

FACTORS DETERMINING THE FINANCIAL CONDITION ON THE EXAMPLE OF WSE LISTED COMPANIES

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Abstract

The purpose of the article/hypothesis: The goal of this paper is related to the assessment of companies' condition on a capital market that is an important information for stakeholders, including investors and managers. The article presents assessment methods related to value creation, solvency and growth potential.

Methodology: The measure of the company's financial situation based on Altman's Z-Score, Tobin's Q and EPS growth factor is proposed in this study as a variable that can be influenced by strategies reflected in the levels of financial ratios. The paper provides a new approach to the way the financial condition can be appraised.

Results of the research: Basing on data analysis it was found that the companies' situation related to the 3-year EPS growth, bankruptcy probability and growth potential is determined by total assets in a negative way and return on assets in a positive way. The condition of the companies related to the 5-year EPS growth, bankruptcy probability and growth potential is determined by the capital structure and return on equity in a positive way. Short term growth is therefore determined by assets management and long term growth by the optimization of capital structure. In addition it was found that there are differences between companies in a good and weak condition in terms of the strategies they implement.

Keywords: company growth, economic condition, Altman Model, Tobin's Q.

JEL Class: G30, G32, G33, M2.

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INTRODUCTION

The condition of companies on a capital market is a vital problem that is reflected in different methods of analysis applied by investors and managers. It can be stated that a company is said to be in a good condition when its EPS grows, there is no threat of insolvency, bankruptcy models indicate lack of the default probability and there is the growth potential recognized by investors. The higher these indicators' values are, the better the condition of a company.

The goal of this paper is related to the assessment methods presentation related to value creation, solvency and growth potential. The hypothesis tested in this paper is as follows: the following factors cash cycle, size of company, capital structure, profitability of assets and equity, price/earnings ratio and beta coefficient influence the condition of the company calculated as the multiplication of Altman Z-Score, Tobin's Q and EPS growth factor. Moreover there are differences between companies in good and bad condition regarding the strategies they perform.

The paper is composed of the following sections: literature revision, data and methods presentation, results of the research discussion and conclusions.

1. LITERATURE

The management of a company and its value maximization is an integral component of every business activity. In order to effectively create value, the assessment methods related to its effects are required, as they greatly facilitate the control of processes taking place in the company (O'Connell and Ward, 2020: 1–7). The development process of the examined entity and its life stages should be taken into consideration, too. It can be noticed that the older the company is, the more difficult it can take risks that are related to the high growths (Badea, 2017: 34–39). Investors and managers usually analyse financial statements to make the right decisions. An integral part of the analysis is the appropriate interpretation of the results obtained (Kulustayeva et al., 2020: 2394). The accounting, financial and market measures show how the value in the company is managed from various perspectives (Eshov, 2020). Sometimes the results may be confusing and therefore the one universal method of a company's condition assessment can be useful.

The assessment of effectiveness based on market indicators is considered from the point of view of shareholders and has a wide practical application (Penman, 1996: 235–259). It is based on historical data, the current situation and predictions for the future and for this reason such an assessment is considered to be the most objective method. The analysis based on the market indicators provides important information for owners and potential investors, as it primarily shows the profitability of owning shares of a given company (Bratamanggala,

2018). Therefore, it can be said that these indicators show in the best way how the company and its management is maximizing value for owners. One of the most popular market indicators is EPS – earnings per share (Foster, 1970: 96–99). This indicator has the greatest impact on investors' decisions, as it provides the information about profit for each share (Karami and Talaeei, 2013: 4261–4273). It is of great importance in situations of changes in equity such as a new issue or the redemption of shares (Kuchenkov, 2018: 21–24; Zeynali and Mohammadshilan, 2011: 43–60).

The ESP indicator shows how much profit is generated by the invested capital for one share. The value of this ratio determines the company's rank on the capital market (Geetha et al., 2011: 1–16). On its basis investors can quickly assess the change in the company's profitability. These changes over longer periods allow for a better and more accurate assessment of the company. However, the earnings per share ratio does not allow to assess the company's profitability and the comparison with other business entities because the nominal stock values of different stock companies do not match (Ezzamel et al., 2008: 107–140). However, despite its drawbacks, it is used very often in the analysis of the economic situation of a company (Aras and Yilmaz, 2008: 18–31).

There are many factors that influence EPS (Seetharaman and Rudolph, 2011: 114; Malhotra and Tandon, 2013: 86–95; Taani and Banykhaled, 2011; Radim, 2002: 48–58; Sharma, 2011: 51–60; Shinta and Laksito, 2014: 682–692; Kaur, 2015: 4–8; Legziyan et al., 2011: 102–121). Most often they can be divided into financial factors: liquidity, capital intensity, level of debt, turnover of assets, risk, working capital, labour costs per employee, capital productivity, financial flexibility, cost efficiency, dividend pay-out ratio, cash flow. On the other hand, non-financial factors are distinguish such as: expenditure on research and development, expenditure on advertising, concentration of shares in the industry, age of the company, development opportunities, enterprise size, market share, international activity of the economic entity, corporate governance systems operating in the company, products, barriers to entry and exit from a given industry, brand value (Hersugondo, 2019). It was also found that financial liquidity has a strong influence on the EPS indicator. Its high level reduces the company's risk and therefore has a positive impact on the company's value (Bhayani, 2010: 6–20).

According to Love et al., (2011: 1438–1452) capital intensity impacts financial performance of companies. However, it has a positive effect on EPS when it is lower. The age of the company affects the value of the earnings per share ratio, as seniority affects profitability. Usually companies that have been operating on the market for a long time have greater knowledge about the industry, customers and contractors. These are the reasons why they can generate higher profits (Malik, 2011: 315–321). The growth of an economic unit also affects the

earnings per share ratio. First of all companies with a great growth potential implement large investment projects. It can influence the increase in the value of revenues and financial results. Another reason is that these companies tend to be highly profitable (Bhayani, 2010: 6–20). According to Danbolt et al., (2011: 1–25) the growth of EPS indicate the growth of company's value and can be used in the assessment of its economic situation.

Apart from financial and accounting indicators, the analysis of the company's financial situation also includes various methods of bankruptcy risk assessment. There are simple and complex methods of the situation of business entities assessment (Kliestik et al., 2020: 74). Accurate selection of indicators allows to analyse the company's condition (Soboleva et al., 2018: 2034).

Credit risk scoring models for corporate bonds, loans and receivables have been used by financial institutions for many decades in the United States (Altman and Hotchkiss, 2006: 324–235). The first multi-dimensional assessment model was developed in 1968, and it combined a number of financial statements and market value measures (Altman, 1968: 589–609). That proposal initiated the dynamic development of models and became an inspiration in the search for new solutions related to early warning models. Other proposals that should be mentioned here are quadratic discriminant function created by Altman, Haldeman and Narayanan in 1977 and research on neural networks by Altman, Marco and Varetto (1994: 505–529). Then, in 1980, research on logistic and probit regression, i.e. the Ohlson model, as well as recursive partitioning, i.e. the Frydman, Altman and Kao classification method (1985: 269–291) were published. A number of highly sophisticated techniques should also be mentioned, such as the genetic algorithms of such authors as McKee and Lensbergn created in 2002. Newer techniques used to classify corporate economic condition include artificial intelligence systems, optional and conditional claims, such as the EDF Moody credit index (Hamilton et al., 2011), and hybrid models such as the Bond Score model by CreditSights (Altman, 2002).

Altman's Model has ceased to serve only a warning function, but has also become a tool for assessing the economic condition of a company, which on the capital market should translate into value. Therefore good condition should be associated with an increase in earnings per share representing the growth of value (see: Piotroski, 2000: 1–41; Grice and Ingram, 2001: 53–61; Griffin and Lemmon, 2002: 2317–2336; Franzen et al., 2007: 2931–2967; Xu and Zhang, 2009: 534–558). The condition of a company is said to be good when there is no threat of bankruptcy.

Creating value cannot be separated from its growth opportunity. Growth potential can be measured with capital market indicators or more complex models. The first and most important measure of growth potential from the point of view of the research conducted in this paper is Tobin's Q, which is expressed as the

ratio of the market value of an asset to the cost of asset re-placement (Lackéus, 2018: 10–28). The Tobin's Q ratio reflects the statement that the combined market value of all the companies on the stock market should be about equal to their replacement costs (Tobin and Brainard, 1968: 99–122; Tobin and Brainard, 1977; Tobin, 1969: 15–29; Tobin, 1978: 421–431). While Tobin is often attributed as its creator, this ratio was first proposed in an academic publication by Kaldor in 1966. A low level of Q ratio (between 0 and 1) indicates that the cost to replace a firm's assets is greater than the value of its stock. This implies that the stock is undervalued. Conversely, a high level of Q (greater than 1) implies that a firm's stock is more expensive than the replacement cost of its assets, which indicate that the stock is overvalued (Bartlett and Partnoy, 2020: 353). This measure of stock valuation is the driving factor behind investment decisions. When applied to the market as a whole, we can gauge whether an entire market is relatively over or undervalued (Ramanathan 1982: 220–243). The cost necessary to replace the business (or market) is its replacement value (Lindenberg and Ross, 1981: 1–32; Lewellen and Badrinath, 1997: 77–122) and this ratio can indicate the growth potential of a business entity.

The higher the value of Tobin's Q, the higher the growth potential of the enterprise as it depends on the market and book value of equity and the value of total assets (Chung and Pruitt, 1994: 70–74). Thus, it can be noticed that Tobin's Q shows the potential of the company incorporated in the market share price. Tobin assumed that an investor deciding to make or resign from an investment should be guided by the value of this ratio (if it is greater than 1, the investor should invest his capital) (Kim et al., 1986: 119–125; Fu et al., 2016: 1–10). Tobin's Q is also very often used in measuring the intellectual capital of an enterprise using methods based on market capitalization (Kadim et al., 2020: 859–870). Due to the problems associated with determining the level of the cost of replacement of assets, it is possible to modify the Tobin's Q index, which was proposed by J. Danbolt, I. Hirst and E. Jones (Danbolt et al., 2011: 1–25).

In the study presented below the situation of a company is presented as a multiplication of Tobin's Q, EPS growth and Altman's Z-score. A number of multipliers can be found that are useful to evaluate an enterprise (see: Siegel et al., 1997: 81; Preuss, 2005; Minasyan, 2018: 124–135; Knickrehm et al., 2016; Glad and Polak, 1979: 140–155; Segerstrom, 1998: 1290–1310; Abraham et al., 2017: 10–24; Lízalová and Kozáková, 2013: 385–392; XiaoMing and Sen, 2013; Li and Zhang, 2020: 251–257) and the proposal offered in this paper is a new one added to this group.

2. DATA AND METHODS

This paper examines companies listed on the Warsaw Stock Exchange (WSE) which were included in WIG index in the last quarter of 2018 and the research is performed basing on data in the period 2000–2018. The source of yearly observations of stock prices and characteristics of companies (market indices, capitalization, EPS growth, ROE, ROA, Tobin's Q, Altman Z-Score for Polish market and the equity) derives from Bloomberg database. Prices of shares and ratios have been adjusted for any transactions that could artificially affect the rate of return, such as splits, subscription rights, dividends, share buybacks, etc., according to the methodology data provider.

The following solution named M is proposed for the economic assessment of companies. The condition assessment can be reflected as a multiplication of growth potential, bankruptcy risk and value creation.

$$\text{Indicator } M = \text{Tobin's } Q \times \text{Altman } Z\text{-score} \times \text{EPS growth factor} \quad (1)$$

This measure is calculated in two versions depending on the EPS growth factors:

M1 = with 3 years EPS growth factor,

M2 = with 5 years EPS growth factor.

The sample was divided for positive and negative values of $M1 > 0$ and $M2 < 0$. It is assumed, that a positive value of M indicates a positive assessment of the condition while its negative value represents a negative result of assessment.

In the next step the factors influencing the economic condition as represented by M (1) are analyzed. OLS Model (2) based on cross-sectional dataset is estimated:

$$Y_t = a_t + X_t + \dots + X_t + e_t \quad (2)$$

The research variables and their symbols are presented in Table 1.

Table 1. Symbols of research variables

Symbol	Explanation
ALTMAN_Z_SCORE	Discriminatory model proposed by Altman (1986)
TOBIN_Q	Tobin's Q factor (Tobin 1969).
EPS_3YR_AVG_GR	3 years EPS continuous growth index
EPS_5YR_AVG_GR	5 years EPS continuous growth index
TA	Total assets
CCC	Cash conversion cycle
DE	Debt to equity ratio
ROA	Return on assets
ROE	Return on equity
BETA	Beta coefficient (CAPM Model)

Source: own study.

Variables represent the most important areas of company performance, liquidity, financial risk, profitability, assessment made by the market and systematic risk. The control variable is related to the total assets and used in calculations in form of natural logarithm.

3. RESULTS

In the first step the summary statistics of the sample taken into consideration is presented in Table 2.

Table 2. Summary statistics for a sample, observations 1–4646

Variable	Mean	Median	S.D.	Min	Max
TOBIN_Q	1.40	1.08	1.24	0.16	20.7
ALTMAN_Z_SCORE	3.40	2.68	2.85	0.05	30.5
EPS_3YR_AVG_GR	31.5	12.6	161.0	-2 022.86	12 886.21
EPS_5YR_AVG_GR	38.7	18.2	86.7	-337.0	806.0
CCC	8.39	4.36	128.0	-1 041.66	2 797.26
DE	1.40	0.83	12.0	-7.38	580.0
ROA	5.46	4.83	9.80	-96.2	87.9
ROE	10.3	9.51	18.9	-199.0	186.
PE	37.9	12.6	235.0	0.02	7 933.33
BETA	-1.19	0.443	9.32	-121.0	53.1

Source: own study.

In the first step the model with M1 as the endogenous variable is tested and the estimation of its parameters is presented in Table 3.

Table 3. Heteroskedasticity-corrected model, observations n = 1926, dependent variable: M1

	Coefficient	Std. Error	t-ratio	p-value	
Const	237.63	31.78	7.47	<0.0001	***
CCC	0.008	0.03	0.24	0.8053	
LnTA	-24.13	3.98	-6.05	<0.0001	***
DE	0.89	1.14	0.78	0.4327	
ROE	-0.68	2.19	-0.31	0.7535	

ROA	4.38	1.20	3.62	0.0003	***
PE	0.66	0.20	3.17	0.0015	***
Beta	-0.002	0.83	-0.002	0.9978	
R-squared	0.03		ADJUSTED R-SQUARED		0.03
F(3, 950)	9.80		P-VALUE(F)		0.0000

* For all values of $p < 0.05$ the relationship is statistically significant.

Source: own study.

The condition of companies with 3-year EPS growth taken into consideration (M1) is determined by the size represented by total assets in a negative way and ROA in a positive way. The results indicate, that the smaller company the better its situation, from the other hand higher return on assets improves the financial condition.

In the next step, the model with M2 as endogenous variable is tested and the estimation of the parameters is presented in Table 4.

Table 4. Heteroskedasticity-corrected model, observations $n = 1229$, dependent variable: M2

	Coefficient	Std. Error	t-ratio	p-value	
Const	82.80	21.63	3.82	0.0001	***
CC	-0.005	0.06	-0.09	0.9269	
LnTA	-2.39	3.03	-0.79	0.4295	
DE	0.45	0.26	1.72	0.0855	*
ROE	4.59	1.50	3.06	0.0022	***
ROA	1.10	0.74	1.48	0.1371	
Beta	-0.21	0.73	-0.28	0.7731	
R-squared	0.03		ADJUSTED R-SQUARED		0.02
F(3, 950)	7.02		P-VALUE(F)		0.0000

* For all values of $p < 0.05$ the relationship is statistically significant.

Source: own study.

The condition of companies measured with 5-years EPS growth (M2) is determined by the capital structure and ROE in a positive way. The results indicate, that the more debt is used by a company, the better its condition in 5-year period

of EPS growth, moreover this situation is improving with the growth of return of equity.

In the next step the sample of observations is divided for positive and negative values of M1 and M2. It is assumed that a positive value of M indicates a positive assessment of the company's condition while its negative value represents a negative result of assessment with negative EPS growth influencing the sign of M. The differences between mean values of ratios were analyzed in the sub-samples and the results are presented in Table 5.

Table 5. The difference analysis between means of ratios regarding the M1 and M2 positive and negative values

M1	M1<=0			M1>0			t-stat.	difference
Variable	Mean	S.D.	n	Mean	S.D.	N6	p-value	yes/no
TOBIN_Q	1.35	1.40	758	1.42	1.16	1621	0.2002	No
ALTMAN_Z_SCORE	2.85	2.61	758	3.65	2.92	1621	0.0001	Yes
EPS_3YR_AVG_GR	-43.6	196.	758	66.6	127.	1621	0.0001	Yes
CCC	15.9	188.	758	4.97	89.0	1621	0.0544	Rather not
DE	1.23	1.54	758	1.48	14.5	1621	0.6360	No
ROA	4.18	9.65	758	6.06	9.81	1621	0.0001	Yes
ROE	7.82	18.8	758	11.5	18.8	1621	0.0012	Yes
BETA	-1.01	8.53	758	-1.27	9.67	1621	0.5262	No
M2	M2<=0			M2>0			t-stat.	difference
Variable	Mean	S.D.	n	Mean	S.D.	N	p-value	Yes/no
TOBIN_Q	1.24	1.37	305	1.47	1.12	1296	0.0021	Yes
ALTMAN_Z_SCORE	2.84	2.58	305	3.67	2.94	1296	0.0001	Yes
EPS_5YR_AVG_GR	-23.6	39.3	305	53.3	88.2	1296	0.0001	Yes
CCC	4.06	26.2	305	10.2	142.	1296	0.4522	No
DE	1.05	1.81	305	1.08	1.24	1296	0.7302	No
ROA	3.02	10.1	305	6.87	9.50	1296	0.0001	Yes
ROE	4.03	24.3	305	13.2	15.6	1296	0.0001	Yes
BETA	-0.710	6.56	305	-1.42	9.50	1296	0.2161	No

Source: own study.

Companies with negative M were compared regarding the growth period in the next step. There is no difference found in case of ratios but for ROE that is equal 7.82 in case of negative M1 and 4.03 in case of negative M2. When positive values of M are analysed, the difference is found between the EPS growth levels (3- and 5-year) 66.6 and 53.3 respectively. Moreover ROA and ROE levels were higher for M2 comparing to M1 observations indicating that in a longer term the profitability can improve the condition of companies.

The regression models based on the equation (2) are estimated for the groups of observations related to the condition assessment. The division related to the negative and positive values of M1 and M2 are taken into consideration.

Table 6. The regression estimation for M1 and M2 negative and positive values

Group		Const	CCC	lnTA	DE	ROE	ROA	Beta	Fstat	Rsqr	N
M1< =0	Coef.	4.566	-0.004	-1.573	-26.758	-1.767	-0.307	-0.096	3.896	0.02	603
	p-val.	0.7976	0.8493	0.5295	0.0076	0.1827	0.7070	0.8340	0.0000		
M1>0	Coef.	372.1	0.246	-21.406	-0.625	1.392	-1.279	0.116	4.535	0.02	1323
	p-val.	<0.0001	0.2311	<0.0001	0.1429	0.6033	0.3888	0.8268	0.0002		
M2< =0	Coef.	-50.732	0.057	6.439	-9.097	1.883	-1.036	-0.688	4.201	0.09	235
	p-val.	0.0112	0.7606	0.0628	0.2654	0.0462	0.1114	0.3384	0.0002		
M2>0	Coef.	236.824	0.014	-15.429	2.726	7.292	-0.268	-1.951	6.465	0.03	603
	p-val.	<0.0001	0.9100	0.0058	0.7846	0.0053	0.8489	0.0140			

* For all values of $p < 0.05$ the relationship is statistically significant.

Source: own study.

The results presented in Table 6 indicate that for companies in a weak condition in a group with 3-years EPS growth (M1<0) there is a negative influence of DE representing capital structure on the overall condition. It can be concluded that the less debt and more equity invested in a company, the worse its situation. The tax shield does not work and the cost of capital is much higher (Acharya et al., 2020; Xu, 2020: 111). For a group of observations included in M2<0 ROE influences the condition in a positive way. The results for companies in a good condition included in a group of M1>0 indicate, that the size as measured by total assets plays the important role and the smaller the entity, the better its condition. This may be related to the company's growth potential, dictated by the choice of better

investment projects (Vosloban, 2021: 660–665; Jeraj et al., 2015: 371–389; Adner and Feiler, 2019: 109–125). In case of observations included in $M2 > 0$ the condition is explained by the size measured by total assets indicating, that the smaller the company, the better its condition, moreover the positive influence of ROE is found. The negative influence of Beta on the condition with the longer term of EPS growth factor indicates, that the more risk the company is characterized by, the better its overall condition.

CONCLUSIONS

The analysis of factors influencing the specific condition of companies basing on the observation of their situation can help the management to make right decisions in relation to the value maximization and investors in case of investing in the shares.

First of all, regarding the growth term, the condition of companies with 3-year EPS growth is determined by the total assets in a negative way and ROA in a positive way. The condition of companies measured with 5-year EPS growth is determined by the capital structure and ROE in a positive way. Findings indicate that to improve their condition companies should perform effective investment projects. From the other hand the condition in a longer term is determined by the debt that should increase to generate the value the same as the return of equity that grows with the reduction of equity (*ceteris paribus*).

When observations with negative values of M1 and M2 are taken into consideration there is just one significant difference found in case of ROE indicating that the weak condition is not related to the EPS growth perspective. For observations with positive M1 and M2 levels the significant difference was found for growth factors, ROE and ROA indicating, that profitability is important for long term value management in companies on a capital market.

When observations included in M1 are taken into consideration it was found that there was a significant difference between such ratio. When observations included in M2 are taken into consideration it was found that considering the ratios characteristic for the strategy of management there was no difference in mean values between companies in a weak and good condition in case of CCC, DE and Beta. The difference was found between such ratios as TQ, Altman Z-Score, growth factor, ROE and ROA. The results are similar for M1 and M2 and the only difference is related to the level of TQ representing the growth potential of companies.

It can be concluded that short term successful growth is determined by efficient assets management and long term growth by the optimal of capital structure management.

This paper was related to the company's condition assessment in relation to the capital market. In the next paper the further analysis of subsamples should be presented to identify the strategies in different groups related to the financial condition on a capital market.

BIBLIOGRAPHY

- Abraham R., Harris J., Auerbach J., (2017), *Earnings yield as a predictor of return on assets, return on equity, economic value added and the equity multiplier*, „Modern Economy”, pp. 10–24.
- Acharya V.V., Byoun S., Xu Z., (2020), *The sensitivity of cash savings to the cost of capital*, „National Bureau of Economic Research”.
- Adner R., Feiler D. (2019), *Interdependence, perception, and investment choices: An experimental approach to decision making in innovation ecosystems*.” *Organization science*”, pp. 109–125.
- Altman E.I., (1968), *Financial ratios, discriminant analysis and the prediction of corporate bankruptcy*, „The journal of finance”, pp. 589–609.
- Altman E.I. (2002), *The use of credit scoring models and the importance of a credit culture*. New York, <https://pages.stern.nyu.edu/~ealtman/3-%20CopCrScoringModels.pdf> [Accessed: 14.06.2020]
- Altman E.I., Haldeman R.C., Narayanan P., 1977, *Zeta Analysis. A New Model to Identify Bankruptcy Risk of Corporations*, „Journal of Banking and Finance”.
- Altman E.I., Hotchkiss E. (2006), *Corporate Financial Distress and Bankruptcy*, 3e, New Jersey: John Wiley & Sons, Inc., Hoboken, pp. 234-235.
- Altman E.I., Marco G., Varetto F. (1994), *Corporate distress diagnosis: Comparisons using linear discriminant analysis and neural networks (the Italian experience)*, „Journal of banking & finance”, pp. 505–529.
- Aras G., Yilmaz M.K. (2008), *Price-earnings ratio, dividend yield, and market-to-book ratio to predict return on stock market: Evidence from the emerging markets*, „Journal of Global Business and Technology”, pp. 18–31.
- Badea I., (2017), *Literature Review on the Determinants of Insurers*, „Financial Performance. Annals of the „Constantin Brâncuși” University of Târgu Jiu, Economy Series”, Special Issue, 1(29), pp. 34–39.
- Bartlett R., Partnoy F., (2020), *The Misuse of Tobin's q*. *Vand. L. Rev.*, pp. 353.
- Bhayani S.J., (2010), *Determinant of Profitability in Indian Cement Industry: An Economic Analysis*, „South Asian Journal of Management”, pp. 6–20.
- Bratamanggala R., (2018), *Factors affecting earning per share: the case of Indonesia*.
- Chung K.H., Pruitt S.W., (1994), *A simple approximation of Tobin's q*, „Financial management”, pp. 70–74.
- Danbolt J., Hirst I.R., Jones E., (2011), *The growth companies puzzle: can growth opportunities measures predict firm growth?* „The European Journal of Finance”, pp. 1–25.

- Eshov M., (2020), *Impact of Financial Sustainability on Enterprise Value Expansion*, International Journal of Engineering and Advanced Technology, Vol. 9 Issue 1, pp. 4640–4645.
- Ezzamel M., Willmott H., Worthington F., (2008), *Manufacturing shareholder value: The role of accounting in organizational transformation*, „Accounting, Organizations and Society”, 33 (2-3), pp. 107–140.
- Foster E.M., (1970), *Price-earnings ratio and corporate growth*, „Financial Analysis Journal”, pp. 96–99.
- Franzen L.A., Rodgers K.J., Simin T.T., (2007), *Measuring distress risk: The effect of R&D intensity*, „The Journal of Finance”, vol. 62 no. 6, pp. 2931–2967.
- Frydman H., Altman E.I., Kao D.L., (1985), *Introducing recursive partitioning for financial classification: the case of financial distress*, The Journal of Finance, pp. 269–291.
- Fu L., Singhal R., Parkash M., (2016), *Tobin's q ratio and firm performance*, „International research journal of applied finance”, pp. 1–10.
- Geetha C., Mohidin R., Chandran V.V., Chong V., (2011), *The relationships between inflation and stock market: Evidence from Malaysia, United States and China*, „International Journal of Economics and Management Science”, 1(1), pp. 1–16.
- Glad T., Polak E., (1979), *A multiplier method with automatic limitation of penalty growth*, „Mathematical Programming”, pp. 140–155.
- Grice J.S., Ingram R.W., (2001), *Tests of the generalizability of Altman's bankruptcy prediction model* „Journal of Business Research”, vol. 54, pp. 53–61.
- Griffin J.M., Lemmon M.L., (2002), *Book-to-market equity, distress risk, and stock returns* „The Journal of Finance”, vol. 57 no. 5, pp. 2317–2336.
- Hamilton D.T., Sun Z., Ding M., (2011), *Through-the-cycle EDF credit measures. Moody's Analytics*.
- Hersugondo H., (2019), *Corporate Governance and Corporate Value: The Mediating Role of Investment Effectiveness based on Human Capital*, „Quality-Access to Success”.
- Jeraj M., Marič M., Todorović I., Čudanov M., Komazec S., (2015), *The Role of Openness and Entrepreneurial Curiosity in Company's Growth*, „Amfiteatru Economic Journal”, pp. 371–389.
- Kadim A., Sunardi N., Husain T. (2020), *The modeling firm's value based on financial ratios, intellectual capital and dividend policy*, „Accounting”, pp. 859–870.
- Kaldor N., (1966), *Marginal productivity and the macro-economic theories of distribution: Comment on Samuelson and Modigliani*, „The Review of Economic Studies”, pp. 309–319.
- Karami G.R., Talaei L., (2013), *Predictability of Stock Returns Using Financial Ratios in The Companies Listed in Tehran Stock Exchange*, „International Research Journal of Applied and Basic Sciences”, 4(12), pp. 4261–4273.
- Kaur H.V., (2015), *The effect of financial ratios on the firm value and earnings per share*, „JIMS8M: The Journal of Indian Management & Strategy”, pp. 4–8.
- Kim W.S., Lyn E.O., (1986), *Excess market value, the multinational corporation, and Tobin's q-ratio*, „Journal of International Business Studies”, pp. 119–125.

- Kliestik T., Valaskova K., Lazaroiu G., Kovacova M., Vrbka J., (2020), *Remaining financially healthy and competitive: The role of financial predictors*, „Journal of Competitiveness”, pp. 74.
- Knickrehm M., Berthon B., Daugherty P., (2016), *Digital disruption: The growth multiplier*. „Accenture Strategy”.
- Kuchenkov A.E., (2018), *Features Of Management Of The Share Capital Of Russian Companies*, In Economics. Business, „Youth”, pp. 21–24.
- Kulustayeva A., Jondelbayeva A., Nurmagambetova A., Dossayeva A., Bikteubayeva A., (2020), *Financial data reporting analysis of the factors influencing on profitability for insurance companies*, „Entrepreneurship and Sustainability Issues”, 7(3), pp. 2394.
- Lackeus M., (2018), “*What is Value?*” – *A Framework for Analyzing and Facilitating Entrepreneurial Value Creation*, „Uniped”, pp. 10–28.
- Legziyan M., Baghaei J., Homayonirud M.H., (2011), *Investigation the effect of financial ratios on the company's earnings prediction and stock returns*, „Journal of Monetary and Finance Economics”, pp. 102–121.
- Lewellen W.G., Badrinath S.G. (1997), *On the measurement of Tobin's q*, „Journal of financial economics”, pp. 77–122.
- Li S., Zhang A. (2020), *Financing Efficiency of SMEs in New Third Board Market in the Information Times*, „In International Conference on Machine Learning and Big Data Analytics for IoT Security and Privacy”, pp. 251–257.
- Lindenberg E.B., Ross S.A., (1981) *Tobin's q ratio and industrial organization*. „Journal of business”, pp. 1–32.
- Lízalová L., Kozáková P., (2013), *Effect of the equity multiplier indicator in companies according the sectors*, „Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis”, pp. 385–392.
- Love J.H., Roper S., Bryson J.R., (2011), *Openness, knowledge, innovation and growth in UK business services*, „Research policy”, 40(10), pp. 1438–1452.
- Malhotra N., dan Tandon K., (2013), *Determinants of Stock Prices: Empirical Evidence from NSE 100 Companies*, „International Journal of Research in Management & Technology (IJRMT)”, Vol. 3, No.3, pp. 86–95.
- Malik H., (2011), *Determinants of Insurance Companies Profitability: an Analysis of Insurance Sector of Pakistan*, „Academic Research International”, pp. 315–321.
- McKee T., Terje Lensbergn (2002), *Genetic programming and rough sets: A hybrid approach to bankruptcy classification*, „European Journal of Operational Research”, pp. 436–451.
- Minasyan V.B., (2018), *Assessment Of Risks Arising From The Use Of Multiplier Technology To Assess The Shares*, „Finance: Theory and Practice”, pp. 124–135.
- O’Connell M., Ward A.M., (2020), *Shareholder Theory/Shareholder Value*, Encyclopedia of Sustainable Management”, pp. 1–7.
- Ohlson J.A., (1980), *Financial Ratios and the Probabilistic Prediction of Bankruptcy*, „Journal of Accounting Research”.
- Penman S.H. (1996), *The articulation of price-earnings ratios and market-to-book ratios and the evaluation of growth*, „Journal of Accounting Research”, pp. 235–259.

- Piotroski J.D., (2000), *Value investing: The use of historical financial statement information to separate winners from losers*, „Journal of Accounting Research”, vol. 38, Supplement: Studies on accounting information and the economics of the firm, pp. 1–41.
- Preuss L., (2005), *The Green Multiplier*. In *The Green Multiplier*, Palgrave Macmillan, London, pp. 47–66.
- Radim Gottwald, (2002), *The Use of P/E Ratio to Stock Valuation*, „Journal of Interdisciplinary Research”, Vol.2, No.2, pp. 48–58.
- Ramanathan R., (1982), "*Cambridge Growth Models*". *Introduction to the Theory of Economic Growth*, „Lecture Notes in Economics and Mathematical Systems”, Berlin: Springer, pp. 220–243, https://doi.org/10.1007%2F978-3-642-45541-4_7
- Seetharaman A., dan Ray J.R., (2011), *An Empirical Study on the Impact of Earning per Share on Stock Prices of a Listed Bank in Malaysia*, „The International Journal of Applied Economics and Finance”, ISSN 1991-0886, Vol. 5, No 2, pp. 114.
- Segerstrom P.S., (1998), *Endogenous growth without scale effects*, „American Economic Review”, pp. 1290–1310.
- Sharma Dr.S., (2011), *Determinants of Equity Share Prices in India*, „Journal of Arts, Science and Commerce”, Vol. II, Issue 4, pp. 51–60.
- Shinta K., Laksito H., (2014), *Pengaruh kinerja keuangan, ukuran perusahaan dan arus kas operasi terhadap earnings per share*, „Diponegoro Journal Of Accounting”, pp. 682–692.
- Siegel J.G., Levine M., Fitzsimons A., (1997), *Business valuations using a multiplier of earnings*, „The CPA Journal”, pp. 81.
- Soboleva Y.P., Matveev V.V., Ilinskaya S.A., Efimenko I.S., Rezvyakova I.V., Mazur L.V., (2018), *Monitoring of businesses operations with cash flow analysis*, „International Journal of Civil Engineering and Technology”, pp. 2034.
- Taani K., dan Banykhaled M.H.H. (2011), *The Effect of Financial Ratios, Firm Size, and Cash Flow From Operating Activities on Earnings Per Share*, „International Journal Of Social Science and Humanity Studies”. Vol 3, No 1.
- Tobin J., (1969), *A general equilibrium approach to monetary theory*, „Journal of Money Credit and Banking”, pp. 15–29.
- Tobin J., (1978), *Monetary policies and the economy: the transmission mechanism*, „Southern Economic Journal”, pp. 421–431.
- Tobin J., Brainard W. (1977), *Asset markets and the cost of capital*. In B. Belassa and R. Nelson (eds.), „Economic Progress Private Values and Public Policies: Essays in Honor of William Fellner”. Amsterdam: North-Holland.
- Tobin J., Brainard W. (1968), *Pitfalls in financial model building*, „American Economic Review”, pp. 99–122.
- Vosloban R.I., (2021), *The Influence of the Employee's Performance on the company's growth-a managerial perspective*, „Procedia economics and finance”, pp. 660–665.
- XiaoMing H., Sen T., (2013), *Research on the Effects of Equity Multiplier Driving Factors' Influence on the Valuations*, „Journal of Nanjing University of Finance and Economics”.
- Xu M., Zhang C., (2009), *Bankruptcy prediction: the case of Japanese listed companies*, „Review of Accounting Studies”, vol. 14, pp. 534–558.

- Xu Z., (2020), *Economic policy uncertainty, cost of capital, and corporate innovation*, „Journal of Banking & Finance”, pp. 111.
- Zeynali M., Mohammadshilan J., (2011), *Investigation the effect of capital structure on the size, rate of return on capital and Earnings per share of listed companies in Tehran Stock Exchange*, „Journal of Financial knowledge of Securities Analysis”, pp. 43–60.

CZYNNIKI WPŁYWAJĄCE NA KONDYCJĘ FINANSOWĄ NA PRZYKŁADZIE PRZEDSIĘBIORSTW NOTOWANYCH NA GPW

Streszczenie

Cel artykułu/hipoteza: Celem niniejszego artykułu jest ocena kondycji spółek na rynku kapitałowym, która jest ważną informacją dla interesariuszy, w tym inwestorów i menedżerów.

Metodyka: W niniejszym opracowaniu jako zmienną, na którą mogą wpływać strategie odzwierciedlone w poziomach wskaźników finansowych, zaproponowano miarę sytuacji finansowej firmy opartą na Z-Score Altmana, współczynnika wzrostu Q Tobina i EPS. Artykuł przedstawia nowe podejście do sposobu oceny kondycji finansowej.

Wyniki/Rezultaty badania: Na podstawie analizy danych stwierdzono, że sytuacja firm związana z 3-letnim wzrostem EPS, prawdopodobieństwem upadłości i potencjałem wzrostu jest ujemnie determinowana przez sumę aktywów i dodatnią rentowność aktywów. Kondycję spółek związaną z 5-letnim wzrostem EPS, prawdopodobieństwem upadłości i potencjałem wzrostu determinuje w pozytywny sposób struktura kapitałowa i zwrot z kapitału. Wzrost krótkoterminowy jest więc determinowany przez zarządzanie aktywami, a wzrost długoterminowy przez optymalizację struktury kapitału. Ponadto stwierdzono, że istnieją różnice pomiędzy firmami w dobrej i słabej kondycji pod względem wdrażanych strategii.

Słowa kluczowe: model Altmana, współczynnik Q Tobina, kondycja ekonomiczna przedsiębiorstwa, wzrost spółki.

JEL Class: G30, G32, G33, M2.

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