ON THE DETERMINANTS OF CORPORATE DIVIDEND POLICY: A TOBIT MODEL APPROACH

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ABSTRACT

This study examines the factors that impact the dividend payout ratio of Turkish firms that are listed in Borsa Istanbul-100 Index for the period 2005-2013. Random-effect Tobit panel regression is used in order to investigate the determinants of dividend policy. According to the empirical results, firms which have higher cash flows, large firms, firms with high growth opportunities pay higher dividends. Although a significant coefficient for the managerial ownership can not be found for the whole sample, this variable negatively affects dividend payout ratio in dividend paying firms. Further, the sample is divided into two parts as low leverage firms and high leverage firms. The expected substitution among leverage, managerial ownership and dividend payments is investigated and a significant relation can not be found.

Key Words: *Dividend Policy, Tobit Model, Borsa Istanbul*

JEL Classification: *G30, G32, G35*

KAR PAYI POLİTİKASININ BELİRLEYİCİLERİ ÜZERİNE BİR ÇALIŞMA: TOBİT MODEL YAKLAŞIMI

ÖZ

Bu çalışmada, 2005-2013 yılları arasında Borsa İstanbul-100 Endeksinde listelenen firmaların kar payı dağıtım oranlarını etkileyen faktörler incelenmiştir. Kar payı politikasının belirleyicilerini araştırmak için rassal etkiler Tobit modeli kullanılmıştır. Ampirik sonuçlara göre, yüksek nakit akışına sahip firmalar, büyük firmalar ve büyüme fırsatlarına sahip firmalar daha fazla kar payı ödemektedir. Yönetici sahipliğinin kar payı dağıtımı üzerinde bir etkisinin bulunmamasına rağmen, sadece kar payı ödeyen firmalar dikkate alındığında bu değişken için negatif bir katsayı bulunmuştur. İleriki bir aşama olarak örneklem düşük kaldıraçlı ve yüksek kaldıraçlı firmalar olarak ikiye ayrılmıştır. Kaldıraç, yönetici sahipliği ve kar payı ödemesi arasında ikame olup olmadığı araştırılmış ve bunun için anlamlı bir sonuç bulunmamıştır.

Anahtar Kelimeler: *Kar Payı Politikası, Tobit Model, Borsa Istanbul*

Jel Sınıflandırması: *G30, G32, G35*

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"*The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together*". *Black (1976:8)*

1.INTRODUCTION

Dividend policy is one of the important problems that are unsolved in finance literature. The reasons behind the firms' desire to distribute their earnings as dividends or the shareholders' claims to obtain dividends have still not properly solved. This is called as 'dividend puzzle' by Black (1976). Several hypotheses have been created in order to investigate this puzzle. For instance, there has been some explanations for dividend payments that aim to signal information to shareholders (Allen and Michaely, 2003). Furthermore, DeAngelo, DeAngelo and Stulz (2006) argue that optimal dividend payout policy is determined in order to distribute the free cash flow of the firms. They also discuss the existence of a life cycle theory. According to this theory firms pay lower dividends in their early years. Their excess investment opportunities compared to the internal funds are shown as the reason of this behaviour. However, Allen and Michaely (2003) argue that more research has to be done to reach a consensus about dividend policy.

This paper investigates the determinants of dividend payout ratio of Borsa Istanbul-100 firms for the period 2005-2013. The focus of the paper is to examine the behaviour of the firms in an emerging market which determine their dividend policies in a different environment than developed markets. The findings of the research reported here shed lights on the dividend policy literature by investigating the dividend payout decisions of Turkish firms. I also contribute to the literature by considering the clustered dependent variable, which is dividend payout ratio, and by using a random effect Tobit model. The empirical results of this paper show that large firms, firms with high growth opportunities and more cash flows prefer to pay higher dividends. In addition, when the characteristics of dividend paying firms are examined, it is found that firms with higher managerial ownership pay lower dividends.

The remainder of the paper is organised as follows. In section 2, related literature on dividend policy is summarized. Data and methodology used in this study is presented in Section 3. The empirical results are provided in Section 4. Finally, Section 5 concludes.

2.LITERATURE REVIEW

Dividend irrelevance theory, information-signalling theory, free cash flow hypothesis, clientele effect hypothesis and bird in the hand theory are the most common theories used in the existing literature in order to explain rationale behind the dividend policies of the firms. In their irrelevance theory, Modigliani and Miller (1958) state that dividend policy does not impact the value of firms. According to Modigliani and Miller (1958), investment and financing decisions of the corporations do not depend on their dividend policies. Dividend policy is irrelevant for investors. Miller and

Modigliani (1961) propose that dividend clienteles could occur based on the characteristics of investors. They argue that investors who do not like (like) dividend income prefer firms which pay lower (higher) dividends. So a relation between a firm's dividend policy and dividend preferences of its shareholders is expected. In addition, Lintner (1956) and Miller and Modigliani (1961) state that dividends include information. Managers have information related to future cash flows and profitability of their firms. They use this information when they determine their dividend policies. Dividend payments give information to the investors about the future earnings of the firms and as a result dividend payments affect stock prices. According to Bhattacharya (1979), dividend policy reduces the information asymmetry between managers and shareholders. Dividend announcements give signals to the shareholders about the future cash flows and profitability of the firms.

Clientele effect theory assumes that while some investors prefer to get dividend payments others do not. The profit in the company should not be paid as dividends according to that second group of investors. The different preferences of the investors depend on the taxes applied to the dividends and capital gains. Miller and Modigliani (1961) and Black and Scholes (1974) named this tax preference as Clientele Tax Effect. According to bird in the hand theory, developed by Gordon (1963) and Lintner (1962), dividends are relevant. In this theory, 'the bird' is dividend. Investors prefer dividends rather than capital gains. Since the shareholders are not sure whether the managers of the company will invest in valuable projects, they prefer to obtain dividends from the company rather than leaving the profit in the company. In addition, Fama and French (2001), Grullon, Michaely and Swaminathan (2002), DeAngelo and DeAngelo (2006) take into account life-cycle theory of dividends which consist of the trade-off between advantages and costs of retention[1]. In line with life-cycle theory of dividends, DeAngelo et al. (2006) argue that when retained earnings have large proportion in total equity (or total assets), publicly traded industrial firms pay higher dividends. When equity is contributed rather than earned, dividend payment decreases.

According to Jensen (1986)'s free cash flow theory, managers prefer to hold the free cash flows in their firms. Since they want to avoid default and use the cash when it is needed, they are reluctant to pay dividends. Jensen (1986) argues that shareholders can control managers by the help of dividends. Companies decreases the agency cost between managers and shareholders by paying dividends. Dividend payment gives signals about the future cash flows of the firm and value of the firm (Miller and Rock, 1985; John and Williams, 1985). The impact of agency theory of Jensen and Meckling (1976) on dividend policy is also investigated by several studies. It is found in the literature that there is a conflict between managers and shareholders. In order to avoid the usage of firm's resources for managers' own benefits rather than shareholders, sufficient amount of dividends should

[1] Flotation cost savings are among the advantages and agency cost of free cash flow are among the costs of retention (DeAngelo et al., 2006).

be distributed to the shareholders (Jensen, 1986; Easterbrook, 1984; Fluck, 1998). Maury and Pajuste (2002) find that insider ownership in Finn firms negatively affects dividend payments. Therefore, the managers in these firms use the sources of the companies for the interests of themselves. Yildiz, Gokbulut and Korkmaz (2014) do not find any relation between managerial ownership and dividends for Turkish firms. Ersoy and Cetenak (2015) examine the impact of managerial ownership on dividend policy for the industrial firms that are listed on Borsa Istanbul. They find a positive relation between managerial ownership and dividend payments. They also find that profitability, investment and growth opportunities are effective on dividend payments.

A growing body of literature examines the determinants of dividend payments in line with this study. For example, Lintner (1956) investigates the managers' perception about dividend policy. According to Lintner (1956), firms make partial adjustments in the payout ratio towards target payout ratio. Fama and Babiak (1968) find that dividend payment of a company is affected by the firm's target dividend payout ratio, current or lagged earnings and the previous period's dividend payment. Benartzi, Michaely and Thaler, (1997) also find consistent results with Lintner (1956). In line with Lintner (1956), Baker, Farrelly and Edelman (1985) find that expected level of future earnings and past dividends have influence on dividend payments. According to Pruitt and Gitman (1991), changes in earnings, the growth rate of earnings, profit of the firm and previous year's dividends affect dividend payments. Fama and Babiak (1968) and Brittain (1964, 1966) find consistent results with Linter (1956) and conclude that firms follow stable dividend policies. Fama (1974) is another study which proves the stability of dividend policy. Glen, Karmokolias, Miller and Shah (1995) investigate the dividend policy in emerging markets. Although emerging market firms have target dividend payout ratios, they do not follow a stable dividend policy. Fama and French (2001) report that firms with high profitability and low growth rate pay higher dividends. Denis and Osobov (2008) examine the dividend policy for the US, Canadian, British, German, French and Japanese firms and they find that large firms, higher profitable firms and firms with high retained earnings pay higher dividends. Yildiz et al. (2014) investigate the determinants of dividend payments by using a fixed effect model. They document that taxes, profitability, growth opportunities, firm size, leverage and liquidity affect the dividend policies' of Turkish firms. Adaoglu (2000) also examines the dividend policy behaviour of Turkish firms. He shows earnings of the firms as a determinant of dividend payments.

3.DATA and METHODOLOGY

3.1. Data

This study examines the determinants of dividend policy for the firms listed in Borsa Istanbul-100 Index for the period 2005-2013. Managerial ownership data is collected from yearbooks of Borsa Istanbul firms (for the period 2005-2008) and from Public Disclosure Platform of Turkey (for the

period 2009-2013). The accounting variables are collected from Borsa Istanbul website, Public Disclosure Platform and Finnet database.

The dependent variable is dividend payment (DIV) which is defined as the ratio of dividend payments to total assets. Extant literature is followed, in particular Yildiz et al. (2014) and Ersoy and Cetenak (2015), in order to determine the independent variables:

Firm Size (SIZE): The logarithm of total assets is a proxy for firm size. According to Fama and French (2001), small firms pay lower dividends. They explain this relation with the high information asymmetry and higher cost small firms encounter when they issue securities. Holder, Langrehrand and Hexter (1998) argue that large firms pay higher dividends. Their easier access to capital markets and lower costs they encounter in raising funds are the reason of this positive relation. Jensen, Solberg and Zorn (1992) report a positive relation between firm size and dividend payout policy.

Leverage (LEV): Leverage is the ratio of total debt to total assets. According to free cash flow theory of Jensen (1986), debt and dividends are substitutes while controlling the agency problem of free cash flow. Since the high level of debt reduces the free cash flow that managers can use for their own interests at the expense of shareholders, the managers can be controlled with this high level of debt. In addition, firms with high leverage prefer to pay lower dividends because of the higher cost of external finance and risk of default (Mancinelli and Ozkan, 2006). Moradi, Salehi, and Honarmand (2010) find a negative relation between leverage and dividend payment.

Market-to-Book Ratio (MB): This variable is the ratio of the market value of equity to the book value of common equity outstanding. High market-to-book value firms are defined as firms with high growth opportunities. Since those firms have large investment opportunities, they prefer to retain their earnings in order to evaluate these investment opportunities. They aim to preserve their growth (Naceur, Goaied and Belanes, 2006). Therefore, a negative relation between market-to-book value and dividend payment is expected. Gul (1999), Chang and Rhee (1990) and Anil and Kapoor (2008) are among the studies which find a negative relation between market-to-book value and dividend payments. In addition, Yildiz et al. (2014), Aivazian et al. (2003) and Al Shubiri (2011) find a positive relation between market-to-book value and dividend payments.

Return on Equity (ROE): Return on equity proxies for the profitability of a firm. It is equal to the ratio of net income to common equity. Highly profitable firms are expected to have higher cash flows and therefore they can pay higher dividends (Naceur et al., 2006). Pruitt and Gitman (1991) find that current year's profit and past years' profits impact dividend payments. Amidu and Abor (2006) and Baker et al. (1985) report a positive relation between dividend payment and profitability.

Cash Flow (CFLOW): Cash flow is pre-tax profit plus depreciation divided by total assets. According to Jensen (1986), the increase in free cash flow increases the agency costs and dividend payments reduce this agency cost. Jensen et al. (1992), La Porta, Lopez de Silanes, Shleifer and

Vishny (2000), Baker, Saadi and Gandhi (2007) and DeAngelo, DeAngelo and Stulz (2004) find a positive relation between cash flows and dividend payments.

Managerial Ownership (MO): This variable is defined as the ratio of ownership by executive directors to the number of shares outstanding. Some studies accept dividends and managerial ownership as substitutes for reducing agency cost which is related to reducing free cash flow. Thus, a negative relation between dividend payments and managerial ownership is found (Jensen et al., 1992; Chen and Steiner, 1999, etc.). In addition, Sharif, Salehi and Bahadori (2010), Rezaloie, Zariean and Bjarkenari (2013), Mehrani, Moradi and Eskandar (2011), Al-Shubiri, Al Taleb and Al-Zoued (2012) find a positive relation between managerial ownership and dividend payments. However, Habibi, Talebnia and Dost (2012) and Yildiz et al. (2014) do not find a significant relation between these variables.

3.2. Methodology

The following model is used in order to verify the determinants of dividend payout ratio:

$$DIV_{f,t} = a_0 + a_1 SIZE_{f,t} + a_2 LEV_{f,t} + a_3 MB_{f,t} + a_4 ROE_{f,t} + a_5 CFLOW_{f,t} + a_6 MO_{f,t} + \varepsilon \qquad (1)$$

The dependent variable (DIV) is the ratio of dividend payments to total assets. The independent variables are defined in section 3.1. Since the DIV variable is left censored at zero, random effect Tobit panel regression is used. By using Tobit regression, I control for observed clustering of the dependent variable at zero. Random unobserved firm effects are also accounted in this model. In order to control for cross-sectional dependence, I also include year dummies into the regression.

4.EMPIRICAL RESULTS

4.1.Descriptive Statistics

Table 1, Panel A shows the summary statistics of the variables used in this paper. The average firm in my sample pays 2% dividend and has nearly 5 billion total assets. The average leverage is 51%, market-to-book ratio is at 2.09 and managerial ownership level is at 17%. Cash flows account for 9% and profitability is 11.58 in average.

As a second step, the firms in the sample are divided into two groups according to their dividend ratios. The firms which have dividend ratios that are above median value of the whole sample are named as above median firms (in Panel B of Table 1). The firms which have lower dividend ratios than the median value of the whole sample are examined in Panel C of Table 1. If the average values of the independent variables are compared between these two groups, we can conclude that firms paying higher dividends are larger in size. Those firms also have higher growth opportunities, higher cash flows and higher profitability. However, those firms have lower leverage and lower managerial ownership.

Table 1- Descriptive Statistics

Panel A-Full Sample

Variable	N	Mean	Sd	p25	p50	p75
DIV	603	0.02	0.06	0	0.003	0.02
SIZE	603	8.95	0.69	8.45	8.77	9.42
LEV	603	0.51	0.24	0.33	0.51	0.67
MB	588	2.09	2.81	0.83	1.32	2.11
ROE	603	11.58	16.40	0.77	9.04	16.83
MO	230	0.17	0.20	0.01	0.08	0.26
CFLOW	603	0.09	0.12	0.03	0.08	0.14

Panel B- Above Median Firms

Variable	N	Mean	Sd	p25	p50	p75
SIZE	297	9.08	0.74	8.50	8.93	9.57
LEV	297	0.46	0.23	0.30	0.49	0.64
MB	295	2.34	2.83	0.93	1.45	2.41
ROE	297	15.84	13.36	7.60	12.78	19.96
MO	117	0.15	0.19	0.00	0.06	0.25
CFLOW	297	0.13	0.12	0.07	0.11	0.16

Panel C: Below Median Firms

Variable	N	Mean	Sd	p25	p50	p75
SIZE	306	8.82	0.61	8.43	8.72	9.21
LEV	306	0.55	0.24	0.38	0.55	0.72
MB	293	1.84	2.76	0.76	1.18	1.83
ROE	306	7.44	17.97	0.00	3.42	11.53
MO	113	0.19	0.21	0.02	0.11	0.29
CFLOW	306	0.06	0.10	0.01	0.05	0.10

Note: Mean, median (p50), standard deviation (Sd), 25th percentile (p25) and 75th percentile (p75) are reported. N is the number of observations.

Table 2 presents Pearson correlation coefficients for the variables used in this paper. According to the results in Table 2, multi-collinearity is not an issue for the multivariate analysis. At a univariate level, firm size and leverage are negatively correlated with dividend ratio. Although the sign of leverage is consistent with my expectation, negative coefficient of size is not in line with the expectations. In addition, market-to-book ratio, profitability and cash flow variables are positively correlated with dividend ratio which is consistent with the related literature.

Table 2-Correlation Matrix

	DIV	SIZE	LEV	MB	ROE	MO	CLOW	INV
DIV	1							
SIZE	-0.12*	1						
LEV	-0.22*	0.25*	1					
MB	0.26*	-0.14*	0.19*	1				
ROE	0.25*	0.12*	-0.15*	0.33*	1			
MO	-0.14	-0.02	0.12	-0.10	-0.07	1		
CLOW	0.35*	-0.04	-0.44*	0.20*	0.61*	-0.11	1	
INV	-0.03	0.18*	0.04	0.01	0.01	0.05	-0.08	1

4.2. Multivariate Results

Column 1 of Table 3 reports the random effect Tobit regression results. I examine the determinants of dividend payout ratio for the whole sample. According to Table 3, large firms pay higher dividends. This result is consistent with the existing literature (Fama and French, 2001; Holder et al., 1988; Jensen et al., 1992, etc.). Since large firms have less information asymmetry and they bear lower costs while they are raising funds, they can pay higher dividends. The positive coefficient of MB variable shows that firms with higher growth opportunities pay higher dividends. Yildiz et al. (2014) also find a positive relation between MB and DIV for Turkish companies. They explain this result in line with the assumptions of signalling theory. Since these firms have positive expectations about the future, they increase their dividend payments and they give signal to their shareholders about their positive expectations. Finally, Table 3 shows that firms with high cash flows pay higher dividends which is consistent with Jensen et al. (1992), La Porta et al. (2000), Baker et al. (2007) and DeAngelo et al. (2004). This result shows that since dividend payments reduces the agency cost created by free cash flows, firms with higher cash flows prefer to pay higher dividends (Jensen, 1986).

In column 2 of Table 3, the determinants of dividend payout ratio are examined only for the dividend paying firms[2]. Random effects GLS regression is used in column 2[3]. For dividend payer firms a positive relation is found between growth opportunities and dividend payout ratio. Moreover, these firms have lower dividend payments if they have managerial ownership. This result shows that dividend payments and managerial ownership are used as substitutes in reducing agency cost. As a further step, I analyse whether the relation between managerial ownership and dividend payout ratio differs between low leverage and high leverage firms. Debt is used as a monitoring mechanism in order to reduce the agency costs (Ross, 1977 and Stulz, 1990). If the firms do not pay their debts, debt

[2] Since the non-dividend payers are dropped from the sample, my dependent variable is not clustered at zero. As a result, I do not use Tobit regression for these firms.

[3] Hausman test was applied and its result recommended to use random effect GLS regression.

holders can take the firms into bankruptcy (Florackis, C., Kanas, A. and Kostakis., 2014). Managerial ownership is accepted as another mechanism that reduces the agency problems between managers and shareholders. It is expected that if managers have ownerships, they take actions in line with the shareholders' interests. In addition, low leverage firms have higher free cash flows and they don't have a mechanism to control agency costs. A more pronounced negative relation between managerial ownership and dividend is assumed for these firms (Agrawal and Jayaraman, 1994). According to Table 4, managerial ownership does not have any impact on the dividend payments of high or low leverage firms. Thus, the expected substitution among leverage, managerial ownership and leverage is not accurate for Turkish firms.

Table 3- Determinants of Dividend Payout

	FULL SAMPLE	**DIVIDEND PAYING FIRMS**
	TOBIT	**RANDOM EFFECT**
SIZE	0.012**	-0.007
	[0.012]	[0.114]
LEV	-0.016	-0.013
	[0.423]	[0.531]
MB	0.004***	0.004***
	[0.000]	[0.001]
ROE(%)	0	0
	[0.926]	[0.565]
MO	-0.004	-0.024*
	[0.748]	[0.057]
CFLOW	0.172***	0.072
	[0.000]	[0.166]
Constant	-0.131***	0.076*
	[0.003]	[0.064]
N	227	137
R-squared	-	0.45
Chi-square	107.47	-
Year FE	Yes	Yes
P-value	0	0

Note: The numbers in brackets are p-values. * indicates 10% significance level, ** indicates 5% significance level and *** indicates 1% significance level. N is the number of observations. Year fixed effects (Year FE) are used in the regressions.

Table 4-Random Effects GLS Regressions for Low and High Leverage Firms

	Low Leverage	High Leverage
SIZE	-0.001	0.002
	[0.869]	[0.464]
LEV	-0.044*	-0.014
	[0.097]	[0.599]
MB	0.011***	0.002***
	[0.000]	[0.005]
ROE(%)	0	0
	[0.567]	[0.951]
MO	-0.005	-0.007
	[0.686]	[0.624]
CFLOW	0.064*	0.183***
	[0.074]	[0.000]
Constant	0.011	-0.016
	[0.844]	[0.644]
R-squared	0.43	0.49
N	118	109
Year FE	Yes	Yes

5.CONCLUSION

I investigate the determinants of corporate dividend payout ratio for Borsa Istanbul-100 firms for the period 2005-2013. By using random effect Tobit model I take into account the clustered dependent variable. According to the empirical results, large firms pay higher dividends which is consistent with the argument that those firms have less information asymmetry and lower cost while raising funds. The results also show that firms with high growth opportunities pay higher dividends. Although it is expected that those firms retain their earnings, it is found that they prefer to pay dividends. Thus, it can be concluded that these growing firms have positive expectations about future and by increasing their dividend payments they give signals to the shareholders about their expectations (Yildiz et al., 2014). In addition, I find a positive relation between cash flow and dividend payout ratio in line with the literature. As a further step, the determinants of dividend payout ratio of dividend paying firms are examined and a negative relation between managerial ownership and dividend payment is found.

The findings of this study shed lights to the firms about managing their dividend policies. Investors can also take advantages of these findings when they make decisions about their investments. The signals sent to the market by the firms can be understood by the help of this study and can be used by the investors. Further research might be done by examining the determinants of

dividend policy for different industries. In addition, the impact of corporate governance on dividend policy can be examined by using additional control variables.

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