

# **The Announcement Effect of Cash Dividend on Share Prices and the Tax Clientele Effect: Evidence from Turkish Capital Markets<sup>†</sup>**

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**Abstract:** This study analyses the announcement effect of cash dividends on share prices in the Turkish capital markets. It is investigated whether cash dividend announcements result in an abnormal return around the announcement day in the Istanbul Stock Exchange. Using a data set covering the period 2003-2009 and 429 events of 80 companies, we find that there is a significant negative relationship between cash dividends per share and abnormal return after the announcement. The results of our study support the tax clientele effect hypothesis. This is most likely due to the fact that the capital gain is less taxed than the dividend yield in Turkey. The results also suggest that the regulation and supervision are effective and efficient in preventing a significant information leakage prior to the announcement day. It seems that, the inefficiency of the market has decreased over time since the results of the study show that the price adjustment starts at day zero, and the most significant adjustment takes place between day zero and day two.

## **1. Introduction**

The relationship between a dividend and firm's value or firm's share price has been researched for more than fifty years. Theories have been developed, and many empirical studies have tested these theories, but it is still a puzzle whether dividends have an effect on the value of a firm or a firm's share price. The effect of dividend on value or price is important as it can have serious implications for regulation and supervision in capital markets. Since information is a curial element of markets, most capital markets and legal systems bring

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strict disclosure provisions and sanctions into force to make sure that information is available for everyone at the same time.

In almost every capital market, it is forbidden to trade with insider information, and it is such information that significantly affects the stock price when it is announced. From the perspective of capital market regulation, the effect of dividends is a very important issue because if it has an effect on firm's price, then it is evaluated as insider information, and it must be announced to the public.

It is generally accepted that dividend changes affect the share price around the announcement day of the dividend. Therefore many legal systems, including the Turkish capital market, see the dividend announcement as price-sensitive information. However, some empirical studies document that dividends have no effect on share price. The studies that are investigating whether dividends have significant announcement effect on share price are crucial not only for theory but also for regulation and supervision.

In theory, the relationship between dividends and a firm's share price is explained by the following three major theories: the information-signalling theory, the free cash flow hypothesis and the dividend clientele effect hypothesis.

The information content of dividends was introduced by Lintner (1956) and Miller and Modigliani (1961), and subsequently formalized by Battacharya (1979), John and Williams (1985) and Millier and Rock (1985) as the "signalling theory". Although, Miller and Modigliani (1961) proposed that dividends have no effect on value and capital structure of a firm under perfect market conditions, they believed that dividends convey information about firm's future earnings and cash flows. The managers of the firm have private information about future prospects of the firm, and this leads to asymmetric information between managers and shareholders. Therefore, the dividend is used to reduce the level of asymmetric information.

Since the managers have more private information about their future earnings and cash flows of the firm, the announcement of dividend is one way of releasing private information to the shareholders through the market. The managers give information about an increase in firm's future cash flows by announcing an increase in the current dividend. In other words, the dividend changes convey important and valuable information about permanent changes in the firm's earnings in future; therefore it will be reflected in the share prices after the announcement of the information.

The information-signalling hypothesis is tested by examining the relationship between current dividends and future earnings or relationship between dividends and excess returns on share prices around the announcement. The future earnings and dividends relationship is supported by the studies of Fama and Blasiak (1968), DeAngelo and DeAngelo (1990), Fama et al. (1969), Pettit (1972), Woolridge (1982), Venkatesh (1989), Lang and Litzenberger (1989) and Jensen and Johnson (1995). Their findings suggest that dividend changes convey information to the market about a firm's future earnings and profitability.

Besides testing the earnings and dividends relationship, many studies have investigated the announcement effect of dividends on stock prices. Although, Ang (1975), Gonedes (1978) and Watts (1973) found that an unexpected change in a dividend cause little or no announcement effect, Pettit (1972, 1976), Charest (1978), Aharony and Swary (1980), Woolridge (1982), Asquith and Mullins (1983), Kalay and Lowenstein (1985) and Akhigbe and Madura (1996) document that the announcement of dividend increases results in positive abnormal returns while dividends decreases create negative abnormal returns.

The free cash flow hypothesis takes the "agency theory" as a base to explain this issue, which was introduced by Jensen (1986). According to Jensen (1986), a management is reluctant to pay out dividends, as they want more discretionary free cash flow in the firm. More free cash flow allows the management to invest in projects that have negative net

present value and to use cash for their self interest. The role of dividends becomes important as they can be used as a tool of decreasing the free cash flow under the control of management and thus lowering the agency cost.

According to Jensen (1986), dividends are used as a monitoring and disciplining mechanism over management rather than direct intervention of shareholder to management affairs. Therefore, an increase in dividends has positive information in which the agency cost will be reduced, and investing projects with negative net present value will be less likely in the future. If the managers announce increase in dividends, the free cash flows under the management control will be less in future. Thus, the announcement of dividend increases implicitly states that the performance of the company will be better in the future. As a result, the dividends have information content in which the behaviour of managements will be more aligned with the interest of shareholders, and the managers are more likely to invest in projects which have positive net present value.

The studies of DeAngelo and DeAngelo (2000), La Porta et al. (2000), Rozeff (1982) and Easterbrook (1984) support the “free cash flow hypothesis” while the study of Dennis et al. (1994) does not support it.

The “dividend clientele effect” hypothesis argues that some investors prefer earnings to be paid out as dividends while others prefer earning to be retained in the firm due to different taxation of capital gain and dividend yields. In the case of lower taxation of capital gain, Black and Scholes (1974) and Miller and Scholes (1982) argue that there should not be a relation between a dividend and a return. The favourable taxation of capital gain is formulised as the “tax clientele effect” by Miller and Modigliani (1961) and Black and Scholes (1974). It argues that some firms attract investors because the firm’s dividend policy suits the investors’ tax preferences. If capital gains are less taxed at a lower rate, then shareholders want earnings

to be retained in the firm. If the firm therefore changes its dividend policy, then shareholders take position to avoid from tax burden in the future.

In the case of equal treatment of taxation, investors will be indifferent between the dividend yield and capital gain. Even when there is a lower taxation of the capital gain, Black and Scholes (1974) and Miller and Scholes (1982) argue that there should not be a relation between return and dividend. Black (1976) states that this is as a puzzle; while dividend has no effect on firm value, firms still pay dividends.

Studies that investigate the price effect of dividend announcements are mainly based on developed capital markets data. There are very limited studies on this issue in an emerging market such as Turkey. The main research about Turkey are Aydogan and Muradoglu (1998), Muradoglu and Aydogan (2003) and Batchelor and Orakcioglu (2003). All these studies used the data of 1990's, and generally did not use exact date for the announcements. They focused mainly on the stock dividends and stock repurchases.

Aydogan and Muradoglu (1998) studied the market microstructure just after the Istanbul Stock Exchange (ISE) became operational in 1986. Their study includes the period of 1988-1993, and their focus is on the announcement and the implementation effect of stock dividends and right offerings on price. In their time, there was no regulation for disclosure for the dividend policy of firms. Therefore, they collected their announcement dates by mail. Their data sample contains 109 events during the period 1988-1993. They applied the event study analysis and used both day of board meeting on which the dividend payout is decided by the board of directors and day of implementation of dividend as an event day.

They divided their period into two sub periods: 1988-1991 and 1991-1993. They found that the average cumulative abnormal return (ACAR) was significant on day  $t=1$  and continued to increase up to 18<sup>th</sup> day in the 1988-1991 period ( $t=0$ : board meeting day). However, in the second period they could not find a significant ACAR. They repeated their

test by taking  $t=0$  as the implementation day, but they could not document any significant ACAR for both periods. They interpreted that there is a lack of efficiency in the first period, and over time the inefficiency decreased.

Muradoglu and Aydogan (2003) took a larger sample of 513 events in 1988-1994 and examined the implementation effect of stock dividends and right offerings on share price. They used a similar approach to Aydogan and Muradoglu (1998), but this time they divided their period into three sub groups: 1988-1989, 1990-1992 and 1993-1994. They found a significant ACAR in the second period and stronger version in the third period. In the 1990-1992 period ACAR is significant between day zero and day two, and in the 1993-1994 period ACAR is significant between day -4 and day 30.

Batchelor and Orakcioglu (2003) examined the impact of the stock dividends on share price by using the data of 1990-1994. In their study, they took the payment day as an event day and used proxy day for the announcement day by going 4-6 weeks backward. They applied a novel GARCH process with event-related intercept term. Their study document that there is no significant price reaction around the announcement day or payment day of stock dividends and right issues.

In this paper, we perform two different but complementary analyses. First, we use event study analysis to test the announcement effect of cash dividend on share price. Then we investigate the effect of dividend per share (*DPS*) on share prices by using regression analyses. The market adjusted model is employed to find abnormal returns within the event windows from  $t-5$  to  $t+18$  days. The event windows are opened to examine the information leakage prior to the announcement and price adjustment to new information after the announcement. In the regression analyses, that cumulative abnormal returns are regressed on dividend per share (as well as some other independent variables) along the event windows.

This study differs from the studies mentioned above in two ways. First, it provides evidence about the announcement effect of cash dividends by using more recent data (from 2003 to 2009). Previous researches on dividends in Turkey were undertaken when the economy was suffering from high inflation and when the ISE was its early stage. Turkish capital markets have developed rapidly since the end of the 1980's, and the economy has passed through a number of economic and financial crises and has undergone many structural reforms during the last twenty years. In the last six years, the economy has been more stable, and the inflation is considerably lower compared to 1980's and 1990's. Thus, using data from the period 2003-2009, we believe that our study is able to better assess the price-effects of cash dividends. Second, instead of collecting announcement dates by mail or using a proxy for them, this study uses the exact announcement day.

The data for this study are collected from the ISE. Although the dividend announcements and price data are publicly available, each announcement date is collected manually from the whole material events of each company. The ISE publishes the closing price of each company and market index XUTUM which contains the weighted prices of all companies. Our sample consists of seven-year data (2003-2009) and 429 events of 80 companies.

The results of the study show that the announcement of a higher cash dividend per share results in a significant higher negative abnormal return, and the announcement of a lower cash dividend per share results in a significant lower negative abnormal return. The results support the tax clientele effect hypothesis. Furthermore, the results suggest that regulation and supervision are effective and efficient in preventing significant information leakage prior to the announcement day. Compared to Aydogan and Muradoglu (1998), it seems that the inefficiency of the market has decreased over time since the adjustment of

price to new information starts at day zero, and the most significant adjustment takes place between day zero and day two.

It is observed that the main problem in the previous studies is the difficulty in separating the announcement effect of dividends from other announcements which take place on the same day. In this study, the announcement of cash dividends separated from other announcements such as earning or stock dividends by creating appropriate data. The results show that the announcement of cash dividends creates significant negative abnormal returns individually.

The rest of the study is organized as follows. Section two provides an overview of the Turkish institutional and legal framework, the development of Turkish capital markets and the microstructure of the ISE. In sections three and four, the data and methodology are introduced. Section five presents the empirical results and their implications. Finally, section six concludes.

## **2. Institutional Background of Turkish Capital Markets**

The Turkish financial market is functionally demarcated between insurance, capital market and banking. Financial institutions in the capital market cannot operate in banking and insurance market, and vice versa. Therefore, regulation and supervision is also separated among the regulators. Turkish capital markets were legalized with the amendment of Capital Market Law and the foundation of Capital Markets Board (CMB) which is the regulatory and supervisory authority and is responsible for capital markets since 1981. The CMB has been making detailed regulations to organize the markets and developing capital market instruments for the past twenty-five years in Turkey. The ISE, which is a fundamental element of capital markets, has been operating since the beginning of 1986.

Table 1 shows the development of private and public sector securities as well as the ratio of total securities to GNP over time in Turkish capital markets. Figure 1 illustrates these developments graphically. In the figure, one can observe the ratios of private and public sector securities to GNP separately. The numbers of outstanding securities have rapidly increased since the establishment of ISE, and this rapid development has made the Turkish capital market a promising emerging market. Public sector securities are dominated by treasury bills and bonds whereas private sector securities are dominated by common stocks. High inflation rates and high public debt requirement prevent private sector securities from developing as rapidly as those of the public sector. Because the high public debt requirement pushes the interest rates up, private sector bonds are unable to compete with public sector bonds.

[Table 1 Should be Inserted Around Here]

[Figure 1 Should be Inserted Around Here]

The ratio of total outstanding securities to GNP was 8.4% at the end of 1987 and increased steadily to 47.2% at the end of 2001. With the economic crisis in 2001, outstanding securities to GNP ratio decreased to 43% in 2002. After 2003, Turkish economy grew very rapidly, but outstanding securities have not much grown, the ratio went down during 2004-2006. In 2007, outstanding securities again started to increase.

Table 2 shows the development of trading volume, total market capitalization, the most known index of ISE (the ISE XU100 index) and the number of traded companies in ISE. In the calculation of the ISE XU100 index, the value of index in January 1986 is taken as the base.

[Table 2 Should be Inserted Around Here]

ISE stocks trading volume increased from 13 million US Dollar at the end of 1986 to 181,934 million US Dollar at the end of 2000. It fell down with the economic crises, and reached up 300,842 million US Dollar at the end of 2007. The market capitalization was around 290 billion US Dollar as of end of 2007. The number of traded companies has increased from 80 to 317 within the past 23 years. The number of traded companies was also affected by the economic crisis in 2001. The return on market has been very high reflected by the fact that the most well known index of the ISE increased from 10,370 in 2002 to 55,538 in 2007.

With the developments in Turkish capital markets, intermediary services have become an inseparable part of the financial system. In the Turkish financial system, there are mainly two types of intermediaries: banks and brokerage houses. The banks are not allowed to sell or buy shares on the stock exchange. The brokerage houses can perform intermediation for the issuance or public offering of capital market instruments, purchase and sale of capital market instruments issued previously (secondary trading), the purchase and sale of derivative instruments as a whole or partially on the basis of categories including the futures and options contracts based on economic and financial indicators, capital market instruments, commodities, precious metals and foreign currencies. Furthermore, the brokerage houses may also undertake repurchase and reverse repurchase of capital market instruments, investment consultancy, and portfolio management activities.

All brokerage houses are the members of the ISE. In 2008, there were 42 banks and 104 brokerage houses that were participating in the capital market. The number of financial intermediaries has not changed radically, as the CMB do not allow new entry.

The dividend policy of listed companies is regulated by Capital Market Law and Commercial Code. The decision of dividend pay out is determined at the annual general meeting (AGM) of each company which usually takes places between March and May of each year. The final decision of dividend pay out is taken in AGM, proposed by the board of directors and is usually accepted by shareholders later on. Practically, the board decision is approved in AGM, and it is very rare that the dividend proposal of the board of directors is rejected in AGM. The board of directors usually meets to decide on the proposal of dividends between February and April of the year. Whenever the board of directors decides on a proposal of dividend, it is immediately disclosed to the public.

The ISE has been operating since 1986 and becoming very important emerging exchange. It has two main markets, the stock market and the bond market. In the stock market, private sector shares, exchange traded funds, securities investment trusts, real estate investment trusts and venture investment trusts are traded. In the bond market, public sector bond and bills are traded. Since the market is new, it is seen as a non-efficient market. The ISE has fully computerized trading system in which a multi-price continuous auction system works. There are two trading sessions on each day through the working days of the week. The clearing takes place on 2 days after the trade. The price movements are bounded by 10% upside and downside in each trading session and the price is being rounded to the nearest price tick.

### **3. Data**

The data of this study is collected from the ISE. According to the Turkish capital market regulations all listed companies have to disclose their material events as soon as possible via the electronic disclosure system of the ISE. The dividend pay out decision of the board of directors is counted as the material event, and it must be disclosed. It is generally announced

on the same day or on the next day. These material events are kept electronically under the name of each company as a document. So, there is one material event document for each company including all material events. Although the material events and the price data are publicly available, each announcement date has to be collected manually. The ISE publishes the closing price of each company and the market index XUTUM which contains all companies' weighted price data. The daily returns are calculated as a percentage increase in the closing price of successive days.

The sample which consists of 80 companies is selected from the population of 429 companies according to the following criteria: First of all, as mentioned previously, the Turkish economy passed through a very severe economic crisis at the end of 2000 and the beginning of 2001. Therefore, we select the period 2003-2009 as our sample period to avoid any possible effects of the crisis. Second, the company should have at least 3 dividend pay outs within the 7 years. Third, the company should not pay interim dividend within a year. In other words, each company should pay dividend once a year.

[Table 3 Should be Inserted Around Here]

According to the criteria given above, there are 429 events; 57 events in 2003, 42 events in 2004, 74 events in 2005, 71 events in 2006, 73 events in 2007, 63 events in 2008 and 49 events in 2009. On average, each firm announced cash dividends roughly 5 times (exactly 5.3) in seven years. The daily abnormal returns are defined as the difference between the return of individual share and the return on market index extending event windows from  $t-5$  to  $t+18$ . Table 3 presents the descriptive statistics of the daily abnormal returns which are calculated by using the market adjusted model. The table gives mean, standard error, median,

mode, standard deviation, and the minimum and maximum abnormal return values within the event windows from t-5 to t+18.

The highest average abnormal return is on day t+8 which is 0.36%, whereas the lowest average abnormal return is on day t-1 which is -0.12%. The standard deviation of the daily abnormal return does not change much and lies between 2.15% and 3.00%.

In addition to the event study data, the data set includes the dividend per share as a ratio of dividend payout to nominal value of one share which is 1 TL (Turkish Lira). Table 4 gives the descriptive statistics of the dividend per share from 2003 to 2009. The last column of the table is for the whole period.

[Table 4 Should be Inserted Around Here]

As seen from the table, the summary statistics of the dividend per share does not radically change from year to year. On average, companies paid out 95% of nominal value of each share which is 1 TL. The minimum dividend is 0.01 TL and the maximum dividend is 25.80 TL per share. The variability in the dividend per share which is 2.72 TL on average is quite high.

The data includes some dummy variables to identify the effect of specific qualitative variables. As it is mentioned in the methodology section, the main problem of event studies is the separation of the announcements. In the cash dividends announcement case, there can be some other effects such as announcement of earnings and/or stock dividends on the announcement day of cash dividends. For this purpose, a dummy variable is created to test the individual effect of cash dividends. In the sample, cash dividends are announced alone in 238 events while in 191 events cash dividends and earnings and/or stock dividends are announced together.

The other two dummy variables are created to measure the effect of dividend increase and dividend decrease by comparing successive dividend pay outs. In the sample, 203 cash dividends are greater than the previous cash dividends. On the other hand, 185 of the cash dividends announcements represent a decrease compared to the previous cash dividends. These dummy variables are created since many studies in the literature document that dividend increases and decreases have information content or announcement effect on the share price.

The last dummy variable we created aims at capturing the effect of the size and trading. The ISE announces XU30 index to specify the top 30 companies in terms of trading and size. It is observed that they are generally the biggest companies. In our sample, 71 dividend announcements are made by XU30 companies. It is accepted that XU30 companies are generally in the scope of institutional investors. Some studies find that there is a positive relationship between institutional investors and the dividend pay out (Eckbo and Verma, 1994; Short et al., 2002). Therefore, the dummy variable of being a XU30 company can be used for testing the effect of institutional investors.

#### **4. Methodology**

This paper investigates two questions, first, whether the announcement of cash dividends has a significant effect on share price, and second, whether *DPS* has a significant role in the explanation of share price. In order to examine the first question, we use event study analysis. The second question, on the other hand, is explored by means of regression analysis.

The event study utilizes the traditional methodology (see Armitage, 1995) which is commonly used to test the announcement effect of a dividend (Pettit, 1972; Masulis, 1980; Brown and Warner, 1980; Aharony and Swary, 1980; Woolridge, 1982; Asquith and Mullins, 1983; Venkatesh, 1989; Akhigbe and Madura, 1996), the announcement effect of earnings

(Dennis and McConnell, 1986) and the existence of insider trading (Sivakumar and Waymire, 1994, Gregory et al., 1997 and Hillier and Marshall, 2002).

The first step in the event study is to find daily return of the share and market index. The original data is in the form of closing price of shares and closing value of market index. In order to find the daily return of the  $i^{\text{th}}$  stock at day  $t$ , the following formula is used. It is the percentage increase in closing price of successive days.

$$R_{it} = (P_{it} - P_{it-1}) / P_{it-1} \quad (1)$$

Here  $R_{it}$  is the daily return of stock  $i$  at day  $t$ ,  $P_{it}$  is the closing price of stock  $i$  at day  $t$  and  $P_{it-1}$  is the closing price of stock  $i$  at day  $t-1$ . The daily return of market index is calculated in the same way as the percentage change in the value of ISE XUTUM index (contains all shares) in two successive days.

The next step is to find the daily abnormal or excess return of individual stock for each day.

$$AR_{it} = R_{it} - M_t \quad (2)$$

$AR_{it}$  represents the daily abnormal return of stock  $i$  at day  $t$ , and  $M_t$  represents the market index return on day  $t$ . In the event study analysis, we use the market adjusted return model to estimate the abnormal return. However, some studies used the market risk adjusted model. In the market adjusted model, the beta coefficient of each share (which measures the risk level of each share with respect to market) is assumed to be 1, and the intercept term is assumed to be zero. On the other hand, in the market risk adjusted model, beta coefficient is calculated by regression in which the daily market index returns is regressed on the daily share returns in a neutral period. The market risk adjusted model is not superior to the market adjusted model (Armitage, 1995; Brown and Warner, 1980). Marsh (1979) argues that due to data limitation, the risk adjusted model reduces statistical efficiency. Furthermore, in the case of small markets, the market adjusted model provides results as good as the risk adjusted

model. The study of Liljeblom (1989), Martikainen et al. (1993), Aydogan and Muradoglu (1998) and Travlos et al. (2001) which are carried out for Sweden, Finland, Turkey and Cyprus, respectively, are some examples using the market adjusted model for a small market. Even studies in deep and developed markets document that the market adjusted model is not worse than the market risk adjusted model (Charest, 1978; Woolridge, 1982; Asquith and Mullins, 1983; Asquith and Mullins, 1986).

The third step is to find the daily average abnormal return and cumulative abnormal returns for the event window.

$$AR_t = \frac{1}{N} \sum_{i=1}^N AR_{it} \quad (3)$$

$$CAR = \sum_{t=t}^T AR_t \quad (4)$$

Here,  $AR_t$  is the average abnormal return on  $T$  stocks on day  $t$  and  $CAR$  is the cumulative abnormal average return over an event window extending  $t=t$  to  $t=T$ . The last step is the calculation of the  $t$  statistics for the cumulative abnormal returns which is given as follows:

$$t = \frac{CAR}{\sigma * \sqrt{T}} \quad (5)$$

where  $\sigma$  represents the standard deviation of the daily abnormal return ( $AR$ ) given the period of an event window.

In this study,  $t=0$  represents the announcement day of cash dividends. Since, rumours about the dividend starts before the announcement day, it is possible to see the price movement prior to the announcement day. Therefore, the starting point of the event windows is taken the  $(t-5)^{th}$  day. It is important to open the event window prior to the event date, since it provides an idea about information leakage prior to the announcement and thus the effectiveness of regulation and supervision.

Our data set also includes the value of dividend per share. The amount of dividend which is announced to pay out is specified as a fraction of per share (1 TL= 0.80 US \$). In addition to the event study analysis, we use regression analysis to test further the relationship between the dividend per share and the cumulative abnormal return. The after tax dividend per share is employed as the independent variable in our regression. As our dependent variable, we use the cumulative abnormal returns calculated previously in event study methodology.

The dividend per share is regressed on the cumulative abnormal returns along the event windows. In order to test whether the investors of the most trading and the biggest companies react differently than other companies to the dividend announcement, the dummy variable of being in the XU30 index is included. The ISE XU30 index includes the most trading companies that are generally the biggest companies. The regression model is formulated as follows:

$$CAR_i = \alpha + \beta_1 DPS_i + \beta_2 OD_i + \beta_3 X30_i + \beta_4 INC_i + \beta_5 DEC_i + e_i \quad (6)$$

where  $CAR_i$  is the cumulative abnormal return of share  $i$  and  $DPS_i$  is the after-tax dividend per share. The other variables in the equation are dummy variables and defined as follows:

$X30_i = 1$  : if the  $i^{th}$  share belongs to the XU30 index

$= 0$  : if the  $i^{th}$  share does not belong to the XU30 index

$OD_i = 1$  : if the cash dividends announcement took place alone

$= 0$  : if the cash dividends announcement took place together with the other announcements such as earning and stock dividend

$INC_i = 1$  : if the current cash dividend is greater than the previous one

$= 0$  : if the current cash dividend is not greater than the previous one

$DEC_i = 1$  : if the current cash dividend is less than the previous one  
 $= 0$  : if the current cash dividend is not less than the previous one

In order to carry out both the event study analysis and the regression analysis, the cumulative abnormal return is calculated for twelve event windows shown in the first column of Table 5. The beginning and the ending day of the event windows are seen on the second and the third columns, respectively. The table also shows the reasons for opening the event windows and their possible implications.

[Table 5 Should be Inserted Around Here]

## 5. Results

As stated before, the main objective of the study is to examine whether the announcement of cash dividends has a significant effect on the share price and what is the role of *DPS* in it. In order to investigate this question, first event study is used for testing the announcement effect of cash dividend on share prices, and second, regression analyses are performed to examine the relationship between *DPS* and share price.

Table 6 presents the results of the event study in different event windows. The variable *CAR* represents the cumulative abnormal return within the event window. The abnormal returns are calculated by using the market adjusted model (equation 2), and the t-statistics are calculated using the event study methodology (equations 3, 4, 5). As seen from the table, if all cash dividends are pooled, *CAR* is significant in the event windows [0,+1], [0,+5], [0,+10], [0,+15] and [0,+18]. On the other hand, *CAR* in the event windows [-5,-1], [-3,-1] and [-2,-1] are insignificant.

The table shows that, cash dividend announcement makes a significant positive price change after the announcement. In other words, cash dividend conveys information therefore

affects the share price. On the other hand, there is no such relation before the announcement of cash dividend.

[Table 6 Should be Inserted Around Here]

Table 7 presents the regression results where we investigate the relationship between *DPS* and share price. The table contains the results of twelve regressions (based on equation 6) in each of which cumulative abnormal return (*CAR*) in an event window is regressed on dividend per share (*DPS*) and the other independent variables, *OD*, *X30*, *INC* and *DEC*. The total number of observations in all regressions is 429.

[Table 7 Should be Inserted Around Here]

The estimations have been carried out by using the random effects model. We have performed a Hausman test for fixed versus random effects models, and the test favoured the random effects model. The estimations are one-way estimations with only firm-specific effects. We have also estimated two-way random effects models with both firm-specific and time effects. However, we do not report the results of these estimations since they are very similar to those given in Table 7. We have also obtained the OLS estimations of our regressions for the purpose of comparison but we do not report them either since they are also very similar to the results shown in the table.

The results presented in Table 7 indicate that there is a highly significant negative relationship between cumulative abnormal return (*CAR*) and the cash dividend per share (*DPS*) in event windows after the announcement day. The results also seem to indicate that the negative effect of cash dividend per share is larger in absolute value for longer event

windows after the announcement. In all event windows after the announcement, the coefficient of the *DPS* is significant at the 1 percent level. The announcement of a higher cash dividend per share results in significant a higher negative abnormal return, and the announcement of a lower cash dividend per share results in significant a lower negative abnormal return. Therefore, the cash dividend is price sensitive, has inside information and has valuable information. On the other hand, for all event windows prior to the announcement day, the coefficient of the same variable is insignificant. The coefficients of *OD* and *X30* are generally insignificant while variables *INC* and *DEC* seem to have a positive though weak effect on cumulative abnormal return for event windows after the announcement day.

The adjustment of price to the information starts on the announcement day, and it continues at least 18 days. The most significant price adjustment takes place in the first three days. As mentioned before, Aydogan and Muradoglu (1998), whose study covers the period 1988-1993, document that the price adjustment starts on day  $t+1$ . Hence, the result of our paper, together with that of Aydogan and Muradoglu (1998), would indicate that the inefficiency in the market has been decreased since 1993.

The regression results support the tax clientele effect hypothesis. This is most likely due to the fact that the capital gain is less taxed than the dividend yield in Turkey. Shareholders prefer earnings to be retained in the firm in the presence of favourable taxation of capital gain. The higher cash dividends lead the shareholders to pay more taxes in the future; therefore they give a negative response by selling their shares. On the other hand, lower cash dividends lead to higher proportion of earnings to be retained in the firm, and it suits the shareholder's tax preferences. The results do not support the studies of Batchelor and Orakcioglu (2003) where they can not find a significant abnormal return around the announcement day of cash dividends.

The results of the event study and the regression analyses are consistent with each other. They, together, indicate that there is no significant relationship between the cash dividends announcement or *DPS* and abnormal returns prior to the announcement day. The results also indicate that there is no significant information leakage before the information is publicly available. Therefore, it seems that the supervision and regulation are efficient and effective in preventing the use of insider information related to cash dividends.

## **6. Conclusions**

The effect of the dividend on firm's share price is very crucial not only for the literature but also for the regulation and supervision of the capital market. Although it is still a puzzle whether the dividend has an effect on firm's value and share price, many capital market legal systems accept that the dividend is price sensitive information, and banned the insider dealing. However, Miller and Modigliani (1961) proposed that the dividend has no effect on value and capital structure of a firm under conditions of perfect capital market and non existence of taxes. Three major theories attempt to explain the relationship between the dividend change and firm's share price: The information-signalling theory, the free cash flow theory and the dividend clientele effect theory.

There are very limited studies on this relationship for emerging markets such as Turkey. The existing few studies carried out for Turkey used data for the period 1988-1994, and generally did not use exact date for the announcement day. Our study uses more recent data covering the period 2003-2009 and 429 events of 80 companies. We examine whether the announcement of cash dividends has a significant effect on the share price, and what the role of *DPS* is in it. In order to investigate these questions, we first performed event study analysis to test for the announcement effect of cash dividend on share price, and then we conducted regression analyses to examine the relationship between *DPS* and share price.

We have found that there is a significant negative relationship between cash dividends per share and abnormal return after the announcement. The results support the tax clientele effect hypothesis most likely due to the fact that the capital gain is less taxed than the dividend yield in Turkey. Furthermore, it has been found that the regulation and supervision are effective and efficient in preventing a significant information leakage prior to the announcement day. It seems that, the inefficiency of the market has decreased over time since our results show that the price adjustment starts at day zero, and the most significant adjustment takes place between day zero and day two.

This study deals only with cash dividends, and further studies based on stock dividend and stock repurchases should be conducted for a better understanding. Furthermore, the information content of dividend should be tested by examining the relationship between current dividend and future earnings.

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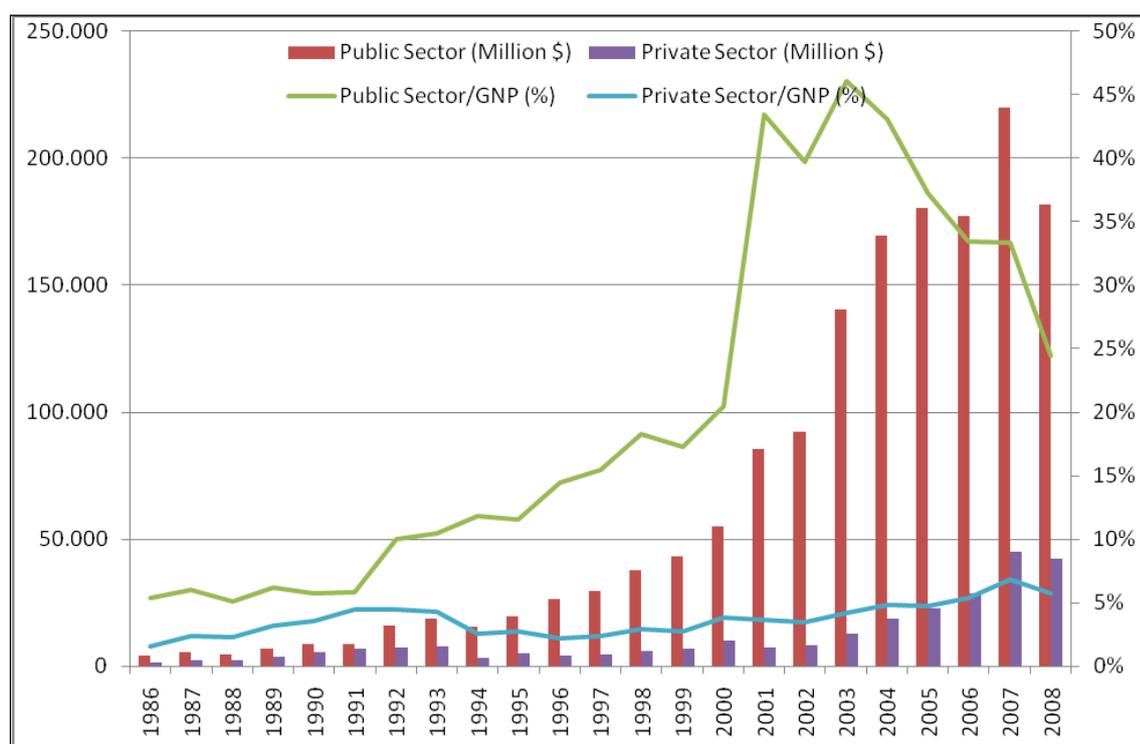
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**Table 1. Outstanding Securities**

Years	Public Sector (Million US \$)	Private Sector (Million US \$)	Total (Million US \$)	Ratio to GNP (%)
1987	5,266	2,076	7,341	8.4*
1990	8,667	5,514	14,181	9.3*
1995	19,693	4,839	24,532	14.4*
1998	37,699	6,072	43,771	16.3
2000	54,784	10,224	65,008	24.3
2001	85,394	7,306	92,700	47.2
2002	92,345	8,062	100,407	43.1
2003	140,421	12,901	153,322	50.3
2004	169,447	18,766	188,214	47.9
2005	180,531	22,673	203,205	42.0
2006	177,497	28,552	206,049	38.9
2007	220,227	45,049	265,276	40.2
2008	181,700	42,048	223,748	45.7

Source: CMB (2006: 24, 2009: 36). Note: \*The GNP calculation method was changed in 2007 and the ratios recalculated back to 1998.

**Figure 1. Development of Outstanding Securities**



Source: CMB (2006: 24, 2009: 36).

**Table 2. Development of Main Indicators of ISE**

Years	ISE Trading Volume (Million US \$)	Market Capitalization (Million US \$)	ISE XU100 Index	Number Of Traded Companies in ISE
1986	13	938	1.71	80
1990	5,854	18,737	32.56	110
1995	52,357	20,782	400.25	258
1999	84,034	114,271	15,209	285
2000	181,934	69,507	9,437	287
2001	80,400	47,689	13,783	278
2002	70,756	34,402	10,370	262
2003	100,165	69,003	18,625	265
2005	201,763	162,814	39,778	282
2007	300,842	289,986	55,538	292
2008	261,274	119,698	26,864	317

Source: CMB (2009: 42-43).

**Table 3. Descriptive Statistics of Event Window Abnormal Returns**

Day	Mean	St. Error	Median	Mode	St. Dev.	Maximum	Minimum
-5	0.20	2.55	-0.08	-0.25	-11.18	14.83	0.20
-4	-0.03	2.42	-0.08	-0.95	-16.40	7.40	-0.03
-3	0.26	2.44	0.13	-0.25	-7.61	15.03	0.26
-2	0.28	2.41	-0.03	-1.56	-7.80	15.85	0.28
-1	-0.12	2.51	-0.20	-1.68	-11.90	10.42	-0.12
0	0.16	2.90	-0.02	-0.52	-10.61	13.94	0.16
1	0.07	2.94	0.04	-2.21	-16.69	14.49	0.07
2	-0.02	2.64	-0.10	0.26	-10.43	12.25	-0.02
3	0.04	2.15	-0.05	-1.07	-7.68	12.85	0.04
4	0.22	2.59	-0.06	-0.36	-10.06	13.42	0.22
5	0.22	2.36	0.12	-1.58	-8.68	15.25	0.22
6	0.03	2.75	0.06	0.18	-9.99	17.66	0.03
7	0.17	2.17	0.05	0.55	-9.22	11.67	0.17
8	0.36	2.46	0.10	-1.30	-6.47	15.97	0.36
9	0.29	2.77	-0.05	1.10	-11.26	18.16	0.29
10	0.12	2.27	-0.08	-1.72	-9.51	13.33	0.12
11	0.20	2.65	-0.04	2.66	-11.63	18.14	0.20
12	0.10	2.85	-0.01	-0.86	-13.85	23.40	0.10
13	0.23	2.37	0.10	1.39	-8.88	13.81	0.23
14	0.07	2.53	-0.10	-0.69	-24.44	9.10	0.07
15	0.00	3.00	-0.12	1.46	-22.03	26.92	0.00
16	0.06	2.46	-0.08	-1.72	-6.94	20.32	0.06
17	0.31	2.96	0.09	-0.29	-13.46	24.01	0.31
18	0.28	2.43	0.01	1.14	-7.46	16.70	0.28

Note: All values are in percentages.

**Table 4. Descriptive Statistics of Dividend per Share**

	2003	2004	2005	2006	2007	2008	2009	2003-2009
Mean	1.41	0.84	0.97	0.80	0.96	0.90	0.78	0.95
St. Deviation	3.91	3.12	3.08	1.65	3.06	1.82	1.62	2.72
Median	0.33	0.20	0.24	0.28	0.26	0.35	0.26	0.26
Minimum	0.05	0.01	0.02	0.01	0.01	0.01	0.03	0.01
Maximum	25.80	20.41	23.54	9.54	25.67	12.55	8.56	25.80

**Table 5. Reason for Opening and Implications of Event Windows**

Event Windows			Reason for Opening Window	Implications
No.	Beg.	End		
1	-5	-1	To test the information leakage.	The efficiency in regulation and the effectiveness of supervision.
2	-3	-1		
3	-2	-1		
4	-1	-1		
5	0	0	To test the announcement effect of dividend and market efficiency.	The information content of dividend and the duration of price adjustment.
6	0	1		
7	0	2		
8	0	3		
9	0	5		
10	0	10		
11	0	15		
12	0	18		

**Table 6. Event Study Results**

Event Windows	All Dividends (429 Events)	
	CAR (%)	t-statistics
[-5,-1]	0.58	1.43
[-3,-1]	0.41	1.07
[-2,-1]	0.16	0.39
[0,+1]	0.23*	2.57
[0,+2]	0.21	1.35
[0,+3]	0.24	1.63
[0,+5]	0.68*	2.78
[0,+10]	1.65*	4.21
[0,+15]	2.24*	5.15
[0,+18]	2.88*	5.89

Notes: \* indicates statistical significance at the 1 percent level. The event study involves only ten event windows instead of twelve because the fourth and the fifth event windows shown in Table 5 contain single-day events and hence it is not possible to calculate the standard deviation for them.

**Table 7. Regression Results**

Dependent Variable (CAR in the event window)	Independent Variables					$R^2$ (%)	$F$ -Test
	<i>DPS</i>	<i>OD</i>	<i>X30</i>	<i>INC</i>	<i>DEC</i>		
<i>CAR1</i> [-5,-1]	-0.0003 (-0.264)	0.0028 (0.469)	-0.0155*** (-1.841)	0.0065 (0.698)	-0.0078 (-0.829)	2.36	2.04***
<i>CAR2</i> [-3,-1]	-0.00007 (-0.083)	-0.0018 (-0.419)	-0.0126** (-2.03)	-0.0021 (-0.301)	-0.0068 (-0.975)	1.28	1.10
<i>CAR3</i> [-2,-1]	0.0004 (0.617)	0.0018 (0.537)	-0.0076*** (-1.683)	0.0061 (1.057)	0.0034 (0.574)	1.36	1.16
<i>CAR4</i> [-1,-1]	0.0005 (0.983)	0.00003 (-0.011)	-0.00008 (-0.021)	0.0059 (1.366)	0.0036 (0.837)	0.77	0.66
<i>CAR5</i> [0, 0]	-0.0021* (-4.134)	-0.0034 (-1.186)	-0.0045 (-1.186)	0.0043 (0.877)	0.0053 (1.073)	4.8	4.33*
<i>CAR6</i> [0,+1]	-0.0046* (-5.579)	-0.0045 (-1.041)	-0.0082 (-1.352)	0.0121** (1.703)	0.0100 (1.398)	8.08	7.44*
<i>CAR7</i> [0,+2]	-0.0059* (-5.931)	-0.0026 (-0.482)	-0.0060 (-0.813)	0.0124 (1.402)	0.0117 (1.312)	8.38	7.45*
<i>CAR8</i> [0,+3]	-0.0059* (-5.638)	0.0004 (0.068)	-0.0044 (-0.562)	0.0137 (1.487)	0.0177*** (1.906)	7.93	7.29*
<i>CAR9</i> [0,+5]	-0.0064* (-5.187)	0.0047 (0.707)	-0.0073 (-0.802)	0.0141 (1.289)	0.0187*** (1.696)	6.74	6.12*
<i>CAR10</i> [0,+10]	-0.0093* (-5.098)	-0.0045 (-0.468)	-0.0148 (-1.087)	0.0311** (2.038)	0.0421* (2.738)	7.88	7.24*
<i>CAR11</i> [0,+15]	-0.0099* (-5.302)	-0.0069 (-0.669)	-0.0193 (-1.404)	0.0269 (1.515)	0.0426** (2.375)	8.23	7.59*
<i>CAR12</i> [0,+18]	-0.0098* (-4.414)	-0.0170 (-1.393)	-0.01903 (-1.165)	0.0433** (2.044)	0.0526** (2.463)	6.64	6.03*

Notes: t-statistics are in parentheses. \* indicates statistical significance at the 1 percent level, \*\* indicates statistical significance at the 5 percent level, and \*\*\* indicates statistical significance at the 10 percent level.