sciendo

Financial Internet Quarterly „e-Finanse" 2017, vol.13/ nr 4, s. 76-88

DOI: https://dx.doi.org/10.1515/fiqf-2016-0037

eFinanse
financial internet quarterly

IMPACT OF FOREIGN OWNERSHIP ON DIVIDEND POLICY IN POLAND

Andrzej Zyguła[1]

Abstract

The article analyses the impact of foreign investors, who were the majority shareholders of companies on the Warsaw Stock Exchange, on dividend policy of these companies in the years 2004-2014. An evaluation of the direction and strength of the influence of the analysed group of investors, using 2 models, was conducted applying logistic regression. The first – dividend payout policy based on the binary logit model - showed that along with a growing share of a foreign investor in a given company the probability of dividend payment by the company increased significantly. The second – dividend level change model based on the multinominal logit method - showed, however, that with an increasing share of foreign investors the probability that a given company will reduce the paid dividend level was enhanced significantly. Additionally, it should be stated that these results, irrespective of the model used, were to a very large extent in line with conclusions of the pecking order theory. However, in the case of signaling, free cash flow and maturity theories, these results only to a small extent provided evidence supporting these theories.

JEL classification: G32, G35
Keywords: ownership structure, dividends, foreign investors, payout policy

Received: 10.06.2017 Accepted: 10.12.2017

1 Department of Financial Markets, Cracow University of Economics, 27 Rakowicka St., 30-510 Cracow, zygulaa@uek.krakow.pl.

The publication was financed from resources allocated to the Faculty of Finance of Cracow University of Economics as part of the grant to maintain research capacity.

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

Introduction

Decisions on dividend policy, apart from solutions regarding investments and shaping of optimal capital structure, are one of the most important areas of financial decisions of companies. Dividends as an element of profit distribution are closely related to implementation of strategic objectives of a company. This raises a decision-making issue, in terms of a company's market duration and its long-term development - how high should dividend payments be? Decisions in this respect depend on a number of factors as is shown by many empirical studies. Among the factors, the following are considered to be the most important: profitability, size, investment opportunities and debt level (e.g.: Fama & French, 2001; Rozeff, 1982; DeAngelo, DeAngelo, Stulz, 2006; Denis & Osobov, 2008). Despite the fact that influence of individual factors on decisions on dividend payment is different in various countries, research results allow us to state that profitability and size usually have a positive influence on dividend decisions, while investment opportunities and debt level negatively influence dividend payment level.

In addition to these so-called main factors affecting dividend policy there are many more mentioned in the literature; one of them is ownership structure. Although empirical evidence on an interrelation between dividend policy and ownership structure is well documented in the literature (e.g.: Jensen, 1986; Short, Zhang, Keasey, 2002; Ferreira, Massa, Matos, 2010; Al- Gharaibeh, Zurigat, Al-Harahsheh, 2013; Thanatawee, 2013; Lace, Bistrova, Kozlovskis, 2013), in a detailed approach, the relationship between dividend policy of companies and their foreign ownership has been to some extent neglected.

Poland, similar to other Central and Eastern European countries experiencing system transformation, has been a subject of interest for foreign investors. One of the areas of foreign investment's expansion is the capital market and its integral part - the stock exchange. Thus, Polish listed companies are an object of interest for foreign investors, especially strategic ones, and these are their decisions and preferences that affect dividend policy of these entities.

The aim of this article is an attempt to empirically evaluate the impact of foreign investors, who were the majority shareholders of companies on the Warsaw Stock Exchange, on dividend policy of these entities in the years 2004-2014. Factors considered in the literature as the main determinants affecting dividend payments were also taken into account while conducting this evaluation.

An analysis of the direction and strength of the impact of individual factors on dividend policy of companies was carried out by applying logistic regression. In particular, 2 contractual models were used i.e. "the dividend payout model", which was presented by the binary logit model and "the dividend level change model", which in turn was shown in the form of the multinominal logit model.

In the first case, according to "the dividend payout model", foreign investors had a positive effect on dividend policy of companies. In other words, an increase in the share of a foreign investor who is the largest shareholder of a company increased the probability of dividend payment by this entity. In the second case, however, the influence of foreign investors on dividend policy change was analyzed. There were three options of behavior possible, i.e. dividend increase, dividend reduction and dividend at an unchanged level. As it can be seen on the basis of "the dividend level change model", foreign investors had a positive impact, in particular, on reduction of dividend level, i.e. an increase in the share of a foreign investor being the largest shareholder of a company enhanced the probability that the company will reduce dividend payments.

The rest of the paper is organised as follows. Section 2 provides the overview of the literature on the interrelation between foreign investors and dividend policy. Section 3 presents data and defines variables. Section 4 discusses research methodology. Section 5 presents an empirical analysis. Finally, Section 6 outlines the conclusions.

Foreign investors and dividend policy – a literature review

There are numerous empirical studies trying to understand which company features are attractive to a given type of an investor or analysing the impact of ownership structure of companies, i.e. certain types of investors, on the dividend policy of these entities. The results of these studies generally point to some similar patterns of behavior, to certain preferences for specific types of investors regarding their investments in given company's shares. This article, however, focuses only on one of these groups of investors, i.e. on foreign investors.

Dahlquist and Robertsson (2001), were one of the

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

first, demonstrating on the example of Sweden, that in relation to foreign investors they preferred to invest in big firms, which paid low dividends, and firms having large reserves of cash in their assets.

According to the results of studies conducted by Ammer, Holland, Smith and Warnock (2005), US investors as foreign investors also preferred investments in big companies, additionally from non-financial industries, included in the MSCI World Index, from countries where English was the official language, characterized by high levels of market-to-book ratio (MV/BV) and, what is important, paying dividends. In this case, however, it was not specified whether these were high or low dividends.

Covrig, Lau and Ng (2006) obtained results similar to Dahlquist and Robertson (2001). They examined stock market investment preferences of managers of national and foreign investment funds coming from 11 developed countries. The findings of their research showed that foreign investment fund managers chose mainly large and well-known companies for their investments and did not have a preference for high dividends (managers of national funds demonstrated such preferences).

Preferences of institutional investors, especially their dividend preferences, were also a subject of research conducted by Ferreira et al. (2010). In their study, based on data from 37 countries, the authors confirmed the earlier results about the preferences of foreign investors for low dividends. Moreover, they stated that foreign investors had a negative impact on the probability of dividend payments and the size of such payments.

Taking into account the above results one can state that paying high dividends by companies on capital markets of developed countries is not a feature attracting foreign investors' attention. An issue of dividend attractiveness to foreign investors looks slightly different on the emerging markets, however, the research results are not unambiguous.

Listed companies in emerging markets are practically from year to year an object of increasing interest of foreign investors, especially strategic investors. Undoubtedly, profit distribution, and related to it dividend policy, play an important role in the relationship between a company and a strategic investor. Thus, foreign investors have a significant impact on a given company's dividend policy. According to Kim, Sul and Kang (2010), who analyzed the impact of institutional foreign investors on dividend policy of Korean companies, foreign investors should be treated even as one of the determinants of corporate dividend policy on emerging markets. A similar opinion, although without extensive commentary, was also presented by Lace et al. (2013) who studied the effect of type of ownership on the dividend policy of companies in Central and Eastern European countries.

Chai (2010) also confirmed, among others, this opinion in his research. First, he showed that foreign investors in Korea had a tendency to invest in large, profitable companies, which also paid high dividends and to avoid highly indebted companies, with low MV/BV indicators. Moreover, with regard to the role of foreign investors, he stated that even though dividend policy of the analysed companies depended on their size, level of indebtedness, valuation (measured by the MV/BV indicator) and profitability (measured by ROA indicator), the most important is that foreign ownership had a significant positive impact on this policy. The results of Chai (2010) were also confirmed by Jeon, Lee and Moffett (2011) for the Korean market, as well as by Ullah, Fida and Khan (2012) and Hussain and Khan (2014) who examined Pakistani companies and by Warrad, Abed, Khriasat and Al-Sheikh (2012), who analyzed firms in Jordan. However, conclusions were not so clear in the case of Jordanian companies. Results obtained by Ghunmi, Al-Zu, Badreddine and Chaudhry (2013) showed that foreign investors in Jordan preferred large companies with low liquidity and low dividend rate. Lam, Sami and Zhou (2012) got similar outcomes analysing companies on the Chinese capital market. The findings of their study showed that foreign investors preferred companies paying low dividends, as well as that those investors had a negative effect on dividend payments. Abdullah, Ahmad and Roslan (2012), Kumar (2006) and Thanatawee (2013), who examined Malaysian, Indian and Thai companies respectively, admittedly did not find any negative relations as in the aforementioned studies, but they were also not able to present significant evidence of a positive impact of foreign ownership on dividend policy of companies from these countries. However, Baba (2009) unambiguously stated, while studying foreign investors' impact on dividend policy of Japanese companies, that a higher level of foreign ownership was associated with an increased probability of dividend payment. She proved additionally, in terms of payment level change, that an increase in equity capital share of foreign investors at the same time enhanced the probability of an increase in paid dividend and also reduced a likelihood that a dividend

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

remains unchanged or will be reduced.

Data and variables

Sample selection

An analysis of dividend policy in this article covered the years 2004-2014. Companies listed on the Warsaw Stock Exchange (WSE) at the end of 2014 constituted an initial research sample. Next, to be more specific, based on data from Notoria Serwis database, companies whose biggest shareholder was a foreign entity were selected from this general sample. Then, companies whose financial data was unavailable in Notoria Serwis database were removed from the sample. In turn, the list of companies paying dividends was identified on the basis of calendars of dividend payments published by WSE in Yearbooks for individual years. As a result of such selection, the final research sample was created consisting of 83 entities, which in years 2004-2014 together accounted for 541 events consisting of 187 "dividend payment" events and 354 "no dividend" events.

Variables

Dependent variable: The logit regression models were used in the analyses conducted in this article. It has been assumed at the beginning that a dependent variable in the aforementioned dividend payout model (based on the binary logit method) is dividend per share (DPS) ratio, which takes value 1 if a company paid dividend in financial year t ($DPS_t>0$) and 0 otherwise ($DPS_t=0$). For the dividend level change model (based on the multinominal logit method), a qualitative dependent variable is a change in a level of DPS indicator during financial year t compared to the previous year t-1. This variable creates 3 possibilities, i.e. increase in DPS ($DPS_t>DPS_{t-1}$) – ratio takes value 2, no changes in DPS ($DPS_t=DPS_{t-1}$) – value 3, and reduction in DPS ($DPS_t<DPS_{t-1}$) - 4. In this model, due to the methodology, no dividend payment in year t ($DPS_t=0$), value 1, was adopted as the so-called base category.

Independent variables: The main independent variable of all models is a share of foreign investor (SFI) in the total number of shares. More precisely, this is a share of a foreign investor who was the largest shareholder in a company in financial year t. This data was obtained from Notoria Serwis database. In analyses similar to Baba (2009), a share of foreign investor indicator was used, it was delayed by one year compared to year t (SFI-1).

5 control variables were introduced in the conducted logit analyses both for the dividend payout model and dividend level change model.

1) Profits - Profitability is listed as one of the most important factors determining decisions on dividend policy (Lintner, 1956). According to the free cash flow theory (Easterbrook, 1984; Jensen, 1986), more profitable firms tend to pay more dividends to control the agency costs incurred by free cash flows. In turn, the pecking order theory (Fama & French, 2002) claims that dividends are less attractive for companies characterized by low profitability due to higher costs of acquiring additional funding in the form of new issues of securities. Return on assets (ROA) indicator was used as a measure of profitability, similar to Baba (2009). This ratio was calculated as a relation of operating profit in year t-1 to total assets value in year t-1 (ROA-1). In addition, a dynamic approach to profitability was adopted, i.e. cash return on assets (CF) (Sierpińska & Jachna, 2004) calculated as a relation of operating cash flow in year t-1 to total assets value in year t-1 (CF-1).

2) Firm size (FS) – According to the maturity theory (Fama & French, 2001; Grullon, Michaely, Swaminathan, 2002), companies paying dividends are usually big, mature and with small investment abilities. In contrast to these companies, small, young firms with high development possibilities rarely pay dividends. In the analyses the natural logarithm of total assets (million PLN) was used as a proxy for a firm size, following Fama and French (2002) and others. This indicator was calculated for year t-1 (FS-1).

3) Growth rate of total assets (GRTA). It is generally acknowledged that this indicator reflects either current investment opportunities or current profitability (Baba, 2009). In the first case, treating it as investment opportunities, according to the maturity theory it will have a negative impact on dividend policy because higher investment opportunities mean less cash that could be used for payments to shareholders. In the second case, adopting this indicator as a replacement for profitability, both the free cash flow and pecking order theory predicts that it will positively influence dividend payment. In this article, similar to Fama and French (2002), growth rate of total assets was used and calculated for year t-1 (GRTA-1).

4) Market-to-book ratio (MV/BV). The maturity theory identifies this indicator with potential investment opportunities. In practice, young companies with high

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

growth potential, where the so-called growth options are present, pay dividends less frequently than mature and stable listed companies, where growth options are limited. According to this theory, this indicator has a negative effect on a probability of dividend payment. In the signaling theory, however, MV/BV ratio is treated as a measure of undervaluation of a company's value. According to the model proposed by Bhattacharya (1979), a negative sign of correlation is also predicted in this theory because undervalued companies should be motivated to pay dividends, thereby signaling the market that their prospects for future profits are good. In turn, according to the pecking order theory the MV/BV indicator reflects current profitability, thus a positive relationship between a probability of dividend payment and this feature characterizing companies (a positive sign of correlation) is predicted. Following Al- Gharaibeh et al. (2013), the analyses in this article use an MV/BV ratio calculated for year t-1 (MV/BV-1).

5) Debt ratio (DR). The level of leverage plays an important role in shaping dividend policy because its increase leads to higher costs of a company and consequently also to higher activity risk (Rozeff, 1982). Companies with high levels of debt demonstrate a lower tendency to pay dividends because they need their generated profits to repay the liabilities. For that reason, it is generally acknowledged that debt has a negative effect on dividend decisions of companies. This point of view is supported by the pecking order theory, which assumes that companies with higher debt are more likely to accumulate funds inside than to pay these funds out as dividends. The free cash flow theory also predicts a negative impact of debt on a probability of dividend payment because companies with higher debt have less free cash that could be allocated for dividends. According to Fama and French (2002), commitment and provisions for commitments to equity ratio calculated in year t-1 (DR-1) was used as an indicator reflecting debt level during conducting analyses in this article.

Table 1 shows relationships between each of the control variables presented above and a given dividend theory. Apart from the firm size, all variables are associated with at least two dividend theories. All theories and associations presented in Table 1 have been subjected to verification in further analyses.

Research method

An analysis of the direction and strength of an impact of individual economic factors on dividend policy of companies with foreign investors as majority shareholders was carried out by applying logistic regression. In particular, the binary logit and multinominal logit models were adopted.

Binary logit model

The logit regression is a type of a regression, in which a dependent variable is a quality variable. DPS ratio was identified as a dependent variable (Y) in this article. Moreover, this variable is binary and adopts, as defined previously for the dividend payout model, a value of 1 or 0.

The logistic regression model is often used to examine the probability of occurrence of an event Y upon occurrence of events X1, X2,… Xk. The logistic function, on which the logistic regression model is based, takes the form (Stanisz, 2007):

$$P(Y) = \frac{\exp(\beta X_i)}{1+\exp(\beta X_i)} = \frac{e^{(\beta_0+\beta_1 X_{1i}+\ldots+\beta_k X_{ki})}}{1+e^{(\beta_0+\beta_1 X_{1i}+\ldots+\beta_k X_{ki})}}, \quad (1)$$

where:

Y – a dependent variable, adopting value 1 in case of companies which in financial year t paid dividend, i.e. their DPS ≠ 0,

Table 1: Control variables and associated dividend theories

Theories	Profits (ROA or CF)	Firm size (FS)	Growth rate of total assets (GRTA)	Market-to-book ratio (MV/BV)	Debt ratio (DR)
Free cash flow	+		+		-
Pecking order	+		+	+	-
Maturity		+	-	-	
Signaling				-	

+/- indicates a positive / negative relationship between a control variable and a probability of dividend payment.

Source: Own elaboration on the basis of Fama and French (2002), Baba (2009), Będowska-Sójka (2007)

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

P(Y) – a probability that variable Y adopts value 1,

X_{ki} – values of explanatory variables of the model; individually examined economic parameters of companies,

β_k – structural parameters of the model.

After the transformation of the logistic function, known as the logit transformation, we receive (Stanisz, 2007):

$$LogitP = \ln\frac{P(Y=1)}{1-P(Y=1)} = \beta_0 + \beta_1 X_{1i} + \ldots + \beta_k X_{ki} \quad (2)$$

This transformation makes it possible to linearise the logistic function, which allows the use of gained values in a normal linear regression equation.

However, structural parameters of the model β_k are not subject to direct interpretation, as in the linear model. They should not be interpreted in terms of change in value X_{ki} but only in direction of a relation between X_{ki} and *Y*. A sign of a parameter standing by X_{ki} determines a direction of impact X_{ki} on event *Y*. When β_k is positive, along with an increase in X_{ki} there is also a probability that *Y=1* grows, while negative values β_k are associated with a decrease in a likelihood that *Y=1* (Gruszczyński, 2010).

A useful interpretation of the parameters is obtained by calculating a quotient of derivatives for two different explanatory variables e.g X_k and X_l:

$$\frac{\partial P_i}{\partial X_{li}} / \frac{\partial P_i}{\partial X_{ki}} = \frac{\beta_l}{\beta_k} \quad (3)$$

If a purposefully selected parameter is considered as a reference system e.g. β_k, then a quotient of these parameters β_l/β_k will indicate how many times an impact of explanatory variable X_l on a probability that event *Y=1* is stronger from an impact of explanatory variable X_k.

After estimating regression parameters, testing a fit of the whole model is an essential element of further analysis. The test might be a null hypothesis - H_0, assuming a total lack of relationship between examined attributes *Y* (dependent variable) and X_{ki} (independent variables). In case of the logit regression model, the likelihood ratio test is adopted to determine a fit and verify a null hypothesis, where test statistic, represented by the below formula, has a limiting Chi-squared distribution (Greene, 2000):

$$\text{Chi-squared} = -2 \times (\ln L_0 - \ln L_1) \quad (4)$$

where:

lnL_0 - is the natural logarithm of the log-likelihood for the null model (only free term),

lnL_1 - is the natural logarithm of the log-likelihood for the actual model.

If the level *p* accompanying this Chi-squared value is significant, it can be stated that the estimated model constitutes a significantly better fit to the data than the null model, that is, the regression parameters are statistically significant.

Multinominal logit method

A basic model for multinominal unordered variables is the multinominal logit model. In this model, a dependent variable is a discreet variable created from unordered classification. As previously, DPS ratio is a qualitative dependent variable (*Y*), but in this case this variable can adopt, as it has already been defined for the dividend level change model, values of 1/2/3/4.

It follows from the above, in total there are J vectors of parameters $\beta_1 \ldots \beta_j$ (in this case 4) which results in *(kJ+J)* - dimensional parameter space. Not all of them, however, are identifiable, and therefore, a normalisation of parameters is conducted in this model. It is assumed that value of a parameter for the first (or any other) category is equal to a certain constant, whereby this constant is determined in practice on zero level that is e.g.: β_1=0. This category is called a base category and serves as a reference for parameters of other categories. After the normalisation, the probability of choosing a specific category J takes the form (Gruszczyński, 2010):

$$P(Y=J) = \frac{\exp(\beta X_i)}{1+\sum_{r=3}^{J}\exp(\beta X_i)} \quad (5)$$

As a result, *J-1* equations of the multinomial logit model can be formulated, which are subject to estimation. In case when *J=4* and assuming that a free term is present in a model, we receive 3 equations:

$$\begin{aligned}
\ln\left(\frac{p_{i2}}{p_{i1}}\right) &= \beta_{02} + \beta_{12}X_{1i} + \ldots + \beta_{k2}X_{ki} \\
\ln\left(\frac{p_{i3}}{p_{i1}}\right) &= \beta_{03} + \beta_{13}X_{1i} + \ldots + \beta_{k3}X_{ki} \quad (6) \\
\ln\left(\frac{p_{i4}}{p_{i1}}\right) &= \beta_{04} + \beta_{14}X_{1i} + \ldots + \beta_{k4}X_{ki}
\end{aligned}$$

It is important that the multinomial logit model is a direct generalization of the binary logit model presented earlier. This therefore means that this model uses a similar approach to the binary logit model whether to assess a significance of structural parameters, to interpret the results of estimation and to evaluate a significance of a model (Gruszczyński, 2010).

Finally, it should be mentioned that a common

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

problem in logit analysis is the unbalanced research sample (Maddala, 2006), i.e. a radical difference between the number of observations. Two analytical approaches to this problem can be observed in research practice. Firstly, logit models are built on the entire sample (without balancing of observations) changing or leaving unchanged the cut-off point at a level of 0.5. Secondly, in order to ensure a clarity of a sample, n_1 and n_2 units are drawn among analysed e.g. 2 groups, usually in such a way that $n_1 \approx n_2$. For the purpose of this article, an analysis of conditions of dividend payment was carried out on the unbalanced sample leaving the cut-off point unchanged.

Empirical analysis

Summary statistics

In the analysed years 2004-2014 (as shown in Table 2) a tendency to dividend payout in almost every year in the examined group of companies with the majority foreign shareholder was higher than a tendency to dividend payout on WSE in total. In particular, an average tendency to dividend payout in years 2004-2014 in the research sample of companies was higher by 5pp from a tendency on WSE in total and amounted to 35% for the research sample and 30% for WSE, respectively. Over the analysed years a tendency to dividend payout in the research sample demonstrated an upward trend and increased by approx. 9pp. Among companies paying dividends, companies (2) increasing a level of dividend payments accounted for approximately 62%, companies (4) reducing payments accounted for an average of 20% and companies (3) not making any changes - 18%.

Table 3 presents summary statistics for the dividend payout model. A mean and a median were calculated for every independent variable. Next, a test for differences between adopted mean financial ratios of companies (1), which paid dividend in year t and companies (0), which did not pay dividend in year t was conducted. This test was to verify that a difference between means of indicators in both populations is different than zero.

It is possible to conclude on the basis of calculation results in Table 3 that by the adopted level of significance α=0,05, only the differences between mean values of GRTA and DR indicators are not statistically significant. Other differences between means are statistically significant, which shows that there is an influence of a dependent variable (1/0) on their size. In particular, we can form an opinion on the basis of mean values of these indicators that companies paying dividends are entities, in which

Table 2: Tendency to dividend payout on WSE and among companies with the majority foreign shareholder

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Companies with the majority foreign shareholder	0.28	0.33	0.43	0.39	0.32	0.33	0.34	0.35	0.38	0.31	0.37
WSE as a whole	0.25	0.31	0.30	0.25	0.29	0.25	0.25	0.31	0.34	0.35	0.37

Source: Own calculations on the basis of Notoria Serwis and WSE Yearbooks for individual years

Table 3: Dividend payout model – test for differences between mean financial indicators of companies (0) and companies (1)

Independent variables	0		1		F	p
	mean	median	mean	median		
SFI-1	0.417	0.341	0.516	0.550	20.41821	0.000008
ROA-1	0.017	0.023	0.110	0.089	63.54418	0.000000
CF-1	0.046	0.043	0.111	0.112	23.54903	0.000002
FS-1	12.286	12.169	13.207	13.267	26.50891	0.000000
GRTA-1	1.545	1.037	1.140	1.067	1.37353	0.242112
MV/BV-1	1.800	1.364	2.804	1.904	11.30154	0.000857
DR-1	2.881	0.660	0.886	0.648	0.77737	0.378578

Marked effects are significant with p < 0.05

Source: Own calculations on the basis of data from Notoria Serwis database

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

Table 4: Dividend level change model – test for differences between mean financial indicators of companies (2), (3) and (4)

Independent variables	2		3		4		F	p
	mean	median	mean	median	mean	median		
SFI-1	0.496	0.505	0.517	0.521	0.584	0.599	8.071799	0.000032
ROA-1	0.121	0.100	0.073	0.068	0.114	0.081	22.78389	0.000000
CF-1	0.119	0.121	0.094	0.109	0.099	0.106	8.18737	0.000027
FS-1	13.174	13.207	13.027	12.461	13.505	13.805	9.22677	0.000007
GRTA-1	1.122	1.074	1.207	1.046	1.114	1.058	0.46090	0.709796
MV/BV-1	2.982	2.105	2.296	1.523	2.733	1.487	4.186503	0.006238
DR-1	0.898	0.615	0.803	0.656	0.938	0.734	0.25779	0.855761

Marked effects are significant with $p < 0.05$

Source: Own calculations on the basis of data from Notoria Serwis database

the dominant foreign investor has a larger share (approx. 52%) than the same investor in companies not paying dividends (approx. 42%). Moreover, companies paying dividends are more profitable, larger and have a higher MV/BV indicator than companies not paying dividends. All independent variables presented in the table and the previously discussed qualitative variable (0/1) were then used to construct the logit models in the dividend payout model.

The below Table 4 shows summary statistics for the dividend level change model. In this case, as previously, a mean and median were calculated for every independent variable and then a test for differences between adopted mean financial ratios of companies that increased (2); did not change (3); decreased (4) a level of dividend paid in a given financial year (t) compared to the previous year (t-1).

It is possible to conclude on the basis of calculation results in Table 4 that by the adopted level of significance α=0,05, similarly as it previously happened, the only differences between mean values of GRTA and DR indicators are not statistically significant. Other differences between means are statistically significant, which shows that there is an influence of a dependent variable (2/3/4) on their size. In particular, we can form an opinion on the basis of mean values of these indicators that among companies paying dividends the largest share of foreign investor is in companies (4) which make a reduction in dividend payments (over 58%) and, simultaneously, these companies are also the largest entities in this group. The most profitable companies, both in terms of ROE and CF, are, however, companies (2) increasing dividend payments and, at the same time, these companies are characterized by the highest level of MV/BV indicator. All independent variables presented in Table 3 and a previously discussed qualitative variable (2/3/4) were then used to construct the logit models in the dividend level change model.

Dividend payout model

This dividend payout model was described in the form of the binary logit models. Table 5 presents results of such constructed logit models for individual dividend theories with the use of specific dependent variables. Chi-square values are highly significant ($p < 0.05$) in all models. Therefore, it can be concluded that these models are statistically significant, i.e. dependent variables have an impact on dividend payment (1).

7 explanatory variables in total were used in the models presented in Table 5. In all these models, values of parameter estimates standing by a foreign investor share variable are positive and the variable is statistically significant, which means that in a significant way it has a positive impact on an increase of a probability of dividend payment. Moreover, assuming that parameter standing by the SFI variable is a reference system and multiplying it by, e.g. 0.1 (which will reflect an effect of increasing the share of foreign investor by 10%) and then analysing it in reference to other parameters standing by control variables, it can be additionally stated that both profitability (ROA, CF) and size have a significantly stronger impact on a probability of dividend payment than an increase by 10% of a foreign investor share. Comparing in a similar way the parameters of the SFI variable with the parameters by MV/BV obtained results <1 indicating that an increase of MV/BV has a smaller impact on the

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

Table 5: Dividend payout model and dividend theories

	Mp1	Mp2	Mp3	Mp4	Mp5	Mp6
Free term	−5.6717*** *<0.0001*	−1.1043** *0,0484*	−1.0044** *0,0202*	−1.5562*** *0,0027*	−1.7675*** *<0.0001*	−1.7111*** *<0.0001*
SFI-1	2.0116*** *0,0014*	1.5756** *0,0171*	1.8025*** *0,0037*	1.4666** *0,0304*	2.1277*** *0,0021*	2.0197*** *0,0003*
ROA-1		9.9858*** *<0.0001*		11.1052*** *<0.0001*		
CF-1			3.5503*** *0,0006*		6.1458*** *<0.0001*	
FS-1	0.3453*** *<0.0001*					
MVBV-1	−0.0009	0.1089* *0,0983*	0.1501** *0,0101*			0.1222*** *0,0097*
DR-1		−0.1593	−0.1655* *0,0911*	−0.0185	−0.0746	
GRTA-1	−0.1890	−0.7207* *0,0991*	−0.6339** *0,0313*	−0.2440	−0.1252	
Chi2	39,2804 *0*	79,1414 *0*	44,2503 *0*	71,7693 *0*	50,3881 *0*	25,7139 *0*
Model correctness	66.10%	69.50%	66.40%	70.30%	71.00%	66.00%
Theory	**Maturity**	**Pecking order**		**Free cash flow**		**Signaling**

Logit models are shown in columns.
Parameter evaluations are marked with standard font. Values in italics mean a level of significance of variables. A lack of a number indicating a level of significance of a given variable means that this variable was not statistically significant.
The symbols *, ** and *** denote a statistical significance at the level of 10%, 5% and 1%, respectively
Source: Own calculations on the basis of data from Notoria Serwis database

probability of dividend payment than an increase of foreign investor share by 10%.

Similar to the SFI variable, also control variables ROA (Mp2 and 4), CF (Mp3 and 5) and FS (Mp1) are at a statistically significant level in all models in which they are present and additionally signs of parameter estimates standing by them are consistent with expectations derived from the maturity (Mp1), pecking order (Mp2 and 3) and free cash flow (Mp4 and 5) theories. This therefore means that the probability of dividend payment is higher in larger and more profitable companies. A sign of a parameter estimate standing by a MV/BV variable is negative in one model (Mp1) and this variable is statistically insignificant, while a sign is positive, and the variable is statistically significant in three models (Mp2, 3 and 6). In the case of these three models a sign of an estimate in model 6 is, however, inconsistent with expectations derived from the signaling theory, while a positive sign is fully consistent with the pecking order theory in other two models (Mp2 and Mp3). Negative signs of parameter estimates standing by the DR variable are consistent with expectations derived from the pecking order (Mp2, 3), as well as from the free cash flow (Mp4, 5) theory. The only problem is that this variable is at a statistically significant level only in model 3. In turn, a sign of parameter estimate standing by the last GRTA variable is negative in all models and only in model 1 this sign is in line with expectations derived from the maturity theory, however, this variable is at a statistically insignificant level.

Dividend level change model

The dividend level change model, unlike the previous model, was presented as the multinominal logit models. Table 6 and 7 present results of such constructed logit models for individual dividend theories with the use of

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

Table 6: Dividend level change model and dividend theories - Part 1

DPS change	Mch1			Mch2			Mch3		
	2	3	4	2	3	4	2	3	4
Free term	−6.321*** *<0.0001*	−5.632*** *0,0013*	−8.944*** *<0.0001*	−1.258* *0,0604*	−2.914*** *<0.0001*	−2.877** *0,0118*	−1.654*** *0,0069*	−3.086*** *<0.0001*	−2.838** *0,016*
SFI-1	1.684** *0,0265*	1,637	3.658*** *0,0035*	1,193	1,693	3.382*** *0,0078*	1.419* *0,0714*	2.001* *0,0731*	3.758*** *0,0041*
ROA-1				12.630*** *<0.0001*	5.933** *0,0165*	11.796*** *<0.0001*			
CF-1							6.843*** *<0.0001*	3.529* *0,0627*	4.441** *0,0219*
FS-1	0.369*** *<0.0001*	0.236* *0,0745*	0.421*** *0,0033*						
MVBV-1	0,0004	−0.009	0,005	0,012	−0.014	0,0137	0.157** *0,0225*	0,049	0.173* *0,0901*
DR-1				−0.065	−0.077	−0.029	−0.244* *0,0524*	−0.131	−0.254
GRTA-1	−0.263	−0.068	−0.397	−0.962* *0,0783*	−0.057	−1.588* *0,0918*	−0.556	−0.051	−1.467
Chi2	43,617 *0*			89,178 *0*			65,052 *0*		
Model correctness	63.20%			62.60%			60.90%		
Theory	Maturity			Pecking order					

Logit models are shown in columns.
Parameter evaluations are marked with standard font. Values in italics mean a level of significance of variables. A lack of a number indicating a level of significance of a given variable means that this variable was not statistically significant.
The symbols *, ** and *** denote a statistical significance at the level of 10%, 5% and 1%, respectively
Source: Own calculations on the basis of data from Notoria Serwis database

specific dependent variables. Chi-square values are highly significant ($p < 0.05$) in all models. Therefore, it can be concluded that these models are statistically significant i.e. dependent variables have an impact on dividend level changes (2/3/4).

As previously, 7 explanatory variables in total were used in the models presented in Tables 6 and 7. Also, 6 models were constructed in relation to dividend theories mentioned earlier. In all of these models, values of parameter estimates standing by the SFI variable are positive. What is important is that the SFI variable is at a statistically significant level in the dividend reduction option in each of these models, which means that with growth of SFI increases the probability of dividend payment reduction. In turn, in the case of the dividend increase option the SFI variable is statistically significant in 4 models (Mch1, 3, 5, 6). However, in 2 models, when ROA is a measure of profits, this variable is at a statistically insignificant level. In the case of the no changes option, this variable is significant in half of the estimated models (Mch3, 5, 6). Similar to the dividend payout model, in order to obtain more accurate results, a parameter standing by the SFI variable was adopted as a reference system and multiplied by 0.1 (which is to reflect an effect of increasing the share of foreign investor by 10%) and then analysed in reference to other parameters standing by control variables. As a result, it can be stated on the basis of the conducted calculations (for statistically significant variables) that both profitability (ROA, CF), size and MV/BV had a significantly stronger effect on the probability of dividend level changes than an increase by

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

Table 7: Dividend level change model and dividend theories - Part 2

DPS change	Mch4			Mch5			Mch6		
	2	3	4	2	3	4	2	3	4
Free term	−1.237* *0.063*	−2.952*** *<0.0001*	−2.804** *0.0141*	−2.301*** *<0.0001*	−2.993*** *<0.0001*	−3.761*** *<0.0001*	−1.844*** *<0.0001*	−2.953*** *<0.0001*	−4.019*** *<0.0001*
SFI-1	1.187	1.655	3.457*** *0.0072*	1.464* *0.0839*	2.101* *0.0619*	3.779*** *0.0037*	1.892*** *0.0044*	1.996* *0.053*	3.731*** *0.0011*
ROA-1	12.667*** *<0.0001*	5.814** *0.0172*	11.778*** *<0.0001*						
CF-1				8.372*** *<0.0001*	3.435* *0.0734*	4.389** *0.0303*			
FS-1									
MVBV-1							0.008	−0.005	0.008
DR-1	−0.036	−0.069	−0.065	−0.068	−0.073	−0.067			
GRTA-1	−0.999* *0.0663*	−0.059	−1.644* *0.082*	−0.123	−0.074	−0.371			
Chi2	89.686 *0.0000*			58.859 *0.0000*			18.996 *0.0042*		
Model correctness	62.00%			61.80%			59.90%		
Theory	Free cash flow			Signaling					

Logit models are shown in columns.
Parameter evaluations are marked with standard font. Values in italics mean a level of significance of variables. A lack of a number indicating a level of significance of a given variable means that this variable was not statistically significant.
The symbols *, ** and *** denote a statistical significance at the level of 10%, 5% and 1%, respectively
Source: Own calculations on the basis of data from Notoria Serwis database

10% of a foreign investor share.

Similar to the dividend payout model, control variables ROA (Mch2 and 4), CF (Mch3 and 5) and FS (Mch1) are at a statistically significant level in all models in which they are present, regardless of the change option and additionally signs of parameter estimates standing by them are consistent with expectations derived from the maturity (Mch1), pecking order (Mch2 and 3) and free cash flow (Mch4 and 5) theories. The MV/BV indicator is at a statistically significant level only in model 3, for dividend level increase and reduction. The sign of parameter estimate standing by it is positive in this model and consistent with the pecking order theory. Signs of parameter estimate standing by DR and GRTA variable are negative in all models. In the case of the debt variable, a negative sign is consistent both with the pecking order (Mch2 and 3), as well as with the free cash flow theory (Mch4 and 5), and in the case of GRTA variable (Mch1) – with the maturity theory. Moreover, taking into account both the compliance of the signs of the estimate with dividend theories and statistical significance of variables, the debt variable is statistically significant for dividend increase and reduction only in 2 models (Mch2 and 4), while the GRTA variable is at a statistically insignificant level in model 1.

Conclusions

The article analysed the impact of foreign investors, who were the majority shareholders of companies on the

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

Warsaw Stock Exchange, on the dividend policy of these companies in the years 2004-2014. The main results of the conducted analyses can be summarized as follows.

Firstly, in the dividend payout model based on the binary logit model the results, irrespective of the analysed model, indicated a positive impact of foreign investors on dividend policy of companies. In particular, they showed that with an increase, in year t-1, of a share of foreign investor being the largest shareholder of a company in year t, probability of dividend payment by this company in year t was enhanced significantly.

Secondly, the dividend level change model based on the multinominal logit model shows that, irrespective of the analysed model, foreign investors had a positive effect on dividend payout level reduction. In particular, this result means that with an increase, in year t-1, of a share of foreign investor being the largest shareholder of a company in year t, a probability of dividend payout level reduction by this company in year t was enhanced significantly.

Thirdly, with respect to dividend policy determinants, the results, irrespective of whether it was the dividend payout or dividend level change model, were to a very large extent in line with conclusions derived from the pecking order theory. However, in the case of signaling, free cash flow and maturity theories results of the conducted analyses only to a small extent provided evidence supporting these three theories.

References

Abdullah, H.N.M., Ahmad, Z., Roslan, Sh. (2012). The Influence of Ownership Structure on the Firms Dividend Policy Based Lintner Model. *International Review of Business Research Papers 8*(6), 71-88.

Al- Gharaibeh, M., Zurigat, Z., Al-Harahsheh, K. (2013). The Effect of Ownership Structure On Dividends Policy In Jordanian Companies. *Interdisciplinary Journal of Contemporary Research in Business, 4*(9), 769-796.

Ammer, J., Holland, S.B., Smith, D.C., Warnock, F.E. (2005). Look at Me Now: What Attracts U.S. Shareholders? *NBER Working Paper Series No 12500*.

Baba, N. (2009). Increased Presence of Foreign Investors and Dividend Policy of Japanese Firms. *Pacific-Basin Finance Journal*, 17, 163–174. doi: 10.1016/j.pacfin.2008.04.001.

Będowska-Sójka, B. (2007). Modele logitowe polityki wypłat polskich spółek giełdowych., *Zeszyty naukowe Akademii Ekonomicznej w Poznaniu*, 87, 22-33.

Bhattacharya, S. (1979). Imperfect Information, Dividend Policy, and the 'Bird in the Hand' Fallacy. *Bell Journal of Economics, 10*(1), 259–270. doi: 10.2469/dig.v27.n1.3.

Chai, D.H. (2010). Foreign Corporate Ownership and Dividends. Working Paper No 401, University of Cambridge: Centre for Business Research.

Covrig, V., Lau, S.T., Ng, L. (2006). Do Domestic and Foreign Fund Managers Have Similar Preferences for Stock Characteristics? A cross-country analysis. *Journal of International Business Studies, 37*(3), 407- 429. doi: 10.1057/palgrave.jibs.8400195.

Dahlquist, M., Robertsson, G. (2001). Direct Foreign Ownership, Institutional Investors, and Firm Characteristics. *Journal of Financial Economics, 59*(3), 413-440. doi: 10.1016/S0304-405X(00)00092-1.

DeAngelo, H., DeAngelo, L., Stulz, R. (2006). Dividend Policy And The Earned/Contributed Capital Mix: A Test Of The Lifecycle Theory. *Journal of Financial Economics*, 81, 227—254. doi: 10.1016/j.jfineco.2005.07.005.

Denis, D.J., Osobov, I. (2008). Why Do Firms Pay Dividends? International Evidence on the Determinants of Dividend Policy. *Journal of Financial Economics, 89*(1), 62–82. doi: 10.1016/j.jfineco.2007.06.006.

Easterbrook, F. (1984). Two Agency Cost Explanations of Dividends. *The American Economic Review*, 74, 650–659.

Fama, E.F., French, K.R. (2002). Testing Trade-off and Pecking Order Predictions about Dividends and Debt. *The Review of Financial Studies, 15*(1), 1–33.

Fama, E.F., French, K.R. (2001). Disappearing Dividends: Changing from Characteristics or Lower Propensity To Pay? *Journal of Financial Economics*, 60, 3–43. doi: 10.1016/S0304-405X(01)00038-1.

Ferreira, M.A., Massa, M., Matos, P. (2010). Dividend Clienteles Around the World: Evidence from Institutional Holdings. Retrieved from: http://ssrn.com/abstract=1447573.

Ghunmi, D.A., Al-Zu, B., Badreddine, S., Chaudhry, S. (2013). Foreign Direct Investments in Jordan. *International Journal of Business, 18*(3), 255-272.

Greene, W.H. (2003). *Econometric Analysis*. 5th ed. Upper Saddle River: Prentice Hall.

Grullon, G., Michaely, R., Swaminathan, B. (2002). Are Dividends Changes a Sign of Firm Maturity? *Journal of Business,*

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme

75(3), 387–424. doi: 10.2469/dig.v33.n1.1214.
Gruszczyński, M. (ed.) (2010). *Mikroekonometria, Modele i metody analizy danych indywidualnych*. Warszawa: Wolters Kluwer Polska Sp. z o.o.
Hussain, A., Khan, A. (2014). The Impact of Institutional Ownership on Dividend Policy in Pakistan. *Journal of Applied Environmental and Biological Sciences, 4*(8S), 339-350.
Jensen, M.C. (1986). Agency Costs of Free-cash-flow, Corporate Finance, and Takeovers. *The American Economic Review, 76*(2), 323–329.
Jeon, J.Q., Lee, Ch., Moffett, C.M. (2011). Effects of Foreign Ownership on Payout Policy: Evidence from the Korean Market. *Journal of Financial Markets*, 14, 344–375. doi: 10.1016/j.finmar.2010.08.001.
Kim, S., Sul, W., Kang, S.A. (2010). Impact of Foreign Institutional Investors on Dividend Policy in Korea: a Stock Market Perspective. *Journal of Financial Management and Analysis, 23*(1), 10-26.
Kumar, J. (2006). Corporate Governance and Dividend Payout in India. *Journal of Emerging Market Finance, 5*(1), 15-58. doi: 10.2139/ssrn.474103.
Lace, N., Bistrova, J., Kozlovskis, K. (2013). Ownership type influence on dividend payments in CEE countries. *Business: Theory and Practice, 14* (3), 259-266.
Lam, K.C.K., Sami, H., Zhou, H. (2012). The role of cross-listing, foreign ownership and state ownership in dividend policy in an emerging market. *China Journal of Accounting Research*, 5, 199–216. doi: 10.1016/j.cjar.2012.06.001.
Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *The American Economic Review, 46* (2), 97–113.
Maddala, G.S. (2006). *Ekonometria*. Warszawa: PWN.
Rozeff, M.S. (1982). Growth, beta and agency costs as determinants of dividend payout ratios. *The Journal of Financial Research, 5* (3), 249-259.
Short, H., Zhang, H., Keasey K. (2002). The link between dividend policy and institutional ownership. *Journal of Corporate Finance*, 8, 105–122. doi: 10.1016/S0929-1199(01)00030-X.
Sierpińska, M., Jachna, T. (2004). *Ocena przedsiębiorstwa według standardów światowych*. Warszawa: PWN.
Stanisz, A. (2007). *Przystępny kurs statystyki z zastosowaniem STATISTICA PL na przykładach z medycyny. Tom 2. Modele liniowe i nieliniowe*. Kraków: Statsoft.
Thanatawee, Y. (2006). Ownership Structure and Dividend Policy: Evidence from Thailand. *International Journal of Economics and Finance, 5*(1), 121-132. doi: 10.5539/ijef.v5n1p121.
Ullah, H., Fida, A., Khan, Sh. (2012). The Impact Of Ownership Structure On Dividend Policy Evidence From Emerging Markets KSE-100 Index Pakistan. *International Journal of Business and Social Science, 3*(9), 298-330.
Warrad, L., Abed, S., Khriasat, O., Al-Sheikh, I. (2012). The Effect of Ownership Structure on Dividend Payout Policy: Evidence From Jordanian Context. *International Journal of Economics and Finance, 4*(2), 187-195. doi: 10.5539/ijef.v4n2p187.

The article is an effect of the project –„Financialization New Trends and Directions of Development"- international conference, conducted by the University of Information Technology and Management in Rzeszów with Narodowy Bank Polski under the scope of economic education programme