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# Changes in a Company's Current Dividend Level and Their Impact on Future Profits – Theory and Practice<sup>\*</sup>

## Abstract

According to the signalling theory, investors draw conclusions concerning the future income potential of a given company based on the dividends it pays. According to one of the implications of this theory, changes made to a dividend should mirror the direction of future profits. This article presents an empirical analysis of the relationship between the current changes in the level of a dividend paid ( $t_0$ ) and future company profitability ( $t + 1, t + 2$ ). The companies examined were all traded on the Warsaw Stock Exchange and paid dividends in the years 2001–2013. The research shows that there is no statistically significant relationship between the dividend paid in a given year and the future results obtained by the companies examined.

**Keywords:** dividend, signalling theory, dividend changes, payout policy.

**JEL Classification:** G35, G32.

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## 1. Introduction

J. Lintner (1956) was the first scientist to state, on the basis of the results of his research, that corporations are reluctant to change their dividend policy. When they do make such changes and increase their dividends, they do so only when managers come to the conclusion that the company's future earnings will grow permanently. M. H. Miller and F. Modigliani (1961) put forward similar positions. In their opinion, when an entity maintains a stable dividend policy and then changes the amount it pays out, investors interpret these actions as a change of management views on the future earnings potential of the company.

Since J. Lintner's published his conclusions (1956), followed by M. H. Miller and F. Modigliani (1961), many scientists and practitioners have believed that changes made to dividend payments also portend greater or lesser company profitability. Formally, this is defined as the effect, hypothesis, or signalling theory (Sierpińska 1999, p. 122; Cwynar & Cwynar 2007, p. 182; Kowerski 2011, p. 85; Tuzimek 2013, p. 181).

Numerous researchers (e.g. Koch & Shenoy 1999, p. 17; Allen & Michaely 2002, p. 66; Al-Malkawi, Rafferty & Pillai 2010, p. 187; Chen 2006, p. 27; Seaton 2006, p. 44) agree that a signalling theory has two important, empirically verifiable implications. The first is that stock prices should, as soon as the information is announced, move in the same direction as the announced dividend changes. The second is that changes in the dividend paid should mirror the direction of coming profits.

The first notion has attracted a great deal of attention in the literature. Numerous studies (e.g. Pettit 1972; Wyrobek 2004; Kosedag & Qian 2009; Fuller & Blau 2010; Dasilas & Leventis 2011; Kale, Kini & Payne 2012; Tuzimek 2013; Czupryna, Snarska & Żarnowski 2014) have confirmed that share prices generally follow the same direction as the announced changes in dividends, i.e., the increase in dividends is accompanied by an increase in share prices, around the day the dividend change is announced. Numerous studies have likewise focused on the second implication, which is to try to answer the question: can companies' future results be predicted on the basis of current changes in dividend policy? However, the results of the analysis are no less clear than they are for the first implication.

Given this equivocacy, the present study provides an empirical analysis of the relationship between current changes in the level of a dividend paid ( $t_0$ ), and future profitability ( $t + 1, t + 2$ ). The study examines dividend-paying Polish companies traded on the Warsaw Stock Exchange (WSE) in the years 2001–2013.

## 2. Current Dividends and Future Profits – a Review of the Literature

R. Watts (1973) was one of the first scientists to attempt to verify that, on the basis of information on the past and present trends in dividends, it is possible to better predict future returns than it would be using information on the formation of past and current profits. Using a sample of companies for the years 1946–1967, Watts tested whether the level of profits in year  $t + 1$  could be explained by the current (year  $t$ ) and past (year  $t - 1$ ) level of dividends or profits. His results showed a link between future gains and current unexpected changes in dividends. R. Watts (1973, p. 211), however, concluded that dividends actually provided little information of value. N. J. Gonedes (1978), S. Benartzi, R. Michaely and R. Thaler (1997), and H. DeAngelo, L. DeAngelo and D. J. Skinner (1996) draw similar conclusions about the information included in the dividends.

In response to Watts' theory (1973), P. M. Laub (1976) and R. R. Pettit (1976), in two independent 1976 works, questioned his conclusions and stated that the dividends indicate a good deal about future profits. Partially consistent with the signalling theory were also the results of P. M. Healy and K. G. Palepu (1988), who showed that companies that initiated dividend payouts saw profits increase in the year of the initiation and in the two following years. With respect to entities that ceased paying the dividend, the results obtained were the opposite of what the signalling theory envisages. The profitability of these companies decreased in the year in which the cessation of a payout was announced, but it increased significantly over the next two years.

A number of twenty-first century studies in the US have set out to verify the signalling hypothesis. Some have not supported the notion that the dividend signals greater or lesser profitability while others have found the opposite holds, at least in part. G. Grullon, R. Michaely and B. Swaminathan (2002) have analysed a sample of companies that changed their dividends by more than 10% and showed that the growth (or reduction) of dividends in subsequent years was associated with a decrease (or increase) in ROA and a decrease (or increase) in systematic risk. G. Grullon *et al.* (2005) also showed that changes in dividends were negatively correlated with future changes in profitability (ROA). Summarising their results, the authors also categorically stated that changes in dividend policy do not contain any information about future profits.

D. Nissim and A. Ziv (2001) reached a different conclusion, affirming that changes in dividends and changes in profits were positively correlated, which supported the signalling hypothesis. However, they did not find a link between the reduction of dividends and the future profitability (ROE) of enterprises.

B. Howatt *et al.* (2009), however, fully confirmed the signaling theory: Their research showed that the increase/initiation of dividend payout (reduction/discontinuation) led to an increase (decrease) in the future EPS.

S. S. Chen and K. C. Fu (2011) obtained mixed results: While their results did confirm that rising dividends signal future profitability, in the case of a measure of future profits by EBITDA, their results did not confirm the hypothesis.

On balance, as in other countries, the evidence gathered for the US market does not allow the unequivocal conclusion that changes in dividend policy carry information about future results.

Among the works that have confirmed the signalling hypothesis, we can mention the research done by, e.g. R. H. Chowdhury, M. Maung and W. Zhang (2010) on the Chinese market, K. F. Lee (2010) conducted on the Singapore stock market, Y. M. Choi, H. K. Ju & Y. K. Park (2011), presenting dividend signaling in the South Korean market, and E. Liljeblom, S. Mollah and P. Rotter (2015), which verify the signalling theory among companies from Denmark, Norway and Sweden.

Researchers studying the relationship between current dividend changes and the future earnings of companies in the Iranian, British or Malaysian markets have confirmed the signaling hypothesis but only partially. In particular, S. P. Lee, M. Isa and W. L. Lim (2012) for the Malaysian stock market found that changes in dividends (increase/decrease) must be significant (by 50% or more) to bring a specific EPS signal, though the range of this signal was limited to the first year after the change. Analyses by H. Ghodrati and A. Hashemi (2014) conducted for companies in Iran, showed that the impact of the dividend growth on the future profitability (ROE) was positive in the next three years but statistically significant only in the first year. For reduced dividends, the authors did not confirm the signaling hypothesis. O. ap Gwilym *et al.* (2008) likewise failed to confirm it for discontinued payouts on the British market. They did however find statistically significant evidence of the positive impact of the decision to resume dividend payments on future ROE, if only in the first year after the decision. In the next two years, profitability decreased.

There is evidence both confirming and disproving the hypothesis in numerous other countries. Studies done on the stock market in Thailand (Fairchild, Guney & Thanatawee 2014), France and Portugal (Vieira & Raposo 2007) and Turkey (Kadioğlu & Öcal 2016) failed to confirm the hypothesis.

On the Polish capital market E. M. Wrońska (2009), B. Brycz and M. Pauka (2013) as well as A. Pieloch-Babiarz (2015) have tested the signalling hypothesis. Wrońska (2009) analysed the relationship between dividends and various measures of the effects of company earnings before and after dividends. The results of her research did not confirm the hypothesis, however, as the final conclusion was that “for the entities audited, the dividends contain information on past performance and may be used as a signal only of those results”. In turn, B. Brycz and M. Pauka

(2013) investigated instances of companies initiating dividend payments. The results of their analysis have shown that companies initiating dividends have increased their assets and sales revenue in the future. However, they also state that “the prognostication of initial dividends as to future performance is no longer strong enough for investors to base their expectations on”. A. Pieloch-Babiarz (2015) also researched initiating dividend payments. Unlike the other authors mentioned above, she confirmed the signalling hypothesis with the results of the analyses. In particular, she stated that the companies that initiated dividend payments were usually as profitable many years before ( $t - 5$ ) the first payout as they were several years later (up to  $t + 4$ ).

### 3. Research Methodology

The analysis of the relationship between current changes in dividend payout ( $t_0$ ) and future company profitability ( $t + 1, t + 2$ ) was performed using the regression method and five models often cited in the literature – those of S. Benartzi, R. Michaely and R. Thaler (1997), D. Nissim and A. Ziv (2001), G. Grullon *et al.* (2005) as well as S. P. Lee, M. Isa and W. L. Lim (2012).

The signalling tool used in all analyses was the change in the dividend paid. In the present papers, this change was calculated as the rate of change between the level of dividend paid per share in the current year ( $DPS_0 = DIV_0$ ) and the level of dividend paid in the previous year ( $DPS_{-1} = DIV_{-1}$ ). The calculation formula is shown in the equation below:

$$R\Delta DIV_0 = \frac{DIV_0 - DIV_{-1}}{DIV_{-1}},$$

where:

$R\Delta DIV_0$  – a change in the level of dividend paid between the current year and the previous year,

$DIV_0$  – the dividend per share in the current (base) year,

$DIV_{-1}$  – the dividend per share in the previous year in relation to the base year ( $t_0$ ).

I first tested the model used by S. Benartzi, R. Michaely and R. Thaler (1997), who adopted as a dependent variable a ratio representing the relation of the difference between the net profit in year  $t$  to the net profit level in year  $t - 1$ , to the market value of equity in year  $-1$ , where year 0 is the current year (base) in which the change in the dividend is analysed. The independent variable was a ratio in the change in the level of the dividend paid ( $R\Delta DIV_0$ ). Formally the models by Benartzi, Michaely and Thaler can be presented with this formula:

$$\frac{E_t - E_{t-1}}{P_{-1}} = \alpha_0 + \alpha_1 R\Delta DIV_0 + \varepsilon_t,$$

where:

$E_t$  – the net profit in the year  $t$ ,

$E_{t-1}$  – the net profit in the year  $t - 1$ ,

$P_{-1}$  – the market value of equity in the previous year in relation to the base year ( $t_0$ ),

other symbols as above.

D. Nissim and A. Ziv (2001) are the authors of the other tested model. In their opinion, changes in future profits should be determined by the book value of an equity rather than by its market value. Therefore, modifying the model by Bernartzi, Michaely and Thaler, Nissam and Ziv used the ratio of the difference between the net profit in year  $t$  and the level of net profit in year  $t - 1$  in relation to the book value of equity in year  $-1$ . In addition, D. Nissim and A. Ziv (2001) also added an  $ROE_{t-1}$  control variable to the model, claiming that it is an important predictor of future earnings changes. Finally, Nissim and Ziv's model can be represented in the form of the following equation:

$$\frac{E_t - E_{t-1}}{B_{-1}} = \alpha_0 + \alpha_1 R\Delta DIV_0 + \alpha_2 ROE_{t-1} + \varepsilon_t,$$

where:

$ROE_{t-1}$  – the profitability of capital in the year  $t - 1$ ,

$B_{-1}$  – the book value of equity in the previous year in relation to the base year ( $t_0$ ),

other symbols as above.

The third model tested in this article is that of D. Nissim and A. Ziv (2001). Taking into account that empirical studies (DeAngelo & DeAngelo 1990; Benartzi, Michaely & Thaler 1997) had shown that the relationship between a dividend change, its increase or reduction, and profit changes is not symmetrical, the authors modified their earlier model. In the new model they introduced primarily two independent variables in order to capture the impact of the growth effect (DPC) and the reduction effect (DNC) of the level of dividend paid on changes in future profitability. Formally, this model can be represented by the following formula:

$$\frac{E_t - E_{t-1}}{B_{-1}} = \alpha_0 + \alpha_{1p} DPC_0 \cdot R\Delta DIV_0 + \alpha_{1n} DNC_0 \cdot R\Delta DIV_0 + \alpha_2 ROE_{t-1} + \alpha_3 \frac{E_0 - E_{-1}}{B_{-1}} + \varepsilon_t,$$

where:

$DPC_0$  – a binary variable, determined on the basis of the dividend per share ratio. It assumes the value of 1 if in the year 0, comparing to the year  $-1$ ,

the dividend was increased, i.e.,  $DPS_0 > DPS_{-1}$ . In other cases it takes the value of 0 (the dividend either was not changed or was reduced);

$DNC_0$  – a binary variable, determined on the basis of the dividend per share ratio. It assumes the value of 1 if in the year 0, in comparison to the year  $-1$ , the dividend was reduced, i.e.  $DPS_0 < DPS_{-1}$ . Otherwise it had a value of 0 (no change or an increase in the level of dividend paid);

other symbols as above.

The model formulated by G. Grullon *et al.* (2005) will be the fourth model tested in this article. The authors, by the verification of the model by Nissim and Ziv, learned that a better predictor of future profitability than ROE is the asset profitability ratio (APR). As a result, they modified Nissim and Ziv's models by introducing the difference in the level of return on assets in the years  $t$  and  $t - 1$  as a dependent variable reflecting changes in future profitability. The model by Grullon *et al.* can be presented using this formula:

$$ROA_t - ROA_{t-1} = \alpha_0 + \alpha_{1p} DPC_0 \cdot R\Delta DIV_0 + \alpha_{1n} DNC_0 \cdot R\Delta DIV_0 + \alpha_2 ROA_{t-1} + \alpha_3 (ROA_0 - ROA_{-1}) + \varepsilon_t,$$

where:

$ROA_t$  – the return on assets in the year  $t$ ,

$ROA_{t-1}$  – the return on assets in the year  $t - 1$ ,

other symbols as above.

The last, fifth model tested is the model formulated by S. P. Lee, M. Isa and W. L. Lim (2012). The authors in this case referred to the Benartzi, Michaely and Thaler model and made some modifications. In their models, S. P. Lee, M. Isa and W. L. Lim (2012) adopted as a dependent variable an index representing the relation of the difference between the net earnings per share ratio in the year  $t$  and the same index in the year  $t - 1$  to the stock price at the beginning of the year  $t$ . Additionally, in this model the authors also introduced a qualitative variable ( $DI_0$ ) alongside a quantitative variable ( $R\Delta DIV_0$ ). The purpose of the qualitative variable was to reflect only the impact of the effect of increasing the level of dividends paid on the changes in future profitability. Formally, the model by Lee, Isa and Lim can be presented using this formula:

$$\frac{EPS_t - EPS_{t-1}}{F_{t-1}} = \alpha_0 + \alpha_1 R\Delta DIV_0 + \alpha_2 DI_0 + \varepsilon_t,$$

where:

$EPS_t$  – the net profit per share in the year  $t$ ,

$EPS_{t-1}$  – is the net profit per share in the year  $t - 1$ ,

$F_{t-1}$  – the stock market price at the beginning of the year  $t$ ,

$DI_0$  – a binary variable, determined on the basis of the dividend per share ratio. It assumes the value of 1 if in the year 0 compared to the year  $-1$  the dividend was increased, i.e.  $DPS_0 > DPS_{-1}$ . Otherwise it assumes the value of 0 (no change or the dividend was reduced).

#### 4. Empirical Verification of the Relationship between Current Dividends and Future Profits

The analysis of the relationship between the current changes in the level of dividend paid ( $t_0$ ) and the future profitability of the companies ( $t + 1, t + 2$ ) which implemented those changes, covered the years 2001–2013. The initial sample constituted companies that were listed on the Warsaw Stock Exchange at the end of 2014 and paid dividends. The list of companies paying dividends and their DPS ratio were identified on the basis of the calendar of dividends paid registered in the Stock Exchange Annals from particular years. However, due to the analysis methodology and the adopted signalling period ( $t + 2$ ), which meant the need to obtain the financial data for the year before the dividend payout and the data 1–2 years after dividends were paid, the initial test sample was narrowed and the study covered only the companies that had paid the dividend not earlier than in 2001 and no later than 2013. As a result of this selection, a sample of 243 subjects corresponding to 1198 dividends was obtained. A detailed comparison of the sample size according to the years and respective dividends is presented in Table 1.

Table 1. Company Size by Year and Individual Dividends

| Specification | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2001–2013 |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----------|
| DPS growth    | 25   | 15   | 32   | 32   | 52   | 47   | 42   | 62   | 47   | 59   | 76   | 99   | 91   | 679       |
| DPS unchanged | 4    | 4    | 2    | 7    | 4    | 10   | 11   | 2    | 10   | 15   | 17   | 12   | 9    | 107       |
| DPS reduction | 22   | 28   | 14   | 12   | 11   | 24   | 29   | 31   | 54   | 37   | 36   | 49   | 65   | 412       |
| Total         | 51   | 47   | 48   | 51   | 67   | 81   | 82   | 95   | 111  | 111  | 129  | 160  | 165  | 1198      |

Source: the author's own research on the basis of data of Notoria Serwis and Stock Exchange Annals of the respective years.

Next, based on the information on the WSE website and in the Notoria Serwis database, financial data was collected for the individual companies and the necessary indicators were calculated for:



- net profits,
- market value of equity,
- book value of equity,
- return on equity (ROE),
- return on assets (ROA),
- net earnings per share (EPS),
- stock market prices.

Table 2 presents the descriptive statistics of the basic financial parameters used in the analyses.

Table 2. Descriptive Statistics of Basic Financial Parameters

| Parameter             | Mean   | Median  | Min.    | Max.   | Q25    | Q75   | Stand. dev. |
|-----------------------|--------|---------|---------|--------|--------|-------|-------------|
| $(E_1 - E_0)/P_{-1}$  | -0.078 | 0.0047  | -109.22 | 3.31   | -0.026 | 0.038 | 3.22        |
| $(E_2 - E_1)/P_{-1}$  | 0.095  | 0.0002  | -94.02  | 198.05 | -0.043 | 0.039 | 6.45        |
| $(E_1 - E_0)/B_{-1}$  | -0.115 | 0.0061  | -144.45 | 2.20   | -0.039 | 0.054 | 4.22        |
| $(E_2 - E_1)/B_{-1}$  | 0.069  | -0.0002 | -168.01 | 261.94 | -0.069 | 0.055 | 9.08        |
| $(EPS_1 - EPS_0)/F_0$ | -0.037 | 0.0024  | -88.81  | 32.87  | -0.028 | 0.032 | 2.76        |
| $(EPS_2 - EPS_1)/F_1$ | 0.232  | -0.0015 | -88.81  | 281.70 | -0.042 | 0.031 | 8.63        |
| $ROA_1 - ROA_0$       | -0.029 | -0.0007 | -28.12  | 1.68   | -0.026 | 0.021 | 0.82        |
| $ROA_2 - ROA_1$       | -0.005 | -0.0038 | -28.12  | 28.53  | -0.034 | 0.020 | 1.16        |
| $R\Delta DIV_0$       | 0.343  | 0.1667  | -1.00   | 24.63  | -0.571 | 1.000 | 1.58        |
| $ROE_{-1}$            | 0.114  | 0.0952  | -0.55   | 1.14   | 0.044  | 0.160 | 0.13        |
| $ROA_{-1}$            | 0.063  | 0.0482  | -0.49   | 0.81   | 0.022  | 0.091 | 0.08        |

Source: the author, based on the Notoria Serwis data.

Moving on to the analysis of the relationship between the dividend paid in a given year ( $R\Delta DIV_0$ ) and the results obtained in the following year ( $t + 1$ ) and the next one ( $t + 2$ ) in relation to the payout year, the five models discussed earlier by Benartzi, Michaely and Thaler (1997), Nissim and Ziv (2001), Grullon *et al.* (2005) and Lee, Isa and Lim (2012) were used. The results of the analyses are presented in Tables 3–7.

As the results from the data presented in Tables 3–7 show, regardless of the model analysed, there is no statistically significant relationship between the dividend paid in a given year ( $R\Delta DIV_0$ ) and the companies' results in the following year ( $t + 1$ ) as well as the second one ( $t + 2$ ) in relation to the year of dividend payment.

Table 3. Summary of Regression for the Benartzi, Michaely and Thaler Models

| $(E_t - E_{t-1})/P_{-1} = \alpha_0 + \alpha_1 R\Delta DIV_0 + \varepsilon_t$ |            |                 |        |        |
|--|------------|-----------------|--------|--------|
| Parameter  | $\alpha_0$ | $R\Delta DIV_0$ | $F$    | $R^2$  |
| $t + 1$  |            |                 |        |        |
| mean   | -0.0909    | 0.0399          | 0.4599 | 0.0003 |
| <i>t</i> -stat.  | -0.9445    | 0.6781          |        |        |
| <i>p</i> -value  | 0.3450     | 0.4977          |        |        |
| $t + 2$  |            |                 |        |        |
| mean   | 0.1303     | -0.1106         | 0.8766 | 0.0007 |
| <i>t</i> -stat.  | 0.6753     | -0.9362         |        |        |
| <i>p</i> -value  | 0.4996     | 0.3493          |        |        |

Source: the author, based on the Notoria Serwis data.

Table 4. Summary of Regression for Nissim and Ziv's First Model

| $(E_t - E_{t-1})/B_{-1} = \alpha_0 + \alpha_1 R\Delta DIV_0 + \alpha_2 ROE_{t-1} + \varepsilon_t$ |            |                 |             |        |        |
|---|------------|-----------------|-------------|--------|--------|
| Parameter   | $\alpha_0$ | $R\Delta DIV_0$ | $ROE_{t-1}$ | $F$    | $R^2$  |
| $t + 1$   |            |                 |             |        |        |
| mean  | -0.1352    | 0.0614          | 0.0459      | 0.3467 | 0.0006 |
| <i>t</i> -stat.   | -1.0759    | 0.7952          | -0.2712     |        |        |
| <i>p</i> -value   | 0.2821     | 0.4266          | 0.7862      |        |        |
| $t + 2$   |            |                 |             |        |        |
| mean  | 0.1200     | -0.1572         | -0.0032     | 0.4508 | 0.0008 |
| <i>t</i> -stat.   | 0.4434     | -0.9451         | -0.0691     |        |        |
| <i>p</i> -value   | 0.6575     | 0.3447          | 0.9448      |        |        |

Source: the author, based on the Notoria Serwis data.

Table 5. Summary of Regression for Nissim and Ziv's Second Model

| $(E_t - E_{t-1})/B_{-1} = \alpha_0 + \alpha_p DPC_0 \cdot R\Delta DIV_0 + \alpha_m DNC_0 \cdot R\Delta DIV_0 + \alpha_2 ROE_{t-1} + \alpha_3 (E_0 - E_{-1})/B_{-1} + \varepsilon_t$ |            |  |  |             |                               |        |        |
|---|------------|--|--|-------------|-------------------------------|--------|--------|
| Parameter   | $\alpha_0$ | $DPC_0 \times$<br>$\times R\Delta DIV_0$ | $DNC_0 \times$<br>$\times R\Delta DIV_0$ | $ROE_{t-1}$ | $\frac{E_0 - E_{-1}}{B_{-1}}$ | $F$    | $R^2$  |
| $t + 1$   |            |  |  |             |                               |        |        |
| mean  | 0.0134     | -0.0016                                  | 0.4681                                   | -0.0215     | 0.5413                        | 0.8435 | 0.0028 |
| <i>t</i> -stat.   | 0.0825     | -0.0187                                  | 1.5327                                   | -0.4626     | 0.7647                        |        |        |
| <i>p</i> -value   | 0.9342     | 0.9851                                   | 0.1255                                   | 0.6436      | 0.4445                        |        |        |
| $t + 2$   |            |  |  |             |                               |        |        |
| mean  | -0.2115    | -0.0148                                  | -1.0346                                  | 0.0105      | -2.5711                       | 1.5359 | 0.0052 |
| <i>t</i> -stat.   | -0.6035    | -0.0776                                  | -1.5765                                  | 0.2234      | -1.6921                       |        |        |
| <i>p</i> -value   | 0.5462     | 0.9381                                   | 0.1151                                   | 0.8232      | 0.0908                        |        |        |

Source: the author, based on the Notoria Serwis data.

Table 6. Summary of Regression for the Grullon, Michaely, Benartzi and Thaler Models

$$ROA_t - ROA_{t-1} = \alpha_0 + \alpha_{1p} DPC_0 \cdot R\Delta DIV_0 + \alpha_{1n} DNC_0 \cdot R\Delta DIV_0 + \alpha_2 ROA_{t-1} - \alpha_3 (ROA_0 - ROA_{-1}) + \varepsilon_t$$

| Parameter  | $\alpha_0$ | $\frac{DPC_0 \times}{\times R\Delta DIV_0}$ | $\frac{DNC_0 \times}{\times R\Delta DIV_0}$ | $ROA_{t-1}$ | $\frac{ROA_0 -}{+ ROA_{-1}}$ | $F$    | $R^2$  |
|------------|------------|---|---|-------------|------------------------------|--------|--------|
| $t + 1$    |            |   |   |             |                              |        |        |
| mean       | -0.0071    | 0.0175                                      | 0.0574                                      | -0.0082     | 0.3747                       | 0.9467 | 0.0032 |
| $t$ -stat. | -0.1794    | -0.0151                                     | 0.9271                                      | -0.0242     | 1.0654                       |        |        |
| $p$ -value | 0.8576     | 0.98791                                     | 0.3540                                      | 0.9806      | 0.2868                       |        |        |
| $t + 2$    |            |   |   |             |                              |        |        |
| mean       | 0.0052     | 0.0119                                      | -0.0436                                     | -0.9903     | 0.6940                       | 287.19 | 0.4945 |
| $t$ -stat. | 0.1624     | 0.6781                                      | -0.7199                                     | -33.744     | 2.8882                       |        |        |
| $p$ -value | 0.8709     | 0.4978                                      | 0.4716                                      | 0.0000      | 0.0039                       |        |        |

Source: the author, based on the Notoria Serwis data.

Table 7. Summary of Regression for the Lee, Isa and Lim Models

$$(EPS_t - EPS_{t-1})/F_{t-1} = \alpha_0 + \alpha_1 R\Delta DIV_0 + \alpha_2 DI_0 + \varepsilon_t$$

| Parameter  | $\alpha_0$ | $R\Delta DIV_0$ | $DI_0$  | $F$    | $R^2$  |
|------------|------------|-----------------|---------|--------|--------|
| $t + 1$    |            |                 |         |        |        |
| mean       | -0.0763    | 0.0027          | 0.0672  | 0.1001 | 0.0002 |
| $t$ -stat. | -0.6046    | 0.0457          | 0.3569  |        |        |
| $p$ -value | 0.5455     | 0.9635          | 0.7211  |        |        |
| $t + 2$    |            |                 |         |        |        |
| mean       | 0.6703     | -0.0480         | -0.7450 | 1.3736 | 0.0023 |
| $t$ -stat. | 1.7006     | -0.2603         | -1.2647 |        |        |
| $p$ -value | 0.0892     | 0.7946          | 0.2062  |        |        |

Source: the author, based on the Notoria Serwis data.

As for the parameters tested only in one model, i.e. in the model by Grullon *et al.* and only in the year  $t + 2$ , two of them were statistically significant. In particular, the change in the return on assets in the base year ( $t_0$ ) had a positive effect on profitability in the year  $t + 2$ , but this profitability was negatively affected by the profitability from the previous year ( $t - 1$ ). Regardless of this exception, the results obtained for the five tested models and profitability measures mean that the dividend signalling theory cannot be verified for the Polish capital market.

## 5. Conclusions

Although researchers (e.g. Frankfurter, Wood & Wansley 2003, p. 99; Benhamouda 2007, p. 188) generally agree that dividend payments imply something of the future, there is no consensus as to what they actually signal.

In this article, I have verified the signalling hypothesis, based on five models. To the best of my knowledge, it was tested for the first time on data from the Polish capital market. The article has presented the effect of dividend signalling, especially the analysis of the relationship between the current changes in the level of the dividend paid and future profitability. The analyses comprised companies listed on the main market of the Warsaw Stock Exchange at the end of 2014 which had made dividend payments no earlier than in 2001 and no later than 2013.

The studies done for this article show that, irrespective of the analysed model, there is no statistically significant relationship between the dividend paid in a given year and the results obtained by the companies in the following year, nor in relation to the year of dividend payment. The results mean that on the Polish capital market, the long-term implications of the dividend signalling theory have not been positively verified for the selected research sample and on the basis of the adopted methodology.

Finally, the empirical research results presented here provide arguments for both supporters and critics of a dividend signalling theory. This means that there are still open questions to answer: do dividend payouts signal and what do they signal? Research on this issue will undoubtedly continue to be done. Considering the development of the concept of value based management, a further analysis of the impact of dividends on the future results of companies is considered particularly relevant, provided it is researched in the context of performance measures specific to this concept, e.g. Economic Value Added and Cash Value Added.

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## **Zmiany w poziomie bieżącej dywidendy i ich wpływ na przyszłe zyski spółki – teoria i praktyka**

(Streszczenie)

Zgodnie z teorią sygnalizacji inwestorzy na podstawie sygnałów pochodzących z ogłoszeń o dywidendach mogą wnioskować na temat przyszłego potencjału dochodowego danego podmiotu. Według tej teorii zmiany w poziomie dywidend powinny pociągać za sobą m.in. takie same, co do kierunku, zmiany w poziomie przyszłych zysków. Celem artykułu jest próba empirycznej analizy związku między bieżącymi zmianami w poziomie wypłacanej dywidendy ( $t_0$ ) a przyszłą zyskownością spółek ( $t + 1$ ,  $t + 2$ ). Analiza objęła spółki krajowe notowane na Giełdzie Papierów Wartościowych w Warszawie, które w latach 2001–2013 dokonały wypłat dywidendy. Na podstawie przeprowadzonych badań można stwierdzić, że brakuje istotnej statystycznie zależności między dywidendą wypłacaną w danym roku a przyszłymi wynikami uzyskiwanymi przez badane podmioty.

**Słowa kluczowe:** dywidenda, teoria sygnalizacji, zmiany dywidendy, polityka wypłat.