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ALI M. KUTAN

Editor's Introduction

This issue of the *Emerging Markets Finance and Trade* includes four papers with important implications for policy makers and investors in emerging markets ranging from East Asia to the Middle East. In the first paper, Mohsen Bahmani-Oskooee and Nisit Panthamit study the link between excess money supply and exchange rate movements in several East Asian countries affected by the 1997 financial crisis. In particular, they test the validity of the overshooting hypothesis, which suggests that, when goods prices are slow to adjust, an excess money supply initially causes currencies to depreciate over and beyond their long-run values. When prices fully adjust, then currencies tend to appreciate. Using monthly data from 1987 to 2000 for Thailand, Korea, Indonesia, Malaysia, and the Philippines, they find evidence for the overshooting hypothesis. The results have implications for monetary policy authorities, especially during a financial crisis.

The remaining papers focus on emerging stock markets. The second paper, by Mustafa Kemal Yilmaz and Guzhan Gulay, studies the effects of cash dividend payments on stock returns and trading volume in the Istanbul Stock Exchange. They find significant reaction of the stock market activity to cash dividend payments before and after the payments, as well as the time of payment, suggesting that such payments convey new information to the market. The implications of the findings for profitable trading strategies are discussed.

In the third paper, Zeynep Önder and Can Şimga-Muğan empirically examine the impact of economic and political news on stock market returns and trading volume in Argentina and Turkey. They separate the news into domestic and world news categories. They choose these stock markets, because they argue that these two countries share similar economic and political environments, as well as volatile stock markets. The findings indicate that both types of news—economic and political—matter for stock market activity. The implications of the results for investors are also discussed.

The last paper, by Talla Al-Deehani and Imad A. Moosa, examines volatility linkages among key Middle East stock markets, including Bahrain, Kuwait, and

Saudi Arabia. The findings suggest significant volatility spillovers, with the Kuwaiti market, the most active and liquid market, having the most significant effect and the lead role. Another important finding is that volatility in each of these three markets cannot be explained by volatility in the other two markets. These results have important implications for investors who may include shares of the Middle East markets as part of their portfolio of assets.

MUSTAFA KEMAL YILMAZ AND GUZHAN GULAY

Dividend Policies and Price-Volume Reactions to Cash Dividends on the Stock Market

Evidence from the Istanbul Stock Exchange

*Abstract: This study examines the effects of cash dividend payments on stock returns and
trading volumes in the stock market. It also investigates whether there is any difference in
the investment behavior of investors with respect to the dividend payout ratio and size in the
Istanbul Stock Exchange (ISE) from 1995 to 2003. Prices start to rise a few sessions before
cash dividend payments, and on the ex-dividend day, they fall less than do dividend pay-
ments, finally decreasing in the sessions following the payment. Trading volume shows a
considerable upward shift before the payment date and, interestingly, is stable after. Thus,
cash dividends influence prices and trading volumes in different ways before, at, and after
payment, providing some profitable active trading strategy opportunities around the ex-
dividend day. The findings support price-volume reaction discussions on the divident pay-
ment date and the significant effect of cash dividends on the stock market.*

Key words: cash dividends, emerging markets, price-volume reaction.

Dividend policy and profit distribution have vital roles for all corporations in the
global economy. Corporations must establish and maintain effective dividend poli-
cies to appeal to new shareholders and stimulate trade on their stocks through capital

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Exchange.

markets. However, optimizing dividend policy has always been very difficult for corporations, as the relevant parties have little in common where these policies are concerned. Thus, dividend policy is generally defined as a critical decision between making dividend payments and retaining earnings in the company.

When deciding on the dividend payout ratio (DPOR), other factors, such as legal limitations set for DPOR, tax regulations, inflation, and the accounting system, should also be considered. From this perspective, corporations should satisfy the DPOR set by regulation, as well as maximize the wealth of the company.

In the Turkish stock market, cash dividends are declared from the net profit after tax, and mostly are distributed within a certain time period set by legal regulations. Since 1995, companies have had the opportunity to distribute dividends as "stock dividends," an alternative way of retaining company earnings. The present study examines price and volume reactions of shares traded in the Istanbul Stock Exchange (ISE) before, at, and after the cash dividend payment day, looking for a profitable active trading strategy. Trends are examined for subperiods identified according to variations in taxation policy (two subperiods) and economic changes (three subperiods) in the market. Turkey's unique environment, in which dividends are not mandatory and are tax-free for shareholders under certain rules, subject to small transaction costs, provides an ideal situation for studying the stock price behavior puzzle.

The results reveal that prices start to rise a few sessions preceding cash dividend payments, and on the ex-dividend day, fall less than do dividend payments. After the ex-dividend day, prices decrease considerably. Trading volume also shows a considerable upward shift before the payment date and, interestingly, then remains stable after. Thus, where price and trading volume changes are concerned, the findings show that prices rise before and on the ex-dividend day, but fall after dividend payment, providing profitable active trading strategies for investors. These findings support price-volume reaction discussions and the significant effect of cash dividends on the stock market in the debate about the effect of cash dividends on the value of the firm, and investor strategies in financial markets.

This study also sheds light on questions that were unclear in previous studies. There are few studies on this issue for emerging markets, which have different risk and return characteristics than do developed markets. Very few studies have investigated the ex-dividend-day phenomenon in the ISE. This study uses a large sample of cash dividend–paying companies over a longer period of time, providing a wider perspective in employing active trading strategies, leading to potential high returns in an emerging market country such as Turkey.

Literature Review

Despite the rich literature on the overall issue of dividend policy and its relation to firm value, most studies fail to provide insight into a dividend policy's effect on the firm's valuation, and as Black (1976) states, the dividend policy continues to

be a puzzle in the strategic firm development process. Many researchers have investigated stock price reactions to announcements and implementations of various types of dividend payments, as well as the ex-dividend-day behavior of stock prices.

Michel (1979) and Baker (1988) find evidence that dividend policies vary across industries. Ho (2003) conducts a comparative study on dividend policies in Australia and Japan, finding a significant industry effect in both countries. Lintner (1956) states that firms operating in the same industry may be expected to pursue similar policies, as they operate in the same environment. Michel (1979), studying American firms from 1967 to 1976, has also found evidence for industry classification related to the level of dividends.

A study conducted by Glen et al. (1995) on seven emerging market countries found that emerging market firms place more emphasis on DPORs than they do on the level of dividend paid. As a result, dividend payments tend to be more volatile in emerging markets than in developed countries.[1]

The debate about the stock price change on the ex-dividend day begins with Elton and Gruber (1970), who observe that stock prices on the ex-dividend day fall by a smaller amount than the dividend paid. They attribute the difference to the tax paid over the dividend payment. It is therefore expected that, ceteris paribus, the ex-dividend-day stock price should fall from the price on the day before by the after-tax dividend amount.

Milonas and Travlos (2001) analyze the ex-dividend-day stock price behavior in the Athens Stock Exchange (ASE) from 1994 to 1999 and discover that, on the ex-dividend day, stock prices fall by less than the dividend paid. In their study of the Hong Kong stock market, Frank and Jagannathan (1998) find that, despite the absence of taxation, stock prices drop on the ex-dividend day by half of the amount of the dividend paid. This was due to the difference in the bid–ask spread, and because the abnormal trading volume is generally negative during the ten-day window around the ex-dividend day.

Bali and Hite (1998) provide evidence of tax irrelevance in dividend payments in the New York Stock Exchange (NYSE) and American Stock Exchange (AMEX), discovering that the price drop on the ex-dividend day cannot equal the amount of the dividend. On the other hand, Milonas et al. (2002) observe in the Chinese stock market that, although for nontaxable stocks, the price on the ex-dividend day falls by an amount equal to the dividends, for the taxable sample, the price adjustment depends on the effective tax rate on the dividend income.

In a recent study by Osobov (2004) on the dividend policies of firms operating in developed countries, important similarities in time trends in corporate dividend decisions in the United States, Canada, United Kingdom, Germany, France, and Japan were discerned. In these countries, the proportion of dividend payers declined from 1988 to 2001. Larger and more profitable firms were more likely to pay dividends. Within the group of dividend-paying firms, market capitalization and dividends were highly concentrated among a relatively few large firms.

Fehrs et al. (1988) detect a significant positive (negative) relationship between announcement date returns and yields for dividend increases (decreases), even after controlling for the magnitude of dividend changes. Price reactions associated with dividend increases vary directly with the change in yield. Michaely et al. (1995) investigate market reactions to initiations and omissions of cash dividend payment for NYSE and AMEX companies, finding that the magnitude of short-run price reactions to omissions is greater than for initiations.

Batchelor and Orakcioglu (1995) show that cash dividend payments have a significant effect on excess returns in the ISE. They state that there is no systematic movement in price in the weeks before the dividend payment date, but after the dividend date, the prices of shares that pay an improved dividend rise, and the prices of shares that pay a lower dividend fall.

The ISE Institutional Structure

The ISE has been one of the leading emerging markets since its establishment in 1986, due to its rapid growth and development. It is the only stock exchange in Turkey, and it attracts the interest of foreign investors, who held 52 percent of the free float of the shares by the end of 2003, according to the ISE Settlement and Custody Bank. As of year-end 2003, the ISE had a daily trading volume of $500 million, and 285 listed stocks. The fully computerized trading system works with a multiprice continuous auction market system with no specialist interacting. The market operates from Monday to Friday, with two sessions operating from 9:30 A.M. to 12:00 P.M., and from 2:00 P.M. to 4:30 P.M., with no opening or closing sessions.

Price limits are set at 10 percent for each session and calculated over a base price, which is found by rounding the previous session's weighted average price to the nearest tick. Dividend payments are reflected in the prices on the first session of the first payment date simply by subtracting the tax-free amount paid for each share from the weighted average price calculated for the last session, rounding the price to the nearest tick. Trades are cleared in two days after the day of transaction. Commission costs in the ISE are 0.001 percent, and brokerage firms' commissions are legally between 0.2 percent and 1 percent. Short selling in the ISE is permitted under certain rules and regulations.

When a company made profits, dividends were mandatory from 1982 to 1994 and not mandatory from 1995 to 2003, with a minimum of 50 percent of profits after tax, paid once a year and after the regular annual shareholders' meeting, usually between March and May. Corporate dividends were determined after corporate taxes were deducted from profits before taxes. The Turkish tax system did not impose any personal taxes on dividends until 1999. Starting from the beginning of 1999, however, shareholders were subject to income taxes on received dividends over 12 billion lira.

on the market, M_t: $AR_{it} = R_{it} - M_t$. The return on session t is the percentage change in prices between two successive sessions: $R_{it} = (P_{it} - P_{i,t-1})/P_{i,t-1}$, where P_{it} and $P_{i,t-1}$ represent adjusted weighted average prices on sessions t and $t - 1$.[4] The market return is defined in a similar way as are the percentage changes in the levels of the ISE National 100 Index in two successive sessions. The mean abnormal return on n stocks on session t, AR_t, is given as

$$AR_t = \sum_{i=1}^{n} AR_{it} / n. \tag{1}$$

For n securities, the cumulative mean abnormal returns (CMARs) over an event window extending from $t = -10$ to $t = +10$, $CMAR_t$, is the sum of mean abnormal returns over that period:

$$CMAR_t = \sum_{t=-10}^{10} AR_t. \tag{2}$$

Measuring abnormal returns using the market as a benchmark does not account for risk differences across stocks. However, employing risk adjustment through the market model reduces statistical efficiency due to data limitations. Also, in some situations, methods that do not adjust for risk perform no worse than the market model (Aydogan and Muradoglu 1998).

The behavior of the trading volume has been examined by computing the relative trading volume, RTV_t, for session t around the event session ($t = -10$ to $t = +10$):

$$RTV_t = \left[V_{it} / ATV_i \right] - 1, \tag{3}$$

where V_{it} is the trading volume on session t of stock i, and ATV_i is the average trading volume of stock i estimated over the period -90 to -11 sessions relative to the event session.

Empirical Findings

Dividend Policy Behavior of ISE Corporations

Table 1 presents the dividend policy behavior of ISE corporations, using the total amounts for cash dividends, bonus issues, stock dividends, rights issues, and net cash dividends (cash dividends minus rights issues). The table does not include figures for those corporations that have been merged or acquired by other companies.[5]

Table 1 shows that, on average, more than half of the ISE corporations (54 percent) collected back the distributed cash dividends paid from their earnings through simultaneous rights issues for new equity (i.e., they exercised preemptive

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Table 1

Cash Dividends, Rights Issues, Bonus Issues for ISE Corporations (billions of lira)

Distribution year	Cash dividends	Bonus issues (internal resources)	Bonus issues (stock dividends)	Rights issues (preemptive)	Net cash dividends
1986	60.35	49.38	—	41.77	18.58
1987	128.29	108.28	—	334.94	−206.65
1988	254.19	130.78	—	181.68	72.51
1989	552.40	562.48	—	846.78	−294.38
1990	1,399.73	2,916.71	—	1,405.02	−5.29
1991	2,905.79	4,111.21	—	5,554.41	−2,648.62
1992	4,875.97	3,932.25	—	4,925.71	−49.74
1993	8,085.76	6,092.63	—	4,704.17	3,381.59
1994	21,095.43	17,788.10	—	27,112.36	−6,016.93
1995	44,773.02	40,716.88	4,576.07	40,504.72	4,268.30
1996	93,397.11	90,509.17	15,851.06	49,443.95	43,953.16
1997	197,393.97	186,045.17	21,894.80	139,416.12	57,977.85
1998	356,604.30	417,924.48	60,639.99	326,892.50	29,711.80
1999	432,254.00	1,018,117.00	183,150.00	369,439.00	62,815.00
2000	590,222.00	1,358,298.00	786,112.00	731,985.00	−141,763.00
2001	650,013.00	2,589,367.00	291,145.00	1,104,297.00	−454,284.00
2002	674,513.00	1,823,246.00	243,492.00	1,706,714.00	−1,032,201.00
2003	824,695.45	1,979,587.44	211,344.11	328,926.90	495,768.55
Total	3,906,587.33	9,541,063.61	1,818,205.03	4,848,711.65	−942,184.32

Source: ISE Annual Reports (various dates).

rights) before 1995, the starting date for the right to issue stock dividends. However, the simultaneous distribution of cash dividends and rights offerings is no different than distributing stock dividends. After 1995, most of the ISE corporations changed their dividend policies, and the number of ISE companies making rights issues and cash dividend payments decreased substantially (19 percent on average of the percentage of companies).

ISE corporations also distribute a substantial amount of bonus dividends. As corporations are allowed to transfer the revaluation fund to the paid-in capital by paying bonus dividends to shareholders, firms use this internal resource for this purpose. Moreover, since 1995, ISE corporations have preferred to distribute stock dividends rather than cash dividends.[6] Financial research on this subject states that the main objective in distributing stock dividends is to conserve cash and satisfy shareholders. Aydogan and Muradoglu (2003) claim that Turkish corporations issue bonus and stock dividends to increase the book value of their paid-in capital. By doing so, they can keep consistent debt to paid-in capital ratios.

Although the dividend policy of corporations operating in different industry groups varies, the dividend policy also differentiates among companies operating in the same industry group. Focusing only on the level of cash dividend payments, Table 2 presents the average cash DPOR across time for four broadly classified industry groups. While making this classification, manufacturing and financial institutions are expected to reflect the "financial" and "industrial" index published by the ISE, "wholesale-retail trade and hotels and restaurants" are expected to represent the service industry, and finally, "electricity, gas and water" companies are expected to reflect the regulated utility industry.

The analysis is divided into three subperiods, considering the historical development of the ISE. The first period is 1986–89, the early growth period of the ISE, which began to stimulate the financial sector. In this period, a limited number of companies were traded on the ISE. In the second period, 1990–94, the stock exchange grew faster in terms of trading volume, market value, and the number of corporations. The period is limited to 1995 because the Turkish economy experienced an economic crisis in 1994, and new regulations about dividend policy were put into effect just before 1995, providing flexibility for the distribution of dividends out of net profit. In the last period, 1995–2001, the Turkish economy fluctuated. A fourth period, 2002–3, is expected to reveal the effect of the 2001 financial crisis on companies' DPORs.

From 1986 to 1994, the average cash DPOR in companies operating in the financial sector tended to be higher than those of companies operating in the manufacturing sector. However, the difference between these two industry groups did not exceed twenty points at any time during this period. Although most of the companies were heavily affected by the 1994 economic crisis, major changes in ISE corporations' dividend policies occurred after 1995. Since then, the aforementioned trend between these two industry groups has completely changed: The cash DPOR of companies operating in the manufacturing industry became higher

Table 2

Average Cash Dividend Payout for Classified Industry Groups in the ISE
(percent)

| Industry groups	1986–1989	1990–1994	1995–2001	2002–2003
Manufacturing	55.49	55.88	33.34	14.28
Financial institutions	65.08	62.55	24.79	13.17
Wholesale/retail trade, hotels and restaurants	45.53	52.90	27.00	15.71
Electricity, gas, and water	49.42	81.94	56.35	23.25

Source: ISE Annual Reports (various dates).

than those of companies operating in the financial sector after 1995 (Figure 1). Economic crises in Turkey in November 2000 and February 2001 affected most firms negatively, leading to a serious drop in dividend payments by corporations to their shareholders in all industry groups, except "electricity, gas and water" corporations (the regulated utility industry). These corporations maintained higher cash DPORs over time. Studies in other countries reveal that regulated utility corporations all over the world tend to pay out the most (Adaoglu 1999). So, the result for ISE corporations is in line with empirical findings.[7]

As Figure 1 shows, ISE corporations' dividend policies have changed considerably over time. While the change can be partially explained by the losses experienced from the destabilized economic environment, regulatory changes granting companies flexibility in their dividend payments have also had an effect. After 1995, the ratio of the number of ISE companies making dividend payments to the total number of companies traded in the ISE has been getting smaller and smaller, following a downward slope from 77 percent in 1995 to between 24 and 25 percent in 2000–1 (Figure 2). Another factor is the regulations set by the Ministry of Finance for taxing dividend payments. Parallel to the latter regulatory arrangements, corporations do not prefer to make dividend payments directly out of their earnings. The taxation of dividend payments requires further study and analysis beyond the scope of this study.

Perhaps unexpectedly, cash DPORs of ISE corporations were not badly affected by the 1994 economic crisis, and companies continued to make dividend payments. This is so because most of the companies not only dealt with their own operations, but also invested in Treasury bills that provided high-interest income. In this way, ISE corporations managed economic difficulties by benefiting from economic opportunities, and did not greatly change their dividend policies.
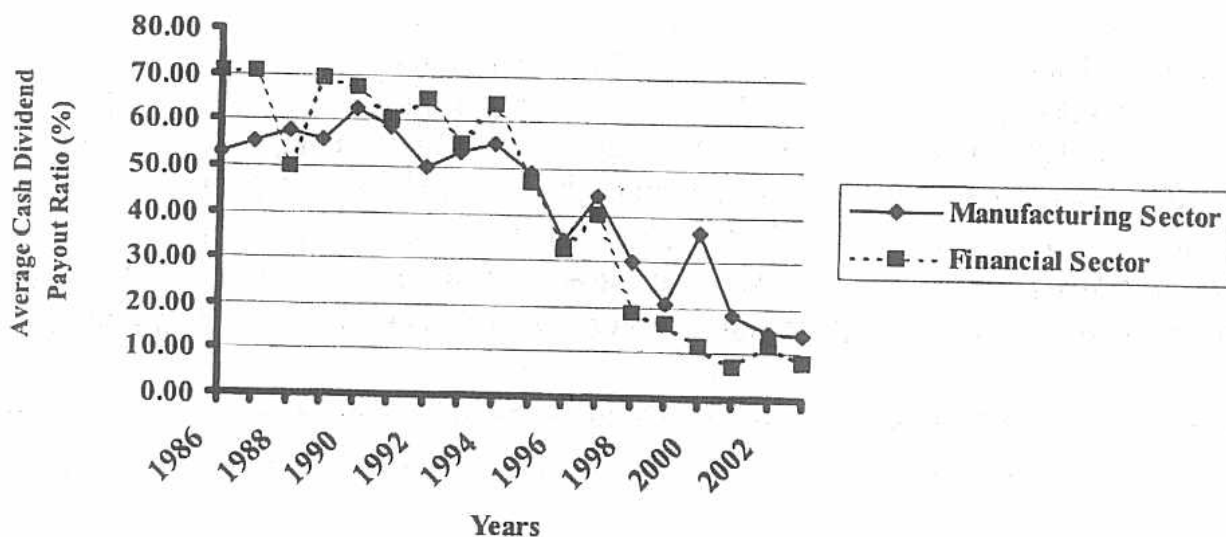
In analyzing the dividend policy of ISE corporations, the most striking feature may be that though a large number of ISE companies increased their DPORs until

Figure 1. **Average Cash Dividend Payout Ratios for Manufacturing and Financial Sector, 1986–2003 (percent)**
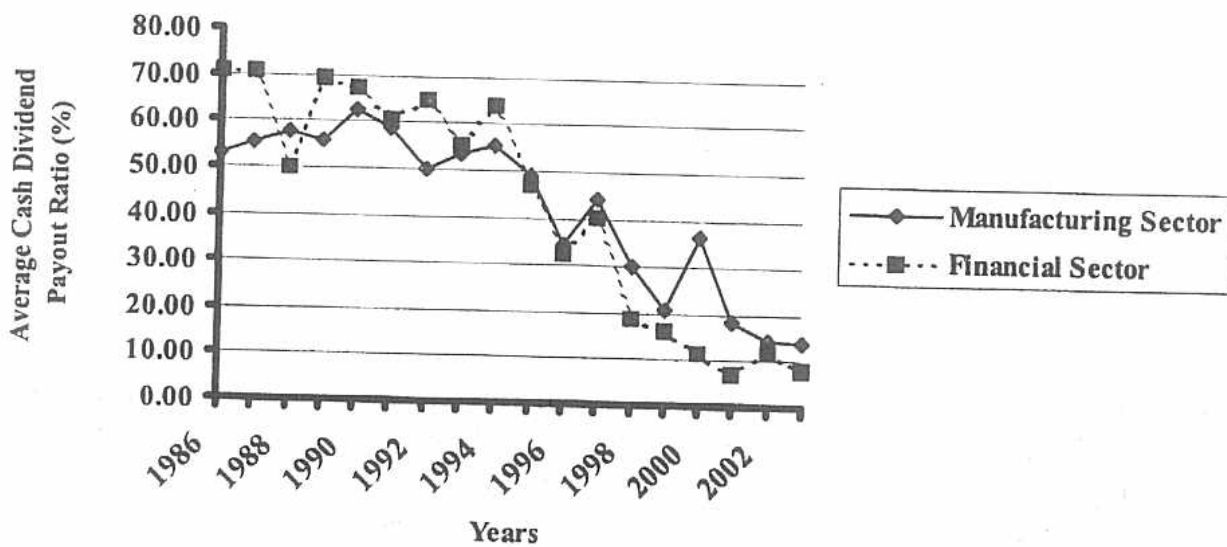
Source: Sample compiled for study.

Figure 2. **Ratio of Cash Dividend–Paying Corporations to Total Corporations (percent)**

Source: Sample compiled for study.

1995, from 1995 to 1998, there was a sharp increase in the number of ISE companies decreasing their DPORs. Then, from 1998 to 2003, following the changing behavior of ISE corporations on dividend policy, the percentage of ISE that did not alter their DPORs grew to a great extent. The most appealing feature of this period is that an increasing number of ISE companies stopped making dividend payments (DPOR = 0.00 percent) and continued to do so for several years. In 1991, the percentage of ISE companies making no dividend payments (DPOR = 0.00 percent) stood at 11.60 percent; in 1995, it was 22.53 percent; in 1998, 46.51

Figure 3. **ISE Corporations That Increased, Decreased, and Unchanged Cash Dividend Payout Ratios, 1991–2003** (number of companies)
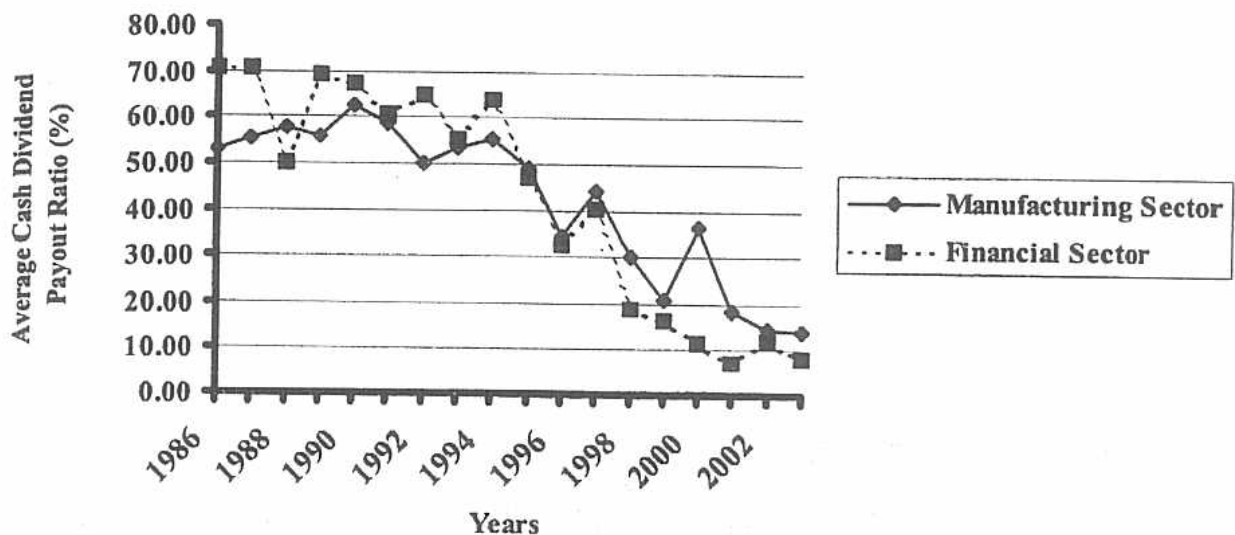
Source: Sample compiled for study.

percent; and in 2003, 75.69 percent. In other words, the ISE companies that do not show any change in their DPORs were those that paid no dividends for a certain period of time (Figure 3).

### Price Reaction on the Dividend Payment Date: A General Outlook

Results of the event window analyses of ten sessions before and after the ex-dividend date have suggested that though the listed companies in the ISE have alternative dividend policies, some popular practices have been observed in the market:

1. Very few profitable companies have maintained a constant dividend policy over the years;
2. Most of the companies pay the dividend in the second quarter of the year;
3. Few companies distribute dividends twice a year.

Appendix Table A1 provides descriptive statistics of the entire sample of 602 cash dividend payment events analyzed in this study. The overall mean (median) DPOR is 56.89 percent (53.55 percent), and the corresponding price change on the ex-dividend day, when prices are adjusted for the dividend payment figures, is 1.70 percent (1.58 percent), indicating that the price drop on the ex-dividend day is less than the dividend paid. This result conforms to most studies of ex-dividend-day stock price behavior.

The relevant standard deviation figures for the DPOR and the corresponding price drop on the ex-dividend day are 25.56 percent and 3.02 percent, respectively. This may be interpreted either as a frequent change on the dividend policies of ISE companies, or as the difference between the ISE companies operating in different

Figure 4. **Cumulative Mean Normal and Abnormal Return on Days Surrounding Cash Dividend Payment Dates**
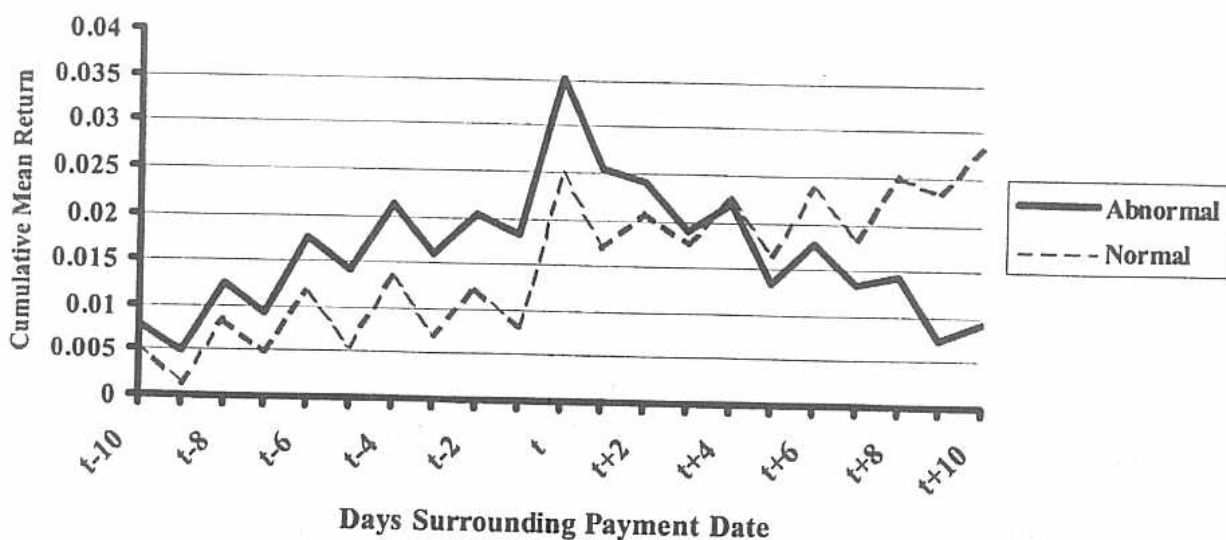
Source: Sample compiled for study.

industry groups in the economy. On the other hand, the low-level standard deviation figure for the ex-dividend-day stock price change may be interpreted as the consistent behavior of investors on the event session.

As stated in the methodology, we compute the cumulative mean abnormal returns (CMARs) for an event window that extends from $t = -10$ to $t = +10$ sessions for all events over the entire sample period, and in the relevant subperiods: 1995–98 and 1999–2003 for taxation purposes, and 1995–97, 1998–2000, and 2001–3 to cover changes in the economic environment. Figure 4 and Tables 3 and 4 summarize the results.

Table 3 contains the mean and standard deviation figures for each session surrounding the event session, namely, the cash dividend payment date, and Figure 4 shows the cumulative mean normal and CMAR for the sample. The cash dividend payment sessions are preceded by positive returns in the week before the dividend payment date, with a CMAR of 1.82 percent. A further 1.70 percent abnormal return is accrued on the payment date. For the week following the dividend payment date, however, the CMAR turns out to be negative, by about –2.59 percent. Out of this negative return, –1.63 percent is accumulated at the third session following the dividend payment date. In other words, investors seem to realize their profit by buying and holding securities before ten sessions, and selling them just after the payment dates, generally after the third session after the event date. They may be characterized as "shortsighted" in the market.[8]

Table 3 shows that the volatility of "excess" returns for the events are similar prior to the event session. On the event session, the volatility of returns is greater than the "before payment date." The volatility of returns continues to stay high after the dividend payment date. This is consistent with Batchelor and Orakcioglu

Table 3

Abnormal Return Surrounding Dividend Payment Date

Session, *t*	MAR	Standard Deviation	*t*-Statistic	CMAR
−10	0.00776	0.033047	2.50*	0.00776
−9	−0.00292	0.022328	−0.83	0.00483
−8	0.00763	0.023151	2.17**	0.01246
−7	−0.00329	0.021328	−0.92	0.00917
−6	0.00846	0.023641	2.41*	0.01763
−5	−0.00358	0.020749	−1.01	0.01405
−4	0.00730	0.024933	2.12**	0.02135
−3	−0.00534	0.024370	−1.54	0.01601
−2	0.00426	0.027088	1.31	0.02027
−1	−0.00208	0.020659	−0.63	0.01819
0	0.01704	0.030257	4.79*	0.03523
+1	−0.00977	0.027493	−2.84*	0.02546
+2	−0.00148	0.025168	−0.37	0.02398
+3	−0.00512	0.023557	−1.50	0.01886
+4	0.00320	0.036292	1.17	0.02206
+5	−0.00874	0.023390	−2.49*	0.01333
+6	0.00449	0.023086	1.27	0.01782
+7	−0.00449	0.022598	−1.33	0.01333
+8	0.00101	0.041913	0.78	0.01434
+9	−0.00699	0.021253	−2.02**	0.00734
+10	0.00198	0.052152	1.56	0.00932

Source: Sample compiled for study.

Notes: * Significant at 1 percent. ** Significant at 5 percent.

(2003), who find increased volatility after the payment of cash dividends on the ISE from 1990 to 1994.

Table 4 and Figures 5 and 6 show CMAR figures for the subperiods analyzed in the study. As mentioned above, Turkey's government began to tax dividend gains at the beginning of 1999. Thus, the results obtained for 1995–98 and for 1999–2003 are compared. The trend for these two subperiods is given in Figure 5. The subperiods follow almost the same pattern, the CMAR figures being moderately higher for the subperiod 1999–2003. This may be because of the economic fluctuations and restructuring in the financial sector during this period.

Table 4

Cumulative Mean Abnormal Returns (CMARs) for Subperiods, 1995–2003 (percent)

Periods	CMAR				Before t	t	After t	Observations
	(−5)	(0)	(5)	(10)				
1995–2003	1.40	3.52	1.33	0.93	1.82	1.70	−2.59	616
1995–1998	0.89	3.16	1.47	0.49	1.67	1.49	−2.67	286
1999–2003	1.84	3.83	1.21	1.31	1.94	1.89	−2.52	330
1995–1997	−0.38	1.53	−0.68	−1.14	0.17	1.36	−2.67	189
1998–2000	2.85	5.03	3.50	2.62	3.10	1.92	−2.40	241
2001–2003	1.34	3.59	0.58	0.84	1.83	1.76	−2.74	186

Source: Sample compiled for study.

Figure 5. **Cumulative Mean Abnormal Returns (CMARs) for Subperiods (I)**

Days Surrounding Payment Date
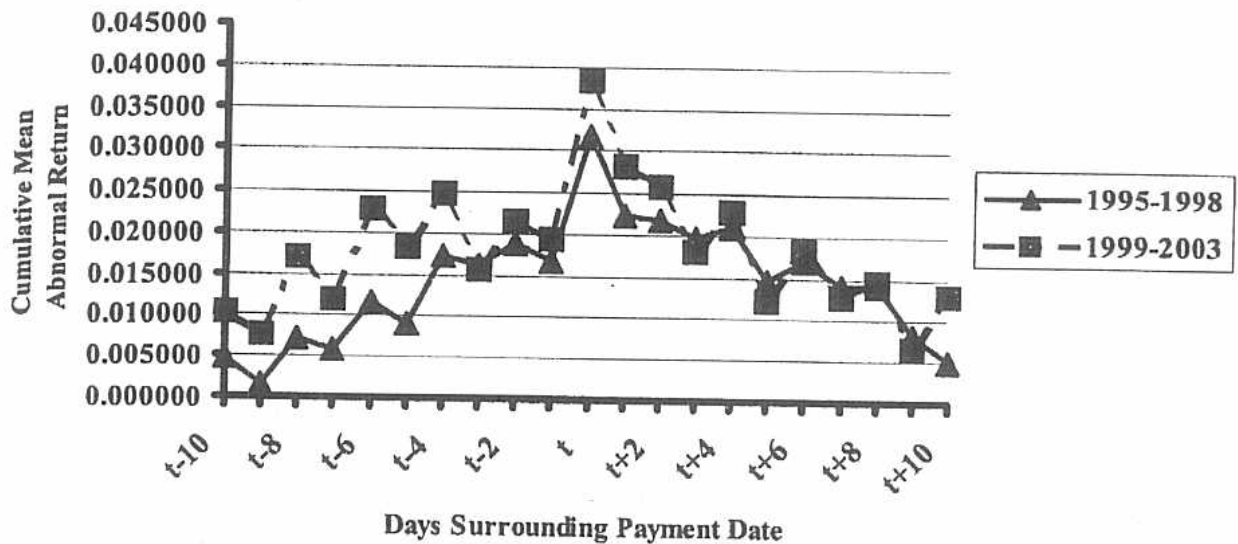
Source: Sample compiled for study.

Figure 6. **Cumulative Mean Abnormal Returns (CMARs) for Subperiods (I)**

Days Surrounding Payment Date
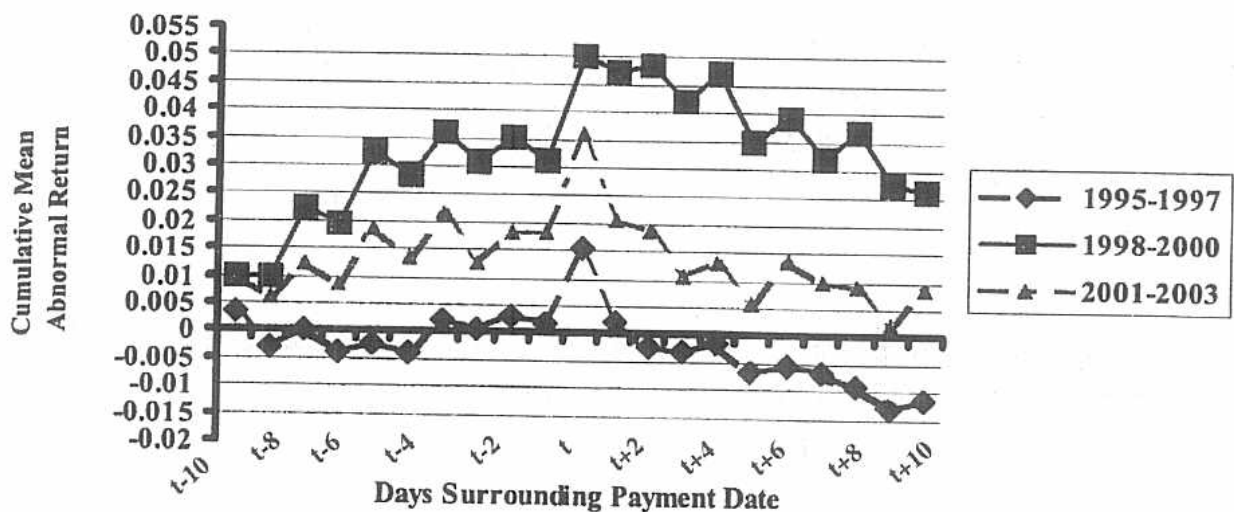
Source: Sample compiled for study.

For all of the events between 1995 and 2003, CMARs start to pick up around $t = -10$, reaching 3.5 percent on session $t = 0$. The same trend, in a stronger form, is observed in the subperiod 1998–2000, in which the CMAR on $t = 0$ is 5.0 percent. The third subperiod, in which the Turkish economy experienced a financial crisis, is a similar picture, with a CMAR of 3.59 percent at t. Hence, we can argue that the significant CMARs found for the entire sample are due to the abnormal performance in the second subperiod, 1998–2000. The CMARs in the first subperiod, 1995–97, are considerably lower than the other two subperiods, with a CMAR of 1.53 percent at $t = 0$ and a negative CMAR (-0.68 percent) in the period following the cash dividend payment date.

Price Reaction to Different Criteria

In the following part of the study, the magnitude of the price reactions with different classifications, namely, the DPOR and the firm size by paid-in capital, are examined, and the most profitable investment strategy investigated.

DPOR Approach

When referring to the CMAR figures in terms of the DPOR, the price reaction for companies paying more than 50 percent of their earnings as cash dividends is positive, accounting for 4.22 percent before t (including t), from $t = -10$ to $t = 0$ (2.75 percent before t, and 1.47 percent at t). This figure is only 2.66 percent for companies with a DPOR of 50 percent or less (0.66 percent before t and 2.00 percent at t). Meanwhile, the price reaction after the dividend payment shows a higher declining trend for companies with a DPOR of more than 50 percent (-3.04 percent) than for companies with a DPOR less than or equal to 50 percent (-2.03 percent). Table 5 and Figure 7 depict the CMAR figures in terms of two different DPOR groups.

The volatility of the abnormal returns measured by standard deviation is slightly higher following the dividend payment date t, being 2.41 percent before t and 2.54 percent after t for DPORs of 50 percent or less, and 2.38 percent before t and 3.13 percent after t for DPORs of more than 50 percent.

A high DPOR for a firm is usually interpreted in the market as having no investment opportunity or no growth potential, as the firm is more willing to keep its profits in retained earnings to finance new investment projects. The above-mentioned result, however, shows that a high level DPOR in the ISE attracts the attention of investors. This result might also indicate that investors have a myopic approach to the dividend policy, and prefer having benefits in short investment horizons.

Firm Size by Paid-In Capital Approach

CMAR figures for companies of different sizes—namely, small, medium, and capitals—were computed by dividing the whole sample into three groups by paid-in-capital. As Turkey has seen high inflation over the years, for each year from 1995 to 2003, companies are classified separately, and these classifications are combined to reach a final outcome about this criterion. In this way, the effect of the purchasing power of money in the analysis was eliminated. Table 6 and Figure 8 show the results.

The CMAR figures seem to be low for large-cap companies and high for small-cap companies: For large-cap companies at $t = 0$, CMAR is 2.87 percent, and for small-cap companies, 4.90 percent. This is consistent with the "size effect" theory of Fama and French (1995). The finding may indicate speculative trading in small-

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Table 5

Cumulative Mean Abnormal Returns (CMARs) for DPOR (percent)

DPOR	CMAR				Before t	t	After t	Observations
	(−5)	(0)	(5)	(10)				
≤ 50 percent	0.83	2.66	0.84	0.63	0.66	2.00	−2.03	
					(2.41)		(2.54)	276
> 50 percent	1.87	4.22	1.73	1.17	2.75	1.47	−3.04	
					(2.38)		(3.13)	340

Source: Sample compiled for study.

Note: Figures in parentheses show standard deviation results.

Figure 7. **Cumulative Mean Abnormal Returns (CMARs) for DPOR**
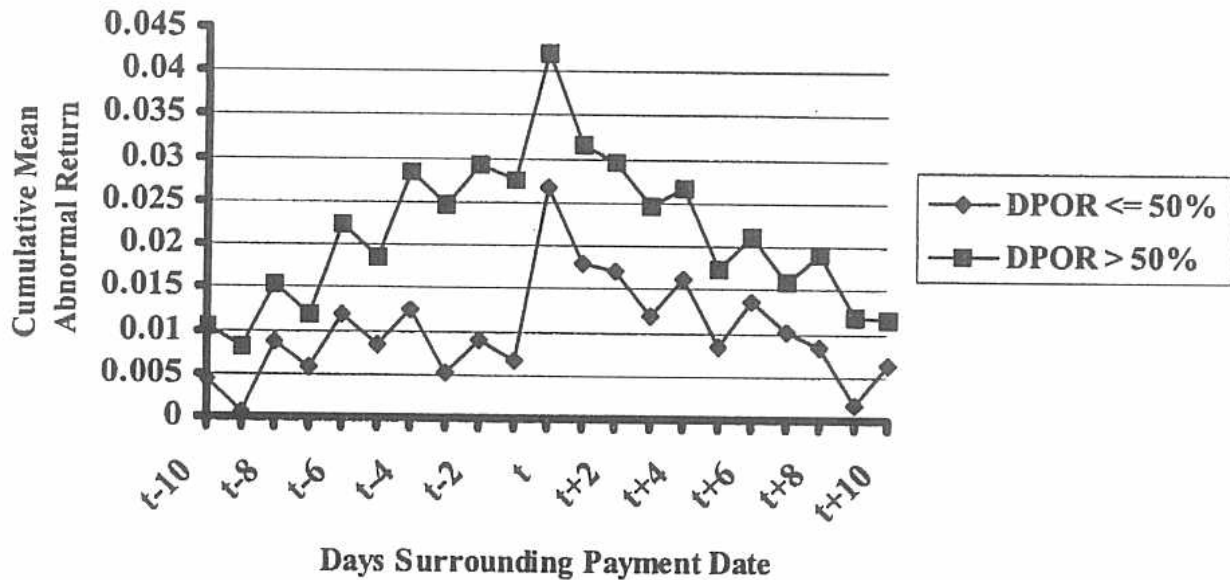
Source: Sample compiled for study.

cap companies during the cash-dividend payment period, and reflect a limited number of investors having a large portion of free float for these companies' shares. The CMAR figure for medium-cap companies is 3.23 percent before t (including t). The price reaction after the dividend payment, on the other hand, shows a similar declining trend for small- and large-cap companies (−1.82 percent), and a higher declining trend for medium-cap companies (−2.46 percent). CMAR figures return to prepayment levels for large- and medium-cap companies, but stay at around 3 percent for small-cap companies, suggesting that the dividend payments of small companies are respected by the market and shareholders. Thus, dividend payments could also be signals for price increases for small-cap companies' stocks.

The volatility figures for small-, medium-, and large-cap companies are 2.55 percent, 2.15 percent, and 2.12 percent, respectively, before the payment period, and 2.76 percent, 2.24 percent, and 2.09 percent, respectively, after the payment period, respectively. Small-cap companies provide higher CMARs than do their rivals, but they also carry slightly higher risk.

Volume Reaction on the Dividend Payment Date: A General Outlook

As stated in the methodology, we computed the cumulative mean abnormal volume (CMAV) figures for the event window extending from $t = -10$ to $t = +10$. Table 7 and Figure 9 summarize the results. Since the abnormal trading volumes for some illiquid shares depict extreme values, which impair the sample, these outliers were excluded from the analysis; these outliers constitute less than 5 percent of the total observations.[9]

Table 7 provides the mean abnormal volume (MAV) for each session surrounding the event session, and Figure 9 shows the cumulative mean abnormal volume

Table 6

Cumulative Mean Abnormal Returns (CMARs) for Different Firm Sizes (percent)

Firm size	CMAR				Before t	t	After t	Observations
	(−5)	(0)	(5)	(10)				
Small cap	2.90	4.90	3.21	3.07	3.22 (2.55)	1.68	−1.83 (2.76)	203
Medium cap	1.25	3.23	0.61	0.77	1.61 (2.15)	1.62	−2.46 (2.24)	201
Large cap	0.39	2.87	0.78	1.06	1.09 (2.12)	1.78	1.81 (2.09)	203

Source: Sample compiled for study.

Note: Standard deviation results in parentheses.

Figure 8. **Cumulative Mean Abnormal Returns** (CMARs) **for Different Firm Sizes**
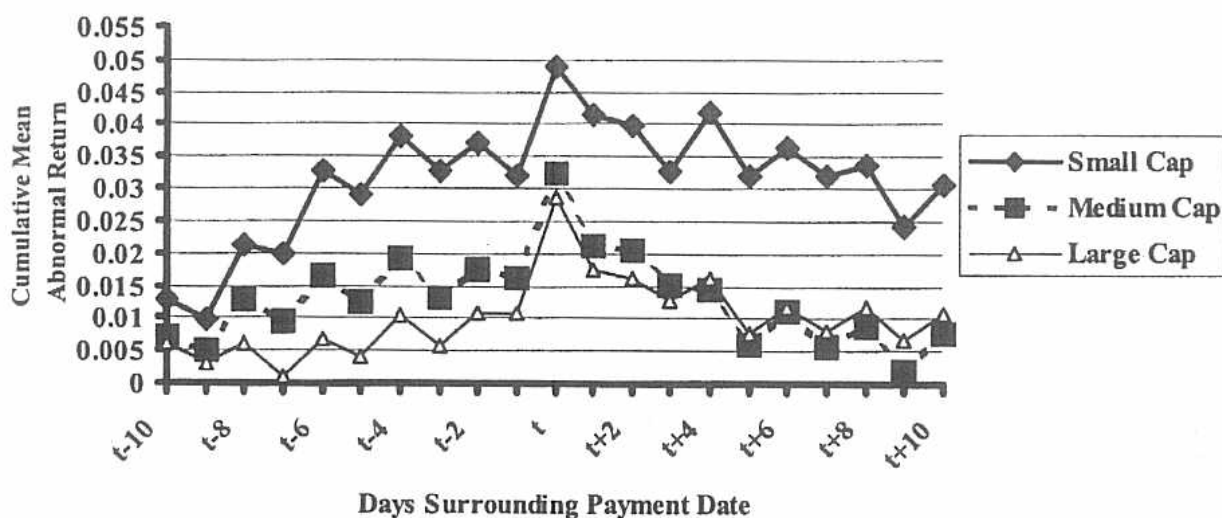
Source: Sample compiled for study.

(CMAV) for the sample. The cash dividend payment dates are preceded by a high abnormal volume increase, with a CMAV of 132.46 percent before t. A further 6.48 percent abnormal volume increase occurs on the payment date. For the week after the dividend payment date, however, the CMAV shows a slight increase of 1.20 percent. In other words, the trading volume seems to shift upwards before the event date to a considerable extent, and stabilizes afterwards. On the other hand, the volatility for abnormal volume changes is found to be considerably high, which could be from investors' speculative behavior.

Table 8 and Figures 10 and 11 show the CMAV figures for the subperiods analyzed in the study. The subperiods show somewhat different patterns over time, the abnormal volume figures being higher for the subperiod 2001–3. As before, this may be because of the economic fluctuations and restructuring in the financial sector, and the learning experience of the market throughout the years. The abnormal trading volume increase in the last years may also be due to the ISE's wide-area network system, which allows investors to trade from their headquarters or through the Internet. The increasing number and sophistication of data vendors may be another factor.

The abnormal volume figures between 1995 and 1997 first decline from $t = -10$ to $t = -5$, and then increase starting from $t = -4$ to reach 107.96 percent at $t = 0$. The CMAV figure shows an increase of 70.58 percent after t. A different trend is observed for the subperiod 1998–2000: The CMAV increases by 87.07 percent before t, but decreases by -6.07 percent and -27.65 percent at t and after t, respectively. The third subperiod rises by 217.42 percent before t and 24.83 percent at t, but declines by -28.16 percent after t.
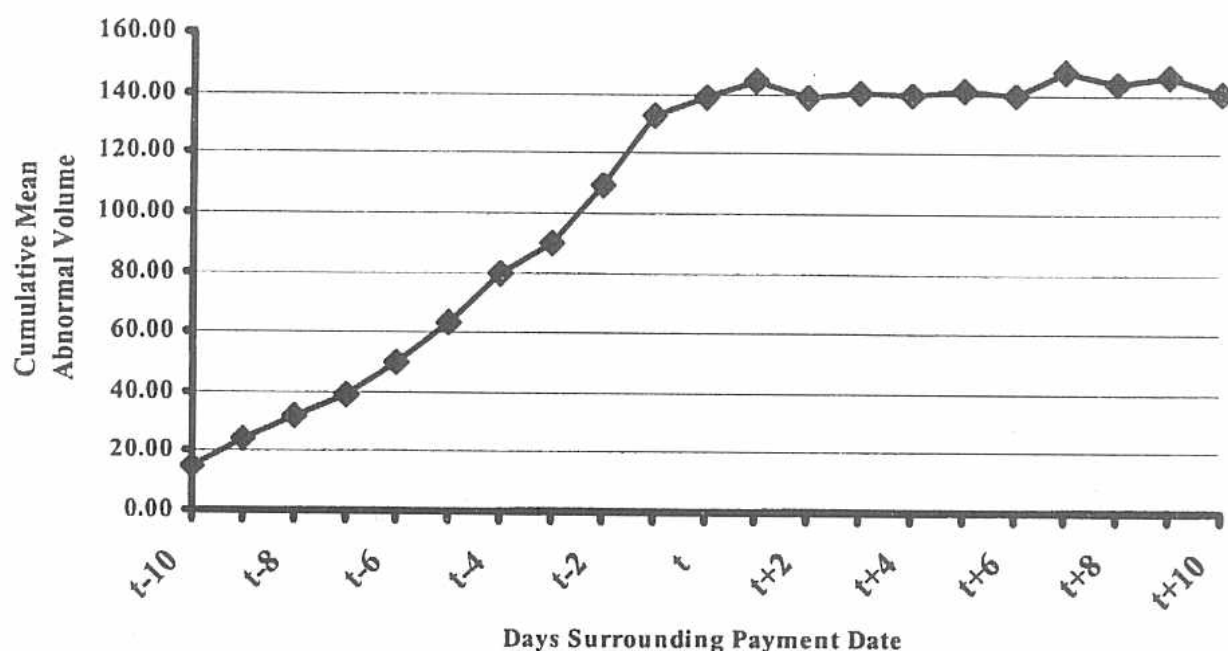
Table 7

Abnormal Trading Volume Surrounding Dividend Payment Date

Session,	MAV (percent)	t-Statistic	CMAV (percent)	Session,	MAV (percent)	t-statistic	CMAV (percent)
−10	14.74	2.70*	14.74	+1	5.48	1.00	144.43
−9	9.65	1.77***	24.39	+2	−5.72	−1.05	138.71
−8	7.60	1.39	31.99	+3	1.81	0.33	140.52
−7	6.94	1.27	38.94	+4	−0.77	−0.14	139.75
−6	10.91	2.00**	49.85	+5	1.65	0.30	141.40
−5	13.34	2.44*	63.20	+6	−1.40	−0.26	140.00
−4	16.36	3.00*	79.56	+7	7.19	1.32	147.19
−3	10.19	1.87***	89.75	+8	−3.67	−0.67	143.51
−2	19.39	3.55*	109.14	+9	2.31	0.42	145.83
−1	23.33	4.27*	132.46	+10	−5.68	−1.04	140.15
0	6.48	1.19	138.95				

Source: Sample compiled for study.

Notes: Mean abnormal volume is based on the ratio of the volume in the event period over the average volume (−90,−11) relative to the ex–day session) minus one (Vit/Avg.Vi − 1). * Significant at 1 percent. ** Significant at 5 percent. *** Significant at 10 percent.

Figure 9. **Cumulative Mean Abnormal Trading Volume on Days Surrounding Cash Dividend Payment Date**

Source: Sample compiled for study.

Table 8

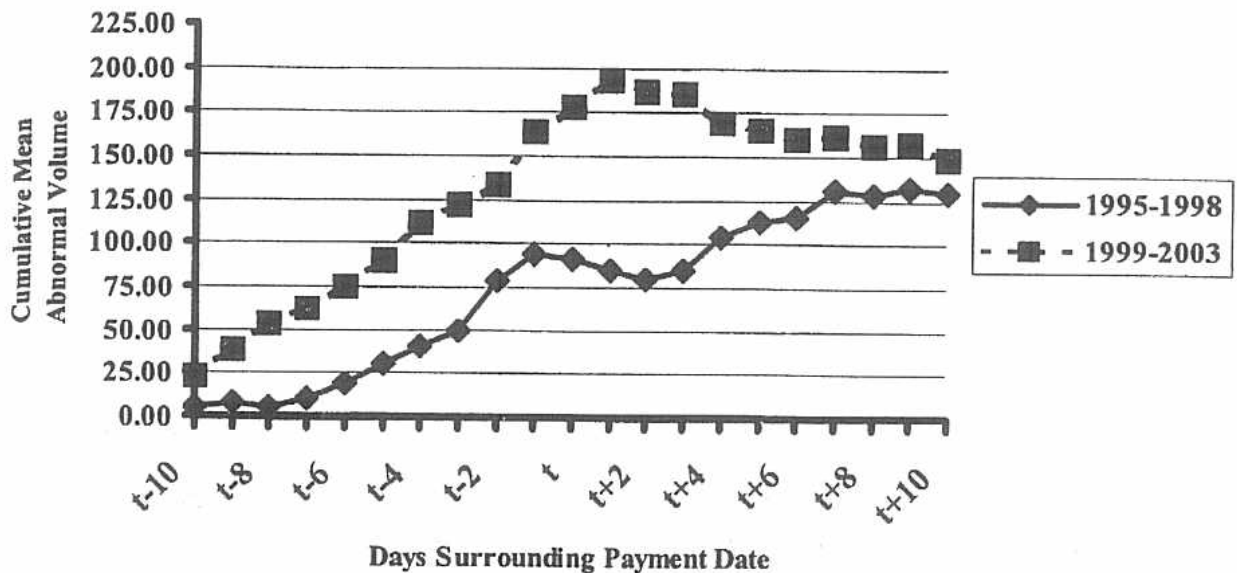**Cumulative Mean Abnormal Trading Volume (CMAV) for Subperiods, 1995–2003** (percent)

Periods	Before t	t	After t	Observations
1995–2003	132.46	6.48	1.20	575
1995–1998	94.58	−2.77	37.87	260
1999–2003	163.50	14.06	−28.31	316
1995–1997	104.61	3.35	70.58	171
1998–2000	87.07	−6.07	−27.65	225
2001–2003	217.42	24.83	−28.16	180

Source: Sample compiled for study.


Volume Reaction to Different Criteria

To analyze the volume reaction of stocks to dividend payments, as was done for price reaction, the data set was divided into several segments by DPOR and firm size. The magnitudes of the volume reactions to these different classifications were investigated.

Figure 10. **Cumulative Mean Abnormal Trading Volume** (CMAV) **for Subperiods** (I)

Days Surrounding Payment Date

Source: Sample compiled for study.

Figure 11. **Cumulative Mean Abnormal Trading Volume** (CMAV) **for Subperiods** (I)

Days Surrounding Payment Date
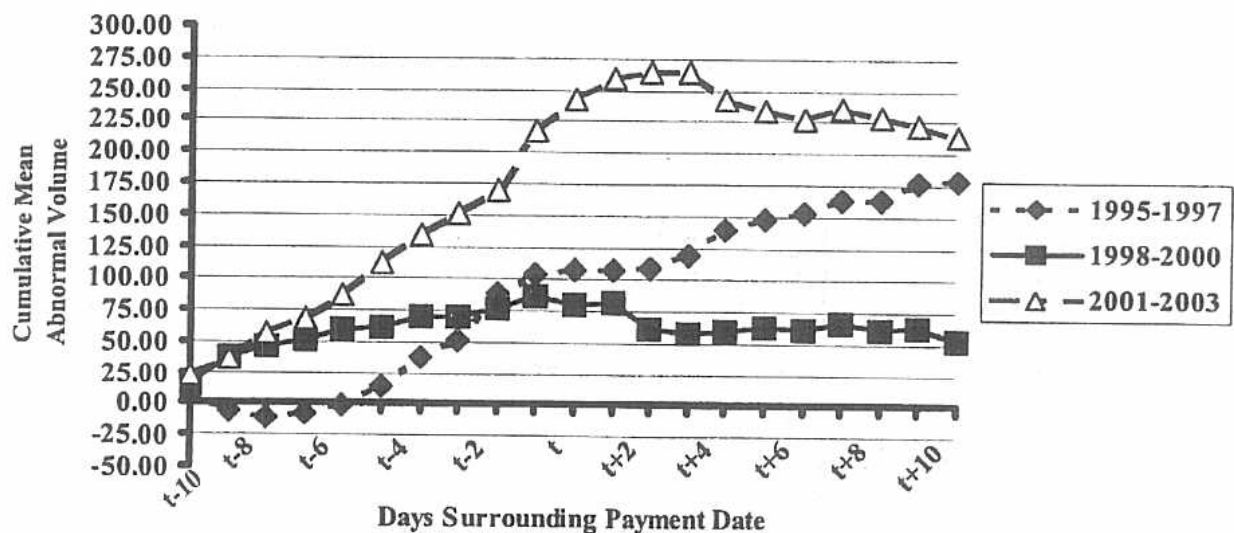
Source: Sample compiled for study.

DPOR Approach

Referring to the CMAV figures in terms of DPOR, the volume reaction for companies paying more than 50 percent of their earnings as cash dividends has a considerable positive CMAV. This accounts for 217.29 percent at before t (including t), from $t = -10$ to $t = 0$ (200.07 percent before t and 17.22 percent at t). This figure is only 41.09 percent for companies having a DPOR of 50 percent or less (47.81
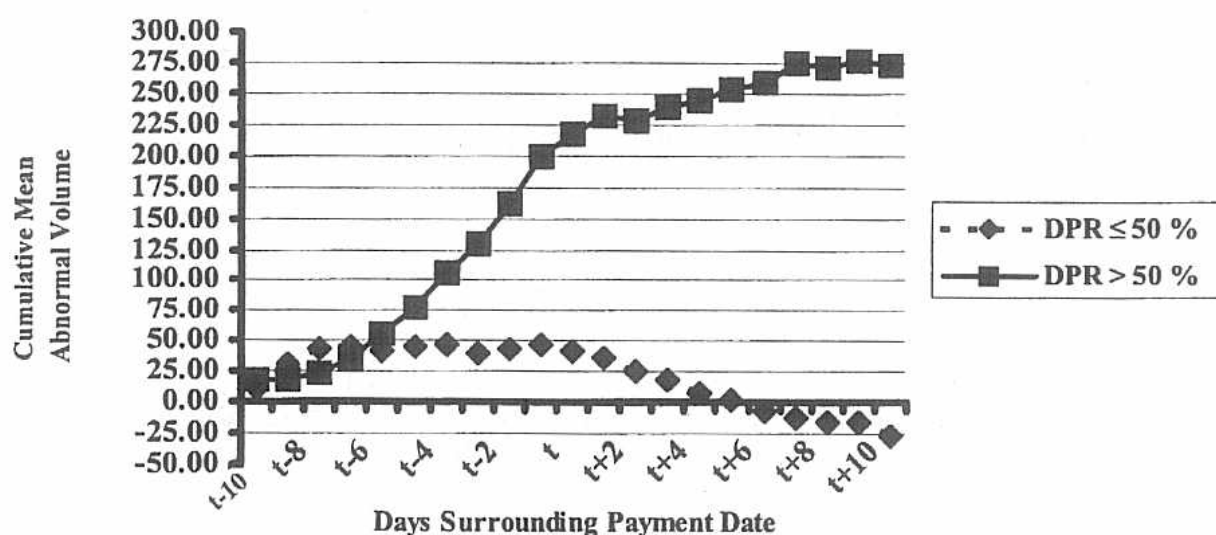
Table 9

Cumulative Mean Abnormal Trading Volume (CMAV) **for DPOR** (in percent)

DPOR	Before t	t	After t	Observations
≤ 50	47.81	–6.72	–67.28	257
> 50	200.07	17.22	56.43	319

Source: Sample compiled for study.

Figure 12. **Cumulative Mean Abnormal Trading Volume** (CMAV) **for DPOR**

Days Surrounding Payment Date

Source: Sample compiled for study.

percent before t and –6.72 percent at t). The volume reaction after the dividend payment shows a higher declining trend for companies with a DPOR of less than 50 percent (–67.28 percent) than for companies with a DPOR of higher than 50 percent (56.43 percent increase). Table 9 and Figure 12 depict the CMAV figures in terms of two separate groups of DPOR.

Firms with high DPOR levels in the ISE attract more attention from investors, especially before the dividend payment date. Contrary to CMAR figures, the CMAVs do not decrease after the dividend payment, which may indicate continued investor interest in the companies' shares.

Firm Size by Paid-In Capital Approach

The CMAV figures for small-, medium-, and large-cap companies separately were also computed. Table 10 and Figure 13 show the results. Astonishingly, the CMAV figure is lower for medium-cap companies, and high for small- and large-cap com-
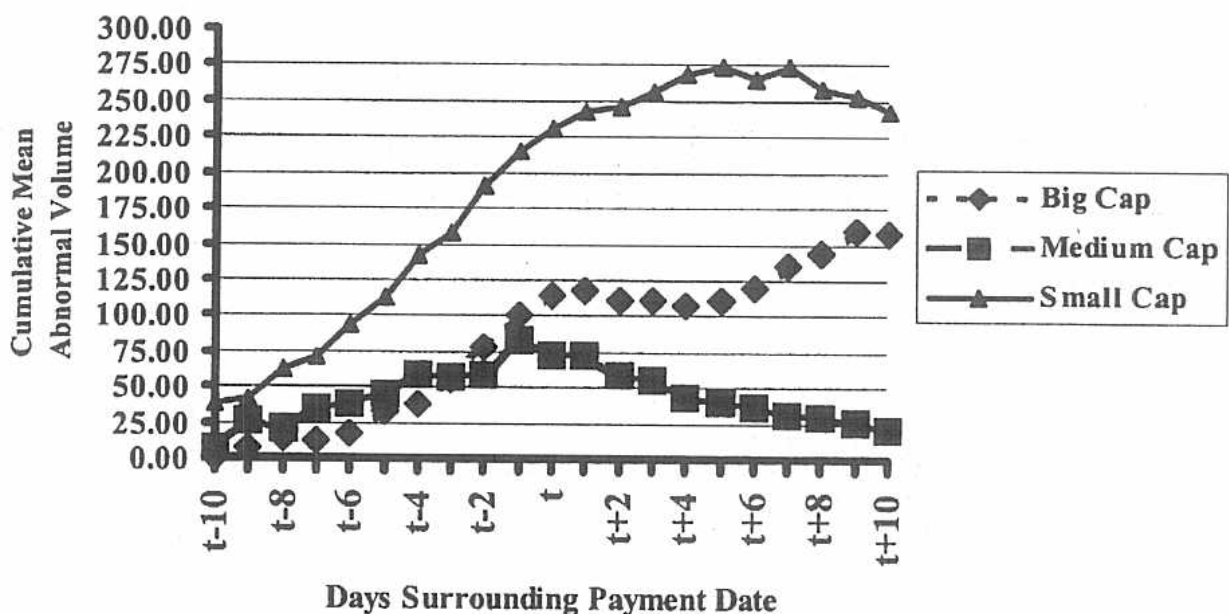
Table 10

Cumulative Mean Abnormal Volume (CMAV) **for Different Firm Sizes** (percent)

Firm size	Before *t*	*t*	After *t*	Observations
Large cap	101.10	13.61	43.17	193
Medium cap	82.69	−10.05	−52.23	192
Small cap	214.26	15.89	12.15	191

Source: Sample compiled for study.

Figure 13. **Cumulative Mean Abnormal Trading Volume** (CMAV) **for Firm Sizes**

Days Surrounding Payment Date

Source: Sample compiled for study.

panies: For small- and large-cap companies before *t*, CMAV is 214.26 percent and 101.10 percent, respectively, and 82.69 percent for medium-cap companies. This may indicate speculative trading in small-cap companies and a conservative interest for large cap companies. The volume reaction after the dividend payment, on the other hand, shows a decline by 52.23 percent for medium-cap companies and an increase by 43.17 percent and 12.15 percent for large- and small-cap companies, respectively. The abnormal volume increase after *t* is considerably low compared to the period before *t*. This may empower the comment about the high interest of investors to dividend paying shares before the payment date, as they believe that the price of those shares will pick up following the payment date.

Best Policy for Portfolio Management

We analyzed the price changes around the dividend payment date to explore whether there is a profitable trading strategy for active portfolio management. For this purpose, changes in stock prices were analyzed using different approaches. We discovered that in the ISE, the price of the stocks that have a DPOR of higher than 50 percent and small paid-in capital tend to rise more than the prices of other stocks covered in this study.

A beneficial strategy thus could be to buy the stocks of companies that have small paid-in capital and a DPOR of higher than 50 percent ten sessions before the dividend payment date (t), then sell them just after the dividend payment date. This "buy and hold strategy" resulted in a potential profit of 4.45 percent before t (5.83 percent including t) within a very short period of time—in this case, ten sessions (Table 11). Moreover, to benefit from price declines after t, the strategy might be further improved by short selling the stock on session t, the ex-dividend day, and buying it back after six sessions, for a potential profit of 2.75 percent.

The same trend appears for CMAV changes. The abnormal trading volume of the shares of small-cap companies, having a DPOR of higher than 50 percent, depicts a large increase (303.91 percent) compared to other capital-size companies (Table 12).

Conclusion

Decisions by corporations about how to pay dividends to their shareholders may affect their stock prices. As in other developing countries, in Turkey, the dividend policy of companies interests all parties who have direct or indirect relations with them. We find that most ISE corporations prefer to collect back cash dividends through simultaneous rights issues for new equity to finance new investment opportunities. Another factor affecting firms' dividend policy is the tax regulation imposed on the dividend payments. All industries have seen a sharp decrease in the DPOR, especially in the last four to five years.

This paper analyzes whether implementing cash dividends conveys new information to the market. The analysis is conducted by controlling for different phases of the marketplace, and by using the traditional event-study methodology. Price and volume reactions to a total of 602 events were analyzed. Price and volume reactions were examined to see if they varied for firms classified according to a different DPOR and firm size by paid-in capital.

For the actual implementation information, we find evidence of different price reactions for the different development phases of the market. Significant positive price reaction is observed from 1998 and 2003, with a CMAR of up to 5.03 percent within ten sessions, including the payment date. These positive price reactions are mostly observed before the dividend payment date, but there is a significant negative price reaction following the dividend payment session. These trends should

Table 11

Cumulative Mean Abnormal Returns (CMARs) **for the Sample** (percent)

Firm size	DPOR	Before t	t	After t
Large cap	DPOR ≤ 50	0.65	1.68	−1.39
	DPOR > 50	1.43	1.85	−2.18
Maximum CMAR*			3.28	
Medium cap	DPOR ≤ 50	1.21	2.06	−2.18
	DPOR > 50	2.05	1.16	−2.71
Maximum CMAR*			3.27	
Small cap	DPOR ≤ 50	1.23	2.18	−2.18
	DPOR > 50	4.45	1.38	−2.72
Maximum CMAR*			5.83	

Source: Sample compiled for study.

Note: * Maximum CMAR shows the total return for the "before t plus t" period.

Table 12

Cumulative Mean Abnormal Trading Volume (CMAV) **for the Sample** (percent)

Firm size	DPOR	Before t	t	After t	Observations
Large cap	DPOR ≤ 50	26.71	−5.57	−34.07	86
	DPOR > 50	160.65	28.86	105.41	107
Medium cap	DPOR ≤ 50	68.89	−8.06	−110.22	98
	DPOR > 50	95.89	−12.19	8.66	94
Small cap	DPOR ≤ 50	44.41	−6.25	−48.68	73
	DPOR > 50	303.91	27.62	51.21	117

Source: Sample compiled for study.

be interpreted as a sign of active portfolio management efforts of short-term-oriented investors in the market, which may lead to market efficiency at the last step.

The volume reaction to implementing dividend payments also reveals interesting results. The cash dividend payment dates are preceded by a high-level abnormal volume increase, with a CMAV of 132.46 percent. A further 6.48 percent abnormal volume increase occurs on the payment date. For the week after the dividend payment date, however, the CMAV shows a slight increase of 1.20 percent. In

other words, the trading volume seems to shift upwards before the event date to a considerable extent and stabilizes afterward. The volume reaction for companies paying more than 50 percent of their earnings as cash dividends has a considerably positive CMAV, accounting for 217.29 percent before t (including t). This figure is only 41.09 percent for companies with a cash DPOR of 50 percent or less. The volume reaction after the dividend payment shows a higher declining trend for companies with a DPOR of less than 50 percent (–67.28 percent) than for companies with a DPOR of higher than 50 percent (56.43 percent increase).

Analyzing the price and volume reaction figures together, it appears that investors are more willing to react to small-size companies with cash DPORs of higher than 50 percent. These firms provide between 5 and 6 percent CMARs to their investors before the payment date t (including t) if a "buy and hold strategy" is pursued for the eleven-session period, including the ex-dividend session. Another 2.52 percent potential gain is available with a short-selling strategy on the same session ($t = 0$), following a buy-back transaction on session $t = 10$ for investors. The abnormal trading volume also rises to a great extent—330 percent before t, 27.62 percent at t, and 51.21 percent after t—showing a serious liquidity increase around the event period. Thus, investors can benefit by pursuing the right investment strategy on dividend-paying shares during the before- and after-dividend-payment date.

The reaction of stock prices and trading volume to the implementation of cash dividends could depend on the ownership structure of the company, and may be different for closely versus widely held companies. However, this issue is not handled in this paper. Analysis of the announcement day effect of the dividends, as well as the announcement day effect of financial statements to the public on this issue, would make for excellent further study and improve the findings on the dividend puzzle.

Notes

1. The countries are Chile, India, Jamaica, Mexico, the Philippines, Thailand, and Turkey.
2. We choose to analyze the 1995–2003 period because the fully computerized electronic trading system with two sessions was implemented at the beginning of 1995.
3. So-called "new shares" are those issued on the current fiscal year, which have no right on the dividend due to be paid for the last fiscal year. After the dividend payment, they turn out to be "old" shares, and all shares start to be traded without any difference.
4. We analyze weighted average prices because on the cash dividend implementation date, the adjustment is made on the weighted average price of the securities. Further, in the market, the weighted average prices are accepted as better indicators of total trading, as they reflect the general direction of the market.
5. Corporations that have been merged or acquired by other companies are Akçimento, Anadolu Biracılık, Ardem, Bugün Yayıncılık, Çanakkale Çimento, Ege Biracılık, Erciyas Biracılık, Güney Biracılık, Koç Yatılım, Pınar Entegre Et, Pınar Un, Tofaş Oto Ticaret, and Turcas Petrolcülük.
6. Stock dividends have been allowed to be distributed in the Turkish capital market since the beginning of 1995.

7. Article 7 of the Communique IV, No. 1 (as amended by Communique IV, No. 15 issued in the Official Gazette dated 01.11.1995, No. 22450), "Principles Binding the Joint Stock Corporations Subject to Capital Market Law"), states that ISE corporations are given the flexibility to distribute the "first dividend" as either cash or rights issues, or not to distribute it at all. However, in this regulation, the Capital Market Board (CMB) kept the right to set a minimum legal limit for the payment of the first dividend for some of the companies, if it was required. Based on this regulation, the CMB, according to a decision taken on February 8, 1996, in Meeting No. 9, sets a minimum legal limit for thirteen companies for the payment of the "first dividend." Among these companies, there are three electricity companies: Aktaş Elektrik, Çukurova Elektrik, and Kepez Elektrik. This explains why electricity companies kept paying the highest cash dividend from 1995 to 2001. Other companies that are subject to this limitation are Abana Elektromekanik, Bağfaş, Deva Holding, Ereğli Demir Çelik, Koç Yatılım ve Sanayi Mamulleri Pazarlama, Mardin Çimento, Marmaris Martı, Metaş, Petrokent Turizm, and Tire Kutsan.

8. In computing the CMARs, the commission costs (0.001 percent) and brokerage firms costs (between 0.2 percent and 1 percent) are not taken into account.

9. To overcome the deterioration problem, we have eliminated the abnormal volume changes figures above 1,000 percent and below −90 percent, which make up 5 percent of the entire sample.

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Appendix Table A1

Descriptive Statistics for the Sample

Panel A. By Year

Year	Number of distributions	Average dividend payout ratio realized (percent)
1995	40	66.58
1996	53	57.79
1997	90	58.51
1998	93	54.76
1999	71	52.76
2000	70	55.46
2001	65	58.90
2002	57	59.90
2003	63	52.08
Summary statistics	Average	56.89
	Median	53.55
	Minimum	3.84
	Maximum	129.51
	Standard deviation	25.56

Panel B. By Cash Dividend Payout Ratio (number of distributions)

DPOR (in percent)	0–20	21–40	41–60	61–80	81–100	> 100
Number of cash dividend payments	64	84	196	119	141	12
Percent of total	10	14	32	19	23	2

Panel C. By Firm Size (number of distributions)

Years	Small cap	Medium cap	Large cap	Total
1995	14	14	14	42
1996	18	17	18	53
1997	30	31	30	91
1998	31	31	31	93
1999	24	23	24	71
2000	24	24	24	72
2001	22	21	22	65
2002	19	19	19	57
2003	21	21	21	63

Notes: This table reports selective descriptive statistics for the 602 cash dividend distributions by corporations traded in the ISE from 1995 to 2003. The cash dividend ratio is the amount of cash dividends in Turkish lira distributed as a percentage of net profit after tax.