



## ORIGINAL PAPER

**Citation:** 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), 675–691. doi: 10.24136/eq.v12i4.35

Contact: [apieloch@uni.lodz.pl](mailto:apieloch@uni.lodz.pl), University of Lodz, Faculty of Economics and Sociology, Department of Business Analysis and Strategy, 90-214 Lodz, 41 Rewolucji 1905 r. St., Poland

Received: 13 December 2016; Revised: 28 May 2017; Accepted: 17 June 2017

**Aleksandra Pieloch-Babiarz**

*University of Lodz, Poland*

## Determinants of payout policy and investment attractiveness of companies listed on the Warsaw Stock Exchange

**JEL Classification:** G02; G10; G35

**Keywords:** *determinants of payout policy; investment attractiveness; dividend; share repurchase*

### Abstract

**Research background:** Making decisions concerning the payout policy depends on many diversified neoclassical and behavioral determinants. Although these factors are well-described in the literature, there is still a research gap concerning the lack of a comprehensive impact model of payout policy determinants on the investment attractiveness of shares.

**Purpose of the article:** The aim of this paper is to present the diverse nature of the relationship between different forms of cash transfer to the shareholders and investments attractiveness of public companies in the context of various determinants of payout policy. The possibility of achieving this objective was conditioned by the empirical verification of research hypothesis stating that the diversify of payout forms is accompanied by the different determinants of payout policy that condition an effective investment of stock investors' capital.

**Methods:** The empirical research was conducted among the electromechanical companies listed on the Warsaw Stock Exchange in the years 2006-2015. The data for analysis were obtained from Notoria Service database and Stock Exchange Yearbooks. The calculations were carried out using the methodology of taxonomic measure of investment attractiveness, as well as dividend premium and share repurchase premium.

**Findings & Value added:** The final conclusion of our research is that the companies conducting the payout policy in different forms of cash transfer differ in terms of many characteristics, such as: financial standing, market value, ownership structure, company's size and age. Moreover, their investment attractiveness differs according to regularity of payment,

stock exchange situation and shareholders' preferences. The value added of this paper is a new approach to the evaluation of capital investment with a special emphasis on the determinants of payout policy.

## **Introduction**

The investment attractiveness of shares issued by the public companies is manifested by such involvement of capital that will enable the stock investors to achieve the maximum financial benefits at an acceptable level of investment risk. These financial benefits can be attained through the participation in company's net profit as well as the capital gains achieved as a result of increase in the market value of company. This increase is determined by a number of factors, among which we should mention not only the financial standing of company and its investment opportunities, but also its payout policy. An implementation of payout policy depends on different determinants that condition, among others, the form of payout. The form of transferring cash to the shareholders may influence the market value of company and create an opportunity for stock investor to gain some financial benefits.

The aim of this paper is to present the diverse nature of relationship between different forms of cash transfer to the shareholders and investments attractiveness of public companies in the context of various determinants of payout policy. This intention fits into the current and significant stream of research focused on finding the fundamental factors determining the form, type and way of conducting payout policy in companies. Furthermore, this aim is also important due to the efficiency of capital investment. For the implementation of the aim of the paper, a research hypothesis was formulated. The hypothesis states that the diversify of payout forms is accompanied by the different determinants of payout policy that condition an effective investment of stock investors' capital.

The aim of the paper and the research hypothesis were formulated to get further knowledge of various determinants of payout policy<sup>1</sup>. Although most of these determinants are well described in the literature, there is still a research gap in the area of impact of the determinants of payout policy on the investment attractiveness of public companies.

---

<sup>1</sup> This paper is an extension of the article concerning the financial determinants of payout policy (see Pieloch-Babiarz, 2017, pp. 151–167).

## Determinants of payout policy — the literature review

The term *payout policy* has a broader meaning than *dividend policy* and includes in its essence the transfer of funds to the shareholders in the form of dividend, share repurchase, or both (Allen & Michaely, 2003, p. 337; Brav *et al.*, 2005, p. 484; Kulchania, 2016, p. 981). An implementation of payout policy is conditioned by many different determinants having an impact not only on the form of payout<sup>2</sup>, but also on the investment attractiveness of company (see Figure 1).

In the literature many determinants of payout policy are described. They can be divided into three essential groups, i.e.: micro- and macroeconomic factors and behavioral factors.

One of the microeconomic determinants is the financial standing of the company. According to the agency theory, the companies that are too liquid and have high free cash flows (without having the opportunity to invest their capital in the profitable investment projects), should attempt to transfer their funds to the shareholders to reduce the agency costs (Holder *et al.*, 1998, pp. 72–82; La Porta *et al.*, 2000, p. 34). Both dividend and share repurchase may lead to a reduction in agency costs (Grullon & Ikenberry, 2000, p. 41). Moreover, the profitability of the company can have an influence on the form of payout policy. The dividends are usually paid by the profitable companies that generate stable net profits. In turn, the share repurchases are very often conducted by the companies generating abnormal net profit (Brav *et al.*, 2005, p. 521). Another financial determinant of payout policy is the level of debt. As a result of debt increase, the cost of raising capital may increase. What's more, the companies that are highly indebted may have a lower propensity to pay dividend, especially when they use the net profit to repay their liabilities (Jensen *et al.*, 1992, pp. 247–263). In turn, the share repurchase can be used to shape the capital structure. After the share repurchase, the share of debt increases due to share redemption and decrease in the share capital. Moreover, the capital structure may change significantly when the share repurchases are financed by the new debt (Wiemer & Diel, 2008, p. 301).

The form of payout policy is also associated with the theory of asymmetric information and signaling theory. The share repurchase is usually conducted when the market share price is lower than the intrinsic value of shares. In this case, the share repurchase may be used by the company as

---

<sup>2</sup> The payout policy may be conducted in a form of cash dividend (regular dividend, extra dividend, special dividend, liquidation dividend and residual dividend) (Duraj, 2002, pp. 55–58), non-cash dividend (stock dividend or dividend in-kind) (Pieloch, 2013, pp. 433–448) as well as share repurchase (Pieloch, 2012, p. 308).

a financial tool that signals the undervaluation of shares (Chan *et al.*, 2004, p. 463). After an announcement of share repurchase the market share price usually increases. As a result, the company may avoid a hostile takeover (Billett & Xue, 2002, p. 1649).

Moreover, the company's size and age can have an impact on the form of payout policy. The small and young companies use the net profit for development. This may result in lower payouts or in the lack of payouts (Sierpińska, 1999). In turn, the large and mature companies are said to be more likely to transfer cash to the shareholders due to a reduced number of profitable investment opportunities, as well as a greater chance for obtaining cheaper external capital (DeAngelo *et al.*, 2006, pp. 227–254).

Another determinant of payout policy is the ownership structure. The companies with a strong ownership concentration are seen to pay high and regular dividends (Short *et al.*, 2002, pp. 105–122), but these in which the ownership is dispersed use share repurchases to exclude the certain groups of shareholders and change the distribution of votes at the annual general meeting of shareholders (Ginglinger & L'Her, 2006, pp. 77–94).

To the macroeconomic determinants of payout policy belong, among others, the economic situation and tax system. With the growth of GDP there is observed an increase in the number of companies paying dividends (Kowerski, 2010, pp. 19–34), whereas in the period of recession the number of companies repurchasing shares increases due to the undervaluation of shares (Hung & Chen, 2010, p. 101). Moreover, the different tax rates can influence the shareholders' preferences for the form of cash transfer (see Jacob & Jacob, 2013, p. 1241).

The specified payout policy can be conducted as a response to the stock investors' needs. The short-term investors may prefer capital gains to dividends. In turn, some long-term investors, who treat the dividend as a part of their regular income, will look for opportunities to buy shares paying regular and high dividends (Gajdka, 2013, p. 130). Moreover, some investors are 'anchored' in the conviction that the future value of dividend will be held at the same or similar level as historical one (Fisher & Statman, 2000, p. 72–81). In this case, a decrease in dividend payment may result in lower market value of company. What is more, the shareholders' preferences may be shaped by so called mental accounting (Szyszka, 2013, p. 38). One of the principles of mental accounting says that stock investor should combine a smaller loss with a higher profit. Therefore, investors holding the shares whose market price has decreased will expect the dividend at the level which compensates them for the capital loss.

Furthermore, according to the catering theory of dividend, the payout policy should be carried out in the form of payment that is preferred by the

shareholders. During the years in which the capital market values the dividend payers higher than the non-payers (i.e. the dividend premium is high), managers should try to meet the shareholders' needs and pay the dividend (Baker & Wurgler, 2004, p. 1125). In turn, during the years in which the share repurchase premium is higher than the dividend premium, the number of share repurchases should increase (Li & Lie, 2006, p. 293).

In behavioral finance there is a view saying that if stock investors can see strong opportunities for economic growth, they will not prefer to be paid dividend and will leave the net profit in the company for investment. Otherwise (i.e. if the opportunities for economic growth are not strong), the investors will prefer dividend (Gajdka, 2013, p. 143). This will be shown in the relatively higher market value of dividend payers during the fall in the stock market (Fuller & Goldstein, 2011, p. 457). Moreover, the dividend paid during the fall in the stock market may reduce the perception of capital loss.

## **Research methodology**

The empirical research was conducted on a group of 42 companies<sup>3</sup> operating in the electromechanical industry sector. They were listed on the Warsaw Stock Exchange in the years 2006–2015. The research was carried out on the basis of data from Notoria Serwis S, Stock Exchange Yearbooks, National Court Register and Emerging Markets Information Service.

An empirical verification of research hypothesis was conducted in a few stages. Firstly, the research group was divided according to the form of payout policy which was implemented in the company (i.e. dividend payers, companies repurchasing share, companies conducting the payout policy in both forms of cash transfer, as well as non-payers). Then, the average values of the main characteristics were calculated.

In the next stage of analysis, we calculated the taxonomic measure of investment attractiveness (*tmai*) which is a method of linear ordering. It allows to replace a multivariate analysis of diagnostic variables by one aggregated characteristic (Tarczyński, 1994, pp. 275–300). As the diagnostic variables, we adopted 13 determinants of payout policy, such as: company's financial liquidity (we used current ratio *CR*, quick ratio *QR* and money ratio *MR*), profitability (measured by return on sales *ROS*, return on equity *ROE* and return on assets *ROA*), debt (we calculated debt-to-assets

---

<sup>3</sup> The analysed companies paid out dividend 109 times and conducted share repurchases 26 times.

ratio  $D/A$  and debt-to-ebitda  $D/EBITDA$ ), market value of company (measured by price-to-book value  $p/BV$  and price-to-earnings  $p/E$ )<sup>4</sup>, company's size (calculated as the natural logarithm of total assets  $\ln Ass$ ) and age ( $Age$ ), as well as the share of majority shareholders in ownership structure ( $Share$ ).

The taxonomic measure of investment attractiveness ( $tmai$ ) based on the main determinants of payout policy is expressed as the function:

$$tmai = f(CR, QR, MR, ROS, ROE, ROA, \frac{D}{A}, \frac{D}{EBITDA}, \frac{p}{BV}, \frac{p}{E}, \ln Ass, Age, Share) \quad (1)$$

The diagnostic variables were divided into stimulants ( $CR, QR, MR, ROS, ROE, ROA, \ln Ass, Age, Share$ ) and destimulants ( $D/A, D/EBITDA, p/BV, p/E$ ) and then brought to comparability and normalized (Grabiński *et al.*, 1989, p. 93). The taxonomic measure of investment attractiveness based on the Euclidean distance ( $tmai_e$ ) was calculated using the following formula (Łuniewska & Tarczyński, 2006, pp. 43–45):

$$tmai_e = 1 - \frac{\sqrt{\frac{\sum_{j=1}^m (z_{ij} - z_{0j})^2}{m}}}{d_0} \quad (2)$$

where:

$z_{ij}$  – a normalized observation  $x_{ij}$ ,

$z_{0j}$  – a norm for the  $j$ -th variable,

$m$  – a number of variables,

$d_0$  – a maximum value of nominator.

The taxonomic measure of investments attractiveness calculated using weights ( $tmai_w$ ) was expressed by the formula (Łuniewska & Tarczyński, 2006, p. 45):

$$tmai_w = 1 - \frac{\sqrt{\frac{\sum_{j=1}^m w_j (z_{ij} - z_{0j})^2}{m}}}{d_0} \quad (3)$$

where:

$w_j$  – a weight for the  $j$ -th variable, other symbols above.

---

<sup>4</sup> Depending on the purpose of analysis a set of diagnostic variables may be different (see Łuniewska & Tarczyński, 2006, p. 46), but the variables should be chosen in such way that higher value of  $tmai$  means higher investment attractiveness of company. The way of financial ratios calculation is given in the literature (see Jerzemowska (ed.), 2004, pp. 135–324). The values of diagnostic variables were calculated as the average values at the beginning of the year in which the payout policy was implemented.

The weights system was based on variability coefficients of diagnostic variables expressed by the formula (Łuniewska & Tarczyński, 2006, p. 45):

$$w_j = \frac{V_j}{\sum_{j=1}^m V_j} \quad (j = 1, 2, \dots, m) \quad (4)$$

where:

$V_j$  – a variation coefficient of the  $j$ -th diagnostic variable before normalization (calculated as the relationship between standard deviation of variable and its average value), other symbols above.

The empirical research on the investment attractiveness of companies implementing different forms of cash transfer was extended to such determinants of payout policy as: regularity of payments<sup>5</sup>, stock exchange situation<sup>6</sup> and investors' preferences. The investors' preferences were expressed — according to the extended catering theory of dividend — as the difference between share repurchase premium and dividend premium in year  $t$ <sup>7</sup>. This difference ( $DIF_t$ ) was calculated using the following formula (Jiang *et al.*, 2013, p. 41):

$$DIF_t = RP_t^{R-NR} - DP_t^{D-ND} \quad (5)$$

where:

$RP_t^{R-NR}$  – a share repurchase premium in year  $t$ ,

$DP_t^{D-ND}$  – a dividend premium in year  $t$ .

After replacing share repurchase premium and dividend premium by relevant formulas,  $DIF_t$  was calculated as (compare Baker & Wurgler, 2004, p. 11; Jiang *et al.*, 2013, p. 41; Gajdka, 2013, p. 152–153):

---

<sup>5</sup> As the regular payments we understand such cash transfers which were conducted at least 3 times during the 5 previous years. This assumption was made in accordance with the WIGdiv index methodology (*Stock Exchange Yearbook*, 2013, p. 104). Otherwise, we considered the payments to be irregular.

<sup>6</sup> The division of research period into the years of the fall and the rise in the stock exchange was made on the basis of the level of WIG index in those years.

<sup>7</sup> We assumed that in the year when the difference between share repurchase premium and dividend premium ( $DIF_t$ ) was positive, the shareholders preferred companies repurchasing shares to dividend payers. When  $DIF_t$  was negative we assumed that stock investors preferred dividend payers to companies repurchasing shares.

$$DIF_t = \left[ \ln \left( \sum_{i=1}^{n_R} \frac{p_i}{BV_i} \right) - \ln \left( \sum_{j=1}^{n_{NR}} \frac{p_j}{BV_j} \right) \right] - \left[ \ln \left( \sum_{s=1}^{n_D} \frac{p_s}{BV_s} \right) - \ln \left( \sum_{z=1}^{n_{ND}} \frac{p_z}{BV_z} \right) \right] \quad (6)$$

where:

$p/BV$  – a price-to-book value ratio in  $i$ -th,  $j$ -th,  $s$ -th and  $z$ -th company,

$n_R$  – a number of companies repurchasing shares,

$n_{NR}$  – a number of companies that do not repurchase share,

$n_D$  – a number of dividend payers,

$n_{ND}$  – a number of companies that do not pay dividend.

### **The results of empirical research on the determinants of payout policy and investment attractiveness of companies**

The analysis of companies operating in the electromechanical industry sector in the years 2006–2015 has showed that the companies conducting the payout policy in various forms of cash transfer differed in terms of financial standing, market valuation, company's size and age, as well as ownership structure. The empirical research also showed that payout policy and investment attractiveness of companies are conditioned by such factors as: regularity of payments, stock exchange situation and stock investors' preferences.

The research results have revealed that the average financial liquidity of dividend payers was higher than the average liquidity in sector. The average current ratio ( $CR$ ) was at the level of 3.40, quick ratio ( $QR$ ) was at 2.61, and money ratio ( $MR$ ) was at 1.03. It is worth noting that the dividend payers were more liquid than the companies repurchasing shares, the companies conducting payout policy in both forms of cash transfer, as well as the non-payers. The dividend payers were also profitable companies. Their profitability ratios were higher than sectoral ratios (average  $ROS$  and  $ROE$  were at the level of 0.13 and  $ROA$  was at 0.09), but lower than the profitability ratios of companies conducting the payout policy in both forms of cash transfer. Moreover, the debt ratios of dividend payers were lower than the average debt ratios. The average debt-to-assets ratio ( $D/A$ ) was the lowest one and equal to 0.32. The average  $D/EBITDA$  ratio was also the lowest and stood at 3.38. What is more, the market value of dividend payers was high. Their average price-to-book value ratio ( $p/BV$ ) was equal to 1.75 — higher than in the companies repurchasing shares, but lower than in the companies carrying out the payout policy in both forms of cash transfer. The average price-to-earnings ratio ( $p/E$ ) of dividend payers was at 18.48. The value of this ratio was lower than in the companies conducting the payout policy in both forms of cash transfer, as well as in the non-payers.



Considering the company's size it should be noted that the average value of natural logarithm of total assets of the dividend payers was similar to  $\ln Ass$  calculated for the companies repurchasing shares and stood at 11.93. Moreover, the average age of dividend payers (approx. 45 years) was longer than the age of companies repurchasing shares. The ownership structure of dividend payers was similar to that one of non-payers and companies repurchasing shares. The average share of majority shareholders in the ownership structure was 66% (see Table 1).

The companies repurchasing shares had the lowest financial liquidity. The average values of their liquidity ratios were twice lower than those of dividend payers ( $CR$  was at 1.79,  $QR$  was at 1.34 and  $MR$  was at 0.36). Moreover, the companies repurchasing shares were not as profitable as other companies in analysed sector ( $ROS$  was at 0.02,  $ROE$  was at 0.08 and  $ROA$  was at 0.05). Their debt was also higher ( $D/A$  was at the level of 0.48 and  $D/EBITDA$  was at 5.21). What is more, the companies repurchasing shares were undervalued ( $p/BV$  was at 1.11), younger than other companies (their average age was 32 years), and their majority shareholders held only 29% of shares.

In turn, the companies which conducted the payout policy in both forms of cash transfer were highly profitable ( $ROS$  was at 0.15,  $ROE$  was at 0.16 and  $ROA$  was at 0.12). Their market value was also the highest in sector ( $p/BV$  was equal to 2.16). It should be noted that those companies were run for the longest period of time (approx. 50 years), and their majority shareholders held a large number of shares (average 67% of shares).

In contrast, the financial liquidity, profitability and market value of the non-payers were lower than sectoral ones ( $CR$  was at the level of 2.08,  $QR$  was at 1.67,  $MR$  was at 0.58,  $ROS$  was at 0.06,  $ROE$  was at 0.07,  $ROA$  was at 0.04 and  $p/BV$  was at 1.67). Furthermore, those companies had significant total assets ( $\ln Ass$  was equal to 29.42), high debt ( $D/A$  was at 0.91), the lowest average age (19.5 years), and strong ownership concentration (69%) (see Table 1).

The different determinants of payout policy can affect the investment attractiveness of shares bought by the stock investors. The empirical research on the investment attractiveness of companies conducting the payout policy in different forms of cash transfer has showed that the dividend payers had the highest investment attractiveness ( $tmai_e$  was at 0.65, and  $tmai_w$  amounted to 0.53). The investment attractiveness of companies conducting the payout policy in both forms of cash transfer was lower than that one of the dividend payers ( $tmai_e$  was at 0.38, and  $tmai_w$  was at 0.43). In turn, the companies repurchasing shares reached the lowest investment attractiveness ( $tmai_e$  stood at 0.18, and  $tmai_w$  was at 0.22). It should be added that

their investment attractiveness was even lower than that one of the non-payers (in this case  $tmai_e$  was equal to 0.25, and  $tmai_w$  stood at 0.30) (see Table 2).

The efficiency of capital investment was not only determined by the financial standing, market valuation, companies' age, size and ownership structure, but it also depended on the regularity of payment, stock exchange situation and investors' preferences.

The evaluation of capital involvement, conducted regarding to the regularity of payments, showed that the investment attractiveness of regular dividend payers<sup>8</sup> was very high ( $tmai_e$  was equal to 0.53, and  $tmai_w$  was at 0.58) in comparison to irregular dividend payers ( $tmai_e$  stood at 0.31, and  $tmai_w$  was equal to 0.46). In turn, the highest investment attractiveness of companies repurchasing shares was observed in case of irregular share repurchases<sup>9</sup> ( $tmai_e$  was equal to 0.70, and  $tmai_w$  was at 0.62) (see Table 3).

The analysis of investment attractiveness of companies conducting the payout policy in different forms of cash transfer was extended to the stock market situation<sup>10</sup> (see Table 4).

During the increase in the stock market, the highest taxonomic measure of investment attractiveness was observed in the companies conducting the payout policy in both forms of cash transfer ( $tmai_e$  was equal to 0.56, and  $tmai_w$  was at 0.50). It was also worth to invest in the dividend payers ( $tmai_e$  stood at 0.33, and  $tmai_w$  was at 0.44). The lowest investment attractiveness was noticed in the companies repurchasing shares ( $tmai_e$  was equal to 0.11, and  $tmai_w$  was at 0.16 — lower than  $tmai$  calculated for the non-payers). During the fall in the stock market, it was worth to invest in the non-payers' shares ( $tmai_e$  stood at 0.70, and  $tmai_w$  was at 0.44). In turn, the lowest investment attractiveness was observed in the companies repurchasing shares ( $tmai_e$  was equal to 0.10, and  $tmai_w$  reached the value of 0.16). It should be noted that the dividend payers were more attractive to stock investors during the fall ( $tmai_e$  stood at 0.35, and  $tmai_w$  was at 0.53) than during the increase in the stock market (see Table 4).

The evaluation of investment attractiveness of companies implementing different payout policies was also carried out taking into account share-

---

<sup>8</sup> The regular dividend was frequently paid by: Apator SA and Hydrotor SA (each of them paid 10 dividends), Introl SA and Rafamet SA (7 dividends), as well as Es-System SA, Lena Lighting SA and Sonel SA (6 dividends).

<sup>9</sup> In the research period, the share repurchases were most frequently conducted by Amica SA (6 times).

<sup>10</sup> For the years of fall in the Warsaw Stock Exchange we took the years in which an annual rate of return of WIG index was negative, i.e. 2008 (-51.07%), 2011 (-20.83%) and 2015 (-9.62%) (see Parkiet.com).

holders' preferences expressed as the difference between share repurchase premium and dividend premium. The results of research showed that in the majority of years stock investors preferred dividends to share repurchases. Only in the year 2013 was  $DIF_t$  positive, and equal to 0.43 (see Table 5).

In the years when the stock investors preferred dividend (i.e.  $DIF_t < 0$ ), the highest investment attractiveness was observed for the dividend payers ( $tmai_e$  was at 0.51, and  $tmai_w$  stood at 0.36). Moreover, the companies conducting the payout policy in both forms of cash transfer were also seen as a good investment opportunity ( $tmai_e$  was at 0.34, and  $tmai_w$  was at 0.32). When dividend premium was high, the investment attractiveness of companies repurchasing shares was the lowest ( $tmai_e$  stood at 0.09, and  $tmai_w$  was equal to 0.15 — lower than in case of the non-payers).

In turn, when the stock investors preferred the companies repurchasing shares (i.e.  $DIF_t > 0$ ), the highest investment attractiveness was observed in the companies that conducted the payout policy in both forms of cash transfer ( $tmai_e$  was at 0.70, and  $tmai_w$  was at 0.35). Furthermore, the investment attractiveness of companies repurchasing shares was not high ( $tmai_e$  stood at 0.29, and  $tmai_w$  was equal to 0.33). It was only higher than that one of the non-payers (see Table 6).

It should be also noted that in the years when the stock investors preferred share repurchases to dividends, the investment attractiveness of companies repurchasing shares was higher than in the years when shareholders preferred dividend (see Table 6).

## Conclusions

The analysis of companies operating in the electromechanical industry sector showed that the form of payout policy is affected by different determinants. One of them was the financial standing of company. The financial condition of dividend payers was better in relation to the financial condition of companies repurchasing shares (i.e. the dividend payers were more profitable and liquid, their debt was lower, and market valuation was higher). Those companies also differed in terms of company's age and ownership structure. The companies repurchasing shares were younger than the dividend payers, and their ownership was highly dispersed. The indicated determinants of payout policy also conditioned the investment attractiveness of companies. The highest investment attractiveness was observed for the dividend payers and the lowest for the companies repurchasing shares.

The conducted analysis was extended to other determinants of payout policy (i.e. regularity of payment, stock exchange situation and sharehold-

ers' preferences). Among the dividend payers, the highest investment attractiveness was observed for the companies that paid dividend regularly. In turn, the analysis of companies repurchasing shares has showed that the stock investors preferred irregular share repurchases. Moreover, when there was an increase in the stock market, the most attractive for stock investors were companies conducting the payout policy in both forms of cash transfer. In turn, if there was a fall in the stock market, shareholders preferred the non-payers. Furthermore, in the years when stock investors expected to receive dividend, the dividend payers were more attractive for them. Otherwise, the highest investment attractiveness was observed in the companies that repurchased shares together with dividend payment.

In addition, it is worth noting that the presented results of research relate only to the electromechanical industry sector and should not be generalized. The research ought to be extended not only to other economic sectors, but also to other determinants of payout policy.

## References

- Allen, F., & Michaely, R. (2003). Payout policy. In G. Constantinides, M. Harris, & R. Stulz. (Eds.). *Handbooks of the economics of finance*. Amsterdam: North-Holland.
- Baker, M., & Wurgler, J. (2004). Appearing and disappearing dividends: the link to catering incentives. *Journal of Financial Economics*, 73(2). doi: 10.1016/j.jfineco.2003.08.001.
- Billett, M. T., & Xue, H. (2002). The takeover deterrent effect of open market share repurchases. *Journal of Finance*, 62(4). doi: 10.1111/j.1540-6261.2007.01258.x.
- Brav, A., Graham, J. R., Harvey, C. R., & Michaely, R. (2005). Payout policy in the 21st century. *Journal of Financial Economics*, 77(3). doi: 10.1016/j.jfineco.2004.07.004.
- Chan, K., Ikenberry, D., & Lee, I. (2004). Economic sources of gain. *Journal of Financial and Quantitative Analysis*, 39(3).
- DeAngelo, H., DeAngelo, L., & Stulz, R. (2006). Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial Economics*, 81(2). doi: 10.1016/j.jfineco.2005.07.005.
- 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.
- Fisher, K. L., & Statman, M. (2000). Cognitive biases in market forecast. *Journal of Portfolio Management*, 27(1). doi: 10.3905/jpm.2000.319785.
- Fuller, K., & Goldstein, M. (2011). Do dividends matter more in declining markets? *Journal of Corporate Finance*, 17(3). doi: 10.1016/j.jcorpfin.2011.01.001.
- Gajdka, J. (2013). *Behavioural corporate finance*. Lodz: Publisher of the University of Lodz.

- Ginglinger, E., & L'Her, J. F. (2006). Ownership structure and open market stock repurchases in France. *European Journal of Finance*, 12(1). doi: 10.1080/13518470500039543.
- Grabiński, T., Wydmus, S., & Zeliaś, A. (1989). *Methods of numerical taxonomy in modeling socio-economic phenomena*. Warsaw: PWE.
- Grullon, G., & Ikenberry, D. L. (2000). What do we know about stock repurchases. *Journal of Applied Corporate Finance*, 13(1). doi: 10.1111/j.1745-6622.2000.tb00040.x.
- Holder, M., Langrehr, F., & Hexter L. (1998). Dividend policy determinants. An investigation of the influences of stakeholders theory. *Financial Management*, 27(3).
- Hung, J. H., & Chen, Y. P. (2010). Equity undervaluation and signaling power of share repurchases with legal restrictions. *Emerging Markets Finance & Trade*, 46(2).
- Jacob, M., & Jacob, M. (2013). Taxation, dividends, and share repurchases: taking evidence global. *Journal of Financial & Quantitative Analysis*, 48(4). doi: 10.1017/S0022109013000367.
- Jensen, G. R., Solberg, D. P., & Zorn, T. S. (1992). Simultaneous determination of insider ownership, debt and dividend policies. *Journal of Financial and Quantitative Analysis*, 27(2). doi: 10.2307/2331370.
- Jerzemska, M. (Ed.). (2004). *Economic analysis in the company*. Warsaw: PWE.
- Jiang, Z., Kim, K. A., Lie, E., & Yang, S. (2013). Share repurchases, catering, and dividend substitution. *Journal of Corporate Finance*, 21. doi: 10.1016/j.jcorpfin.2013.01.004.
- Kowerski, M. (2010). Influence of entrepreneurs and consumers' economic moods on dividends decisions of capital companies. *Regional Barometer*, 2(20).
- Kulchania, M. (2016). Cost structure and payout policy. *Financial Management*, 45(4). doi: 10.1111/fima.12133.
- La Porta, R., Lopez, F., Shleifer, A., & Vishny, R. (2000). Agency problems and dividend policies around the world. *Journal of Finance*, 55(1). doi: 10.1111/0022-1082.00199.
- Li, W., & Lie, E. (2006). Dividend changes and catering incentives. *Journal of Financial Economics*, 80(2). doi: 10.1016/j.jfineco.2005.03.005.
- Łuniewska, M., & Tarczyński, W. (2006). *Methods of multidimensional comparative analysis on the capital market*. Warsaw: WN PWN.
- Notoria Serwis SA. EMIS. Retrived from: <https://login.han3.lib.uni.lodz.pl/login/login.html> (5.12.2016).
- Parkiet.com. Retrived from: <http://www.parkiet.com/temat/88.html> (10.12.2016).
- Pieloch, A. (2012). *Motives and effects of share buy-back*. Lodz: Publisher of the University of Lodz.
- Pieloch, A. (2013). Non-cash dividend as a tool of capital and ownership restructuring. In: R. Borowiecki, J. Chadam & J. Kaczmarek. (Eds.). *Behaviors of enterprises in the context of new economic challenges*. Cracow: Foundation of the Cracow University of Economics.

- Pieloch-Babiarz, A. (2017). Economic results and attractiveness of investing in shares of the companies paying dividend and conducting buy-backs. *Economic Studies. Scientific Papers of University of Economics in Katowice*, 322.
- Stock Exchange Yearbooks (2006–2016). Retrieved from: [https://www.gpw.pl/biblioteka-gpw-lista?gpwlc\\_id=10](https://www.gpw.pl/biblioteka-gpw-lista?gpwlc_id=10) (10.12.2016).
- Short, H., Zhang, H., & Keasey, K. (2002). The link between dividend policy and institutional ownership. *Journal of Corporate Finance*, 8(2). doi: 10.1016/S0929-1199(01)00030-X.
- Sierpińska, M. (1999). *Dividend policy in capital companies*. Warsaw-Cracow: WN PWN.
- Szyszk, A. (2013). *Behavioral finance and capital markets*. New York: Palgrave Macmillan.
- Tarczyński, W. (1994). A taxonomic measure of investment attractiveness of securities. *Statistical Review*, 3.
- Wiemer, J., & Diel, S. (2008). Strategies for share buybacks. *Journal of Corporate Treasury Management*, 1(4).

## Annex

**Table 1.** Average values of chosen determinants of payout policy and investment attractiveness of companies from electromechanical industry sector

Spec.	CR	QR	MR	ROS	ROE	ROA	D/A	D/Eb	p/BV	p/E	LnAss	Age	Share
D	3.40	2.61	1.03	0.13	0.13	0.09	0.32	3.38	1.75	18.42	11.93	45.67	0.66
D&SR	2.78	1.91	0.64	0.15	0.16	0.12	0.35	3.64	2.16	20.09	12.24	50.86	0.67
SR	1.79	1.34	0.36	0.02	0.08	0.05	0.48	5.21	1.11	17.79	11.90	32.00	0.29
NP	2.08	1.67	0.58	0.06	0.07	0.04	0.91	3.94	1.64	37.70	29.42	19.50	0.69
Total	2.59	2.01	0.74	0.09	0.10	0.06	0.73	3.77	1.67	26.14	16.48	46.64	0.64

Note: D – dividend payers, D&SR – companies conducting the payout policy in both forms of cash transfer, SR – companies repurchasing shares, NP – non-payers, Total – all companies in the electromechanical industry sector.

Source: own calculations based on Notoria Serwis SA, National Court Register, Stock Exchange Yearbooks and Emerging Markets Information Service.

**Table 2.** Investment attractiveness of companies from electromechanical industry sector according to the forms of payout policy

Specification	tmai <sub>e</sub>	tmai <sub>w</sub>
Dividend	0.65	0.53
Dividend & Share Repurchase	0.52	0.43
Share Repurchase	0.18	0.22
No Payout	0.25	0.30
Total Sector	0.51	0.50

Source: own calculations based on Notoria Serwis SA, National Court Register, Stock Exchange Yearbooks and Emerging Markets Information Service.

**Table 3.** Investment attractiveness of companies from electromechanical industry sector according to the regularity of payments

Specification	tmai <sub>e</sub>	tmai <sub>w</sub>
Regular Dividend	0.53	0.58
Irregular Dividend	0.31	0.46
Regular Share Repurchase	0.10	0.18
Irregular Share Repurchase	0.70	0.62

Source: own calculations based on Notoria Serwis SA, National Court Register, Stock Exchange Yearbooks and Emerging Markets Information Service.

**Table 4.** Investment attractiveness of companies from electromechanical industry sector according to the stock market situation

Specification	$tmai_e$	$tmai_w$
<i>Increase in the stock market</i>		
Dividend	0.33	0.44
Dividend & Share Repurchase	0.56	0.50
Share Repurchase	0.11	0.16
No Payout	0.24	0.33
<i>Fall in the stock market</i>		
Dividend	0.35	0.53
Dividend & Share Repurchase	0.30	0.37
Share Repurchase	0.10	0.16
No Payout	0.70	0.57

Source: own calculations based on Notoria Serwis SA, National Court Register, Stock Exchange Yearbooks and Emerging Markets Information Service.

**Table 5.** Difference between share repurchase premium and dividend premium in the years 2006-2015

Spec.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
$DIF_t$	-0.04	-0.90	-0.11	-0.38	-0.89	-0.02	-0.54	0.43	-0.28	-1.23

Source: own calculations based on Stock Exchange Yearbooks.

**Table 6.** Investment attractiveness of companies from electromechanical industry sector according to the shareholders' preferences

Specification	$tmai_e$	$tmai_w$
<i>High dividend premium (<math>DIF_t &lt; 0</math>)</i>		
Dividend	0.51	0.36
Dividend & Share Repurchase	0.34	0.32
Share Repurchase	0.09	0.15
No Payout	0.29	0.25
<i>High share repurchase premium (<math>DIF_t &gt; 0</math>)</i>		
Dividend	0.49	0.35
Dividend & Share Repurchase	0.70	0.35
Share Repurchase	0.29	0.33
No Payout	0.11	0.26

Source: own calculations based on Notoria Serwis SA, National Court Register, Stock Exchange Yearbooks and Emerging Markets Information Service.



**Figure 1.** Determinants of payout policy and their impact on the form of payment and financial benefits gained by the stock investors

