Instability in the dividend policy of the Istanbul Stock Exchange (ISE) corporations: evidence from an emerging market

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Abstract

Dividend policy behaviour of corporations operating in emerging markets is significantly different from the widely accepted dividend policy behaviour of corporations operating in developed markets. This study provides evidence from the Istanbul Stock Exchange (ISE), an emerging European stock market, and analyses empirically whether the ISE corporations follow stable cash dividend policies in a regulatory environment that imposed mandatory dividend policies. Unlike the empirical results supporting the stable dividend policy behaviour of corporations operating in developed markets, the empirical results show that the ISE corporations follow unstable cash dividend policies and the main factor that determines the amount of cash dividends is the earnings of the corporation in that year. © 2000 Elsevier Science B.V. All rights reserved.

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1. Introduction

Dividend policy has attracted a great deal of research and still keeps its prominent place in the finance literature. However, it is still not satisfactorily explained why corporations distribute a substantial portion of their earnings as dividends or why investors pay attention to dividends. This is known as the ‘dividend puzzle’ in the finance literature (Black, 1976) and several hypotheses have been put forward in order to shed some light on this puzzle. The Miller and Modigliani (1961) dividend irrelevance proposition states that a managed dividend policy cannot increase (decrease) shareholders’ wealth in a complete and perfect market as long as it does not alter the investment policy of the corporation. However, the capital market is neither perfect nor complete. The complete and perfect capital market assumptions of the dividend irrelevance proposition have been researched vigorously, especially focusing on the effects of taxes, information content of dividends, agency cost and institutional constraints. The research and theory on the dividend policy have also been influenced by the empirical observations about the market, corporate and investor attitude towards the dividend policy (see Lease et al., 2000; Megginson, 1997; Allen and Michaely, 1995). Two prominent empirical observations on dividend policy show that corporations follow stable dividend policies and pay out a substantial portion of their earnings as dividends (Lintner, 1956).

Emerging markets add more pieces to the ‘dividend puzzle’ and have recently attracted research trying to explain the dividend policy behaviour of corporations operating in these markets (Glen et al., 1995). As emerging markets get a bigger portion of global equity investments, international investors are more concerned with the dividend policy behaviour of emerging market corporations. The focus of this research is to study how the corporations that trade in the Istanbul Stock Exchange (ISE), an emerging European stock market, set their dividend policies in a different institutional environment and to research empirically whether they follow stable dividend policies as in developed markets where dividend smoothing is a management tendency.

Unlike the stable dividend policy behaviour of the corporations trading in developed capital markets, this research provides evidence from the ISE in which corporations follow unstable dividend policies. Specifically, regulations imposed mandatory dividend policies on the ISE corporations during the 1985–1994 fiscal years and mandatory dividend policies are still used in both developed and developing countries such as Germany, Switzerland, Brazil, Chile, Colombia, Venezuela, Greece and Philippines (La Porta et al., 2000; Lease et al., 2000, p. 138; Glen et al., 1995). In a broad sense, this study shows how sensitive the financial decision making is to institutional and regulatory environments which can vary from country to country.

With the establishment of the Istanbul Stock Exchange in 1986 and the advances in the information technology, the number of empirical studies on the Turkish stock market has increased substantially. Since its establishment in 1986, the ISE has followed a fast pace growth in terms of trading volume, market capitalisation,
number of listed corporations and foreign investment. As of 1999, 285 corporations are traded in the exchange with an average daily trading volume of $356 million relative to $3 million average daily trading volume in 1989. In terms of monthly turnover velocity, the ISE has surpassed several European stock exchanges such as Paris, Stockholm, Amsterdam, Vienna, Brussels, Helsinki and Luxembourg. With a market capitalisation of $114 billion, it is bigger than the capitalisation of Lisbon, Vienna, Luxembourg and Warsaw stock exchanges and is ranked 30th in the world (The Istanbul Stock Exchange Review, 1999; Birsen, 1999). Moreover, Turkey, a candidate for European Union membership and a member of G-20, has a very liberal foreign exchange regime and as of 1999, international investors possess half of the market value of the shares trading in the ISE.

The organisation of the article is as follows. The following section reviews the regulatory environment for the dividend policy of the ISE corporations. The third section reviews the international empirical evidence on dividend stability and discusses briefly the factors that affect the dividend policies of corporations. The fourth section presents the model, the sample data and the estimation methodology. In the fifth section, the empirical results are presented followed by the conclusion focusing on implications and ideas for further research.

2. The regulatory environment

For the fiscal years 1985–1994, the ISE corporations had to distribute at least 50% of their distributable profit as a cash dividend which is known as ‘first dividend’ in Turkey. Aytac (1998) states that the main purpose of this mandatory dividend policy rule was to provide shareholders satisfactory levels of dividends and to protect the dividend right of the shareholders. At that time, the underdevelopment of the Turkish capital market was blamed on the fact that public corporations distributed very low dividends and tended to retain the earnings. Since there was no stock exchange before 1986, the liquidity in the stock capital market was almost non-existent and the only source of income for shareholders used to be the dividend income. Nevertheless, the ISE corporations tried to avoid the mandatory cash dividend payments by implementing rights issues simultaneously with the cash dividend payments. Since the rights issues market is not liquid and in order to avoid share price dilution, most shareholders are forced to participate in the rights issues using their cash dividend income.

In 1995, there was a significant change in the dividend regulations providing extensive flexibility in dividend policy decision making for the corporations that are traded in the ISE. For these corporations only, the ‘first dividend’ ceased to be compulsory and this provides a comparative advantage relative to the corporations which are not traded in the ISE. As a summary, the ISE corporations have the following choices for their dividend policy (subject to voting in the annual general meeting): All of the ‘first dividend’ can be distributed in cash; all of the ‘first dividend’ can be distributed as stock dividends; part of the ‘first dividend’ can be distributed in cash and part of it can be distributed as stock dividends. The leftover
amount can be retained in the corporation; or the corporation can retain all of the ‘first dividend’ without paying it in cash and/or in stock dividends.

Due to the significant regulatory change in 1995, the empirical study focuses on two periods, 1985–1994 and 1995–1997. The significant regulatory change enables us to compare the two periods in order to analyse whether the new regulatory environment has resulted in significant changes in the dividend policy behaviour of the ISE corporations.

3. Literature review

The pioneering work in analysing the determinants of dividend policy is a study done by Lintner (1956) who uses both empirical and survey research methodology in his investigation. Lintner’s review of finance literature on the determinants of dividend policy identifies 15 variables some of which are firm size, plant and equipment expenditures, willingness to use external financing, use of stock dividends, earnings stability and ownership by control groups. His empirical study finds that corporations determine a target dividend payout ratio and dividend policy is adjusted according to the target dividend payout ratio which is determined in a way that the corporation can sustain its capital investments and can achieve its targeted growth in the long-run. Additionally, Lintner finds that corporations follow stable (sticky) dividend policies and in case of a substantial increase in earnings, dividends are not increased by a substantial amount, but they are gradually increased considering the target dividend payout ratio. Lintner also points out that managers believe that investors prefer corporations that follow stable dividend policies. Corporations do not tend to decrease dividends and even if there is a downturn in earnings, corporations try to pay out the same level of dividends that was distributed in previous years. Any change in the dividend amount is based on a substantive change in the corporation operations and corporations only increase dividends when management believes that there is a ‘permanent’ increase in earnings. If there is an indication that corporations will not be able to maintain the change in the dividend policy, corporations will not implement the change. Similarly, Baker et al. (1985), Pruitt and Gitman (1991) also use the survey methodology and conclude from the survey responses that managers pay attention to dividend stability in their dividend policy decision process. Especially, Baker et al. state that ‘the results show that the major determinants of dividend policy today appear strikingly similar to Lintner’s behavioral model developed during the mid-1950s (p. 83).

All the following empirical studies on dividend policy determinants base their research on the findings of Lintner. Brittain (1964, 1966), Fama and Babiak (1968) reformulate the Lintner model by undertaking a more comprehensive empirical approach and confirm the findings of Lintner that corporations follow stable dividend policies. Specifically, Fama and Babiak contribute to the Lintner model by suppressing the constant term and adding more levels of lagged earnings. Fama
(1974) repeats the same study by using a larger sample and once again, he reaches the same conclusion about dividend policy stability.

Recently, Dewenter and Warther (1998) use the Lintner model and apply it to a sample of US and Japanese corporations. For the time period 1982–1993, they find that US managers smooth out the dividends even more compared to the period of 1946–1964 in Fama and Babiak’s study. Moreover, Japanese corporations are more willing to omit dividends and follow relatively less stable dividend policy compared to their US counterparts. Previously, Kato and Loewenstein (1995) also find that Japanese corporations follow stable dividend policies.

Chateau (1979) and Shevlin (1982) apply the Lintner model to large Canadian corporations and Australian corporations, respectively. Similarly, McDonald et al. (1975) study the French market. Leithner and Zimmermann (1993) test the dividend stability on four major European markets, namely West Germany, UK, France and Switzerland. Lasfer (1996) also uses the Lintner model for a panel data of commercial and industrial corporations operating in the UK. In all these studies done in countries with developed capital markets, the common result is that corporations follow stable dividend policies.

Focusing on emerging markets, Glen et al. (1995) state that there are significant differences in dividend policy behaviour between developed and developing countries. They state that dividend payout rates in developing countries is two-thirds that of OECD countries. Moreover, they show that emerging market corporations have target dividend payout ratios, but they do not follow stable dividend policies. The Glen et al. research results are based on dividend policy observations of a few emerging market corporations and they state that “a better understanding of dividend behavior in these countries will require much additional research, both at the aggregate and firm levels” (p. 24).

In addition to the behavioural determinants of dividend policy modelled in Lintner’s study, the theoretical and empirical work show that there are five market imperfections that affect the dividend policy making. Allen and Michaely (1995, p. 832) list these imperfections as asymmetric information, incomplete contracts (agency cost), taxes, institutional constraints and transaction costs. In the coming sections, these imperfections are briefly investigated, since these factors are taken into account when managers determine the target dividend payout ratio and can explain differences in dividend policy between developed and emerging markets.

When there is a change in the earnings potential of the corporations, corporations tend to adjust their dividend policies. If managers think that there is a good earnings potential in the future and can sustain the dividend increase, they will increase the dividend level. Benartzi et al. (1997) state that Lintner’s model is the best model explaining the dividend policy behaviour of corporations and only a permanent change in earnings results in a change in the dividend policy. Hence, in case of bad prospects and no hope of recovery in future earnings, managers tend to decrease the dividends. Even during times of financial distress, DeAngelo and DeAngelo (1990) show that corporations with a good past track of dividend payments tend to cut dividends rather than omitting dividends in order not to alter the image of the corporation. Consequently, due to sticky dividend policy, any
change in the dividend policy is interpreted as a change in the management’s expectations of future earnings. Miller and Modigliani (1961) state that since corporations follow stable dividend policies, any change in the dividend policy is carefully evaluated by investors as a signal of the corporation’s future profitability. This is known as the information content of dividends and there is a substantial amount of literature dating back to early 1970s. The best known signalling models (asymmetric information models) are Bhattacharya (1979), Miller and Rock (1985), John and Williams (1985), Ambarish et al. (1987). Overall, empirical studies show that there is a positive market reaction to dividend increases and a negative market reaction to dividend decreases. It should be noted that the market reaction to a dividend decrease is far greater than the market reaction to a dividend increase. Lease et al. (2000, pp. 108–118), Allen and Michaely (1995, pp. 823–825), and Ang (1987, pp. 38–39) provide an extensive review of the market reaction to dividend announcements.

The relationship between dividend policy and agency cost has been a recent development in the corporate finance theory focusing on the issue of how dividend policy can be used in reducing the agency cost. Dividend policy can be used by shareholders to guide the managers in the right direction and/or to expropriate wealth from debtholders. Myers (1977), Jensen and Meckling (1976) state that shareholders can expropriate wealth from debtholders by receiving unanticipated and excessive amounts of dividend payments. Two prominent studies (Handjicolaou and Kalay, 1984; Lang and Litzenberger, 1989) provide empirical evidence on the issues of debtholder expropriation and the ‘free-cash flow’ problem respectively. Similarly, Easterbrook (1984), Jensen (1986), Hart and Moore (1994), Zwiebel (1996), Fluck (1998, 1999) state a potential conflict of interest between managers and shareholders. Managers can use a corporation’s resources to their own benefit rather than using them in the best interest of shareholders. The partial solution to this potential conflict is to minimise the amount of cash that management controls by distributing sufficient amount of dividends to shareholders.

A substantial amount of research has been done on the effect of taxes on dividend policy. The common question on the effect of taxes is (Allen and Michaely, 1995, p. 802): ‘Other things being equal, are firms that pay out high dividends less valuable than firms that payout low dividends?’ Especially, the presence of a preferential tax treatment of capital gains relative to dividend income led to the tests of hypothesis of a tax-induced positive relationship between dividend yield and risk-adjusted returns. This hypothesis is mainly tested by examining the relationship between dividend yield and risk-adjusted returns, and by analysing the share price behaviour around ex-dividend period. Lease et al. (2000, pp. 51–72), Allen and Michaely (1995, pp. 802–818), and Ang (1987, pp. 13–33) provide an extensive review of the effect of taxes on dividend policy. Finally, institutional constraints such as legal restrictions prohibiting various institutions of investing in non-dividend paying stocks and the direct as well as indirect transaction costs of dividend payments are taken into account by managers when they decide on the target dividend payout ratio.
4. Empirical methodology

4.1. Model

For testing dividend stability and regulation effect, the dividend policy model of Lintner (1956), a robust model and a finance `classic', is used (Lease et al., 2000, p. 130). In this section, along with the definition of the variables, the model is discussed and modified for the ISE corporations. Lintner builds the following behavioural model in the light of his survey findings:

\[ D_{t,i} = r_i P_{t,i} \]  \hspace{1cm} (1)

\[ D_{t,i} - D_{t,i(t-1)} = a_i + c_i (D_{t,i} - D_{t,i(t-1)}) + u_{i,t} \]  \hspace{1cm} (2)

The change in the cash dividends [Eq. (2)] depends on the difference between the targeted dividend payments \( D_{t,i} \) and the actual dividend payments last period \( D_{t,i(t-1)} \). The positive 'a' intercept shows the reluctance of corporations in decreasing the dividend and their preference for a gradual growth in dividends. Coefficient 'c' indicates the stability in dividend changes and is also the adjustment factor towards the target payout ratio \( r_i \) which depends on the level of debt, investment opportunities, marginal tax rates of investors, transaction costs and other related factors that are discussed in the previous section. The adjustment factor shows the level of management response in dividends to changes in the level of earnings \( P_{t,i} \). The higher the value of the adjustment factor, the higher the level of response to earnings change (less smoothing). For the adjustment factor, a value of 1 indicates that the corporation does not smooth dividends at all and a value of 0 indicates that the corporation follows a maximum dividend smoothing policy.

Since earnings are cyclical and impermanent, corporations do not set dividends at the target payout ratio. Otherwise, dividends would fluctuate with the changes in the earnings level. Therefore, corporations try to reach the target payout ratio gradually and in a consistent manner. By combining Eqs. (1) and (2) without affecting the error term, Lintner tests the following empirical model:

\[ D_{t,i} = a_{i,t} + b P_{t,i} + d D_{t,i(t-1)} + u_{i,t} \]  \hspace{1cm} (3)

where \( b = cr \) and \( d = (1 - c) \).

The preceding model in Eq. (3) is modified to test for stability in the dividend policy of the ISE corporations. The model is modified as follows:

\[ DPS_{t,i} = \alpha_{1i} + \beta_{1i} EPS_{t,i} + \beta_{2i} DPS_{t,(t-1)} + u_{i,t} \]  \hspace{1cm} (4)

Fama and Babiak (1968) state that Lintner uses aggregate data in the estimation of his model rather than per share data which would be more appropriate for testing dividend stability. Almost all studies done after the Lintner’s study use per
share data rather than aggregate data. Similarly, aggregate values in Eq. (3) such as the amount of actual dividends \( D_{it} \) and the amount of net income \( P_{it} \) are replaced by per share values in order to account for frequent capital increases and bonus dividend issues by the ISE corporations. In Eq. (4), DPS stands for dividends per share and EPS stands for earnings per share.

4.2. Data

Financial institutions (banks, insurance companies, financial leasing and factoring companies, holding and investment companies, investment trusts) and utility corporations (electricity, gas and water) are excluded from the data, since these corporations are governed by different regulations in regards to their dividend policies and utility corporations have a privileged status in the Turkish economy. The industries in the data, as classified by the ISE, are the manufacturing industry, wholesale and retail trade, hotels and restaurants, transportation, communication and storage, construction and public works, and education, health, sports and other social services. The corporations in these industries are classified as ‘industrial and commercial’ corporations and data is obtained from the ISE publication ‘ISE Companies: Capital, Dividend and Monthly Price Data 1986–1998.’

Due to the significant change of dividend regulations in 1995, the research period is divided into two: 1985–1994 and 1995–1997. For investigating the dividend policy behaviour of the ISE corporations during the periods 1985–1994 and 1995–1997, data include all industrial and commercial corporations that are traded in the ISE. For the periods 1985–1994 and 1995–1997, 916 and 566 dividend policy observations are obtained, respectively. It should be noted that the ISE corporations are allowed to pay cash dividends once in a year and cash dividends are paid out to shareholders in the year following the end of the fiscal year. Therefore, 1985–1994 period dividend payments took place between 1986 and 1995 and similarly, 1995–1997 period dividend payments took place between 1996 and 1998.

For testing dividend stability, sample data include industrial and commercial corporations trading in the ISE during the period 1985–1997. However, the corporations which do not have at least 5 years of non-zero cash dividends during this period are excluded. Dewenter and Warther (1998) also use the same exclusion strategy in order to find out the degree of dividend smoothing for the Japanese corporations. The reason for this exclusion is to have enough years of non-zero cash dividends for empirical analysis. In other words, the excluded corporations do not have a trend of cash dividend payments for testing dividend stability. Tests are repeated for samples of at least 4, 6 and 7 years of non-zero cash dividends and the test results lead to the same findings regarding the regulation effect and dividend policy stability of the ISE corporations.

The sample data for period 1985–1997 has 76 industrial and commercial corporations which represents 40% of all industrial and commercial corporations trading in the ISE as of 1997. If there are no missing data for the cross-sectional units over the sample period, the sample is a balanced sample in a panel data
setting. However, the sample can also be unbalanced meaning that there are some missing data for some of the cross-sectional units over the whole sample period. For instance, for the period 1985–1997, one corporation can have data from 1989 to 1997 and the other can have data from 1985 to 1997. For the 1985–1997 period, the sample is unbalanced and the unbalanced number of pooled observations is 852.

4.3. Estimation methodology

The advances in panel data econometrics during the last decade have opened the way for estimating the Lintner model by using panel data regressions which are significantly different from the estimation methodologies used in Lintner’s and Fama and Babiak’s prominent studies. In panel data pooled regression, time-series and cross-sectional observations are combined and estimated. In other words, several cross-sectional units are observed over a period of time in a panel data setting. The basic model using pooled observations is as follows:

\[ Y_{i,t} = \alpha + \beta_k X_{k,i,t} + u_{i,t} \]  \hspace{1cm} (5)

The panel data has multiple observations \( t = 1 \ldots T_i \) of each of \( i = 1 \ldots n \) observation units where:

- \( i = 1 \ldots n \) is the cross-sectional units in the sample;
- \( t = 1 \ldots T \) is the sample period;
- \( \beta_k \) are the parameters that will be estimated;
- \( k = 1,2, \ldots \) denotes the independent (explanatory) variables;
- \( u_{i,t} \) is a stochastic error term assumed to have mean zero and constant variance.

The main advantage of pooling is that it is possible to increase the number of observations, especially in cases where each individual cross-section sample is so small that sample size affects the degrees of freedom adversely. Gujarati (1995) states that in the case of a properly specified model, pooled regression can provide more efficient estimation, inference and even better forecasts (p. 524). Baltagi (1995) states that panel data give more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency (pp. 3–6). Panel data is better able to study the dynamics of adjustment, and is better able to identify and measure effects that are simply not detectable in pure cross-sections or pure time-series data. Moreover, many variables can be more accurately measured at the micro level and biases resulting from aggregation over firms or individuals are eliminated. Greene (1997) states ‘the fundamental advantage of a panel data set over a cross-section is that it will allow the researcher far greater flexibility in modeling differences in behavior across individuals’ (p. 615). Pindyck and Rubinfeld (1998) also adds that ‘incorporating information relating to both cross-section and time-series variables can substantially diminish the problems that arise when there is an omitted-variables problem’ (p. 250).
There are three common regression techniques used in estimating models with panel data. Namely, these three regression techniques are the pooled ordinary least squares, the fixed effects model (Least squares dummy variable model) and the random effects model (Error components model). In this research, these three regression techniques are used for the estimation of the model. Subsequently, proper test statistics, namely the $F$-statistic ($F$-stat) and the Hausman test ($H$), are used to choose the most appropriate model for the particular sample. The $F$-statistic tests the null hypothesis that the efficient estimator is the pooled ordinary least squares compared to the fixed effects model. The Hausman test tests the null hypothesis that random effects model is appropriate for the particular sample compared to the fixed effects model.

5. Empirical results

5.1. Dividend policy behaviour and regulation effect

In Table 1 (Panel A), the average cash dividend payouts for broadly classified industries are presented. The analysis is divided into two sub-periods, 1985–1994 and 1995–1997, taking into account the regulatory changes. For the period 1985–1994, the averages are approximately 50% which is the minimum legal limit set by the regulatory body, the Capital Markets Board, having similar powers as the SEC in the US. After the 1995 regulatory change granting flexibility in the dividend policy, there is a substantial decrease in the average cash dividend payout ratios except for electricity, gas and water industry. The electricity, gas and water corporations (regulated utility industry) have continued to have the highest payout ratio which is in line with the empirical finding that utility corporations tend to payout the most worldwide (Megginson, 1997, p. 355).

In Table 1 (Panel B), total earnings, cash and stock dividends, and dividend payout ratio of all ISE corporations are presented in Turkish Lira (TL) for fiscal years 1985–1997. The table confirms the empirical observation that there is a considerable decrease in the dividend payout ratio due to the regulatory change. Moreover, the ISE corporations are allowed to pay stock dividends out of earnings and/or retained earnings starting in fiscal year 1994. The dividend payout ratios including the stock dividends for years 1994–1997 are around 54% indicating approximately a 6% shift towards stock dividends relative to the approximate average cash dividends payout level of 48%.

In order to detect any major dividend policy changes between the two periods (1985–1994 and 1995–1997), mean and median dividend payout ratios, and the frequency of dividend changes are analysed using all commercial and industrial corporations trading in the ISE. The analysis for the frequency of dividend changes is carried out by using earnings per share and dividends per share both of which are adjusted for inflation using the Consumer Price Index. Table 2 (Panel A) shows the substantial decrease in both mean and median dividend payout ratio for the two subperiods after the 1995 regulatory change. It can also be deduced that
Table 1
Dividend policy statistics

Panel A. Average cash dividend payout ratios for broadly classified industries

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>53.3</td>
<td>36.6</td>
</tr>
<tr>
<td>Financial institutions</td>
<td>65.4</td>
<td>32.3</td>
</tr>
<tr>
<td>Wholesale, retail trade, hotels and restaurants</td>
<td>46.3</td>
<td>28.3</td>
</tr>
<tr>
<td>Electricity, gas &amp; water</td>
<td>61.4</td>
<td>85.0</td>
</tr>
</tbody>
</table>

Panel B. Total earnings, cash and stock dividends for all ISE corporations in TL billion

<table>
<thead>
<tr>
<th>Fiscal year</th>
<th>Number of corporations traded</th>
<th>Earnings</th>
<th>Cash dividends</th>
<th>Stock dividends</th>
<th>Dividend payout ratio a</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>44</td>
<td>139.35</td>
<td>63.03</td>
<td>–</td>
<td>45.2%</td>
</tr>
<tr>
<td>1986</td>
<td>62</td>
<td>259.05</td>
<td>133.17</td>
<td>–</td>
<td>51.4%</td>
</tr>
<tr>
<td>1987</td>
<td>65</td>
<td>527.08</td>
<td>262.62</td>
<td>–</td>
<td>49.8%</td>
</tr>
<tr>
<td>1988</td>
<td>71</td>
<td>1081.26</td>
<td>569.28</td>
<td>–</td>
<td>52.6%</td>
</tr>
<tr>
<td>1989</td>
<td>101</td>
<td>2312.96</td>
<td>1432.8</td>
<td>–</td>
<td>61.9%</td>
</tr>
<tr>
<td>1990</td>
<td>124</td>
<td>5301.11</td>
<td>3078.90</td>
<td>–</td>
<td>58.1%</td>
</tr>
<tr>
<td>1991</td>
<td>133</td>
<td>8535.53</td>
<td>5287.37</td>
<td>–</td>
<td>61.9%</td>
</tr>
<tr>
<td>1992</td>
<td>151</td>
<td>14 987.25</td>
<td>8935.75</td>
<td>–</td>
<td>59.6%</td>
</tr>
<tr>
<td>1993</td>
<td>176</td>
<td>35 325.74</td>
<td>22 895.74</td>
<td>–</td>
<td>64.8%</td>
</tr>
<tr>
<td>1994</td>
<td>201</td>
<td>81 321.87</td>
<td>39 772.85</td>
<td>4492.09</td>
<td>48.9% (54.4%)</td>
</tr>
<tr>
<td>1995</td>
<td>227</td>
<td>201 491.79</td>
<td>93 465.65</td>
<td>15 584.67</td>
<td>46.4% (54.1%)</td>
</tr>
<tr>
<td>1996</td>
<td>257</td>
<td>408 220.13</td>
<td>199 816.14</td>
<td>21 180.60</td>
<td>48.9% (54.1%)</td>
</tr>
<tr>
<td>1997</td>
<td>277</td>
<td>723 104.13</td>
<td>334 797.21</td>
<td>66 104.44</td>
<td>46.3% (55.4%)</td>
</tr>
</tbody>
</table>

Note. a: For years 1994–1997, the percentages (%) in parentheses are calculated by summing cash and stock dividends. Source: Tables are derived from the population data compiled for the study.
corporations tended to retain earnings after being granted the freedom of determining their own dividend policies. Empirical tests are carried out in order to see whether the dividend payout ratio distribution (mean/median) of the two time periods is independent of each other. Since corporations have a variety of dividend policy alternatives such as distributing none, some or all of the profit, it is very likely that dividend payout distributions can exhibit non-normality and the differences in the cash flows can result in unequal variances (Michel, 1979). In Table 2 (Panel A), the normality test (Jarque–Bera test) and equality of variances test (Levene test) results indicate that for both periods, the data are not normally distributed and the variances of the two periods are significantly different from each other. Consequently, the parametric test of difference in mean should be evaluated cautiously. The parametric \( t \)-test and non-parametric Mann–Whitney \( U \)-test are used to test the null hypothesis that mean/median dividend payout ratios of the two time periods are equal. In Table 2 (Panel A), both test results show that there is a statistically significant difference in mean and median dividend payout ratios of the two periods.

The frequency distribution of dividend changes comparing the two time periods
are also presented in Table 2 (Panel B). ‘Increases’ shows the percentage of cases where dividends per share increased; ‘Decreases’ shows cases where dividends per share decreased; ‘Initiations’ shows cases where dividends per share have moved from zero to positive; ‘Omissions’ shows cases where dividends per share have moved from positive to zero; and ‘Omissions Continued’ shows cases where corporations continue to omit dividends relative to the previous year.

There are a couple of significant changes in the dividend policy behaviour. Given the flexibility in determining their dividend policies, the ISE corporations have started to omit dividends to a greater extent. The percentage of total omissions including ‘Omissions Continued’ increased from 19 to 37%. Additionally, both dividend increases and decreases during the 1995–1997 period are lower relative to the 1985–1994 period. It can be deduced that instead of decreasing dividends, corporations have chosen to omit dividends.

Similar to the tests on mean/median dividend payout ratio, t-test and Mann–Whitney U-test are calculated in order to see whether the frequency of dividend changes in the two time periods is independent of each other. The normality test and equality of variances test results indicate that for both periods, the data are not normally distributed and the variances of the two periods are significantly different from each other. The results of the tests of independence for the two time periods are presented in Table 2 (Panel B). Both parametric and non-parametric test results reject the null hypothesis that the frequency of dividend changes comes from the same distribution.

The following analysis is carried out to observe the dividend policy reaction of the ISE corporations to changes in earnings. The changes in earnings are categorised as ‘+’ when earnings per share increases, ‘-’ when earnings per share decreases and ‘EPS < 0’ when there is a loss. The results for the two periods are presented in Table 3.

When the earnings change is ‘+’, 78% of the corporations during the 1985–1994 period.

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Table 3

<table>
<thead>
<tr>
<th>Earnings changes</th>
<th>Percent of cases</th>
<th>Increased dividends</th>
<th>Decreased dividends</th>
<th>Omitted dividends</th>
<th>Continued omission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>31%</td>
<td>78%</td>
<td>7%</td>
<td>1%</td>
<td>14%</td>
</tr>
<tr>
<td>-</td>
<td>57%</td>
<td>7%</td>
<td>87%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>EPS &lt; 0</td>
<td>12%</td>
<td>0%</td>
<td>4%</td>
<td>44%</td>
<td>53%</td>
</tr>
</tbody>
</table>

Panel B. 1995–1997 (total of 516 observations)

<table>
<thead>
<tr>
<th>Earnings changes</th>
<th>Percent of cases</th>
<th>Increased dividends</th>
<th>Decreased dividends</th>
<th>Omitted dividends</th>
<th>Continued omission</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>29%</td>
<td>50%</td>
<td>12%</td>
<td>10%</td>
<td>28%</td>
</tr>
<tr>
<td>-</td>
<td>65%</td>
<td>10%</td>
<td>59%</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>EPS &lt; 0</td>
<td>7%</td>
<td>0%</td>
<td>0%</td>
<td>32%</td>
<td>68%</td>
</tr>
</tbody>
</table>
period increased their dividends relative to 50% during the 1995–1997 period. This can be explained by the mandatory dividend policy rule during the 1985–1994 period. Additionally, the percentage of dividend omissions including the continued omissions increased substantially even though there is a ‘+’ change in earnings. When the earnings change is ‘−’, the ISE corporations preferred to omit dividends during the period 1995–1997 as opposed to the fact that they tended to decrease dividends during the 1985–1994 period. When there is a loss (EPS < 0), for both periods, none of the ISE corporations increased dividends. Moreover, in almost all cases, corporations omitted dividends.

5.2. Dividend policy stability and regulation effect

In Table 5 in which the Lintner model estimation results for the 1985–1997 period are presented, the F-statistic and the Hausman test results indicate that the appropriate estimation model is the random effects model which takes the cross-section specific constant terms as being randomly distributed across the cross-sectional units. Having a high level of explanatory power, the random effects model regression results show that the statistically significant explanatory variables are the earnings per share (EPS\(_{it}\)) and the positive constant term (\(\alpha_i\)). The lagged dividends per share explanatory variable (DPS\(_{(t-1)}\)) is statistically insignificant. The statistical insignificance of DPS\(_{(t-1)}\) is the first indication of dividend instability, since in order to follow a stable dividend policy, management has to consider the past dividends per share trend. The Lintner adjustment factor of 1.00 is at the maximum level meaning that the ISE corporations do not smooth the dividends at all during this period. The Lintner target dividend payout ratio is 0.517 which is consistent with the sample dividend payout ratios over the period 1985–1997 (see Table 4).
Table 5
Lintner model estimation results (1985–1997)

| Equation: \( \text{DPS}_{i,t} = \alpha_1 + \beta_1 \text{EPS}_{i,t} + \beta_2 \text{DPS}_{i,t-1} \) |

| Random effects model (t-value) |
| \( \text{DPS}_{i,t} = 53.322 + 0.517\text{EPS}_{i,t} + 0.005\text{DPS}_{i,t-1} \) |
| (2.380)*** (73.9)** (0.43) |

| Adj. \( R^2 \): 0.894 | Panel N: 776 | F-test: 2.289* | Hausman Test: 1.587 |

Lintner coefficients

| Speed of adjustment \( (\gamma) \): 1.00 |
| Target payout ratio \( (\rho) \): 0.517 |

*Significant at 1% level.
**Significant at 5% level.

The dummy variable approach is used to detect whether there is a structural shift in the Lintner model due to the 1995 regulatory change. Focusing on the statistically significant explanatory variables, the earnings per share and the positive constant term, dummy variables are introduced into the model in order to measure the differential intercept and the differential earnings per share coefficient (see Table 6). The \( F \)-statistic and the Hausman test result indicate that the appropriate estimation technique is the random effects model for testing the regulation effect. For the 1985–1994 period, the estimation results in Table 6 (Panel A) are in line with the preceding estimation results of the Lintner model in Table 5. The Lintner target dividend payout ratio is 0.525 which is consistent with the mandatory dividend policy of paying at least 50% of earnings as cash dividends during this period and is also consistent with the sample dividend payout ratios over the period 1985–1994 (see Table 4). The positive constant term shows the willingness of the corporations to increase cash dividends over time as well.

As shown in Table 6 (Panel B), the statistically significant differential intercept coefficient \((-115.459)\) pulls the positive constant term down to a negative level of \(-28.72\) showing the tendency of the ISE corporations to decrease the cash dividends during the 1995–1997 period. The statistically significant differential slope coefficient \((-0.025)\) of earnings per share pulls the coefficient down to a level of 0.50 which is in line with the decrease in the sample cash dividend payout ratios in Table 4. The Lintner adjustment factor of 1.00 is still at the level of 1 indicating that the ISE corporations do not smooth dividends during the 1995–1997 period as well. Even though the regulatory change in 1995 has created flexibility in the dividend policy management, the ISE corporations have continued to follow unstable dividend policies and dividend smoothing is still not a management tendency. The Lintner target dividend payout ratio is 0.50 which is lower than the target ratio of 0.525 over the 1985–1994 period.

It can also be deduced from the preceding Lintner model estimation results that any variability in the earnings is directly reflected in the cash dividend payments. Table 1 and Fig. 1 provide further evidence on this finding. In Table 1, coefficient
Table 6

Equation: \[ \text{DPS}_t = \alpha_1 + \alpha_2 D_{s,t} + \beta_1 \text{EPS}_t + \beta_2 \text{DPS}_{t-1} + \beta_3 (D_{s,t} \text{EPS}_{t-1}) \]

- \( D_{s,t} \): 0 for the 1985–1994 period and 1 for the 1995–1997 period
- \( \alpha_2 \): the differential intercept coefficient
- \( \beta_1 \): the differential slope coefficient

Panel A. The 1985–1994 period (\( D_{s,t} = 0 \))

**Random effects model (t-value)**

\[ \text{DPS}_t = \alpha_1 + \beta_1 \text{EPS}_t + \beta_2 \text{DPS}_{t-1} \]

\[ \text{DPS}_t = 86.739 + 0.525 \text{EPS}_t + 0.007 \text{DPS}_{t-1} \]

(0.588) (0.598)

**Lintner coefficients**

- Speed of adjustment (\( c \)): 1.00
- Target payout ratio (\( r \)): 0.525

Panel B. The 1995–1997 period (\( D_{s,t} = 1 \))

**Random effects model (t-value)**

\[ \text{DPS}_t = (\alpha_1 + \alpha_2) + (\beta_1 + \beta_3) \text{EPS}_t + \beta_2 \text{DPS}_{t-1} \]

\[ \text{DPS}_t = (86.739 - 115.459) + (0.525 - 0.025) \text{EPS}_t + 0.007 \text{DPS}_{t-1} \]

(0.588) (0.598) (0.598)

\[ \text{DPS}_t = -28.72 + 0.50 \text{EPS}_t + 0.007 \text{DPS}_{t-1} \]

**Lintner coefficients**

- Speed of adjustment (\( c \)): 1.00
- Target payout ratio (\( r \)): 0.50

Adj. \( R^2 \): 0.897  panel N: 776  F-test: 2.411  Hausman test: 2.007

\* Significant at 1% level.
** Significant at 10% level.

The results show that the increase in the CV of EPS (from 2.58 to 3.14) is followed by the increase in the CV of DPS (from 3.19 to 4.84). Additionally, in Fig. 1, inflation adjusted total earnings and cash dividends are shown, and the graph clearly shows that cash dividends follow the cycles in total earnings.

6. Conclusions

Since the pioneering article of Lintner in 1956, there has been an extensive
amount of research on the dividend policy decision making of corporations, especially in countries that have developed capital markets and established corporate governance rules. This empirical research contributes to the financial literature by investigating the dividend policy decision making of the corporations trading in the Istanbul Stock Exchange. The ISE is an emerging European stock exchange whose history only dates back to 1986 relative to the developed stock exchanges with hundreds of years historical development. Moreover, there have been some changes in the dividend policy regulations since 1986, especially the significant 1995 regulatory change that abandoned the mandatory dividend policy of distributing at least 50% of earnings as cash dividends and granted the ISE corporations the freedom of setting their own dividend policies.

The empirical research focuses on two time periods, 1985–1994 and 1995–1997, and during both time periods, the ISE corporations follow unstable dividend policies. The main factor that determines the amount of cash dividends that will be distributed is the earnings of the corporation in that year. Any variability in the earnings of the corporation is directly reflected in the level of cash dividends. In other words, earnings instability results in instability in dividends. This result is in line with the Glen et al. (1995) finding that ‘emerging market firms often do have a target dividend payout ratio like their developed country counterparts, but they are generally less concerned with volatility in dividends over time and, consequently, dividend smoothing over time is less important’ (p. 24).

Even though the 1995 regulatory change has provided extensive flexibility in the dividend policy making, the ISE corporations have continued to follow unstable dividend policies. After the 1995 regulatory change, a structural shift is detected in the Lintner model resulting in a negative constant term and a lower target payout ratio. Additionally, there has been a substantial increase in the number of corporations that stopped paying cash dividends and used the resources for internal financing.

In the light of these findings, it is possible to put forward the view that there are...
significant differences between the ISE corporations’ and the developed market corporations’ dividend policies. Moreover, this view is very likely to be true for the other emerging markets (see Glen et al., 1995) and international investors should be aware of these differences in making their investment decisions. Academically, further research should be undertaken in order to see whether unstable dividend policies have any effect on the information signalling power of the dividend policy announcements of the ISE corporations.

References


