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THE DETERMINANTS OF THE DIVIDEND SIZE IN CROATIA

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Abstract:
Previous researches identified certain micro-level characteristics of the company as important determinants of dividend level company choose. However, significant differences were noticed in the sensitivity of dividend size on same factors among different countries. This paper empirically examines determinants of the dividend size of Croatian companies. The results show on average significant influence of profitability and debt level on the size of the dividends. Influence of size of the company and stability of profitability/earnings on the dividend size is not statistically confirmed. The reason for high sensitivity of dividend size on the profitability and debt level can be found in high financial constraints under which Croatian companies operate.

Keywords: dividends, dividend policy, factors.

Jel Classification: G35 - Payout Policy

INTRODUCTION

Significant reason for dividends still remaining one of the most important unsolved puzzles in finance (Brealy and Mayers 2002) is complexity of factors that influence it. The most influential empirical researches regarding dividends conducted by using the data from countries with most developed financial markets. They have identified certain firm-level factors such as profitability, debt level, ownership structure etc. that influence dividend policy in most of the analyzed companies. However, when research was extended to other countries with different structure of financial system, level of investor protection and other characteristics it was seen that the same factors do not have nor the same importance nor the same direction of the influence on the dividend level.

The aim of this paper is to investigate firm-level factors that influence dividend level of the biggest Croatian companies, to analyze the results and to explain the

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reasons behind them. Based on previous similar researches done in other countries we expect high influence of profitability and debt level on the dividend policy. Next to these two determinants our aim is to determine the influence of other micro factors such as stability of earnings and size of the company on the dividend level.

The paper is organized in following way: after introduction, second part provides overview of previous empirical works on micro level determinants of the dividend policy. Third part presents data used in empirical investigation. Fourth part presents results of empirical investigation and fifth part concludes.

PREVIOUS EMPIRICAL WORK

For a long time both theoretical and empirical research of dividends was understandably mostly focused on the most developed countries. The earliest and the most influential empirical investigations have been made in the United States of America. Among them important place takes the study of Lintner (1956) in which he showed that companies set long-run dividend level according to the amount of positive net present value projects. His work was followed by other empirical investigations that used either results of surveys of managers or secondary data from financial statements of companies. On the basis of them as most important micro-level factors that influence dividend policy are isolated profitability, stability of earnings, growth, debt level, ownership concentration and size. However, researches of the influence of these factors in different countries showed significant differences (Aivazian, Booth, and Cleary 2003) not just in their importance but even in the direction of their connection with the dividend level.

As one of the key factor influencing level of dividends all researches identified profitability of a company. The reason behind it is obvious. In order to pay out dividends the company has to supply enough funds. Although the company can use debt to finance dividends the funds needed to pay out dividend should generally come as a result of the surplus of cash flow generated from the company's business operations. Due to that it is logically to expect more profitable companies with higher free cash flow will pay out higher dividends then less profitable ones. All researches find profitability has significant positive effect not just on the dividend level but also on the probability dividends will be paid out. Fama and French (2001) and DeAngelo, DeAngelo and Stulz (2005) showed profitability increases probability of dividend payments of the companies listed in the USA. Same is confirmed in the research of dividend policy of the companies in USA, Canada, Japan, Germany, France and Great Britain done by Denis and Osobov (2008). Research of dividend policy in Australia, USA, Japan, United Kingdom, France, Finland, Netherlands of Kozul and Orsag (2011) showed significant positive influence of profitability on the dividend level in all analyzed countries. Aivazian, Booth and Cleary (2003) found profitability of the company has positive influence on the dividend level measured as ratio of dividends to assets in all analyzed emerging markets so as in USA. Same results were shown in Argentina in research of Bebczuk (2004) in which dividends were measured as ratio of dividends to cash flow. Ben Naceru, Goaied and Belanes (2006) showed positive correlation of the profitability of assets and dividend yield of the companies listed on the Tunisian Stock Exchange. Positive correlation between dividend payout ratio and

profitability is also shown in Switzerland companies (Statescu 2006). Same influence of profitability is also shown in Polish companies in research done by Kowalewski, Stetsyuk and Talavera (2007). Beside these researches done by analyzing secondary data, importance of profitability as a factor influencing dividend policy is also confirmed in the survey of Norwegian managers that consider profitability as key factor influencing decisions regarding dividend policy (Baker, Farrelly, and Edelman 1985).

On the basis of above mentioned researches it can be seen that profitability has significant positive influence on the dividend level and probability dividends will be payed out in all analyzed countries. Still, what is important to notice is the difference in importance of profitability of the dividend level in different countries. This difference is most clearly shown in the research of Aivazina, Booth and Cleary (2003) that shows profitability has more of an effect on dividend payments for analyzed emerging market (Jordan, Pakistan, Zimbabwe, India, Turkey, South Korea, Malaysia and Thailand) firms then for USA firms.

Debt level is also showed to be an important factor when companies determine their dividend level. As in case of profitability reason can be found in implication higher level of debt has on the level of the funds available for dividend payments. Assuming debt is used to finance operations of the companies and not for the dividends payments higher level of debt will cause lower level of the funds on disposal for dividend payments so as lower level of flexibility. Knowing managers are reluctant to increase dividends if they do not expect they will be able to keep that higher level of dividends in the future it is reasonable to expect higher levels of debt will be connected with lower dividends. Further one, it could be expected to find stronger significance of debt level for dividend payments in countries with less developed financial markets.

Gugler and Yurtoglu (2003) showed negative influence of the dividend level on the dividend payout ratio in German companies so as the research of Statescu (2004) in Switzerland. Research of dividend policy in Poland in which dividend level was measured as ratio of dividends to cash flow also showed negative relationship between debt and dividend level (Kowalewski, Stetsyuk, and Talavera 2007). A same result is shown in the research of Argentinean companies (Bebczuk 2004)). According to the research of Bena and Hanousek (2006) based on the data from companies in Czech Republic debt level has small negative influence on the probability dividends will be payed and strong negative influence on the level of dividends. On the contrary, research of dividend policy conducted in Tunisia by Ben Naceura, Goaieda and Belanesa (2007) did not found significant influence of debt level on the dividend policy. Further on, Chen, Cheung, Stouraitis and Wong (2005) analyzed dividend policy of Hong Kong companies and found evidence of positive correlation between debt to equity ratio and dividend payout ratio. While the comparison of dividend policy between 8 emerging countries and USA done by Aivazian, Booth and Cleary (2003) shows negative influence of debt level on dividends in all analyzed countries it also shows that the effect of the increased debt is significantly more pronounced in 6 emerging countries than in the USA.

Size of the company is also found to be one of the important factors influencing dividend policy. According to many of financial economists the relationship between the dividend level and the size of the company is expected to be positive (Reddings 1997). Reasons can be found in the easier access to the capital markets and therefore

lower cost of financing of bigger companies. In that way they are expected to be less financially constrained in comparison with similar smaller companies. Next to that, the size of the company is negatively correlated with the probability of the bankruptcy (Titman and Wessels 1988). The reason can be found in more diversified, easier predictable and less volatile cash flows of bigger companies in comparison to smaller ones. Next to the above presented reasoning, evidences of inverse influence of the company size on the dividend level can be also found both in theoretical reasoning and empirical investigations. The strongest argument is based on the signaling theory. Namely, more volatile and less predictable cash flows of smaller companies expose investors to higher risk. In order to compensate for the higher risk smaller companies payout higher dividends and in that way signal the prosperity of the company (Bena and Hanousek 2006).

Gugler and Yurtoglu (2003) present evidence of the inverse relationship between dividend level and size of the company in Germany. Ben Naceur, Goaid and Belanes (2006) showed negative influence of size on the dividend yield in Tunisia. On the contrary, Bebczuk (2004) found positive influence of the size on the dividend level in Argentinean companies so as Ben and Hanousek (2006) in Czech Republic. DeAngelo, DeAngelo and Stulz (2005) showed positive influence of the size of the company on the probability the company will pay out dividends in the companies listed in USA. Bena and Hanousek (2006) came to the same conclusion. Denis and Osobov (2008) also found same results when comparing factors influencing dividend policy in USA, Canada, Japan, Germany, France and United Kingdom. As it can be seen from the above listed researches influence of the size on the dividend level differs among countries not just in the significance but also in the direction of the relationship. That conclusion is further confirmed in the research of Aivazian, Booth and Cleary (2003) who found same differences when comparing dividend policy of companies from 8 emerging markets and USA.

Dividends are considered to be an important signaling device of future prosperity of the company (Miller and Modigliani 1961), severity of the free cash flow problem (Lang and Litzenberger 1989) and/or expropriation problem (Gugler and Yurtoglu 2003). Their role as a signal is based on two important characteristics of the real world: information asymmetry and agency problem. Namely, stabile and/or increasing dividends increase credibility of good financial results presented in the company's financial statements. As a consequence managers will be reluctant both to increase dividends if they are unsure higher level of dividends can be sustained in the future periods. Due to that predictability of company's cash flows will play a significant role in determining the level of dividends companies will choose. It is therefore reasonable to expect higher stability of earnings/profitability will be followed with higher dividends. Empirical investigation of Aivazian, Booth and Cleary (2003) show inconsistent results both of significance and direction of the connection between dividend level and stability analyzed in 9 different countries. In the research of dividend policy of companies in 5 European countries, Japan, USA and Australia Kozul and Orsag (2011) found significant negative relationship between dividend level and standard deviation of the profitability of assets in 6 out of 8 countries.

DATA

The firms in the sample are 52 companies listed on the Zagreb Stock Exchange. Data for dividends and firm-specific variables are collected from the financial statements of the companies published on the official web site of the Zagreb Stock Exchange. Financial firms and utilities are excluded because of their special characteristic. Sample period covers 2010 and 2011.

Summary measures of dividend level as well as additional data to assess the financial situation of the analyzed companies are provided in Table 1.

Table 1. Summary statistics of dividends and other firm-specific variables of analyzed Croatian companies

2010	DIV/TA	ROA	STDROA	TL/TA	LTL_TA	LOG_R	LOG_TA
Average	0,010	0,019	0,037	0,418	0,152	8,603	9,019
Median	0,000	0,005	0,028	0,388	0,075	8,507	8,926
Min	0,111	0,592	5,476	1,263	0,921	10,428	11,696
Max	0,000	-0,305	0,003	0,077	0,000	7,600	8,110
2011	DIV/TA	ROA	STDROA	TL/TA	LTL_TA	LOG_R	LOG_TA
Average	0,016	0,024	0,0211	0,310	0,587	8,611	8,917
Median	0,000	0,023	0,033	0,090	0,358	8,613	8,900
Min	0,000	-0,343	0,001	0,000	0,064	7,396	7,968
Max	0,211	0,421	5,515	5,865	6,741	10,489	10,463

Note: The variables provided in the table are as follows: DIV/TA defined as aggregate dividends over value of total assets; ROA is defined as return on assets; STDROA as standard deviation of return on assets in period: 2005-2009; 2006-2010. TL/TA is defined as total liabilities over total assets; LTL_TA as long-term liabilities over total assets; LOG_R as logarithm of revenues and LOG_TA as logarithm of total assets.

Table 2 provides comparable data in available sample of companies from different countries in 2010. This data for dividends and firm-specific variables are collected from Bloomberg data base. The companies included are the biggest ones listed on the stock exchanges in each country included in the investigation. As in case of above presented sample of Croatian company's financial firms and utilities are excluded because of their special characteristic (e.g. debt level).

Table 2. Cross-country summary statistics of dividends and other firm-specific variables

	DIV/TA	ROA	SDROA	TL_TA	N	% of MC	LOGR
Bulgaria	0,001	0,018	0,043	0,386	33	0,274	1,730
Poland	0,004	0,031	0,070	0,466	151	0,304	2,442
Esthonia	0,005	0,018	0,104	0,410	15	0,996	2,186
Latvia	0,007	-0,007	0,080	0,456	25	0,890	0,925
Japan	0,009	0,031	0,021	0,589	98	0,250	6,043
Austria	0,009	0,026	0,040	0,602	45	0,560	2,704
Lithuania	0,010	-0,009	NA	0,538	105	0,512	2,240
Hungary	0,011	0,032	0,042	0,475	7	NA	5,044
France	0,018	0,044	0,019	0,627	32	0,570	4,351
USA	0,019	0,076	NA	0,569	419	NA	3,936
Spain	0,021	0,051	0,021	0,695	23	0,727	3,782

Table 2. (*continued*)

	DIV/TA	ROA	SDROA	TL_TA	N	% of MC	LOGR
Finland	0,023	0,022	0,061	0,564	93	0,553	2,552
Australia	0,033	0,050	0,080	0,407	105	NA	3,006
Belgium	0,037	0,079	0,031	0,556	14	0,939	3,686

Note: The variables provided in the table are as follows: DIV/TA defined as aggregate dividends over value of total assets; ROA is defined as return on assets; SDROA as standard deviation of return on assets in period: 2005-2009; TL/TA is defined as total liabilities over total assets; LTL_TA as long-term liabilities over total assets; LOG_R as logarithm of revenues and LOG_TA as logarithm of total assets expressed in $, N is number of countries in the sample and % of MC the percentage of the market capitalization of the analyzed companies on the national stock exchange.

Table 3 provides information on the importance of the capital markets and its relation with selected measures of bank activity for 12 European countries and Japan, Australia and USA. Based on these that data we can see relative position of development of Croatian capital market and importance of banks in comparison to other countries.

Table 3. Measures of development of capital markets in selected countries

Country	Market capitalization/ GDP	Value of traded shares/GDP	Value of traded shares/MC	Bank asets/MC	Loans to the companies/Value of the traded shares
Australia	1,45	1,671	0,901	1,90988	0,39
Austria	0,18	0,128	0,794	18,3707	3,67
Belgium	0,576	0,238	0,42	5,61816	1,1
Bulgaria	0,151	0,004	0,028	6,56074	105,95
Croatia	0,409	0,017	0,041	2,84135	17,63
Estonia	0,121	0,017	0,131	11,6946	27,72
Finland	0,495	0,427	0,974	4,5233	0,5
France	0,753	0,323	0,425	4,43806	1,52
Hungary	0,212	0,203	0,945	5,24349	1,23
Japan	0,746	0,779	1,145	16,8363	4,21
Latvia	0,052	0,001	0,018	26,5608	406,7
Lithuania	0,156	0,008	0,058	5,18699	32,87
Poland	0,406	0,165	0,476	2,06268	1,11
Spain	0,832	0,666	0,76	5,23453	0,35984
USA	1,175	2,088	1,891	0,00084	0,09

Source: World bank and International Monetary Fund.

Figure 1 presents average dividend level for analyzed Croatian companies in the sample (calculations of the authors). As a measure of dividend level ratio of aggregate dividends to total assets of the company is used. It can be seen that the dividend level has the tendency of growth with major deviation in 2009. Significant drop in the dividend level in that year can be explained with the financial crisis that had its beginning in 2007.

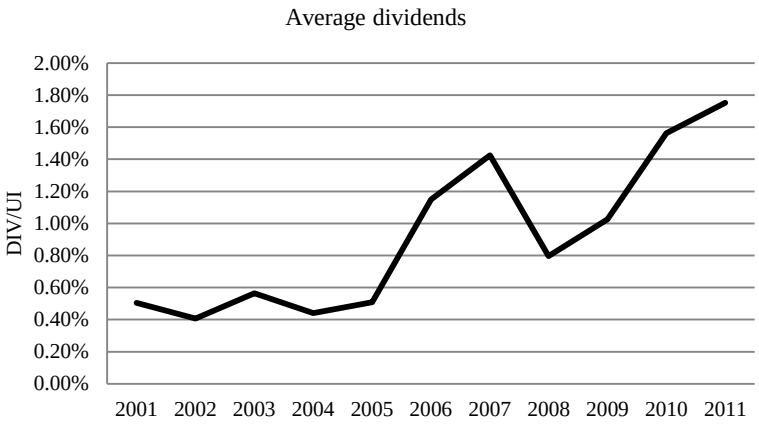

Figure 1. The average level of dividend for the analysis of Croatian Companies

RESULTS OF EMPIRICAL RESEARCH

To analyze the factor influencing dividend policy of the Croatian companies we run ordinary-least squares regressions with ratio of dividends to total assets as the dependent variable and firm-specific factors as explanatory variables. Equation used is:

$$DIV_i = \alpha + \beta_1 ROA_i + \beta_2 STDEVROA_i + \beta_3 TL\_TA_i + \beta_4 LOGR_i + \varepsilon$$

where *i* presents each company. Hypotheses are following: dividend level increases with the increase of profitability and size of the company; dividend level decreases with the increase of instability of earnings and debt level.

As a measure of dividend level is taken ratio of dividends to total assets of each company. As possible alternative measures of the dividend level dividend payout ratio dividend yield, ratio of dividends to earnings and ratio of dividends to the book value of equity could be used. Dividend payout ratio is not taken as a measure of the dividend level because of its instability and nonnormality as earning get close to zero; dividend yield because it reflects pricing effects that are not under control of the management, ratio of dividends to earnings and to book value of equity because their high sensitivity to accounting distortions (Aivazian, Booth, and Cleary 2003, 378).

ROA is defined as return on assets and measures profitability. Stability of earnings is measured as standard deviation of return on assets in period of 2005 to 2009 and 2006 to 2010. Debt level is measured by the ratio of total liabilities to total assets and it is abbreviated with TL_TA. Size of the company is measured as logarithm of sales expressed in national currency and abbreviated with LOGR.

Regression results are following.

$$DIV_{2010} = 0{,}071 + 0{,}027 * ROA - 0{,}006 * STDEVROA - 0{,}007 * TA\_TL + 0{,}002 * LOGR$$
$$(0{,}059)\ (0{,}022)\ (-0{,}602)\ (-0{,}093)\ (0{,}818)$$
$$DIV_{2011} = 0{,}084 + 0{,}029 * ROA - 0{,}003 * STDEVROA - 0{,}008 * TA\_TL + 0{,}000 * LOGR$$
$$(0{,}034)\ (0{,}035)\ (-0{,}846)\ (-0{,}056)\ (0{,}976)$$

P-values are represented in parentheses. White heteroskedasticity adjustment is used. P-values for the both models are 0,000.

From the presented results it can be concluded that ROA has the highest significance when determining the dividend level and significant positive influence on the dividend level, at 5% significance level. Further on, dividend level is under influence of the debt. Namely, according to the model, companies with higher debt level pay out lower dividends. This conclusion is confirmed at 10% significance level in both analyzed years. Size and stability of earnings did not show as significant determinants of the dividend level in this model.

CONCLUSION

Dividend policy is considered as one of the most important unsolved problem in finance. One of the reason it still remains an unsolved puzzle can be found in the complexity of factors that influence dividend policy of the companies faced with information asymmetry, taxes, agency problems and other imperfections of the markets in which they operate. Previous studies isolated certain characteristics of the firm that influence dividend level companies will choose. Among them the most mentioned are profitability, stability of earnings/profitability, usage of debt and size of the company. However, as shown in the overview of previous empirical work importance of above mentioned factors for the dividend level significantly differs among different countries. That was the main motive to investigate determinants of the dividend policy in Croatia.

This research found profitability and debt level as key factors that determine the dividend level company will choose. In the same time, significant influence of the stability of earnings/profitability and size of the company is not confirmed. The reason for the highest sensitivity of dividend level on the profitability and usage of debt can be found in greater financial constraints under which they operate in comparison to more developed countries (Aivazian, Booth, and Cleary 2003). Greater financing limitations can be found both in lower profitability in comparison to more developed countries (table 2) and lower degree of the development of the capital market in Croatia (table 3). High sensitivity of dividends on the profitability and debt level is in line with other empirical researches presented in third part of the paper.

This empirical investigation has certain limitations. The most important ones are the number of analyzed companies and period which the analysis covers. Other measures of dividend level and other measures could be used. Number of the companies covered in the countries with which firm-level measured were compared could be higher. Solving this limitations can certainly give additional value to the results presented in the paper and in that way help better understanding of the complex issue of dividend policy.

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