

# *Does Dividend Policy Follow the Capital Structure Theory?*

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Decisions concerning the most optimal choice of financing sources and dividend policy are some of the most difficult financial decisions. This article presents the results of research concerning relationships between two capital structure theories (hierarchy theory and substitution theory) and dividend payment policies in Polish stock companies of the agricultural and foodstuff sector (2001–2006). The research hypothesis was verified positively; company management limits dividend payment according to the hierarchy theory and prefers internal sources of financing economic activities. In order to verify the hypothesis, the methods of descriptive analysis, financial analysis and descriptive statistics were applied, together with a fixed effects model.

*Key Words:* dividend policy, hierarchy theory, substitution theory, stock companies, model fixed effects

*JEL Classification:* G32, G35, G38

## **Introduction**

For about 50 years the search for the optimal sources of activity financing and their share in the capital structure occupied the deliberations of the greatest minds in economics and finances. An issue that is strictly connected with the choice of financing sources is dividend policy, which also constitutes a broad research area. The issue of the optimal capital structure (target capital structure), as well as the choice of dividend policy, remains unsolved. Both those areas of research are interconnected and dependent on each other. In addition, the choice of capital structure and dividend policy is dictated by different factors that are difficult to identify and not easy to consider in research. The importance of the issue is underlined by the recognition granted to Modigliani and Miller in the form of the Nobel Prize (the ‘Nobel Prize’ shall be reformulated as Bank of Sweden Prize in Economic Sciences in memory of Alfred Nobel) for their contribution to the development of the science of economics,

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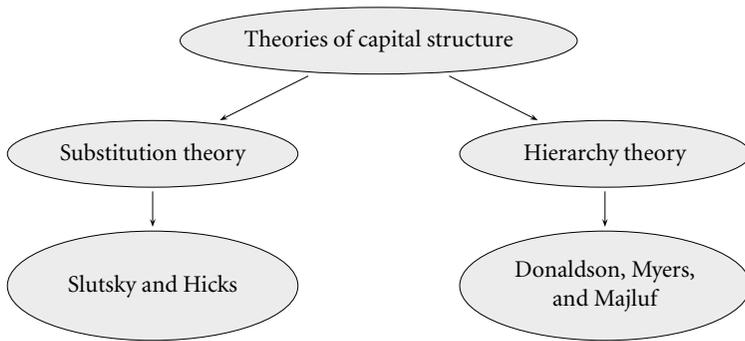


FIGURE 1 Theories of capital structure in the context of dividend policy (based on Hicks and Allen 1934; Donaldson 1961; Myers 1984; Myers and Majluf 1984; Damodaran 1994)

specifically as regards the issues of forming capital structure and, indirectly, dividend policies.

In the theory of economics, and specifically finances, we can observe different attitudes to the issue of shaping the most favorable sources of activity financing, described in the theory of substitution and in the theory of hierarchy (Van Auken 2005). Figure 1 presents two divisions of the theory of capital structure, in whose scope the analysis of dividend policy is conducted.

The substitution (trade-off) theory assumes that entrepreneurs look for such a debt capital to equity capital ratio that will allow them to achieve maximum enterprise value. The risk connected with financing enterprise activities with debt capital is compensated by tax advantages (Theobald 1979; Duliniec 1998) resulting from the decrease of the tax base by interest forming a cost element (this theory assumes the existence of benefits as a result of the tax shield mechanism). This approach is consistent with the Value Based Management concept (Franc-Dąbrowska 2007). Erasmus and Scheepers (2008) discussed the value creation concept not from the capital structure and dividend point of view but highlighting the importance of innovation and entrepreneurship. The substitution theory pays special attention to the occurrence of costs of financial difficulties and the fact that an increase of the debt capital share in the financial structure increases the risk of losing financial liquidity and of bankruptcy (bankruptcy costs include among others administration costs, costs of court proceedings, costs of legal representation related to the staging of liquidation or reorganizing the enterprise, and costs of the

sale of assets in order to save the enterprise from the loss of financial flow). An essential aspect that cannot be omitted in any deliberations concerning the financial situation of enterprises is the necessity of maintaining financial liquidity, the loss of which creates a danger of imminent bankruptcy. From the point of view of choosing the most favorable dividend policy, a crucial point is highlighting the necessity of maintaining financial liquidity (which is essential according to the substitution theory). It cannot be forgotten that any resolution to pay dividends adopted by the management board becomes a binding liability of the company and has to be settled. For this end it is necessary to collect a certain amount of cash (Ross, Westerfield, and Jordan 2006).

Another issue essential from the point of view of dividend policy and considered in the aspect of the substitution theory is the problem of separating the ownership and management functions. This applies to enterprises organized as joint-stock companies and some other entities with a different organizational and legal form. This issue is widely examined by the agency theory; deliberations about the separation of ownership and management were already initiated (but not dwelt upon) by Marshall, who is recognized as the founder of neoclassical economics (Gruszecki 2002). Even though the theory of economics was dominated by the belief that the basic objective of an enterprise is the maximization of profit (although it was rejected by the managerial and behavioral theories, which do not consider it as a paradigm, but as a very important though not the only one objective) (Blaug 2000), Monsens and Downs in the life income maximization theory noticed that managers act in a manner that maximizes their life income and not the profits of the enterprise (Wiszniewski 1994). When ownership and management are separated, the expectations of various groups of interests can be contradictory. The owners may strive after profit from the shares owned (in the form of dividends), while managers may focus on their remunerations. Ultimately, it is accepted that managers should achieve profits on a level that gives the shareholders peace of mind.

The substitution theory therefore consists in replacing equity with debt until a capital structure is obtained that allows achieving maximum enterprise value with the minimum level of the weighted average capital cost. This theory allows one to establish the optimum (it must be remembered that a perfect optimization does not exist, and what is meant here is a quasi-optimum) capital structure, considering the profits and risk of engaging debt capital (Duliniec 1998). Figure 2 presents a graphi-

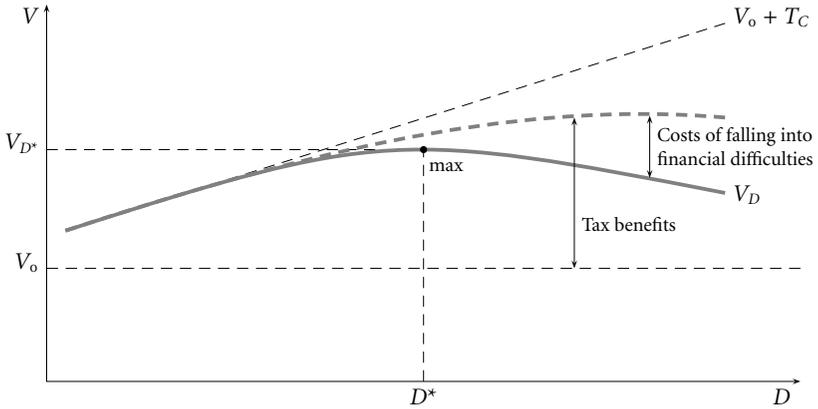


FIGURE 2 Substitution theory in aspect of market value of the enterprise and the value of debt capital (where:  $V_0$  – value of the enterprise without debts,  $T_C$  – income tax,  $D^*$  – level of debt,  $V_{D^*}$  – market value of the enterprise; drawing based on Modigliani and Miller 1958; 1963; Duliniec 1998)

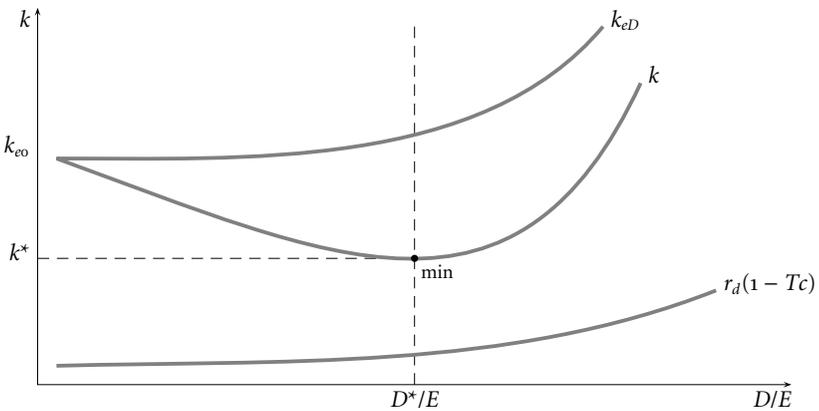


FIGURE 3 Selected indicators characterizing Polish companies of the agricultural and foodstuff industry (average values for the sector) between 2001 and 2006 (where:  $k^*$  – weighted average capital cost,  $k_{eD}$  – cost of equity capital in an indebted enterprise (using the tax shield mechanism),  $r_d$  – effective rate of return on investment,  $D^*/E^*$  – optimal capital structure; drawing based on Modigliani and Miller 1958; 1963; Duliniec 1998)

cal picture of the structure theory expressed by the relationship between the market value of an enterprise and its level of indebtedness, and figure 3 – the relationship between the cost of capital and the debt to equity capital ratio.

Ultimately, the substitution theory indicates several factors that exert

an influence on the decisions concerning the shaping of the optimal capital structure, including:

- the amount of taxable income and income tax rates,
- the level of operational risk,
- the structure of enterprise assets, taking into account their classification as tangible (slower loss of value in case of financial difficulties of the enterprise) and intangible (faster loss of value when the enterprise's financial situation becomes worse) (Duliniec 1998).

The hierarchy theory (pecking order theory) assumes that entrepreneurs define priority sources of capital and not the optimal relationship between liabilities and equity capital. In this theory, the following assumptions are taken:

- entrepreneurs prefer to finance their activities with internal sources, such as: net profit less dividends, depreciation allowances and revenue from sale of short-term securities and others redundant assets,
- in cases when it is necessary to finance activities with debt capital, debt securities are issued first, followed by new shares (Duliniec 1998; Quan 2002; Mazur 2007).

In the hierarchy theory, entrepreneurs look for the cheapest sources of activity financing in order to minimize risk and limit the costs of equity issue or payment of interest on credits and loans. If it is necessary to use the debt capital, debt securities are issued first (McManus, Gwilym, and Thomas 2006; Duliniec 2007). This is why there is a competition between decisions on reinvestment of achieved profit and payment of dividends.

Although business practice seems to indicate an advantage of the hierarchy theory (Brealey, Myers, and Marcus 1995; Franc-Dąbrowska 2008), it has not been explicitly declared as a leading theory. There is no doubt that the substitution theory is in contradiction with the hierarchy theory. The hierarchy theory assumes that companies which achieve high profits reinvest them and are not disposed to pay dividends and incur debts, while the substitution theory assumes the opposite: that it is the companies in a good financial condition and achieving high profits which are disposed to increase their level of debt (Duliniec 1998).

While the substitution theory emphasized costs of bankruptcy and financial difficulties, the hierarchy theory focused on the problem of asymmetry of information between managers and the external investors, because the enterprise management does in fact have more information about its financial situation than do shareholders and creditors.

This asymmetry of information (Jensen and Meckling 1976), essential in the theory of hierarchy, causes managers to make decisions about issuing shares only when the traded stock is overvalued (its high value is not justified by the situation of the enterprise and its investment needs). A drop in stock prices is also caused by an unexpected, sudden reduction of dividend payments, which is interpreted by investors (who do not know the reasons for such a decision) as a worsening of the financial situation of the enterprise and a decrease of their profit. Conversely, when dividend payments are increased, the price of stock goes up even when this is not justified by the enterprise's current situation and growth potential. Consequently, according to the hierarchy theory the managers:

- prefer internal sources of capital injection by leaving achieved profits within the enterprise,
- try to limit the changes of an established dividend policy,
- when achieved profits are greater than investment needs, liabilities are paid off first, and the remaining surpluses invested in liquid, short-term securities,
- when achieved profits are not sufficient for investment needs, entrepreneurs get rid of accumulated short-term securities, and if the capital is still not sufficient, they issue debt securities, and finally new shares (Duliniec 1998; Pike and Neale 2006).

Dividend policy is directly connected with the theories of capital structure. If an enterprise pays dividends, it decreases the degree of financing of equity capital from internal sources, and as a consequence may require external financing sources. The theory of Modigliani and Miller indicating the neutrality of dividend policy for the value of the company was hedged around with assumptions that are far from reality (Modigliani and Miller 1961; 1963). According to the pro-dividend school, investors prefer to receive income from capital invested in shares in the form of a dividend. In their opinion, dividends are a more certain source of income than capital profits from the sale of securities (Sierpińska 1999). The anti-dividend school on the other hand assumes that paying dividends causes a drop in the price of stock. In the opinion of Litzenberger and Ramaswamy, paying dividends is connected with the necessity of spending cash, which periodically leads to its shortage in companies following a dividend payments policy (Litzenberger and Ramaswamy 1979). Moreover it has been found that increasing the share of dividends in the net profit exerts a negative influence on the price of stock (Poterba and Summers 1984). In this situation, companies should

limit dividend payments and allocate achieved profit to equity capital, i. e. act in accordance with the assumptions of the hierarchy theory.

### **Purpose, Scope, and Methodology of Studies**

The article aims to study the correlation between dividend payout and financing of economic activity with company equity in Polish publicly traded companies operating in the food sector.

The following study hypothesis will be provided for verification: Polish capital companies operating within the food sector have been limiting dividend payouts, prioritizing financing of own activity with equity and reinvesting their obtained profits.

In order to verify the research hypothesis, the methods of descriptive analysis, financial analysis and descriptive statistics were applied. The study examined correlation relationships between the capital structure and amount of dividend paid, as well as the financial results of studied companies and their investment expenditures. The fixed effects type of model was applied, which takes into consideration the influence of all factors (unchanging in time) typical for each entity ( $y_{it} = x_{it}\beta + u_i + \varepsilon_{it}$ ) (Kufel 2007).

The research sample consisted of 15 (panel 90) joint stock companies of the agricultural and foodstuff industry, listed on the Warsaw Stock Exchange between 2001 and 2006. Information about the financial situation of companies was taken from financial statements published in the Monitor B journal and resolutions on the division of profits ('Resolutions on profit division' is a document created at the General Meeting of Shareholders, which provides information on the planned usage of the obtained net profit for the concluded financial year).

### **Description of the Examined Population**

Table 1 presents figures characterizing Polish companies of the agricultural and foodstuff industry listed on the Warsaw Stock Exchange. Conducted analyses demonstrated that the companies were growing, a fact measured by the value of total assets. In the period of 6 years the average value of assets increased by about 34%, from 88 thousand Euro to 117 thousand Euro. At the same time, the level of self-financing of activities ranged around 50%. The smallest share of equity capital in the capital structure was observed in 2004 (46%), and the largest in 2003 (53%). Small fluctuations in this respect indicate a stabilization as regards decisions concerning the structure of activity financing. From the point of

TABLE 1 Selected indicators characterizing Polish companies of the agricultural and foodstuff industry (average values for the sector)

Detailed list	2001	2002	2003	2004	2005	2006
Value of total assets (in 1000 of Euro)	87,545	90,067	90,998	112,899	99,442	116,673
Share of equity capital in fin. sources (%)	47.8	49.7	52.8	46.3	49.4	46.4
Total rate of return on assets (ROA, %)	-0.28	2.17	3.62	5.00	8.86	9.22
Return on equity (ROE, %)	-3.3	6.8	12.2	17.8	17.9	19.88
Return on sales (ROS, %)	0.14	3.45	4.08	4.11	6.44	6.96

NOTES Calculated on the basis of financial statements.

view of the capital structure, the level of debt fluctuated around the maximum (in Polish conditions, an accepted average level of debt is 50%, or 30% assuming the more rigorous approach of some banks (Ostaszewski 1992; Sierpińska and Jachna 2004).

In growing, the joint-stock agricultural business companies achieved increasingly better financial results. In the period under study there occurred a significant increase in the rate of return on total assets – from 0.28% (representing ineffective management) to 5.00% – and additionally the increasing tendency was of a stable and constant character. Equally evident was an increase in the return on equity (in spite of the increase of debt and costs of interest). In 2001 the companies achieved an average loss of 0.03 EUR on each invested 1 EUR of equity capital, while in 2006 they had already gained almost 0.2 EUR of profit on the same amount. Similar to total assets and equity capitals, an upwards tendency was observed in the sales profitability index that increased by about 4 percentage points. To sum it up, in the period under study Polish stock companies of the agricultural and foodstuff industry improved their financial situation and were growing, increasing the value of assets.

Table 2 presents company statistics, taking into account the number of companies that pay and do not pay dividends. Figures show that each year at least 1/5 of the studied entities made a decision to pay cash from profits. The greatest number of companies (1/3) made a resolution about dividend payments in 2003. Additionally, out of the companies that did not make a decision about dividend payments in 2001, 40% registered a loss. In the following years, the share of companies registering losses was lower and amounted to 13% in 2002 and 2005, 20% in the period from 2003 to 2004, and 0% in the 2006.

From the point of view of staged analyses, the amount of paid divi-

TABLE 2 Data characterizing joint-stock companies of the agricultural and foodstuff industry as regards payments of dividend

Detailed list	2001	2002	2003	2004	2005	2006
Number of studied companies	15	15	15	15	15	14
Share of companies paying dividend (%)	27	20	33	27	27	14
Share of companies not paying div. (%)	73	80	67	73	73	86
Share of companies registering loss in re-search sample (%)	40	13	20	20	13	0

NOTES Calculated on the basis of financial statements.

TABLE 3 Data characterizing correlation coefficients between the amount of paid dividends, and selected financial measures and the indicator of capital structure (correlation coefficients for  $p < 0.5$ )

Detailed list	2001	2002	2003	2004	2005	2006
Amount of paid dividends and the value of equity capital	0.87	-0.93	0.99	0.99	1.00	—
Amount of paid dividends and the share of equity capital in financing sources	-0.08	0.61	0.15	0.59	0.37	—
Amount of paid dividends and the value of cash at the end of year	-0.23	-1.00	-0.28	-0.19	-0.37	—

NOTES Calculated on the basis of financial statements.

dends exerts an essential influence on the financial situation of the enterprises. For that reason table 3 presents the results of calculations of the strength of relationship between the amount of paid dividends on one hand, and selected financial measurements and the indicator of capital structure on the other. From the point of view of decisions concerning the shaping of capital structure (decisions about injecting equity capital with profits or increasing debts), the influence of a decision to pay dividends on the value of equity capital remains the basic issue. A strong logical relationship between these two figures is confirmed by the values of correlation coefficients indicating an interrelationship that is statistically important. It proves the existence of a direct relationship between the decisions on increasing the value of equity capital and decisions concerning the applied dividend policy, but in a value-based, not structural, perspective. The relationship is therefore close to the assumptions of the hierarchy theory (one of the companies, Żywiec SA – owner of the largest equity of all studied companies – did not provide a dividend payout in 2002, but did so in subsequent years). Thus, the high value of equity and

the lack of dividend payout have dominated the correlation factor for the entirety of the studied group of entities. This phenomenon can also be explained substantively, in addition to the technical explanation provided above. The high absolute value of a given indicator is not always reflected in relative measurements (for example, equity of large value does not always signify a large share of equity in financing sources).

Extremely interesting results have been obtained while analyzing the strength of relationship between the amount of paid dividends and the share of equity capital in activity financing. Staged analyses demonstrate that the relationship is not as strong and unequivocal as was the case for the value of equity capital. Moreover, in 2001 and in 2003 such a relationship was statistically unimportant. This proves that decisions to pay dividends do not have a direct relation to the capital structure, although they do exert a strong influence on the value of equity capital. It seems therefore that there is no express relationship between the substitution theory and the dividend policy.

Considering that decisions concerning dividend payments influence the amount of cash on hand – and in periods of increased spending it is often necessary to supplement cash with debt capital – the statistical relationship between the amount of paid dividends and the value of cash at the end of the year was examined. Calculations show that a statistically important strong relationship between the studied figures was observed only in 2002. In other periods correlation coefficients appeared to be statistically not essential. Interestingly, in 2002 only 20% of companies passed a resolution to pay dividends, and a strong correlation indicates a competition between cash payments from profit and the level of cash (which is obvious, however in that year the companies had difficulties implementing the decision to pay dividends in a liquid manner).

Among competitive decisions concerning finances, apart from the issue of shaping capital structure and implementing the dividend payment policy, there remains another area that exerts an influence on the two first groups of decisions: decisions of an investment character. In order to study the strength of relationships between these competitive financial issues, correlation coefficients between the amount of paid dividends and the value of investment expenditures were calculated. Staged analyses demonstrated that a strong, statistically essential relationship occurred in 2002. In other years the influence of decisions to pay dividends on investment decisions was not observed. In order to deepen the analysis concerning the shaping of capital structure and implementing

TABLE 4 Data characterizing correlation coefficients between the value of financial result, capital structure, and value of investment (correlation coefficients for  $p < 0.5$ )

Detailed list	2001	2002	2003	2004	2005	2006
Amount of paid dividends and the value of investment expenditures	0.21	0.94	-0.40	-0.19	0.01	—
Financial result and the value of investment expenditures	-0.91	0.05	0.07	0.26	0.53	—
The value of investment expenditures and the value of debt	0.90	0.00	-0.10	0.30	0.51	—

NOTES Calculated on the basis of financial statements.

investments, correlation coefficients between the amount of net financial result and the value of investment expenditures were estimated. A strong, statistically essential relationship occurred in 2001, when significant investments were implemented in the studied group of companies (explaining why a 'competition' between paid dividends and investment expenditures occurred in 2002). In the following years (2002–2004) investment expenditures were not dependent on the amount of achieved profit.

The observations are confirmed by ratios between the value of investment expenditures and the value of debt. Similar to the value of financial result, a statistically important relationship of debt level to investment decisions, with strong correlation, was observed in 2001, while in the following years it was statistically not essential, which demonstrates a smaller intensity of investments in the studied companies.

As demonstrated by the studies, the management of Polish stock companies of the agricultural and foodstuff industry gave priority to internal sources of financing, acting in accordance with hierarchy theory, and to a smaller degree focused on the choice of the optimum structure of activity financing.

In order to identify the influence of capital structure on dividend policy, studies were conducted on the basis of panel data. A fixed effects model was applied, taking into consideration the influence of all factors (unchanging in time) typical for each entity. In the studies, the amount of paid dividends was accepted as a dependent variable. Independent variables consisted of financial data derived from financial statements of companies after eliminating financial variables on the basis of colinearity and correlation coefficients (VIF). Calculation results are presented

TABLE 5 Estimated results of the panel analysis

	Factor	Std. error	<i>t</i> -student	<i>p</i> -value
Const.	-6015.16	2820.47	-2.1327	0.03673**
Long-term investments	0.127514	0.0237261	5.3744	<0.00001***
Provisions for liabilities	-0.281638	0.132126	-2.1316	0.03683**
Long-term liabilities	0.254003	0.0868887	2.9233	0.00476***
Management costs <sup>1</sup>	0.102893	0.0931122	1.1050	0.27321
Net financial result	0.457222	0.0466601	9.7990	<0.00001***
<i>dt</i> _2	-5151.43	3364.6	-1.5311	0.13061
<i>dt</i> _3	-4957.5	2899.99	-1.7095	0.09213*
<i>dt</i> _4	-5302.27	3141.4	-1.6879	0.09623*
<i>dt</i> _5	-6457.16	4064.56	-1.5886	0.11699
<i>dt</i> _6	-6288.57	6162.96	-1.0204	0.31133

NOTES Model – estimation established effects with the use of 90 observations; Time series of length = 6; Dependent variable: amount of dividend payment; Resistant standard errors (robust HAC).  $R^2 = 0.96694$ , adjusted  $R^2 = 0.95473$ ,  $F(24, 65) = 79.2061$  ( $p < 0.00001$ ). <sup>1</sup> In the following estimations the management costs achieved the status of a variable that is statistically important for the model – in the final estimation they did not demonstrate such a relationship. \* Significant at the 10 percent level. \*\* Significant at the 5 percent level. \*\*\* Significant at the 1 percent level. Calculated on the basis of financial statements.

in table 5. Factors explaining the dividend payout phenomenon in Polish publicly traded companies of the food sector have been divided into stimulants and destimulants. The creation of reserves for any obligations is a factor that negatively impacts the dividend payout phenomenon, as it reduces the level of profits available for division. The remaining descriptive variables constitute positive influences on the level of dividend: the larger the value of long-term investments, the bigger the dividend level. This occurrence can be explained by the fact that the companies that most often decide to provide dividend payout are either in good financial condition or in their stage of maturity. Thus, they have enough assets for long-term investment and dividend payout (the same results were achieved by the author during her studies of agricultural enterprises in the form of limited liability companies). Long-term obligations are also a factor that increases with the amount of dividend. This phenomenon can be explained in two ways. On one hand, the payout of a dividend results in a limited amount of assets for reinvestment, and the companies are forced to make use of external financing sources (Polish food sector

companies rarely decide to issue more stock). On the other hand, companies that provide dividend payout and have temporary problems with their financial fluidity must utilize external financing measures to finance dividend payout. These situations may occur separately and jointly. The financial result is the biggest stimulating factor. Model research shows that the dividend level is directly proportional to the value of the financial result. Thus, the level of dividend payout in the studied companies is most influenced by the level of obtained profit (the studied companies did not exhibit the behaviour of paying out dividends if a loss was reported at the end of the year).

Attention may be drawn to a good matching of the model and its positive verification using the Fischer-Snedecor test (Baltagi 2003). For the constructed model, the following statistic was achieved:  $F(24, 65) = 79.2061$  ( $p < 0.00001$ ) for  $F_{0.05}(24, 65) = 1.6860$ . Thus,  $79.2061 > 1.6860$ , so the model is a statistically significant description of a dividend payout in the studied enterprises. In addition,  $R^2 = 0.96694$  and corrected  $R^2 = 0.95473$  demonstrate that the constructed model provides a very meaningful explanation of the dividend payout effect in the studied enterprises. Estimation results indicate an interrelationship between the decisions to pay dividends and the shaping of capital structure.

On the basis of Doornik-Hansen statistic test (Kufel 2007) performed,  $\chi^2(2) = 8,456$  with the  $p$ -value  $< 0,01458$ , it must be acknowledged that the cumulative distribution function has a normal distribution. It constitutes therefore additional argument for validity of the model.

### **Research findings**

Decisions concerning the optimal choice of financing sources (capital structure) belong to the most difficult financial decisions. Equally difficult are decisions concerning the choice of the dividend policy that is optimal for the current financial situation. Recognition of relationships between the theories of capital structure and dividend policy may support financial decision processes and allow for choosing such decisions that will influence the financial situation of the enterprise in the most beneficial manner.

### **Conclusions and Implications**

On the basis of staged analyses the following conclusions were formulated:

1. Most Polish joint stock companies of the agricultural and foodstuff industry did make a decision on not paying dividends, preferring to set aside the achieved profit for injecting equity capital.
2. Study results indicate a strong statistical relationship between the amount of paid dividends and the value of equity capital, however they do not confirm such a relationship between the amount of paid dividends and the share of equity capital in sources of activity financing. This confirms the assumption of an interrelationship between theories of capital structure and dividend policies, indicating at the same time the dominance of the hierarchy theory and the smaller practical importance of the substitution theory (from the point of view of decisions to pay dividends).
3. Similar conclusions were formulated on the basis of analyzing the relationship between the amount of paid dividends and investments, and between investments and the levels of financial result and indebtedness, indicating a statistically strong relationship only in periods of significant investment expenditures (it should be assumed that a statistically important relationship will occur periodically when the investments are made, which however cannot be verified because the research period is too short).
4. The results of the analyzed studies undertaken on panel data using a fixed effects model confirmed a relationship between the amount of paid dividends and capital structure (by including the level of long-term investment and provisions for liabilities in the model).

To sum it up, it has been found that Polish companies of the agricultural and foodstuff industry listed on the Warsaw Stock Exchange made decisions concerning dividend policy, in the context of choosing the sources of financing, on the basis of relationships typical for the hierarchy theory. The management of companies preferred internal sources of activity financing, at the same time limiting the payment of dividends.

### References

- Baltagi, B. H. 2003. *Econometric analysis of panel data*. London: Wiley.
- Blaug, M. 2000. *Teoria ekonomii, ujęcie retrospektywne*. Warsaw: Wydawnictwo Naukowe PWN.
- Brealey, R. A., S. C. Myers, and A. J. Marcus. 1995. *Fundamentals of corporate finance*. New York: McGraw-Hill.
- Damodaran, A. 1994. *Damodaran on valuation, security analysis for investment and corporate finance*. New York: Wiley.

- Donaldson, G. 1961. *Corporate debt capacity: A study of corporate debt policy and the determinants of corporate debt capacity*. Boston, MA: Division of Research Harvard Graduate School of Business Administration.
- Duliniec, A. 1998. *Struktura i koszt kapitału w przedsiębiorstwie*. Warsaw: Wydawnictwo Naukowe PWN.
- . 2007. *Finansowanie przedsiębiorstwa*. Warsaw: Polskie Wydawnictwo Ekonomiczne.
- Erasmus P., and R. Scheepers. 2008. The relationship between entrepreneurial intensity and shareholder value creation. *Managing Global Transitions* 6 (3): 229–56.
- Franc-Dąbrowska, J. 2007. Value based management – zarządzanie przez wartość. In *Metody i techniki menedżerskie*, ed. M. Pietrzak, 57–79. Warsaw: Wydawnictwo SGGW.
- . 2008. Evolution of dividend policy in theory and in practice. In *General accounting theory IV, evolution and design for efficiency*, 445–61. Krakow: Wydawnictwa Akademickie i Profesjonalne.
- Gruszecki, T. 2002. *Współczesne teorie przedsiębiorstwa*. Warsaw: Wydawnictwo PWN.
- Hicks, J. R., and R. G. D. Allen. 1934. A reconsideration of the theory of value. *Econometrica*, n. s., 1: 52–6, 196–219.
- Jensen, M. C., and W. H. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3 (4): 305–60.
- Kufel T. 2007. *Ekonometria. Rozwiązywanie problemów z wykorzystaniem programu GRET*. Warsaw: Wydawnictwo Naukowe PWN.
- Litzenberger, R. H., and K. Ramaswamy. 1979. Dividends, short selling restrictions, tax-induced investor clienteles and market equilibrium. *The Journal of Finance* 35 (2): 469–82.
- Mazur, K. 2007. The determinants of capital structure choice: Evidence from Polish companies. *International Advances in Economic Research* 13 (4): 495–514.
- McManus, I. D., O. Gwilym, and S. H. Thomas. 2006. Payment history, past returns and the performance of UK zero dividend stocks. *Managerial Finance* 32 (6): 518–36.
- Modigliani, F., and M. H. Miller. 1958. The cost of capital, corporation finance and the theory of investment. *The American Economic Review* 18 (3): 261–97.
- . 1961. Dividend policy, growth and the valuation of shares. *The Journal of Business* 34 (4): 411–33.
- . 1963. Corporate income taxes and the cost of capital: A correction. *The American Economic Review* 53 (3): 433–43.

- Myers, S. C. 1984. The capital structure puzzle. *Journal of Finance* 39 (3): 575–92.
- Myers, S. C., and S. N. Majluf. 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13 (2): 187–221.
- Ostaszewski, J. 1992. *Analiza i wycena firmy według standardów*. Warsaw: EWG / CIM.
- Pike, R., and B. Neale. 2006. *Corporate finance and investment: Decisions and strategies*. Harlow: Prentice Hall.
- Poterba, J. M., and L. H. Summers. 1984. New evidence that taxes affect the valuation of dividends. *The Journal of Finance* 39 (5): 1397–415.
- Quan, V. D. H. 2002. A rational justification of the pecking order hypothesis to the choice of sources of financing. *Management Research News* 25 (12): 74–90.
- Ross, S. A., R. W. Westerfield, and B. D. Jordan. 2006. *Fundamentals of corporate finance*. Sydney: Irwin McGraw-Hill.
- Sierpińska, M. 1999. *Polityka dywidend w spółkach kapitałowych*. Warsaw and Krakow: Wydawnictwo Naukowe PWN.
- Sierpińska, M., and T. Jachna. 2004. *Ocena przedsiębiorstwa według standardów światowych*. Warsaw: Wydawnictwo Naukowe PWN.
- Theobald, M. 1979. Capital asset pricing: Theory, empirics and implications for portfolio management. *Managerial Finance* 5 (1): 57–64.
- Van Auken, H. E. 2005. A model of small firm capital acquisition decisions. *The International Entrepreneurship and Management Journal* 1 (3): 335–52.
- Wiszniewski, Z. 1994. *Mikroekonomia współczesna: Syntetyczne ujęcie*. Warszawa: Centrum Edukacji i Rozwoju Biznesu.