

The Determinants of Corporate Dividend Policy in Poland

Justyna Rój*

Poznań University of Economics and Business, Poland

Abstract. The purpose of this research is to examine the factors that determine the dividend policy of non-financial firms listed on the Warsaw Stock Exchange (WSE) in Poland and that of the annually paid dividends. Up to now, many empirical studies related to dividend policy were carried out, showing the differentiation of factors affecting the dividend policy and their interaction. Thus, with this study, it would be possible to give a view on the dividend policy of corporations listed on the WSE for the period from 2008 to 2016. The study covers non-financial companies listed on the WSE in Poland. The Tobit regression is used to identify the impact of factors influencing the companies' distribution of dividends. The variables that may explain a firm's dividend decision and that were used in this study are selected based on the theory and available empirical researches and then also determined by data availability. These are profitability, investment opportunities, measures of size, leverage, and liquidity. As a result of this study, the factors that determine the dividend policy of companies were verified in the context of the companies listed on the WSE. Moreover, it indicates which of the existing theories on dividend policy could be applied to the capital markets of Poland. Thus, it provides new insights into the theory of dividend policy.

Keywords: dividend policy, corporate finance, dividend payout; Warsaw Stock Exchange.

1. Introduction

The discussion about what drives companies to pay dividends has persisted over the years. According to the most common definition of dividends, they are a form of earnings' distribution in real assets among the company shareholders according their level of participation in the total capital. Thus, dividends are the return that a shareholder receives from a company. Dividends are paid out of a company's profits based on specific shareholding. Dividends are one out of two forms of equity investors' returns, the other being capital gains (Frankfurter, Wood & Wansley 2003). The payout of dividends is influenced first by regulations but also by management decisions regarding to the sort of a dividend policy

* *Corresponding author:*

Department of Operational Research, The Poznań University of Economics, 10 Niepodległości Al., 61-875 Poznań.
Email: justyna.roj@ue.poznan.pl

Received: January 2019. **Revised:** February 2019. **Accepted:** February 2019

Copyright © 2019 Justyna Rój. Published by Vilnius University Press

This is an Open Access article distributed under the terms of the [Creative Commons Attribution Licence](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

a company decides to follow. It can be said that dividend policies involve any decision made to either paying out earnings or retaining them for an investment.

The decision regarding dividend payment is an important part of a company's financial decision-making apart from two other major and related decisions, such as the decisions of investment and financing. Because the goal of a corporation is the maximization of shareholder wealth, all decisions should be undertaken in such a way as to execute this objective to the fullest. It means that the significant factors that determine dividend policy are an important contribution in the process of decision-making regarding dividends (Damodaran 2007). However, despite the decades of research, the basic determinants of dividend policy remain somewhat controversial (Booth & Zhou 2017).

Therefore, the determinants of company dividend policy have still been the subject of many empirical studies for a long period of time. Such studies provide a number of sometimes even conflicting theories that try to explain the factors that determine a company's dividend policy and to find some pattern in the dividend decision behavior of companies (Frankfurter et al. 2003). However, the results of many empirical studies showing the applicability of these theories to the imperfect real world are inconclusive; thus, there is no consensus regarding the determinants of corporate dividend policy as well as their interactions (Blutner 1972). However, it has been also recognized that the way dividend policies are adopted by companies may change over time and that it can vary between countries (Patra, Poshakwale & Ow-Yong 2012).

The scope of the following research is to provide insight on the dividend policy of non-financial companies that are listed on the Warsaw Stock Exchange. Thus, the **aim** of this research is to identify the variables from alternative theories developed in literature and specify their impact on corporate decisions regarding dividend payout in Poland using Tobit regression modeling. The main motives for taking these studies are the unresolved theoretical disputations and still not enough empirical evidence about the determinants of dividend policy in Poland. Moreover, because of the difference in the business environment among countries, it could be interesting to find out what factors are important in driving the dividend policy of corporations listed on the Warsaw Stock Exchange.

2. Theoretical Background

This section provides an overview of the main theories regarding dividend decisions. They are the base for establishing the model of this research, the purpose of which is to examine the determinants of dividend policies of companies listed on the Warsaw Stock Exchange.

A number of different theories with the explanation of the determinants of companies' dividend policies have been suggested by researchers, and two schools of thoughts can be identified regarding the dividends' impact on stock prices. The first line of thought applies to the belief in the theory of dividend irrelevance, according to which dividends do not have any impact on the value of a company. And the second line of thought, which includes those who are convinced about the relevance of dividends, means that dividend policy has impact on the value of the company.

The seminal article by Miller and Modigliani (1961) initiated the contemporary theoretical attempts to find out the importance of dividend policies (Frankfurter et al. 2003). Under the assumption of perfect capital markets, rational behavior, and perfect certainty (knowledge about the future investments and profits of the firm), they were able to show in their paper that, given a firm's investment policy, its dividend policy was irrelevant to its current market valuation and had no impact on the cost of capital. Neither the investments nor financing decisions of the corporations depend on their dividend policies. Thus, the dividend policy is irrelevant for investors (Miller & Modigliani 1961).

Following Miller and Modigliani, many theories have been put forward, however relaxing the assumption about a perfect capital market. From these theories sprang the beginning of the second line of thought with the completely opposite view on the importance of dividend policy. If some assumptions of the Modigliani-Miller hypothesis are relaxed, then it can be found that a dividend policy is relevant and has impact on the value of the company. Finally, a competing hypothesis was given (Miller & Modigliani 1961).

For both hypotheses, the empirical evidence can be identified. The model of MM can be verified positively if its assumptions are not violated (Frankfurter et al. 2003). However, empirical research conducted under the existence of market imperfections provides evidence that the investment and dividend decisions are to be interrelated. It can be assumed that the relevancy of dividend policies is possibly a result of market imperfections (Brealy & Myers 1991).

The study by John Lintner (1956) is among the earliest studies on dividend policy, which also leads to the development of the Lintner model. Based on an empirical study that was carried out in American companies in the mid-1950s, it was found out that "most recent earnings" and dividends paid in the past had significantly influenced the changes in dividend payouts. Moreover, the dividend payments had a great impact on the market price of share (Lintner 1956). Then, in an article from 1962, Lintner concluded that "investors have well defined preferences over the whole range under generalized uncertainty" and that the shareholders "will not be indifferent to whether cash dividends are increased (or reduced) by substituting new equity issues for retained earnings to finance given capital budgets" (Lintner 1962).

The Gordon (1959; 1963) model also belongs to this school. In his theory, he states that dividends and retained earnings (capital gains) are perceived differently in the world with the existence of the asymmetry of information. Assuming that the investor is always a risk-avoider and acts rationally, they would prefer dividend payments right now than future capital gains with some degree of risk involved in them. Therefore, investors would prefer to purchase the stock of such a company that would allow them to earn the dividend income, even if they had to pay a relatively higher price for this stock. The cash received from dividends is perceived as much more certain than the cash that could be received from future capital gains. This preference of the investor for current income (dividend payment) was explained by Gordon using a metaphor of holding a bird in one's hand. Finally, both Lintner (1962) and Gordon (1963) showed that an investor would prefer to have cash (dividends) rather than allow the company to retain the earn-

ings because of the existence of the uncertainty of cash flows. Because of the dividend payouts, investors should reduce their required rate of return. As a result, the company's value would increase. This model is known as the "bird-in-the-hand" model and is used by both Lintner and Gordon (1963).

Apart from the abovementioned theories, the four main theories that are traditionally invoked when discussing dividend policies have also been the ones that are the most frequently analyzed in the literature in the context of dividend policies.

The "signaling hypothesis" belongs to the second line of thought; it is adopted by those who are convinced that dividends indeed do increase a firm's value. This signaling theory was adopted to corporate dividend policy by Bhattacharya (1979). In his paper, Bhattacharya firstly assumes a higher tax rate of cash dividends in comparison with the capital gains and secondly the existence of imperfect investor information regarding a company's profitability. Under the information asymmetry, dividends will become surrogates for the signal of expected cash flows. As the decisions about dividend payments bear information, they may thus be treated as the way to reduce the asymmetry of information that exists between owners and managers (Bhattacharya 1979). However, a formal model on the role of dividend payouts under the condition of asymmetric information was developed by Miller and Rock (1985).

As the managers of a company have more knowledge about current earnings than outside investors, the outside investor could only deduce about the current earnings of said company based on the information about dividend announcements. Assuming the correlation of earnings through time, the current earnings could serve as predictors in the future. It allows to expect that a higher dividends' level would be paid out by a company with higher current earnings than by a company of a lower level of current earnings (Miller & Rock 1985). Also, *ceteris paribus*, a higher dividend payout would occur under the asymmetry of information than under the conditions of full information (Patra et al. 2012).

Another theory that supports this second line of thought is the pecking order hypothesis. Although the pecking order theory (Myers 1984) was originally introduced to explain capital structure, it can be easily applied to dividend policy. Myers and Majful (1984) assumed that managers are expected to possess more information about the value of a company than potential investors, and that investors interpret a firm's actions rationally. Under such assumptions, they suggested that companies finance their investments using the internal capital first and the external second. Because of asymmetric information, external financing is much more costly than internal free cash flows for investment. And in the case of using external financing, a company would rather prefer debt than equity. Moreover, a company that is in the growth phase would have higher investment opportunities, which also means higher financial needs, and would therefore pay out lower dividends. In this way, the company could be less dependent on its external capital, while dividends could be internal free cash flows if they are not to be issued (Myers & Majluf 1984).

Jensen and Meckling's (1976) agency cost theory on dividend policy has been investigated in several studies. The agency theory explains the dividend behavior of companies by analyzing the agency relationship between managers and shareholders. Under a conflict of interest between the management and the shareholders, the managers, instead of

investing an excess cash flow of the company in profitable projects, could utilize the cash in their own interest instead of the shareholders' cash. This is why shareholders have to control managers, thus raising the cost of agency – the cost of monitoring the managers (Jensen & Meckling 1976).

As Jensen (1986) stated, the payment of dividends could help in removing the agency conflict by reducing the free cash flows that are under the control of managers. Thus, it will allow to minimize the costs that are associated with ownership and control separation.

The shareholders of highly profitable firms expect managers to pay them higher dividends, which allow to reduce the cost of agency. Jensen (1986) points out that debt can be also used as a means of reducing free cash flow agency costs, because if a company is highly leveraged, these cash flows are expected to meet the obligations of both creditors and lenders. It means that a firm will have less discretionary funds available to its managers; thus, with a high level of debts in its balance sheet, a company is expected to pay lower dividends (Jensen 1986).

As dividends may provide a kind of a discipline in the streams of payment, and they can also be a regular source of income, clientele for such stocks will emerge naturally. Such a phenomena is also known as the “clientele effect.” Thus, the clientele effect theory assumes that while some investors prefer to get dividend payments, others do not. For example, investors who are subject to higher tax rates are strongly biased against dividend taxation. It would be more rational for them to purchase stocks that pay none or minimum dividends. On the other hand, the shareholders that are subject to a low tax rate will be attracted to stocks with a higher payment of cash dividends. Investors would have different preferences according to their different taxation positions, and this phenomenon is called the “tax clientele” (Pettit 1977). Shareholders and investors purchase the shares of those firms whose dividend policies satisfy their needs.

In addition to the determinants from dividend theories mentioned above, there are also some other recognized factors that may have impact on a company's dividend payout; however, they do not clearly relate to any theories. For example, a company's liquidity position could have impact on the dividend payout of that company (Patra et al. 2012). A less liquid company would tend to pay lower dividends because of its cash shortage. It means a positive association between the dividend payment level and a company's liquidity position can be expected.

Moreover, the size of a company is positioned in some of the empirical studies as a significant factor that determines the dividend payout (Patra et al. 2012). Small and young companies use their net profits for development, and this may result in either lower payouts or a lack of payouts (Sierpińska 1999). In turn, the large and mature companies are said to be more likely to transfer cash to their shareholders due to a reduced number of profitable investment opportunities as well as a greater chance for obtaining cheaper external capital (DeAngelo, DeAngelo & Stulz 2006). Thus, generally, the larger the company is, the higher the dividends tend to be paid. It is because larger companies have relatively easier access to the stock market. It is more likely that a larger company would pay relatively more dividends in comparison with companies of small size due to the better access to capital markets. And thus larger companies are less dependent on internal financing.

Apart from these numerous theories that attempt to explain dividend policy determinants, there are also plenty of empirical studies on dividend policy. However, there is no consensus as to what factors impact the dividend policy of company and how one such factor interacts with the other.

3. Methodology

This article examines the dividend policy determinants of companies listed on the Warsaw Stock Exchange for the period from 2008 to 2016. The data has been collected from the annual reports of companies using the Notoria Service database and Stockwatch. The frequency of data is thus annual.

Initially, the study covers all companies listed on the Warsaw Stock Exchange except for financial institutions and banks, which have been excluded from the study because of their different accounting practices. Thus, the final research group includes 100 companies on which complete data for the examined variables were available for the period from 2008 to 2016 and which had – at least once – paid dividends within the analyzed period. It gave a total of 900 firm-year observations.

The independent variables have been derived from various dividend theories/hypotheses with their possible quantitative representations. However, they have been verified by the availability of reliable data under the Polish condition. So, the final set of variables that are applied in this research are briefly given below.

The dividend policy measure, which is treated as a dependent variable, is represented by a company's dividend payment per share paid (DIV). Independent variables, which are expected to explain the dividend policies of companies, are selected based on the available and above-cited theories and empirical literature. The following independent variables and their definitions are engaged:

- Profitability (PROF) – proxied by return to equity (a ratio of net income to common equity); more profitable companies are expected to be able to pay higher dividends;
- Investment opportunities (INV) – proxied by the market-to-book ratio, which is a ratio of the market value of equity to the book value of common equity outstanding; according to the pecking order hypothesis, those companies that have a relatively better availability of investment opportunities and thus opportunities for growth would be more likely to retain more funds from internal sources of financing and accordingly pay fewer dividends.
- Leverage (LEV) – expressed by the ratio of total debt to total assets; theories suggest that a high leverage company is not expected to pay high dividends as it needs the cash flow to meet the financial obligations of creditors.
- Size (SIZE) – measured as the natural logarithm of total assets, which is a proxy for company size; it can be expected that as a large company has better access to capital markets, it is supposed to pay more dividends;
- Liquidity (LIQ) – proxied by the current ratio (current assets to current liabilities) as at the end of the company's financial year; a more liquid company is supposed to be able to use its excess cash flow to pay dividends.

This study applies the Tobit regression model. However, the correlation among variables has first been checked, as the independent variables used for the study should be unique in the sense that each of them are independent and can be counted as separate.

The logic underling the Tobit regression model is that the dividends as a dependent variable have a special feature – it can take only two outcomes. Thus, the amount of the dividends can be either equal to zero or can take a positive value, but it cannot take a negative value under any circumstance. This is why the Tobit model was applied. This claim is explicitly supported by Kim and Maddala (1992). The general model can be represented as shown (Kufel 2007):

$$y_i^* = \beta x_i + u_i \quad (1)$$

where the observed variable is given by a dependence

$$y_i = \begin{cases} 1 & \text{for } y_i^* > 0, \\ 0 & \text{for } y_i^* \leq 0, \end{cases} \quad (2)$$

assuming that the y_i^* variable is observed, if $y_i^* > 0$, and unobservable for $y_i^* \leq 0$, y_i can be defined as follows:

$$y_i = \begin{cases} y_i^* = \beta x_i + u_i & \text{for } y_i^* > 0, \\ 0 & \text{for } y_i^* \leq 0, \end{cases} \quad (3)$$

where u_i is an independent residual component with a normal distribution (more in Greene 2003, p. 764–774). GRETL software was used in these calculations.

4. Results

The descriptive statistics of variables employed in this research are presented in Table No. 1. For payment of dividends, the mean value and its standard deviation in firms listed on the Warsaw Stock Exchange are 1.94 and 7.53. These two values demonstrate a dispersion in the sample firms. Similarly, the mean value of investment opportunities as a market-to-book ratio is 1.72, while the standard deviation is 2.44. In addition, the leverage mean of 0.43 is the same as the median of 0.43, which implies that there is the same number of companies with a high proportion of debt – leverage – as with the lower. Moreover, there is not much dispersion in the analyzed companies, as the standard deviation is 0.18. A similar situation occurs with the size of the analyzed companies, with its mean value of 5.76 and standard deviation at the level of 0.76. For profitability (return on equity), the mean value and its standard deviation in firms are 0.11 and 0.18, respectively. These results show that the mean is somehow similar but that there is a difference between the standard deviations.

Table 1. Summary Statistics of the Variables Used.

Variable	Mean	Median	Max	Min	Std. Dev.	Variance
DIV	1.94	0.25	93.60	0.00	7.53	56.67
SIZE	5.76	5.68	7.83	3.37	0.76	0.58
LEV	0.43	0.43	0.95	0.00	0.18	0.03
INV	1.72	1.07	23.47	0.01	2.44	5.96
PROF	0.11	0.09	1.52	-1.39	0.18	0.03
LIQ	1.91	1.56	14.75	0.10	1.22	1.50

Source: own empirical research.

Table No. 2 shows the correlation coefficients among the variables it certifies the absence of any multicollinearity among the explanatory variables that are used in the regression analysis. This means that all of them can be used in this model and that they would not affect other independent variables in a major way.

Table 2. Results of the Correlation Test.

Variable	SIZE	LEV	INV	PROF	LIQ
SIZE	1.0000	0.1435	0.0311	0.0183	-0.2471
LEV	0.1435	1.0000	0.1774	0.0453	-0.4557
INV	0.0311	0.1774	1.0000	0.5865	-0.0432
PROF	0.0183	0.0453	0.5865	1.0000	0.1225
LIQ	-0.2471	-0.4557	-0.0432	0.1225	1.0000

Source: own empirical research.

By using the Tobit regression method, the Model No. 1 was generated, and the results are presented in Table 3.1. Model No. 1 includes these five variables and encompasses all of the models with 900 firm-year observations. Due to the insignificance of the liquidity (LIQ) variable, LIQ was dropped from Model No. 1, thus generating Model No 2.

Table 3.1. Determinants of Dividend Payout.

Dependent Variable: Dividend Yield		
MODEL 1		
Independent Variable	Coefficients	p-value
SIZE	2.09788	0.0000*
LEV	-4.67360	0.0245*
INV	0.74106	0.0000*
PROF	13.23310	0.0000*
LIQ	-0.21481	0.4818
Constant	-13.04090	0.0000*
N=900		

* indicates 1% of the significance level;

Source: own empirical research.

The results of the generated Model No. 2 confirm that the importance of size, leverage, growth opportunity of the firm, and profitability are significant determinants of dividend policy under Polish conditions. Of the four variables that are used in this model, three of them show the expected – according to theory – hypothesized signs.

Table 3.2. Determinants of Dividend Payout

Dependent Variable: Dividend Yield		
MODEL 2		
Independent Variable	Coefficients	p-value
SIZE	2.16105	0.0000*
LEV	-3.98460	0.0296*
INV	0.75393	0.0000*
PROF	12.83010	0.0000*
Constant	-14.09160	0.0000*
N=800		

* indicates 1% of the significance level; ** indicates 1% of the significance level;

Source: own empirical research.

Table No 3.2 confirms that larger companies tend to pay higher dividends. This same goes for profitability – more profitable companies are expected to pay higher dividends. Also, the coefficient of leverage behaved according to the theoretical expectations. These results show that the coefficient of leverage is negatively correlated with dividend payment. It suggests that if companies have high debt ratios, they do not pay higher dividends. However, contrary to the expectations, these results also show that the coefficient of investment opportunities is positively correlated with dividend payment. This demonstrates that even when having large investment opportunities, these companies still have enough cash to pay dividends. The reason for this could be found in the sector of this type of companies, or perhaps that during this period, the Polish market still should be treated as an emerging one (as it was during these times); therefore, the theories that are applied to economic conditions of developed countries might not always apply for economies of emerging countries.

5. Discussion

In this article, the company level variables that may influence dividend policies were analyzed. They are investigated based on a sample of non-financial companies that are listed on the Warsaw Stock Exchange and that were paying dividends for the period of 2008–2016. The main limitation of this research is that the list of possible determinants cannot be exhaustive. The statistical method was used; thus, the basic limitations of this statistical method will reflect on this research as well.

Nevertheless, by using the Tobit model, it was found out that four of five variables are statistically significant. Especially the size of a company, its profitability, and investment

opportunities relate to the payment of dividends positively, while leverage is inversely associated with payment of dividends. Because of the positive relation between dividend payments and investment opportunities, the results are not consistent with the pecking order theory related to dividend policy. The reason of this difference could be found in the type of sector or the macroeconomic developments that affect most companies in any economy. As a result of such disturbances, opposite or unexplained relationships can be achieved and may distort the final results. However, the study shows that much of the existing theoretical literature on company dividend policy could be applied to the Polish market. Moreover, by analyzing the foreign dividend policy, it can be noticed that on the one hand, the empirical determinants of the propensity to pay dividends appear to be remarkably similar across countries; on the other hand, these empirical studies also identify a mixed impact of these determinants on the dividend policy. Thus, it was also noticed that these results of empirical research conducted on companies listed on WSE are consistent with some foreign dividend policies while also differing from some of them.

The evidence found in this research is supported by the evidence found in both developed markets and developing ones. Regarding to such determinants as profitability, size, and investment opportunity, the findings of this research are consistent with the results of a study conducted by Fama and French (2001), who have studied the dividend policy of NYSE, AMEX, and NASDAQ firms for the period of 1926 to 1999. They found that the dividend-paying companies are larger, more profitable, and have high investment opportunities than the non-dividend paying companies.

Also, the results of this study are, to certain a point, consistent with the results of Denis and Osobov (2008) research. They analyzed the dividend policies in six developed financial markets, namely the United States, Canada, United Kingdom, Germany, France, and Japan for the period of 1989–2002, and among others they found that the propensity to pay dividends is higher among larger, more profitable firms, while the relationship of dividends and growth opportunities is less robust.

Bahreini and Adaoglu (2018) examined the dividend payout behaviors of travel and leisure companies in five Western European countries that are ranked among the world's top 10 tourist destinations, namely France, Spain, Italy, Germany, and the United Kingdom. Among others, they also found that profitability and company size are positive drivers of dividend payments, and that the leverage ratio deters dividend payments. Additionally, the study provides international empirical evidence for the positive relationship between investment opportunities and dividend payments, which is regarded as a puzzle (Bahreini & Adaoglu 2018).

This pattern of behavior – that higher leverage reduces the likelihood of paying cash dividends – was also found by von Eije and Megginson (2008), who examined over 4 100 listed industrial companies for the period of 1989 to 2005 in the 15 nations that had been members of the European Union before May 2004.

Also, an investigation of 17 106 publicly listed firms from 33 countries between 1985 and 2006, conducted by Fatemi and Bildik (2012), unequivocally concludes among others that dividend payers in these countries have similar characteristics – in that they are more

profitable, larger, less indebted. But they differ in the way that they are presented with smaller growth opportunities.

A study conducted by Patra, Poshakwale and Ow-Yong (2012) can be named as an example in cases of other European countries. This analysis was based on 63 nonfinancial companies listed on the Athen Stock Exchange (ASE) for the period from 1993 to 2007; it found that firm size, profitability, and liquidity affect the dividend payment decisions positively, whereas the investment opportunities and financial leverage have an inverse relationship with the dividend payment decisions of these companies. Also, this pattern of the opportunities of investment negatively influencing the distribution of dividends was found in the case of companies in Portugal (Almeida, Pereira & Tavares 2015). Also, the debt to equity ratio appeared to be an important factor with the negative impact on dividend payments in the case of Estonia (Sander, Kariler & Viikmaa 2014). However, a study conducted on the non-financial companies listed on the Bucharest Stock Exchange in Romania for a period of ten years (from 2007 to 2016) reveals that dividend policy is positively related to corporate profitability and liquidity and negatively associated with leverage, size, and growth (Cristea & Cristea 2017).

In the case of some other emerging markets located on other continents, the results of research regarding the determinants of dividend policies are similar in the case of some determinants. So, for example, in the case of companies listed on the Karachi Stock Exchange (KSE) in Pakistan, it was found that they have tendency to pay higher dividends when they are more profitable and larger as well as when having better growth opportunities (Bushra & Mirza 2015). Moreover, leverage is also negatively related to cash dividends (Afza & Mirza 2010). A negative relationship between the firm's financial leverage and dividend payment was also found in the behavior of 38 Kuwait Stock Exchange-listed companies from different industries (Al-Sabah 2015).

Venkataramanaiah, Madhavi Latha and Siva Nageswara Rao (2018) yielded similar results to those presented in this paper. Their research covered the Nifty 50 of the National Stock Exchange of India Limited (NSE) and considered the influence of four basic variables on the dividend policy. Also, they found a positive relationship between companies' profitability and dividend payments, a negative relationship between leverage and dividend payments, and no significance between liquidity and dividend payments. However, they presented that there is some negative relation between the size of a company and dividend payouts (Venkataramanaiah, Madhavi Latha & Siva Nageswara Rao 2018). In another study also conducted on the National Stock Exchange (the Nifty 50 companies) but using the Tobit regression model, it was found that a firm's size and its investment opportunities are significant determinants of corporate dividend policies in India. However, both of them are negatively correlated with dividend payments. The firm's debt structure and profitability are found to be not significant in the Indian scenario and, in this way, the results do negate some theories (Singhania & Gupta 2012).

Al-Najjar and Kilincarslan (2018), who investigated 264 Turkish publicly listed firms on the Istanbul Stock Exchange (ISE) over the period of 2003–2012, showed that larger, more profitable, and less leveraged companies tend to pay higher dividends. However, in

contrary to companies listed on the WSE, companies with higher investment opportunities are less likely to pay dividends.

The results found by Al-Ajmi and Hussain (2011) reveal that in the case of Saudi-listed companies, if they are more profitable, larger in size, however with few investment opportunities, these companies pay high dividends. In Malaysia, firm size and investment were also revealed to have a positive significant effect, while debt was seen to have a negative significant effect (Yusof & Ismail 2016). Also, a positive relationship between dividend payments and profitability was found to occur in the Jordanian market (Al-Najjar 2011).

Likewise, an analysis of dividend payment determinants was conducted on firms listed in the 29 stock exchanges in Africa, and it was also found that more profitable and less indebted companies are more likely to pay higher dividends (Nnadi, Wogboroma & Kabe 2013).

Then, in the case of dividend policies for firms in six Latin American countries from 1995 to 2013, it was found that dividend payments are positively linked to profitability and negatively related to past indebtedness and investment opportunities (Benavides, Berggrun & Perafan 2016). And in the case of Brazil, it was inferred that larger firm size, profitability, and liquidity correlate with greater firm propensity to distribute money to shareholders, while the found significant negative variables included leverage (Forti, Peixoto, & Alves 2015).

Not only in the abovementioned papers, but also in other earlier studies, some other determinants of dividend payments were also considered. Generally, many determinants of dividend policy are presented in the literature, and they can be divided into three essential groups, such as micro- and macroeconomic factors and behavioral factors. Also, in the case of the Polish market, some studies were conducted from a different perspective, such as from the perspective of one particular theory (e.g., Gajdka 2013) or context (e.g., Pieloch-Babiarz 2017), focusing on some particular industry, for example, such as the electromechanical industry (Pieloch-Babiarz 2015), or the types of companies (e.g., Duraj 2002; Kupc & Makowski 2016), and even not only from a different context but by also making different comparisons (e.g., Sierpińska-Sawicz 2016).

However, from this synthetic review of dividend policies in an international context, it can be concluded that dividend payers are quite consistent across different countries and that such analyzed determinants as profitability, size, leveraged and growth opportunities, and liquidity seem to be one of the major determinants of dividend policies all over the world. However, the role of these factors varies across countries, perhaps also the time period and the industries under question.

6. Conclusion

In this paper, the determinants of the dividend policies of non-financial companies listed on the WSE in Poland were analyzed. The research covers a period from 2008–2016. Using the Tobit model, it was found that such factors as profitability, size of company, leverage, and investment opportunity are significant for the dividend policies of analyzed

companies. As this paper revealed that there is a significant and positive relationship between a firm's profitability, size, and dividend payments as well as a significant yet negative relationship between leverage and dividend payments, these studies provide support for the signaling theory and agency cost theory. But because of the significant and positive relations shared between investment opportunities and dividend payments, this finding is inconsistent with the pecking order theory.

The results of this paper may be useful for investors as well as company managers in shaping their investment and financial management decisions. Based on these identified dividend determinants, investors could choose companies for better investments as well as to predict dividend yields in the future. The managers can consider the major determinants of dividend payments while formulating the appropriate dividend policies for their companies.

References

- Al-Ajmi J., Hussain H.A. (2011), Corporate dividends decisions: evidence from Saudi Arabia, *The Journal of Risk Finance*, Vol. 12, Issue 1, p. 41–56. <https://doi.org/10.1108/15265941111100067>
- Almeida L.A.G., Pereira E.T, Tavares F.O. (2015). Determinants of Dividend Policy: evidence from Portugal, *Review of Business Management*, Vol. 17, No. 54, p. 701–719. <https://doi.org/10.7819/rbgn.v17i54.1943>
- Al-Najjar B. (2011), The inter-relationship between capital structure and dividend policy: empirical evidence from Jordanian data, *International Review of Applied Economics*, Vol. 25 Issue 2, p. 209–224. <https://doi.org/10.1080/02692171.2010.483464>
- Al-Najjar B., Kilincarslan E. (2018). Revisiting Firm-Specific Determinants of Dividend Policy: Evidence from Turkey. *Economic Issues*, Vol. 23, Issue 1, p. 3–34.
- Al-Sabah, T. (2015), The effect of the firm's age and financial leverage on its dividend policy – evidence from Kuwait Stock Exchange Market (KSE), *Corporate Ownership and Control*, Vol. 13, Issue 1, pp. 24–31.
- Afza, T., Mirza, H. H. (2010). Ownership structure and cash flows as determinants of corporate dividend policy in Pakistan. *International Business Research*, Vol.3, Issue 3, p. 210–221. <https://doi.org/10.5539/ibr.v3n3p210>
- Bahreini M., Adaoglu C. (2018), Dividend payouts of travel and leisure companies in Western Europe: An analysis of the determinants, *Tourism Economics*. Vol. 24, Issue 7, p. 801–820. <https://doi.org/10.1177/1354816618780867>
- Benavides J., Berggrun L., Perafan H. (2016). Dividend payout policies: Evidence from Latin America. *Finance Research Letters*, Vol. 17, p. 197–210. <https://doi.org/10.1016/j.frl.2016.03.012>
- Bhattacharya S. (1979). Imperfect information, dividend policy, and the bird in the hand fallacy. *Bell Journal of Economics*, 10, p. 259–70. <https://doi.org/10.2307/3003330>
- Blutner A., (1972). Dividend Policy and Valuation. *Financial Education*, 1 (1), p. 111–115.
- Booth L., Zhou J. (2017). Dividend policy: A selective review of results from around the world. *Global Finance Journal*, 34, p. 1–15. <https://doi.org/10.1016/j.gfj.2017.07.002>
- Brealy R.A., Myers S.C. (1991). Principles of corporate finance. New York Mc Graw- Hill.
- Bushra A., Mirza N. (2015). The Determinants of Corporate Dividend Policy in Pakistan, *Lahore Journal of Economics*, Vol. 20, Issue 2, p. 77–98.
- Cristea C., Cristea M. (2017). Determinants of corporate dividend policy: evidence from Romanian listed companies, *MATEC Web of Conferences*, Vol. 126, p. 1–4.
- Damodaran A., (2007). Finanse korporacyjne. Teoria i praktyka. Onepress.
- Das S. (2017). Firm Characteristics and Dividend Policy in India. *Transnational Corporations Review*, Vol. 9, Issue 3, p. 190–200. <https://doi.org/10.1080/19186444.2017.1362862>

- Denis D.J., Osobov I. (2008). Why do firms pay dividends? International evidence on the determinants of dividend policy. *Journal of Financial Economics* 89, p. 62–82. <https://doi.org/10.1016/j.jfineco.2007.06.006>
- DeAngelo, H., DeAngelo, L. Stulz, R.M. (2006). Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial Economics*, 81. <https://doi.org/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), p. 62–82. <https://doi.org/10.1016/j.jfineco.2007.06.006>
- Duraj, A. N. (2002). Factors for the implementation of the dividend payment policy by public joint-stock companies. Lodz: Publisher of the University of Lodz.
- Fama, E.F., French, K.F. (2001). Disappearing Dividends. Changing Firm Characteristics or Lower Propensity to Pay ?, *Journal of Financial Economics*, Vol. 60, Issue 1, p. 3–43. [https://doi.org/10.1016/S0304-405X\(01\)00038-1](https://doi.org/10.1016/S0304-405X(01)00038-1)
- Fatemi, A., Bildik, R. (2012). Yes, dividends are disappearing: Worldwide evidence. *Journal of Banking & Finance*, 36. p. 662–677.
- Forti, C., Peixoto, F., & Alves, D. (2015). Fatores Determinantes do Pagamento de Dividendos no Brasil. *Revista Contabilidade & Finanças*, Vol. 26, Issue 68, p. 167–180. <https://doi.org/10.1590/1808-057x201512260>
- Frankfurter G.M., Wood B.G., Wansley J. (2003). Dividend policy: theory and practice. Boston, Mass. London: Academic Press. <https://doi.org/10.1016/B978-012266051-1.50001-0>
- Gajdka J. (2013), Cateringowe podejście do polityki dywidend w warunkach polskiego rynku kapitałowego, „*Zarządzanie i Finanse*” No. 2/4, p. 153–165.
- Gordon M. J. (1959). Dividends, Earnings and Stock Prices. *Review of Economics and Statistics* Vol.41, iss.2 - part 1, p. 99–105. <https://doi.org/10.2307/1927792>
- Gordon M. J. (1963). Optimal Investment and Financing Policy. *Journal of Finance*. 1963, Issue 2, p. 264–272. <https://doi.org/10.2307/2977907>, <https://doi.org/10.1111/j.1540-6261.1963.tb00722.x>
- Greene W. (2003). *Econometrics Analysis*. Prentice Hall, New Jersey.
- Jabbouri I. (2016). Determinants of corporate dividend policy in emerging markets: Evidence from MENA stock markets. *Research in International Business and Finance* 37, p. 283–298. <https://doi.org/10.1016/j.ribaf.2016.01.018>
- Jensen M. C. (1986), Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, Vol. 76, Issue 2, p. 323–329.
- Jensen M. C., Meckling W. H. (1976), Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, p. 305–60. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Lintner J. (1956), Distribution of incomes of corporations among dividends, retained earnings, and taxes. *American Economic Review* Vol. 46, Issue 2, p. 97–113.
- Lintner J. (1962), Dividends, Earnings, Leverage, Stock Prices and Supply of Capital to Corporations. *The Review of Economics and Statistics*, 64, p. 243–260. <https://doi.org/10.2307/1926397>
- Kim B.S., Maddala G.S., (1992), Estimation and Specification Analysis of Models of Dividend Behavior Based on Censored Panel Data, *Empirical Economics*, 17, p. 111–124. <https://doi.org/10.1007/BF01192478>
- Kufel T. (2007). *Ekonometria. Rozwiązywanie problemów z wykorzystaniem programu GRETL*. Wydawnictwo Naukowe PWN. p. 173.
- Kupc M., Makowski K. (2016), Wypłaty dywidend w spółkach z udziałem zagranicznych inwestorów bezpośrednich, *Ekonomia* XLVII No. 1, p. 7–26. https://doi.org/10.12775/AUNC_ECON.2016.001
- Myers S.C. (1984). The capital structure puzzle. *The Journal of Finance*. Vol. 39, Issue 3, p. 575–592. <https://doi.org/10.3386/w1393>, <https://doi.org/10.2307/2327916>, <https://doi.org/10.1111/j.1540-6261.1984.tb03646.x>
- Myers, S. C., Majluf, N. S. (1984), Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 1984, Vol. 13, Issue 2, p. 187–221. [https://doi.org/10.1016/0304-405X\(84\)90023-0](https://doi.org/10.1016/0304-405X(84)90023-0)

- Miller M. H., Modigliani F. (1961), Dividend policy, growth, and the valuation of shares. *The Journal of Business*, 34 (4), p. 411–433. <https://doi.org/10.1086/294442>
- Miller M.H, Rock K. (1985), Dividend Policy under Asymmetric Information. *Journal of Finance*. Vol. 40, Issue 4, p. 1031–1051. <https://doi.org/10.1111/j.1540-6261.1985.tb02362.x>
- Nnadi M., Wogboroma N., Kabe B. (2013), Determinants of dividend policy: Evidence from listed firms in the African stock exchanges, *PANOECOMICUS*, 6, p. 725–741. <https://doi.org/10.2298/PAN1306725N>
- Patra T, Poshakwale S., Ow-Yong K. (2012). Determinants of corporate dividend policy in Greece, *Applied Financial Economics*, 22, p. 1079–1087. <https://doi.org/10.1080/09603107.2011.639734>
- Pettit R.R. (1977). Taxes, Transaction Costs and the Clientele Effect of Dividends. *Journal of Financial Economics*, 5, p. 419–436. [https://doi.org/10.1016/0304-405X\(77\)90046-0](https://doi.org/10.1016/0304-405X(77)90046-0)
- Pieloch- Babiarz A. (2015). Catering Approach to the Dividend Payment Policy on the Warsaw Stock Exchange, *Equilibrium*, Vol. 10 No. 2, p. 185–206. <https://doi.org/10.24136/eq.v12i4.35>
- Pieloch-Babiarz, A. (2017). Determinants of payout policy and investment attractiveness of companies listed on the Warsaw Stock Exchange. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 12(4), p. 675–691.
- Sander, P., Kariler J., Viikmaa K. (2014). Determinants of dividend policy in Estonian firms: an empirical analysis, *International Multidisciplinary Scientific Conference on Social Sciences & Arts SGEM. 2014*, p. 193–199. <https://doi.org/10.5593/sgemsocial2014/B22/S6.025>
- Sierpińska, M. (1999). Dividend policy in capital companies. Warsaw-Cracow: WN PWN.
- Sierpińska-Sawicz, A. (2016), Comparing dividend puzzle solutions by Polish, Canadian, Norwegian and American executives. *Contemporary Economics*. Vol. 10 Issue 3, p. 249–258. <https://doi.org/10.5709/ce.1897-9254.213>
- Singhania M., Gupta A. (2012). Determinants of Corporate Dividend Policy: A Tobit Model Approach, *Vision*, 16, 3 p. 153–162.
- Venkataramanaiah, M., Madhavi Latha C., Siva Nageswara Rao K. (2018). Determinants of Dividend Policy in the Indian Corporate Sector: A Study of Companies Listed on Nifty 50, NSE, *Indian Journal of Finance*, Vol. 12, Issue 1, p. 37–46. <https://doi.org/10.17010/ijf/2018/v12i1/120740>
- Von Eije, H., Megginson, W. L. (2008). Dividends and share repurchases in the European Union. *Journal of Financial Economics*, 89, p. 347–374. <https://doi.org/10.1016/j.jfineco.2007.11.002>
- Yusof Y., Ismail S. (2016). Determinants of dividend policy of public listed companies in Malaysia. *Review of International Business and Strategy* Vol. 26, No. 1. <https://doi.org/10.1108/RIBS-02-2014-0030>