0,05	52,20%	205
July Second Half	0,14%	2,35%	0,06	48,66%	224
August First Half	-0,09%	2,70%	-0,03	47,91%	215
August Second Half	0,01%	2,51%	0,00	48,56%	208
September First Half	0,23%	2,66%	0,09	55,87%	213
September Second Half	0,27%	2,75%	0,10	51,64%	213
October First Half	0,37%	2,88%	0,13	51,42%	212
October Second Half	0,14%	2,80%	0,05	50,72%	207
November First Half	0,35%	2,96%	0,12	55,40%	213
November Second Half	0,14%	3,29%	0,04	51,69%	207
December First Half	0,48%	3,50%	0,14	51,89%	212
December Second Half	0,41%	2,69%	0,15	59,13%	208
All Period	0,22%	2,91%	0,08	52,30%	4.981



Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr /Web address.

Appendix 22: The Descriptive Statistics Based on the Calendar Effect

Calendar Effect		Average Yields	Standard Deviation	Yield/Risk	Rate of Being Positive	Statistical Significant	Observation
Monday	Day of the Week	0,48%	2,57%	0,185	57,7%	1%	990
Tuesday	Day of the Week	0,37%	2,86%	0,131	55,4%	10%	1.003
Wednesday	Day of the Week	0,28%	2,83%	0,099	53,1%		999
Thursday	Day of the Week	0,04%	2,80%	0,015	47,9%	5%	998
Friday	Day of the Week	-0,06%	3,40%	-0,017	48,4%	1%	991
January	Month of the Year	0,62%	3,46%	0,178	56,6%	5%	407
December	Month of the Year	0,45%	3,15%	0,142	56,0%		420
April	Month of the Year	0,32%	2,92%	0,110	53,7%		389
June	Month of the Year	0,30%	2,39%	0,124	53,2%		418
October	Month of the Year	0,26%	2,84%	0,091	50,9%		419
September	Month of the Year	0,25%	2,70%	0,093	54,0%		426
November	Month of the Year	0,24%	3,12%	0,078	53,3%		420
February	Month of the Year	0,18%	3,50%	0,050	55,1%		386
July	Month of the Year	0,13%	2,50%	0,054	50,4%		429
March	Month of the Year	0,03%	2,90%	0,009	50,7%		425
May	Month of the Year	-0,03%	2,65%	-0,012	48,8%	5%	419
August	Month of the Year	-0,04%	2,61%	-0,015	48,0%	5%	423
During December Last 2 – January First 2 Day	Turn of the Year	1,50%	3,24%	0,465	73,0%	1%	80
During December Last 2 – January First 3 Day	Turn of the Year	1,44%	3,38%	0,425	71,0%	1%	100
During December Last 2 – January First 7 Day	Turn of the Year	1,34%	3,41%	0,394	70,0%	1%	160
During December Last 3 – January First 3 Day	Turn of the Year	1,31%	3,24%	0,405	68,0%	1%	120
During Month's Last - Following Month's First 2 Day	Turn of the Month	0,59%	2,90%	0,204	58,6%	1%	720
During Month's Last - Following Month's First 2 Day	Turn of the Month	0,51%	2,98%	0,171	56,9%	1%	1.200
During Month's Last 2 - Following Month's First 2 Day	Turn of the Month	0,50%	2,86%	0,176	57,2%	1%	960
During Month's Last 2- Following Month's First 4 Day	Turn of the Month	0,47%	2,94%	0,158	56,3%	1%	1.440
All Month's First Half	During the Month	0,27%	2,90%	0,095	52,7%		2.486
All Month's Second Half	During the Month	0,17%	2,92%	0,059	52,0%		2.495
All Days	**ISE-100 Index**	**0,22%**	**2,91%**	**0,077**	**52,3%**		**4.981**

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/Web address.

Appendix 23: Calendar Effect- Buy and Sell Strategies-All Years (1988-2007)

STRATEGIES	Calendar Effect	Average Yield	Beating Market	Number of Strategies Average Days	Yield per Day	Repo Yield	Total Yield	Finally Beating Market after Repo Yield
Buy at closing on Tuesday- Sell at closing on Friday	**Day of the week**	**79,47**	**13**	156	**0,51**	19,66	**99,13**	**14**
Buy at closing on Monday- Sell at closing on Friday	**Day of the week**	**87,52**	**11**	208	**0,42**	9,95	**97,47**	**12**
Buy at closing on Wednesday- Sell at closing on Friday	**Day of the week**	53,04	8	104	**0,51**	27,47	80,51	**11**
Buy at closing on Wednesday- Sell at closing on Thursday	**Day of the week**	21,98	8	52	**0,42**	32,10	54,08	9
Buy at closing on Thursday- Sell at closing on Friday	**Day of the week**	25,56	7	52	**0,49**	47,23	72,79	**12**
Buy at closing on Monday- Sell at closing on Thursday	**Day of the week**	49,33	7	156	0,32	17,49	66,82	8
Buy at closing on Tuesday- Sell at closing on Wednesday	**Day of the week**	15,30	5	52	0,29	44,82	60,12	**11**
Buy at closing on Monday- Sell at closing on Tuesday	**Day of the week**	2,52	4	52	0,05	42,04	44,56	8
Buy at closing on Friday- Sell at closing on Monday	**Day of the week**	-0,92	2	52	-0,02	40,26	39,34	7
Buy at closing on Friday- Sell at closing on Tuesday	**Day of the week**	2,59	1	104	0,03	20,86	23,45	3
Including: Jan / April / June / September - December	**Month of the year**	**60,40**	9	152	**0,40**	25,56	**85,96**	**11**
Including: Jan / April / September - December	**Month of the year**	49,90	9	130	0,38	29,23	79,13	**11**
Including: Jan / December	**Month of the year**	24,60	9	43	**0,57**	47,97	72,57	**10**
Including: Jan / September - December	**Month of the year**	50,00	8	108	**0,46**	33,58	83,58	**12**
Including: Jan / October - December	**Month of the year**	38,90	8	87	**0,45**	38,37	77,27	**11**
Month's Last - Following Month First 4	**Turn of the month**	**36,83**	9	60	**0,61**	50,15	**86,98**	**13**
Month's Last - Following Month First 2	**Turn of the month**	24,47	7	36	**0,68**	52,48	76,95	**13**
The Strategy based on during the month effect	**During the month**	**78,47**	9	162	**0,48**	25,88	**104,35**	**13**
ISE-100 Index		**103,50**		**260**	**0,40**	**0,00**	**103,5**	

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/Web address.

Appendix 24: Calendar Effect – Buy and Sell Strategies Except: 1989-1993-1996-1997-1999/15 Year-Period

STRATEGIES	Calendar Effect	Average Yield	Beating Market	Number of Strategies Average Days	Yield per Day	Repo Yield	Total Yield	Finally Beating Market after Repo yield
Buy at closing on Tuesday- Sell at closing on Friday	**Day of the week**	**44,55**	**13**	156	**0,286**	17,23	**61,78**	**13**
Buy at closing on Monday- Sell at closing on Friday	**Day of the week**	**40,19**	**12**	208	**0,193**	8,52	**48,71**	**12**
Buy at closing on Wednesday- Sell at closing on Friday	**Day of the week**	14,13	9	52	**0,272**	30,1	**44,23**	9
Buy at closing on Wednesday- Sell at closing on Thursday	**Day of the week**	**39,71**	8	104	**0,382**	25,64	**65,35**	**11**
Buy at closing on Thursday- Sell at closing on Friday	**Day of the week**	**23,21**	7	52	**0,446**	45,73	**68,94**	**12**
Buy at closing on Monday- Sell at closing on Thursday	**Day of the week**	14,8	7	156	**0,095**	15,15	**29,95**	8
Buy at closing on Tuesday- Sell at closing on Wednesday	**Day of the week**	4,28	5	52	**0,082**	41,37	**45,65**	**11**
Buy at closing on Monday- Sell at closing on Tuesday	**Day of the week**	-2,2	4	52	-0,042	40,11	**37,91**	8
Buy at closing on Friday- Sell at closing on Monday	**Day of the week**	-13,43	2	52	-0,258	36,28	**22,85**	7
Buy at closing on Friday- Sell at closing on Tuesday	**Day of the week**	-16,82	1	104	-0,162	18,67	1,85	3
Including: Jan / April / June / September - December	**Month of the year**	**36,1**	9	152	**0,238**	23,97	**60,07**	**11**
Including: Jan / April / September - December	**Month of the year**	**31,9**	9	130	**0,245**	28,47	**60,37**	**11**
Including: Jan / December	**Month of the year**	14,4	8	43	**0,335**	45,79	**60,19**	**11**
Including: Jan / September - December	**Month of the year**	**19,1**	8	108	**0,177**	31,97	**51,07**	**12**
Including: Jan / October - December	**Month of the year**	**22,8**	8	87	**0,262**	36,65	**59,45**	**11**
Month's Last - Following Month First 4	**Turn of the month**	**27,28**	9	60	**0,455**	46,42	**73,7**	**13**
Month's Last - Following Month First 2	**Turn of the month**	**19,65**	7	36	**0,546**	50,72	**70,37**	**13**
The Strategy based on during the month effect	**During the month**	**34,15**	9	162	**0,211**	22,86	**57,01**	**12**
ISE-100 Index		**18,6**		**260**	**0,072**		**18,6**	

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr/Web address.

Appendix 25: Individual and Institutional Investor in the ISE

Segment	Number of Investors			(%) Share	
	Individual	Institutional	Total	Individual	Institutional
0-1.000 YTL	576.116	1.299	577.415	61,56%	24,50%
1.000-10.000 YTL	212.511	457	212.968	22,71%	8,62%
10.000-100.000 YTL	125.022	471	125.493	13,36%	8,88%
100.000-1.000.000 YTL	20.422	826	21.248	2,18%	15,58%
1.000.000 + YTL	1.751	2.250	4.001	0,19%	42,43%
Total	935.822	5.303	941.125	100%	100%

Segment	Amount of Portfolio (YTL)			(%) Share			
				Individual		Institutional	
	Individual	Institutional	Total	Individual	Total	Institutional	Total
0-1.000 YTL	68.030.468	143.594	68.174.062	0,38%	0,06%	0,00%	0,00%
1.000-10.000 YTL	837.736.776	1.857.169	839.593.945	4,73%	0,76%	0,00%	0,00%
10.000-100.000 YTL	3.793.227.776	18.664.517	3.811.892.293	21,42%	3,45%	0,02%	0,02%
100.000-1.000.000 YTL	5.183.694.590	361.775.919	5.545.470.509	29,27%	4,72%	0,39%	0,33%
1.000.000 + YTL	7.825.562.254	91.726.654.008	99.552.216.262	44,19%	7,13%	99,58%	83,53%
Total	17.708.251.865	92.109.095.206	109.817.347.071	100%	16,13%	100,00%	83,87%

Years	Foreign Investor Trading Volume (buying) million $	Share in Total Buying (%)	Foreign Investor Trading Volume (selling) million $	Share in Total Selling (%)	Net Buying/Selling Volume million $	Total Trading Volume (%)
1997	4.308	7,41	4.609	7,93	-301	15,35
1998	5.626	7,99	6.044	8,59	-418	16,58
1999	9.452	11,25	8.428	10,03	1.024	21,28
2000	15.138	8,32	18.272	10,04	-3.134	18,36
2001	6.324	7,87	5.815	7,23	509	15,10
2002	6.427	9,08	6.442	9,10	-15	18,19
2003	9.172	9,16	8.162	8,15	1.010	17,31
2004	19.399	13,13	17.969	12,16	1.430	25,29
2005	42.594	21,11	38.507	19,09	4.087	40,20
2006	44.832	19,52	43.687	19,02	1.144	38,55
2007	30.971	24,57	27.287	21,65	3.684	46,22

Sources: The table has been prepared with using data which are taken from http://www.mkk.com.tr/MkkComTr/assets/files/tr/piyasa/istatistik/IAYP200711.xls Web address.

Appendix 26: ISE-100 Index in 1986-2007 Periods

ISE-100								
YEARS	Number of Transaction Days	Year	$	Yields		Trading Volume per Day (YTL and $)		Trading Volume per Day (Number)
		(Jan 1986=1)	(Jan 1986=1)	(Jan 1986=1)	(Jan 1986=1)	Million YTL	Million $	(1000 nominal)
1986	250	1,71	131,53	**0%**	**0**	0	0	---
1987	249	6,73	384,57	**294%**	**192%**	0	0	---
1988	253	3,74	119,82	**-44%**	**-69%**	0	0	---
1989	255	22,18	560,57	**493%**	**368%**	0,01	3	1
1990	247	32,56	642,63	**47%**	**15%**	0,06	24	6
1991	247	43,69	501,50	**34%**	**-22%**	0,14	34	18
1992	251	40,04	272,61	**-8%**	**-46%**	0,22	34	41
1993	246	206,83	833,28	**417%**	**206%**	1	88	143
1994	253	272,57	413,27	**32%**	**-50%**	3	92	396
1995	251	400,25	382,62	**47%**	**-7%**	9	209	1.220
1996	247	975,89	534,01	**144%**	**40%**	12	153	1.583
1997	252	3.451,00	982,00	**254%**	**84%**	36	231	3.650
1998	248	2.597,91	484,01	**-25%**	**-51%**	73	284	9.042
1999	236	15.208,7	1.654,17	**485%**	**242%**	156	356	24.677
2000	246	9.437,21	817,49	**-38%**	**-51%**	452	740	45.023
2001	248	13.782,7	557,52	**46%**	**-32%**	375	324	96.525
2002	252	10.369,9	368,26	**-25%**	**-34%**	422	281	134.656
2003	246	18.625,0	778,43	**80%**	**111%**	596	407	240.243
2004	249	24.971,6	1.075,12	**34%**	**38%**	837	593	279.577
2005	254	39.777,7	1.726,23	**59%**	**61%**	1.063	794	319.289
2006	250	39.117,4	1.620,59	**-2%**	**-6%**	1.301	919	366.538
2007	238	55.380,5	2.812,98	**44%**	**74%**	1.569	1.212	472.641

Sources: The table has been prepared with using data which are taken from http://www.mkk.com.tr /MkkComTr/assets/files/tr/piyasa/istatistik/IAYP200711.xls Web address.

Appendix 27: Statistical Test Result of Day of the Week Effect

F Test				
Testing Data Group		**F Value**	**P Value**	**Significant**
Monday, Tuesday, Wednesday, Thursday, Friday		5,8461	0,00481	1%
T tests				
Testing Data Series 1	**Testing Data Series 2**	**T Value**	**P Value**	**Significant**
Monday	Other days	3,00255	0,00278	1%
Tuesday	Other days	2,29872	0,02414	5%
Wednesday	Other days	0,694028	0,47676	-
Thursday	Other days	1,77372	0,06511	10%
Friday	Other days	3,389769	0,00084	1%

Statistical Test Result of Month of the Year Effect

T Tests				
Testing Data Series 1	**Testing Data Series 2**	**T Value**	**P Value**	**Significant**
January	Other months	2,4348	0,01563	5%
February	Other months	0,2732	0,77874	-
March	Other months	1,4269	0,14233	-
April	Other months	0,6811	0,49013	-
May	Other months	2,0288	0,04258	5%
June	Other months	0,6651	0,52175	-
July	Other months	0,7791	0,44783	-
August	Other months	2,1396	0,03296	5%
September	Other months	0,2177	0,82979	-
October	Other months	0,2753	0,79415	-
November	Other months	0,1265	0,88222	-
December	Other months	1,5669	0,12227	-

Sources: The table has been prepared with using data which are taken from http://evds.tcmb.gov.tr /Web address.

The ISE Review Volume: 12 No: 45
ISSN 1301-1642 © ISE 1997

GLOBAL CAPITAL MARKETS

The global economy expanded at an annualized rate of over 5 percent during the first quarter of 2010, mostly due to robust growth in Asia. Global indicators of real economic activity were strong through April and overall, macroeconomic developments during much of the spring confirmed expectations of a modest but steady recovery in most advanced economies and strong growth in many emerging and developing economies. In 2010, world output is expected to rise by about $4^1/2$ perc ent, which represents an upward revision of 1 percentage point from the October 2009 (World Economic Outlook).

Among the advanced countries, the Unites states is off to a better start than Europe and Japan. Among emerging and developing economies, emerging Asia is leading the recovery due to continued buoyancy in exports and strong private domestic demand.

Corporate bond and equity markets have rebounded. In advanced economies, the tightening of bank lending standards is ending, and the credit crisis appears to be bottoming out. In many emerging and and developing economies, credit growth is reaccelerating and cross-border financial flows from advanced to emerging economies have picked up. Nevertheless, financial conditions remain more difficult than before the crisis, especially in advanced economies.

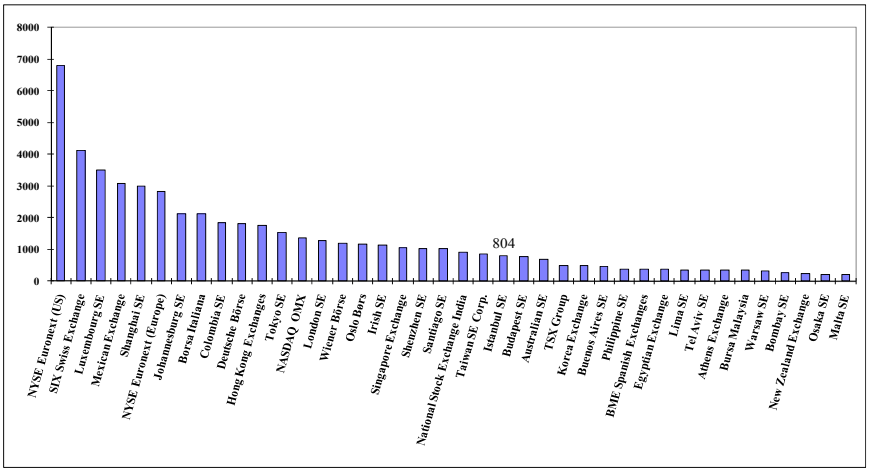
The performances of some developed stock markets with respect to indices indicated that DJIA, FTSE-100, Nikkei-225 and DAX changed by 4.6%, -2.0%, 5.3% and -3.5%, respectively, at March 30th, 2010 in comparison with the December 31, 2009. When US $ based returns of some emerging markets are compared in the same period, the best performer markets were: Indonesia (14.2 %), Venezuela (14.1 %), Israel (11.6 %), Saudi Arabia (11.3 %) and Thailand (10.7 %). In the same period, the lowest return markets were: Greece (-10.7 %), Hong Kong (-2.4 %) and Taiwan (-2.2 %), and The performances of emerging markets with respect to P/E ratios as of end of March 2010 indicated that the highest rates were obtained in Jordan (33.7), Indonesia (29.8), Taiwan (28.0) and India (26.6) and the lowest rates in Russia (10.5), Pakistan (11.4), Turkey (12.0) and Argentina (12.4).

Market Capitalization (USD $ Million, 1986-2008)

	Global	Developed Markets	Emerging Markets	ISE
1986	6,514,199	6,275,582	238,617	938
1987	7,830,778	7,511,072	319,706	3,125
1988	9,728,493	9,245,358	483,135	1,128
1989	11,712,673	10,967,395	745,278	6,756
1990	9,398,391	8,784,770	613,621	18,737
1991	11,342,089	10,434,218	907,871	15,564
1992	10,923,343	9,923,024	1,000,319	9,922
1993	14,016,023	12,327,242	1,688,781	37,824
1994	15,124,051	13,210,778	1,913,273	21,785
1995	17,788,071	15,859,021	1,929,050	20,782
1996	20,412,135	17,982,088	2,272,184	30,797
1997	23,087,006	20,923,911	2,163,095	61,348
1998	26,964,463	25,065,373	1,899,090	33,473
1999	36,030,810	32,956,939	3,073,871	112,276
2000	32,260,433	29,520,707	2,691,452	69,659
2001	27,818,618	25,246,554	2,572,064	47,150
2002	23,391,914	20,955,876	2,436,038	33,958
2003	31,947,703	28,290,981	3,656,722	68,379
2004	38,904,018	34,173,600	4,730,418	98,299
2005	43,642,048	36,538,248	7,103,800	161,537
2006	54,194,991	43,736,409	10,458,582	162,399
2007	64,563,414	46,300,864	18,262,550	286,572
2008	35,811,160	26,533,854	9,277,306	117,930

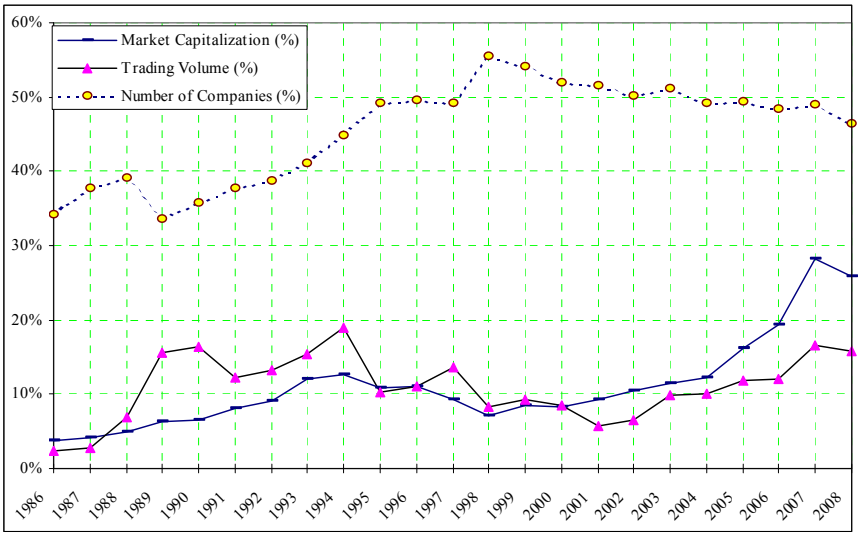
Source: Standard & Poor's Global Stock Markets Factbook, 2009.

Comparison of Average Market Capitalization Per Company (USD Million, March 2010)



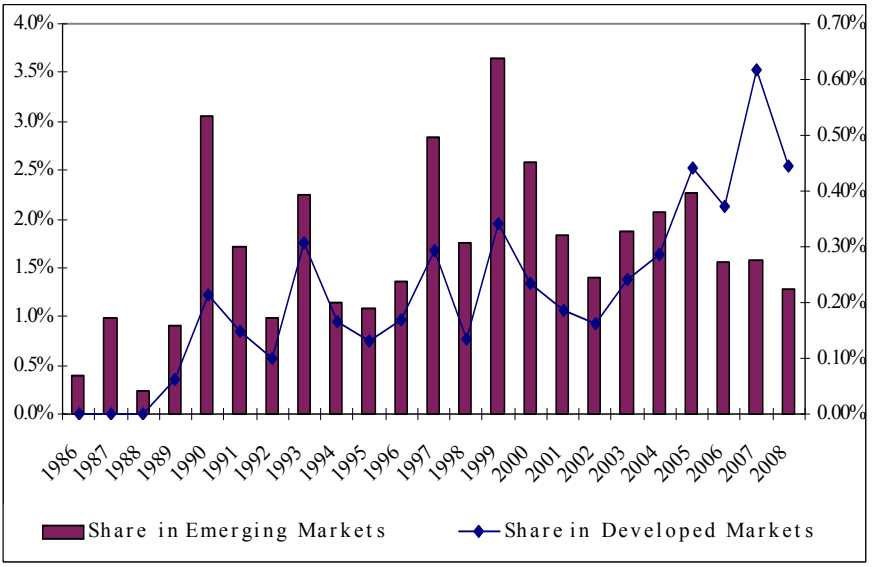
Source: www.world-exchanges.org

Worldwide Share of Emerging Capital Markets (1986-2008)



Source: Standard & Poor's Global Stock Markets Factbook, 2009.

Share of ISE's Market Capitalization in World Markets (1986-2008)



Source: Standard & Poor's Global Stock Markets Factbook, 2009.

Main Indicators of Capital Markets (March 2010)

	Market	Monthly Turnover Velocity (March 2010) (%)	Market	Value of Share Trading (millions, US$) Up to Year Total (2010/1-2010/3)	Market	Market Cap. of Share of Domestic Companies (millions US$) March 2010
1	Shenzhen SE	345.1%	NYSE Euronext (US)	4,100,222	NYSE Euronext (US)	12,423,557.3
2	NASDAQ OMX	337.9%	NASDAQ OMX	3,243,244	Tokyo SE	3,534,685.4
3	Istanbul SE	172.8%	Shanghai SE	1,003,363	NASDAQ OMX	3,500,875.4
4	Korea Exchange	171.7%	Tokyo SE	923,779	NYSE Euronext (Europe)	2,793,198.9
5	Shanghai SE	168.6%	Shenzhen SE	697,050	London SE	2,773,394.8
6	Borsa Italiana	144.4%	NYSE Euronext (Europe)	513,913	Shanghai SE	2,630,840.9
7	Taiwan SE Corp.	135.4%	London SE	470,028	Hong Kong Exchanges	2,325,349.1
8	NYSE Euronext (US)	124.7%	Deutsche Börse	423,426	TSX Group	1,817,263.1
9	Budapest SE	123.5%	Korea Exchange	388,805	Bombay SE	1,373,016.4
10	Deutsche Börse	121.7%	Hong Kong Exchanges	360,593	National Stock Exchange India	1,338,495.0
11	Tokyo SE	104.2%	TSX Group	312,090	Australian SE	1,292,529.6
12	Oslo Børs	91.9%	BME Spanish Exch	311,814	Deutsche Börse	1,273,405.0
13	Australian SE	85.5%	Australian SE	247,041	BME Spanish Exchanges	1,260,873.5
14	Osaka SE	83.5%	Borsa Italiana	231,611	SIX Swiss Exchange	1,105,737.3
15	BME Spanish Exch	83.1%	SIX Swiss Exchange	217,447	Shenzhen SE	957,734.6
16	TSX Group	81.9%	Taiwan SE Corp.	207,505	Korea Exchange	876,130.2
17	SIX Swiss Exchange	78.3%	National Stock Exchange India	189,827	Johannesburg SE	749,033.1
18	NYSE Euronext (Europe)	75.3%	Istanbul SE	113,020	Taiwan SE Corp.	643,177.8
19	Hong Kong Exchanges	66.6%	Johannesburg SE	81,572	Borsa Italiana	621,649.4
20	London SE	62.3%	Oslo Børs	73,711	Singapore Exchange	491,641.3
21	Egyptian Exchange	57.6%	Singapore Exchange	65,126	Mexican Exchange	386,251.8
22	National Stock Exchange India	57.0%	Bombay SE	64,852	Bursa Malaysia	322,267.4
23	Athens Exchange	53.9%	Osaka SE	45,414	Osaka SE	262,001.2
24	Singapore Exchange	52.4%	Mexican Exchange	28,846	Istanbul SE	254,935.6
25	Wiener Börse	52.3%	Bursa Malaysia	25,237	Santiago SE	237,755.7
26	Tel Aviv SE	51.1%	Tel Aviv SE	24,789	Oslo Børs	222,990.7
27	Warsaw SE	45.3%	Warsaw SE	15,894	Tel Aviv SE	213,849.2
28	Bursa Malaysia	37.6%	Athens Exchange	15,470	Warsaw SE	162,080.1
29	Johannesburg SE	36.8%	Wiener Börse	13,594	Colombia SE	155,905.7
30	Colombo SE	32.4%	Egyptian Exchange	12,693	Wiener Börse	112,768.7
31	Mexican Exchange	30.2%	Santiago SE	10,594	Luxembourg SE	104,904.5
32	Santiago SE	20.7%	Budapest SE	7,648	Athens Exchange	100,490.9
33	Philippine SE	20.4%	Colombia SE	4,719	Philippine SE	92,409.4
34	Bombay SE	19.2%	Philippine SE	3,838	Egyptian Exchange	83,785.9
35	Irish SE	16.9%	Irish SE	2,294	Lima SE	70,349.3
36	Colombia SE	11.5%	Tehran SE	2,176	Tehran SE	68,144.6
37	Mauritius SE	10.4%	Colombo SE	777	Irish SE	61,869.3
38	Cyprus SE	9.4%	Buenos Aires SE	757	Buenos Aires SE	45,925.8
39	New Zealand Exch	9.3%	New Zealand Exch	712	New Zealand Exchange	34,531.4
40	Tehran SE	9.0%	Lima SE	618	Budapest SE	32,989.4
41	Ljubljana SE	6.4%	Cyprus SE	243	Ljubljana SE	11,302.5
42	Bermuda SE	4.4%	Ljubljana SE	140	Colombo SE	10,616.8
43	Buenos Aires SE	3.9%	Mauritius SE	113	Cyprus SE	8,974.3
44	Lima SE	2.9%	Luxembourg SE	66	Mauritius SE	6,529.8
45	Malta SE	1.2%	Malta SE	14	Malta SE	3,967.7

Source: www.world-exchanges.org

Trading Volume (USD Milions, 1986-2008)

	Global	Developed	Emerging	ISE	Emerging/Global (%)	ISE/Emerging (%)
1986	3,573,570	3,490,718	82,852	13	2.32	0.02
1987	5,846,864	5,682,143	164,721	118	2.82	0.07
1988	5,997,321	5,588,694	408,627	115	6.81	0.03
1989	7,467,997	6,298,778	1,169,219	773	15.66	0.07
1990	5,514,706	4,614,786	899,920	5,854	16.32	0.65
1991	5,019,596	4,403,631	615,965	8,502	12.27	1.38
1992	4,782,850	4,151,662	631,188	8,567	13.20	1.36
1993	7,194,675	6,090,929	1,103,746	21,770	15.34	1.97
1994	8,821,845	7,156,704	1,665,141	23,203	18.88	1.39
1995	10,218,748	9,176,451	1,042,297	52,357	10.20	5.02
1996	13,616,070	12,105,541	1,510,529	37,737	11.09	2.50
1997	19,484,814	16,818,167	2,666,647	59,105	13.69	2.18
1998	22,874,320	20,917,462	1,909,510	68,646	8.55	3.60
1999	31,021,065	28,154,198	2,866,867	81,277	9.24	2.86
2000	47,869,886	43,817,893	3,967,806	179,209	8.46	4.42
2001	42,076,862	39,676,018	5,604,092	77,937	5.71	3.25
2002	38,645,472	36,098,731	8,226,944	70,667	6.59	2.77
2003	29,639,297	26,743,153	2,896,144	99,611	9.77	3.44
2004	39,309,589	35,341,782	3,967,806	147,426	10.09	3.72
2005	47,319,584	41,715,492	5,604,092	201,258	11.84	3.59
2006	67,912,153	59,685,209	8,226,944	227,615	12.11	2.77
2007	98,816,305	82,455,174	16,361,131	302,402	16.56	1.85
2008	80,516,822	67,795,950	12,720,872	239,713	15.80	1.88

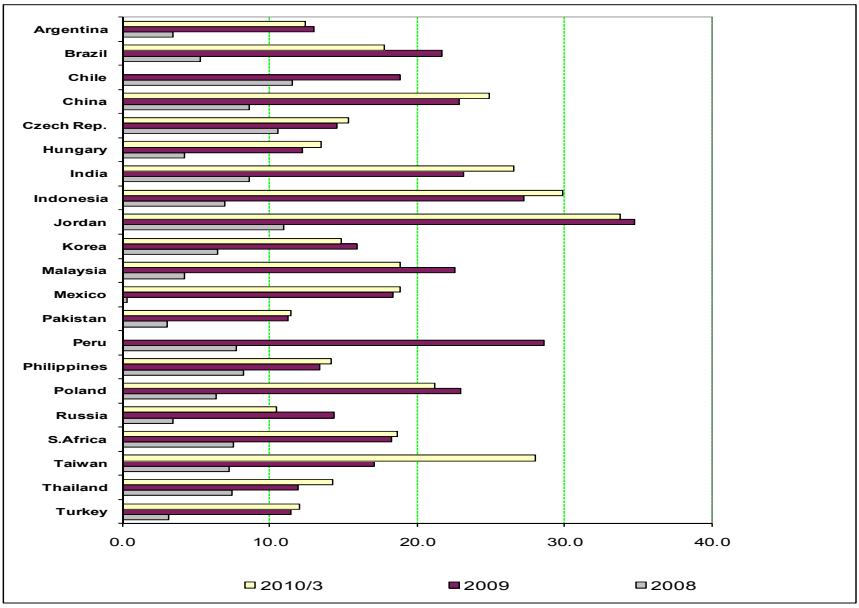
Source: Standard & Poor's Global Stock Markets Factbook, 2009.

Number of Trading Companies (1986-2008)

	Global	Developed Markets	Emerging Markets	ISE	Emerging/Global (%)	ISE/Emerging (%)
1986	28,173	18,555	9,618	80	34.14	0.83
1987	29,278	18,265	11,013	82	37.62	0.74
1988	29,270	17,805	11,465	79	39.17	0.69
1989	25,925	17,216	8,709	76	33.59	0.87
1990	25,424	16,323	9,101	110	35.80	1.21
1991	26,093	16,239	9,854	134	37.76	1.36
1992	27,706	16,976	10,730	145	38.73	1.35
1993	28,895	17,012	11,883	160	41.12	1.35
1994	33,473	18,505	14,968	176	44.72	1.18
1995	36,602	18,648	17,954	205	49.05	1.14
1996	40,191	20,242	19,949	228	49.64	1.14
1997	40,880	20,805	20,075	258	49.11	1.29
1998	47,465	21,111	26,354	277	55.52	1.05
1999	48,557	22,277	26,280	285	54.12	1.08
2000	49,933	23,996	25,937	315	51.94	1.21
2001	48,220	23,340	24,880	310	51.60	1.25
2002	48,375	24,099	24,276	288	50.18	1.19
2003	49,855	24,414	25,441	284	51.03	1.12
2004	48,806	24,824	23,982	296	49.14	1.23
2005	49,946	25,337	24,609	302	49.27	1.23
2006	50,212	25,954	24,258	314	48.31	1.29
2007	51,322	26,251	25,071	319	48.85	1.27
2008	49,138	26,375	22,763	284	46.32	1.25

Source: Standard & Poor's Global Stock Markets Factbook, 2009.

Comparison of P/E Ratios Performances



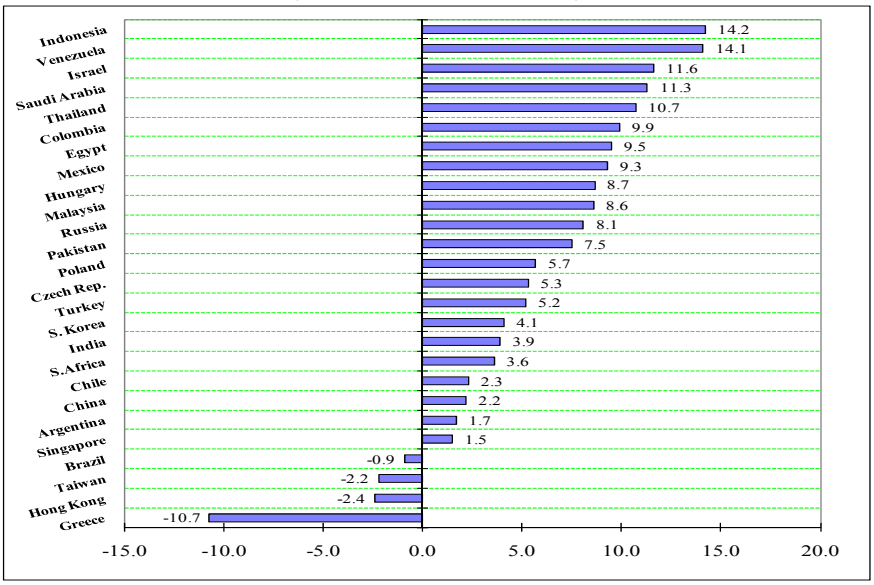
Source: IFC Factbook 2001. Standard & Poor's, Global Stock Markets Factbook, 2009.

Price-Earnings Ratios in Emerging Markets

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010/3
Argentina	32.6	-1.4	21.1	27.7	11.1	18.0	13.6	3.4	13.0	12.4
Brazil	8.8	13.5	10.0	10.6	10.7	12.7	16.6	5.3	21.7	17.8
Chile	16.2	16.3	24.8	17.2	15.7	24.2	22.3	11.5	18.9	21.0
China	22.2	21.6	28.6	19.1	13.9	24.6	50.5	8.6	22.8	24.9
Czech Rep.	5.8	11.2	10.8	25.0	21.1	20.0	26.5	10.5	14.6	15.3
Hungary	13.4	14.6	12.3	16.6	13.5	13.4	14.0	4.2	12.2	13.5
India	12.8	15.0	20.9	18.1	19.4	20.1	31.6	8.6	23.2	26.6
Indonesia	-7.7	22.0	39.5	13.3	12.6	20.1	31.7	7.0	27.3	29.8
Jordan	18.8	11.4	20.7	30.4	6.2	20.8	28.0	10.9	34.8	33.7
Korea	28.7	21.6	30.2	13.5	20.8	12.8	16.4	6.4	15.9	14.9
Malaysia	50.6	21.3	30.1	22.4	15	21.7	20.1	4.2	22.6	18.9
Mexico	13.7	15.4	17.6	15.9	14.2	18.6	17.2	0.3	18.3	18.8
Pakistan	7.5	10.0	9.5	9.9	13.1	10.8	15.3	3.0	11.2	11.4
Peru	21.3	12.8	13.7	10.7	12.0	15.7	20.9	7.7	28.6	N/A
Philippines	45.9	21.8	21.1	14.6	15.7	14.4	17.7	8.2	13.4	14.2
Poland	6.1	88.6	-353.0	39.9	11.7	13.9	15.6	6.4	23.0	21.2
Russia	5.6	12.4	19.9	10.8	24.1	16.6	18.4	3.4	14.3	10.5
S.Africa	11.7	10.1	11.5	16.2	12.8	16.6	18.7	7.5	18.2	18.7
Taiwan	29.4	20.0	55.7	21.2	21.9	25.6	27.9	7.2	17.1	28.0
Thailand	163.8	16.4	16.6	12.8	10.0	8.7	11.7	7.5	11.9	14.3
Turkey	72.5	37.9	14.9	12.5	16.2	17.2	25.2	3.2	11.4	12.0

Source: IFC Factbook, 2004; Standard & Poor's & Bloomberg
Note: Figures are taken from S&P/IFCI Index Profile.

Comparison of Market Returns in USD (31/12/2009-30/03/2010)



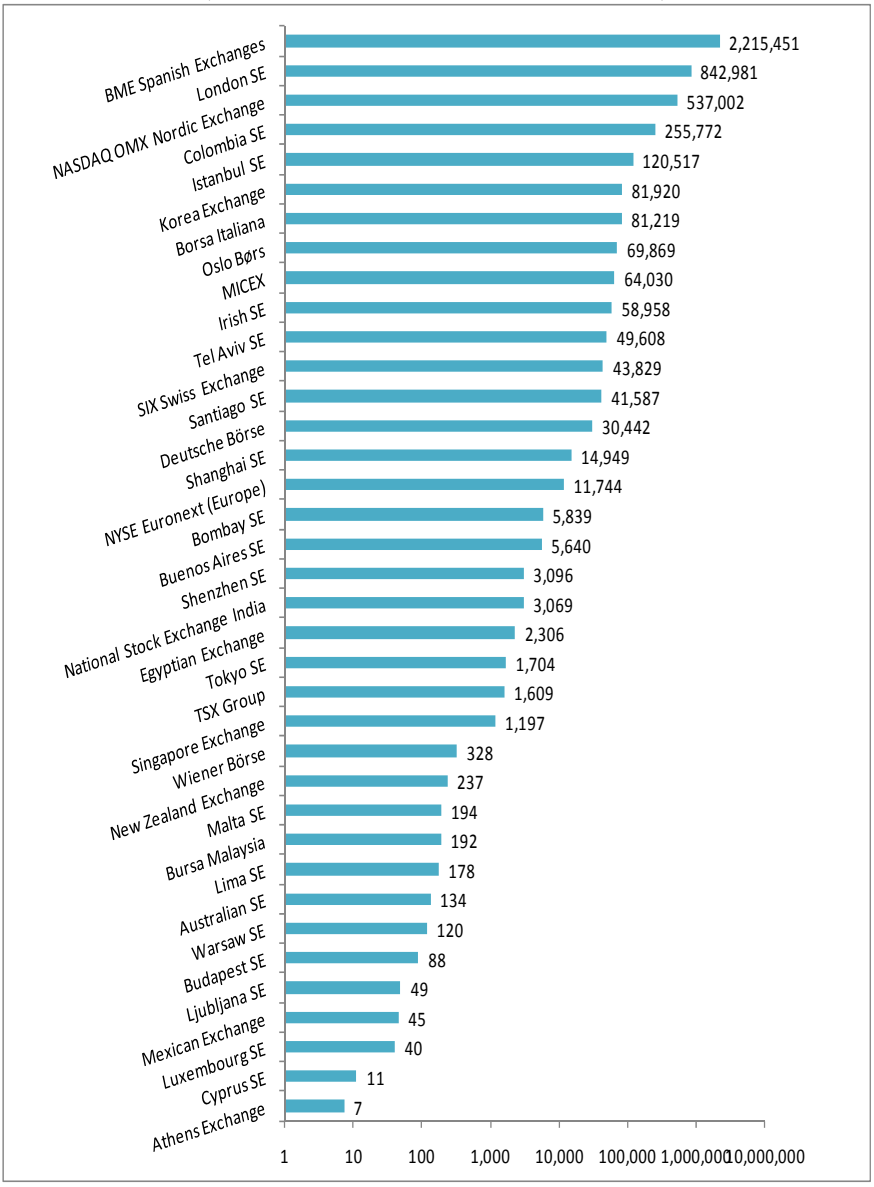
Source: The Economist, April 5th 2010.

Market Value/Book Value Ratios

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010/3
Argentina	0.6	0.8	2.0	2.2	2.5	4.1	3.2	0.8	1.5	1.3
Brazil	1.2	1.3	1.8	1.9	2.2	2.7	3.3	1.0	2.2	2.2
Chile	1.4	1.3	1.9	0.6	1.9	2.4	2.5	1.4	2.4	2.2
China	2.3	1.9	2.6	2.0	1.8	3.1	6.3	1.9	3.3	3.3
Czech Rep.	0.8	0.8	1.0	1.6	2.4	2.4	3.1	2.0	1.4	1.5
Hungary	1.8	1.8	2.0	2.8	3.1	3.1	3.2	0.9	1.5	1.6
India	1.9	2.0	3.5	3.3	5.2	4.9	7.9	1.7	3.5	3.5
Indonesia	1.7	1.0	1.6	2.8	2.5	3.4	5.6	1.6	2.7	2.9
Jordan	1.5	1.3	2.1	3.0	2.2	3.3	4.4	1.3	1.3	1.3
Korea	1.2	1.1	1.6	1.3	2.0	1.7	2.2	0.8	1.2	1.3
Malaysia	1.2	1.3	1.7	1.9	1.7	2.1	2.5	0.7	2.3	2.2
Mexico	1.7	1.5	2.0	2.5	2.9	3.8	3.6	1.0	2.7	2.8
Pakistan	0.9	1.9	2.3	2.6	3.5	3.2	4.7	0.8	1.6	1.7
Peru	1.4	1.2	1.8	1.6	2.2	3.5	6.0	2.7	5.4	N/A
Philippines	0.9	0.8	1.1	1.4	1.7	1.9	2.8	1.3	2.0	2.2
Poland	1.4	1.3	1.8	2.0	2.5	2.5	2.8	1.1	1.5	1.6
Russia	1.1	0.9	1.2	1.2	2.2	2.5	2.8	0.1	1.0	1.2
S.Africa	2.1	1.9	2.1	2.5	3.0	3.8	4.4	1.6	2.2	2.3
Taiwan	2.1	1.6	2.2	1.9	1.9	2.4	2.6	1.0	2.1	2.1
Thailand	1.3	1.5	2.8	2.0	2.1	1.9	2.5	1.0	1.5	1.7
Turkey	3.8	2.8	2.6	1.7	2.1	2.0	2.8	0.7	1.6	1.7

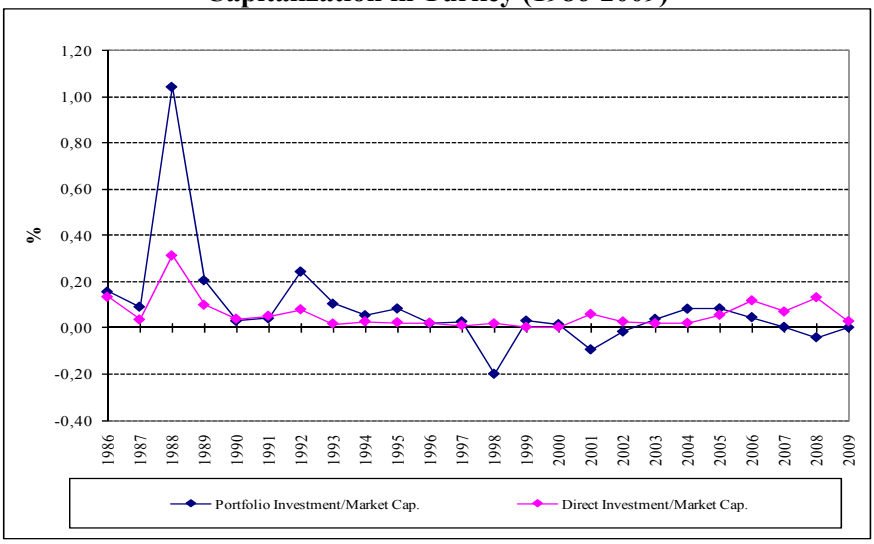
Source: IFC Factbook, 2004; Standard & Poor's & Bloomberg
Note: Figures are taken from S&P/IFCI Index Profile.

Value of Bond Trading
(Million USD, Jan. 2009-March 2010)



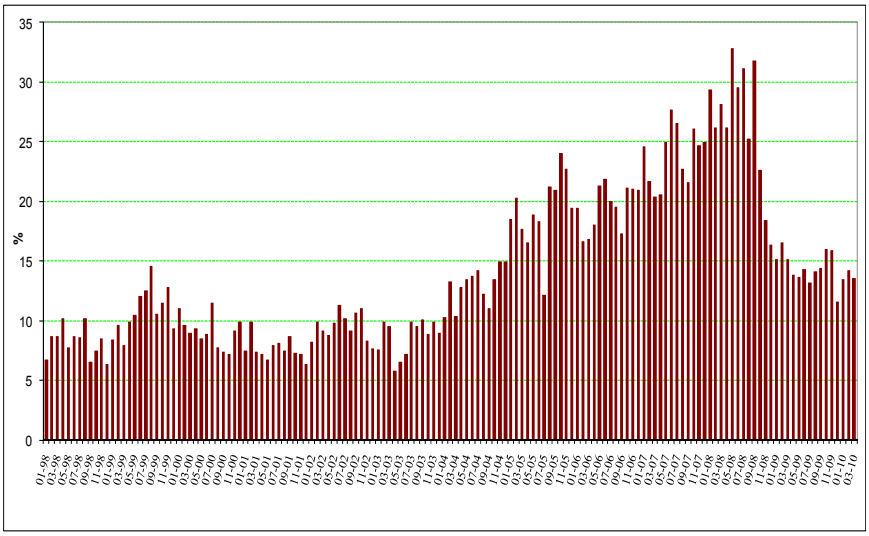
Source: www.world-exchanges.org

Foreign Investments as a Percentage of Market Capitalization in Turkey (1986-2009)



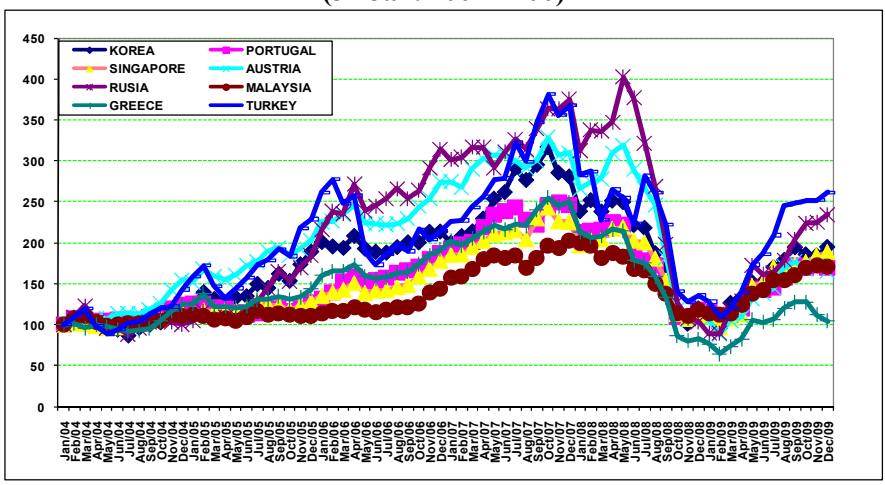
Source: ISE Data. CBTR Databank.

Foreigners' Share in the Trading Volume of the ISE (Jan. 1998-March 2010)



Source: ISE Data.

Comparison of Market Indices
(31 Jan. 2004 =100)



Source: Bloomberg

The ISE Review Volume: 12 No: 45
ISSN 1301-1642 © ISE 1997

ISE
Market Indicators

	STOCK MARKET										
	Number of Comp.	Traded Value				Market Value		Dividend Yield	P/E Ratios		
		Total		Daily Average							
		TL Million	US$ Million	TL Million	US$ Million	TL Million	US$ Million	(%)	TL(1)	TL(2)	US$
1986	80	0,01	13	---	---	0,71	938	9,15	5,07	---	---
1987	82	0,10	118	---	---	3	3.125	2,82	15,86	---	---
1988	79	0,15	115	---	---	2	1.128	10,48	4,97	---	---
1989	76	2	773	0,01	3	16	6.756	3,44	15,74	---	---
1990	110	15	5.854	0,06	24	55	18.737	2,62	23,97	---	---
1991	134	35	8.502	0,14	34	79	15.564	3,95	15,88	---	---
1992	145	56	8.567	0,22	34	85	9.922	6,43	11,39	---	---
1993	160	255	21.770	1	88	546	37.824	1,65	25,75	20,72	14,86
1994	176	651	23.203	3	92	836	21.785	2,78	24,83	16,7	10,97
1995	205	2.374	52.357	9	209	1.265	20.782	3,56	9,23	7,67	5,48
1996	228	3.031	37.737	12	153	3.275	30.797	2,87	12,15	10,86	7,72
1997	258	9.049	58.104	36	231	12.654	61.879	1,56	24,39	19,45	13,28
1998	277	18.030	70.396	73	284	10.612	33.975	3,37	8,84	8,11	6,36
1999	285	36.877	84.034	156	356	61.137	114.271	0,72	37,52	34,08	24,95
2000	315	111.165	181.934	452	740	46.692	69.507	1,29	16,82	16,11	14,05
2001	310	93.119	80.400	375	324	68.603	47.689	0,95	108,33	824,42	411,64
2002	288	106.302	70.756	422	281	56.370	34.402	1,20	195,92	26,98	23,78
2003	285	146.645	100.165	596	407	96.073	69.003	0,94	14,54	12,29	13,19
2004	297	208.423	147.755	837	593	132.556	98.073	1,37	14,18	13,27	13,96
2005	304	269.931	201.763	1.063	794	218.318	162.814	1,71	17,19	19,38	19,33
2006	316	325.131	229.642	1.301	919	230.038	163.775	2,10	22,02	14,86	15,32
2007	319	387.777	300.842	1.539	1.194	335.948	289.986	1,90	12,16	11,97	13,48
2008	317	332.605	261.274	1.325	1.041	182.025	119.698	4,93	5,55	5,76	4,63
2009	325	482.534	316.326	1.915	1.255	350.761	235.996	2,37	17,89	16,83	17,34
2010	326	175.589	117.179	2.787	1.860	388.063	256.215	2,41	13,85	13,65	13,70
2010/Q1	326	175.589	117.179	2.787	1.860	388.063	256.215	2,41	13,85	13,65	13,70

Q: Quarter

Note: Between 1986-1992, the price earnings ratios were calculated on the basis of the companies' previous year-end net profits. As from 1993,
TL(1) = Total Market Capitalization / Sum of Last two six-month profits
TL(2) = Total Market Capitalization / Sum of last four three-month profits.
US$ = based Total Market Capitalization / Sum of last four US$ based three-month profits.

- Companies which are temporarily de-listed and will be traded off the Exchange under the decision of ISE's Executive Council are not included in the calculations.
- EFT's data are taken into account only in the calculation of Traded Value.

Closing Values of the ISE Price Indices

TL Based

	ISE 100 (Jan. 1986=1)	ISE CORPORATE GOVERNANCE (Aug.29,2007 =48,082.17)	ISE INDUSTRIALS (Dec.31, 90 =33)	ISE SERVICES (Dec.27, 96 =1046)	ISE FINANCIALS (Dec. 31, 90 =33)	ISE TECHNOLOGY (June, 30,2000 =14.466,12)	ISE INVESTMENT TRUSTS (Dec 27,1996 =976)	ISE SECOND NATIONAL (Dec.27,1996 =976)	ISE NEW ECONOMY (Sept. 02, 2004 =20525,92)
1986	1,71	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1987	6,73	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1988	3,74	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1989	22,18	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1990	32,56	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1991	43,69	- - -	49,63	- - -	33,55	- - -	- - -	- - -	- - -
1992	40,04	- - -	49,15	- - -	24,34	- - -	- - -	- - -	- - -
1993	206,83	- - -	222,88	- - -	191,90	- - -	- - -	- - -	- - -
1994	272,57	- - -	304,74	- - -	229,64	- - -	- - -	- - -	- - -
1995	400,25	- - -	462,47	- - -	300,04	- - -	- - -	- - -	- - -
1996	975,89	- - -	1.045,91	- - -	914,47	- - -	- - -	- - -	- - -
1997	3.451,00	- - -	2.660,--	3.593,--	4.522,--	- - -	2.934,--	2.761,--	- - -
1998	2.597,91	- - -	1.943,67	3.697,10	3.269,58	- - -	1.579,24	5.390,43	- - -
1999	15.208,78	- - -	9.945,75	13.194,40	21.180,77	- - -	6.812,65	13.450,36	- - -
2000	9.437,21	- - -	6.954,99	7.224,01	12.837,92	10.586,58	6.219,00	15.718,65	- - -
2001	13.782,76	- - -	11.413,44	9.261,82	18.234,65	9.236,16	7.943,60	20.664,11	- - -
2002	10.369,92	- - -	9.888,71	6.897,30	12.902,34	7.260,84	5.452,10	28.305,78	- - -
2003	18.625,02	- - -	16.299,23	9.923,02	25.594,77	8.368,72	10.897,76	32.521,26	- - -
2004	24.971,68	- - -	20.885,47	13.914,12	35.487,77	7.539,16	17.114,91	23.415,86	39.240,73
2005	39.777,70	- - -	31.140,59	18.085,71	62.800,64	13.669,97	23.037,86	28.474,96	29.820,90
2006	39.117,46	- - -	30.896,67	22.211,77	60.168,41	10.341,85	16.910,76	23.969,99	20.395,84
2007	55.538,13	55.406,17	40.567,17	34.204,74	83.822,29	10.490,51	16.428,59	27.283,78	32.879,36
2008	26.864,07	21.974,49	19.781,26	22.169,30	38.054,32	4.858,62	8.655,55	8.645,09	14.889,37
2009	52.825,02	42.669,96	37.899,01	36.134,16	79.763,23	14.335,01	18.215,26	25.764,15	25.795,58
2010	56.538,37	46.860,89	42.360,56	35.927,74	87.233,97	15.851,41	20.461,16	30.093,58	30.105,36
2010/Q1	56.538,37	46.860,89	42.360,56	35.927,74	87.233,97	15.851,41	20.461,16	30.093,58	30.105,36

	US $ Based									Euro Based
	ISE 100 (Jan. 1986=100)	ISE CORPORATE GOVERNANCE (Aug.29,2007 =2,114.37)	ISE INDUSTRIALS (Dec.31, 90 =643)	ISE SERVICES (Dec.27, 96 =572))	ISE FINANCIALS (Dec. 31, 90 =643)	ISE TECHNOLOGY (June 30,2000 =1.360,92)	ISE INVESTMENT TRUSTS (Dec. 27, 96 =534)	ISE SECOND NATIONAL (Dec. 27, 96 =534)	ISE NEW ECONOMY (Sept. 02, 2004 =796,46)	ISE 100 (Dec. 31, 98 =484)
1986	131,53	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1987	384,57	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1988	119,82	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1989	560,57	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1990	642,63	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1991	501,50	- - -	569,63	- - -	385,14	- - -	- - -	- - -	- - -	- - -
1992	272,61	- - -	334,59	- - -	165,68	- - -	- - -	- - -	- - -	- - -
1993	833,28	- - -	897,96	- - -	773,13	- - -	- - -	- - -	- - -	- - -
1994	413,27	- - -	462,03	- - -	348,18	- - -	- - -	- - -	- - -	- - -
1995	382,62	- - -	442,11	- - -	286,83	- - -	- - -	- - -	- - -	- - -
1996	534,01	- - -	572,33	- - -	500,40	- - -	- - -	- - -	- - -	- - -
1997	981,99	- - -	756,91	1.022,40	2.287,--	- - -	835,--	786,--	- - -	- - -
1998	484,01	- - -	362,12	688,79	609,14	- - -	294,22	1.004,27	- - -	- - -
1999	1.654,17	- - -	1.081,74	1.435,08	2.303,71	- - -	740,97	1.462,92	- - -	1.912,46
2000	817,49	- - -	602,47	625,78	1.112,08	917,06	538,72	1.361,62	- - -	1.045,57
2001	557,52	- - -	461,68	374,65	737,61	373,61	321,33	835,88	- - -	741,24
2002	368,26	- - -	351,17	244,94	458,20	257,85	193,62	1.005,21	- - -	411,72
2003	778,43	- - -	681,22	414,73	1.069,73	349,77	455,47	1.359,22	- - -	723,25
2004	1.075,12	- - -	899,19	599,05	1.527,87	324,59	736,86	1.008,13	1.689,45	924,87
2005	1.726,23	- - -	1.351,41	784,87	2.725,36	593,24	999,77	1.235,73	1.294,14	1.710,04
2006	1.620,59	- - -	1.280,01	920,21	2.492,71	428,45	700,59	993,05	844,98	1.441,89
2007	2.789,66	2.783,03	2.037,67	1.718,09	4.210,36	526,93	825,20	1.370,45	1.651,52	2.221,77
2008	1.027,98	840,87	756,95	848,33	1.456,18	185,92	331,21	330,81	569,76	859,46
2009	2.068,18	1.670,60	1.483,81	1.414,71	3.122,86	561,24	713,16	1.008,71	1.009,94	1.682,53
2010	2.172,21	1.800,40	1.627,49	1.380,35	3.351,53	609,01	786,12	1.156,20	1.156,65	1.890,97
2010/Q1	2.172,21	1.800,40	1.627,49	1.380,35	3.351,53	609,01	786,12	1.156,20	1.156,65	1.890,97

Q: Quarter

BONDS AND BILLS MARKET

Traded Value

Outright Purchases and Sales Market

	Total		Daily Average	
	TL Million	US$ Million	TL Million	US$ Million
1991	1	312	0,01	2
1992	18	2.406	0,07	10
1993	123	10.728	0,50	44
1994	270	8.832	1	35
1995	740	16.509	3	66
1996	2.711	32.737	11	130
1997	5.504	35.472	22	141
1998	17.996	68.399	72	274
1999	35.430	83.842	143	338
2000	166.336	262.941	663	1.048
2001	39.777	37.297	158	149
2002	102.095	67.256	404	266
2003	213.098	144.422	852	578
2004	372.670	262.596	1.479	1.042
2005	480.723	359.371	1.893	1.415
2006	381.772	270.183	1.521	1.076
2007	363.949	278.873	1.444	1.107
2008	300.995	239.367	1.199	954
2009	417.052	269.977	1.655	1.071
2010	128.175	137.989	2.035	2.190
2010/Q1	128.175	137.989	2.035	2.190

Repo-Reverse Repo Market

Repo-Reverse Repo Market

	Total		Daily Average	
	TL Million	US$ Million	TL Million	US$ Million
1993	59	4.794	0,28	22
1994	757	23.704	3	94
1995	5.782	123.254	23	489
1996	18.340	221.405	73	879
1997	58.192	374.384	231	1.486
1998	97.278	372.201	389	1.489
1999	250.724	589.267	1.011	2.376
2000	554.121	886.732	2.208	3.533
2001	696.339	627.244	2.774	2.499
2002	736.426	480.725	2.911	1.900
2003	1.040.533	701.545	4.162	2.806
2004	1.551.410	1.090.476	6.156	4.327
2005	1.859.714	1.387.221	7.322	5.461
2006	2.538.802	1.770.337	10.114,75	7.053
2007	2.571.169	1.993.283	10.203	7.910
2008	2.935.317	2.274.077	11.694	9.060
2009	2.982.531	1.929.031	11.835	7.655
2010	806.180	538.058	12.796,51	8.541
2010/Q1	806.180	538.058	12.796,51	8.541

Q: Quarter

ISE GDS Price Indices (January 02, 2001 = 100)

	TL Based					
	3 Months (91 Days)	6 Months (182 Days)	9 Months (273 Days)	12 Months (365 Days)	15 Months (456 Days)	General
2001	102,87	101,49	97,37	91,61	85,16	101,49
2002	105,69	106,91	104,87	100,57	95,00	104,62
2003	110,42	118,04	123,22	126,33	127,63	121,77
2004	112,03	121,24	127,86	132,22	134,48	122,70
2005	113,14	123,96	132,67	139,50	144,47	129,14
2006	111,97	121,14	127,77	132,16	134,48	121,17
2007	112,67	122,83	130,72	136,58	140,49	128,23
2008	112,56	122,69	130,63	136,65	140,81	128,03
2009	114,96	127,78	138,50	147,29	154,03	131,08
2010	115,03	127,93	138,75	147,65	154,52	133,79
2010/Q1	115,03	127,93	138,75	147,65	154,52	133,79

ISE GDS Performance Indices (January 02, 2001 = 100)

	TL Based				
	3 Months (91 Days)	6 Months (182 Days)	9 Months (273 Days)	12 Months (365 Days)	15 Months (456 Days)
2001	195,18	179,24	190,48	159,05	150,00
2002	314,24	305,57	347,66	276,59	255,90
2003	450,50	457,60	558,19	438,13	464,98
2004	555,45	574,60	712,26	552,85	610,42
2005	644,37	670,54	839,82	665,76	735,10
2006	751,03	771,08	956,21	760,07	829,61
2007	887,85	916,30	1.146,36	917,23	1.008,52
2008	1.047,38	1.083,04	1.369,76	1.070,37	1.241,27
2009	1.165,91	1.227,87	1.558,64	1.247,88	1.421,58
2010	1.186,30	1.251,79	1.592,06	1.277,03	1.454,80
2010/Q1	1.186,30	1.251,79	1.592,06	1.277,03	1.454,80

ISE GDS Portfolio Performance Indices (December 31, 2003 = 100)

	TL Based						
	Equal Weighted Indices			Market Value Weighted Indices			
	EQ180-	EQ180+	EQ Composite	MV180-	MV180+	MVComposite	REPO
2004	125,81	130,40	128,11	125,91	130,25	128,09	118,86
2005	147,29	160,29	153,55	147,51	160,36	154,25	133,63
2006	171,02	180,05	175,39	170,84	179,00	174,82	152,90
2007	203,09	221,63	211,76	202,27	221,13	212,42	177,00
2008	240,13	264,15	251,95	239,21	263,57	252,36	203,07
2009	270,34	318,15	293,06	268,84	317,82	295,43	219,59
2010	275,28	326,12	299,35	273,73	325,80	301,95	222,50
2010/Q1	275,28	326,12	299,35	273,73	325,80	301,95	222,50

Q: Quarter
GDS: Government Debt securities

ISE PUBLICATIONS		
I- PERIODICALS	**ISSN/ISBN**	**DATE**
ISE Review*	ISSN 1301-1642 ISSN 1301-1650	
ISE Finance Award Series Volume 4*	ISBN 975-6450-12-6	2005
II- RESEARCH PUBLICATIONS		
The Impact of Trading Statements by Principal Shareholders and Managers on Their Own Company Share Prices in the Istanbul Stock Exchange.– *Selma Kurtay*	978-975-6450-24-6	2009
The Role of Financial Markets on Inflation Targeting: Analysis of Correlation between Stock Returns and Inflation – Dr. Cahit Sönmez	978-975-6450-17-8	2007
Fixed Income Decision Analysis with Excel/VBA Models* – *Prof. Dr. A. Gültekin Karaşin*	978-975-6450-20-8	2007
Performance Evaluation of Real Estate Investment Trusts: The Case of Turkey – *Dr. Feyzullah Yetgin*	975-6450-14-2	2006
Conjunctive Fluctuations and Capital Markets – The Case of Turkey – *Dr. Eralp Polat*	975-6450-10-X	2005
Cross-sectional Anomalies in Stock Markets and a Research on the ISE – *M. Volkan Öztürkatalay*	975-6450-11-8	2005
Role of Financial Market Imperfections in Firm Level Investment: Panel Data Evidence from Turkish Corporations* – Bahşayiş Temir-Fıratoğlu	975-6450-08-8	2004
Depository Certificates within Turkish Law – *Dr. Korkut Özkorkut*	975-6450-06-1	2003
Developments in International Financial Markets and in Turkey - *Assoc. Prof. Ali Alp*	ISBN 975-6450-03-7	2002
Evaluation of Mutual Fund Performance in Turkey - *Saim Kılıç*	ISBN 975-6450-00-2	2002
Duty of Loyalty of the Shareholder in Corporate Law, in particular, in the Incorporated Companies - *Dr. Murat Yusuf Akın*	ISBN 975-8027-99-9	2002
Political Economy of Natural Disasters - *Assoc. Prof. Enver Alper Güvel*	ISBN 975-8027-91-3	2001
An Analysis of Factors Influencing Accounting Disclosure in Turkey* - *Dr. Turgut Çürük*	ISBN 975-8027-89-1	2001
Fund Management in the Insurance Sector - *Prof. Dr. Niyazi Berk*	ISBN 975-8027-86-7	2001
The Changing Role of the Central Bank of Turkey and Monetary Policy Implementation - *Dr. Mehmet Günal*	ISBN 975-8027-85-9	2001
Financial Asset Valuation Models and Testing of Arbitrage Pricing Model on the ISE - *Nevin Yörük*	ISBN 975-8027-77-8	2000
Stationary Portfolio Analysis and its Implementation on ISE Data - *İbrahim Engin Üstünel*	ISBN 975-8027-76-X	2000
Seasonalities in Stock Markets and an Empirical Study on the Istanbul Stock Exchange – Dr. Recep Bildik	ISBN 975-8027-73-5	2000
Real Estate Financing and Valuation - *Dr. Ali Alp, M. Ufuk Yılmaz*	ISBN 975-8027-72-7	2000
South Asian Crisis: The Effects on Turkish Economy and the ISE Research Department	ISBN 975-8027-44-1	1998
Instutional Investors in the Capital Markets - *Dr. Oral Erdoğan, Levent Özer*	ISBN 975-8027-51-4	1998

ISE PUBLICATIONS		
What Type of Monetary System? Monetary Discipline and Alternative Resolutions for Monetary Stability - *Prof. Dr. Coşkun Can Aktan, Dr. Utku Utkulu, Dr. Selahattin Togay*	ISBN 975-8027-47-6	1998
Analysis of Return Volatility in the Context of Macroeconomic Conjuncture - *Prof. Dr. Hurşit Güneş, Dr. Burak Saltoğlu*	ISBN 975-8027-32-8	1998
Private Pension Funds: Chilean Example - *Çağatay Ergenekon*	ISBN 975-8027-43-3	1998
Equity Options and Trading on the ISE - *Dr. Mustafa Kemal Yılmaz*	ISBN 975-8027-45-X	1998
Resolution of Small and Medium Size Enterprises' Financial Needs Through Capital Markets - *R. Ali Küçükçolak*	ISBN 975-8027-39-5	1998
Regulations Related to Capital Market Operations - *Vural Günal*	ISBN 975-8027-34-4	1997
Strategic Entrepreneurship: Basic Techniques for Growth and Access to Foreign Markets for Turkish Companies - *Ömer Esener*	ISBN 975-8027-28-X	1997
The Integration of European Capital Markets and Turkish Capital Market - *Dr. Sadi Uzunoğlu- Dr. Kerem Alkin, Dr. Can Fuat Gürlesel*	ISBN 975-8027-24-7	1997
Insider Trading and Market Manipulations* - *Dr. Meral Varış Tezcanlı*	ISBN 975-8027-17-4 & ISBN 975-8027-18-2	1996
European Union and Turkey - *Prof. Dr. Rıdvan Karluk*	ISBN 975-8027-04-2	1996
Repo and Reverse Repo Transactions - *Dr. Nuran Cömert Doyrangöl*	ISBN 975-8027-12-3	1996
Fortunes Made Fortunes Lost* - *Abdurrahman Yıldırım*	ISBN 975-7143-10-3	1996
Personnel Administration - *Şebnem Ergül*	ISBN 975-8027-07-7	1996
Research Studies on Capital Markets and ISE	ISBN 975-7869-04-X	1996
The Integration of Euoropean Union Capital Markets and Istanbul Stock Exchange - *Dr. Meral Varış Tezcanlı, Dr. Oral Erdoğan*	ISBN 975-8027-05-0	1996
Institutional Investors in the Developing Stock Exchanges: Turkish Example, Problems and Proposed Solutions - *Dr. Targan Ünal*		1995
International Capital Movements and their Macroeconomic Effects on the Third World Countries and Turkey - *Dr. Sadi Uzunoğlu, Dr. Kerem Alkin, Dr. Can Fuat Gürlesel*		1995
Modern Developments in Investment Theory and Some Evaluations and Observations at ISE - *Dr. Berna Ç. Kocaman*		1995
Linkage with International Markets (ADR-GDR) and Alternative Solutions to the Turkish Capital Market - *Kudret Vurgun*		1994
Portfolio Investments in International Capital Movements and Turkey - *ISE Research Department*		1994
International Portfolio Investment Analysis and Pricing Model - *Oral Erdoğan*		1994
Taxation of Capital Market Instruments in Turkey - *Sibel Kumbasar Bayraktar*		1994

ISE PUBLICATIONS		
RESEARCH ON DERIVATITES MARKET		
Some Basic Strategies on Securities Market Derived from Future Transactions and Options - *Mustafa Kemal Yılmaz*		1996
Derivatives Market - Theory and Practice - *Prof. Dr. Ümit Erol*	ISBN 975-8027-58-1	1999
Pricing of Future and Options Contracts Based on Capital Market Instruments - *ISE Derivatives Market Department*	ISBN 975-8027-62-X	1999
Interest Rate Futures - ISE Derivatives Market Department	ISBN 975-8027-61-1	1999
SECTORAL RESEARCH		
Automotive Sector - *Sibel Kumbasar Bayraktar*		1995
Textile Sector (Cotton) - *Efser Uytun*		1995
Food Sector - *Ebru Tan*		1995
Glass Sector - *Özlem Özdemir*		1995
Insurance Sector - *Çağatay Ergenekon*		1995
Tourism Sector - *Oral Erdoğan*		1995
Manifactural Paper and Paper Product Sector - *Çağatay Ergenekon*	ISBN 975-8027-09-3	1996
Textile Sector (Artificial-Synthetic, Woolen, Manufacturer Clothing Leather and Leather Goods) - *Efser Uytun*	ISBN 975-8027-10-7	1996
Food Sector (Vegetable Oil, Meat, Fruit, Dairy Products. Sugar, Flavor Products, Animal Feed) - *Research Depertment*	ISBN 975-8027-19-0	1997
CULTURE PUBLICATIONS		
Turkish Financial History from the Ottoman Empire to the Present*	975-7104-24-8	1999
Istanbul Stock Exchange in a Historical Perspective*	975-8027-00-X	1995
The Story of Ottoman Tiles and Ceramics*	975-7104-11-6	1997
Turkey Timeless Culture*		
III. BOOKLETS		
Questions-Answers: ISE and Capital Markets	ISBN 975-8027-31-X	2009
Guide on Stock Market Transactions	ISBN 975-8027-35-2	2009
Exchange Dictionary	ISBN 975-8027-66-2	2009
Fixed Income Securities	ISBN 975-8027-70-0	2003
(*) Publications marked by (*) are in English. For further inquiries please contact: Training and Publications Department Tel: 90 (212) 298 24 24 Fax: 90 (212) 298 25 00		

Objectives and Contents

The ISE Review is a journal published quarterly by the Istanbul Stock Exchange (ISE). Theoretical and empirical articles examining primarily the capital markets and securities exchanges as well as economics, money, banking and other financial subjects constitute the scope of this journal. The ISE and global securities market performances and book reviews will also be featuring, on merits, within the coverage of this publication.

Copy Guides for Authors

Articles sent to the ISE Review will be published after the examination of the Managing editor and the subsequent approval of the Editorial Board. Standard conditions that the articles should meet for publication are as follows:

1. Articles should be written in both English and Turkish.
2. Manuscripts should be typed, single space on an A4 paper (21cm.x 29.7 cm.) with at least 3 cm. margins.
   Three (3) copies of the texts should be submitted to:
   İstanbul Menkul Kıymetler Borsası (ISE),
   Strategy Development and Research Department.
   Reşitpaşa Mah., Tuncay Artun Cd., Emirgan 34467, İstanbul TURKEY
   Articles will not be returned to the authors. The ISE is not responsible for lost copy or late delivery due to complications during the mailing process.
3. Articles should be orijinal, unpublished or shall not be under consideration for publication elsewhere.
4. If and when the article is approved by the Editorial Board, the author should agree that the copyright for articles is transferred to the publisher. The copyright covers the exclusive right to reproduce and distribute the articles.
5. If necessary, the Editorial Board may demand changes, deletions and/or modifications in the contents of the article without infringing on the basic structure of the text.
6. Articles, approved for publication, should be written in Windows, Word and Excel programs for PC and should be despatched to the address above, formatted in a 3.5-inch disk.
7. The first page of the article should contain a concise and informative title, the full name(s) and affiliation(s) of the author(s) and abstract of not more than 100 words, summarizing the significant points of the article. The full mailing address, telephone and fax numbers of the corresponding author, acknowledgements and other related notes should also appear in the first page as footnote(s).
8. The main text should be arranged in sequentially numbered sections. The first section should be titled “Introduction”, while the last section should be titled “Conclusion” as the others should be titled and numbered with a second digit (2.1, 3.2 and so on). Using boldface is necessary to indicate headings.
9. References to personalities in the text should be entered as: Smith (1971) or (Smith, 1971); two authors: Smith and Mill (1965) or (Smith and Mill, 1965); three or more authors: Smith et al. (1974) or (Smith et al.,1974). References to papers by the same author(s) in the same year are distinguished by the letters a,b,c, etc. (e.g. Smith, 1974a). References should be listed at the end of the paper in alphabetical order.
10. Footnotes should be subsequently numbered and are to be placed at the bottom of the related page. Examples of footnote use are:
    -Books with one author:
    Hormats, Robert D., “Reforming the International Monetary System; From Roosevelt to Reagan,” Foreign Policy Association, New York, 1987, pp. 21-25.
    -Books with two authors:
    [3]Hoel, P.G., Port, S.C. “Introduction to Probability Theory,” Houghton Mifflin Company, US, 1971, p.241.
    -Books with more than three authors:
    [5]Mendenhall, W., et al., “Statistics for Management and Economics,” Sixth Edition, WPS Kent Publishing Company, Boston, 1989, p.54.
    -Articles:
    [9]Harvey, Campbell R., “The World Price of Covariance Risk,” The Journal of Finance, Vol.XLVI, No.1, March 1991, pp. 11-157.
    -Publications on behalf of an institution:
    [4]Federal Reserve Bulletin, Washington, 1992-1993-1994.
11. Tables and Figures should be sequentially numbered with a brief informative title. They should be comprehensible without reference to the text incorporating the full text, heading and unit of measurements.
    Source of the information and explanatory footnotes should be provided beneath the table or figure.
12. Equations should be entered and displayed on a separate line. They should be numbered and referred to in the main text by their corresponding numbers. Development of mathematical expressions should be presented in appendices.