

SELECTED ASPECTS CONNECTED WITH EBIT DETERMINANTS IN THE LARGEST POLISH QUOTED COMPANIES

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Abstract: The Earnings Before Interest and Taxes (EBIT) issues constitute the significant role in enterprises decisions. In that area particular attention should be put on the identification of determinants, which may influence on the EBIT level. The main purpose of this paper is the estimation of EBIT determinants of enterprises qualified to the largest polish quoted companies. The special attention was put on such determinants as: operating revenues, operating costs, other operating revenues and other operating costs. The examinations are based on simple linear regression method. The researches are based on data from financial statements of analysed enterprises from period 2001–2011.

Keywords: EBIT determinants, the largest polish quoted companies.

1 Introduction

Nowadays enterprises nowadays have to constantly adjust to changes, which occurred in their surroundings. The quickness of enterprises reaction might result in their maintenance on market as well as the efficiency of strategy realization. In that area the significant role plays effective decision taking process, which should take into consideration many external and internal indicators connected with functioning of enterprises in turbulent environment.

The essential area of enterprises decisions are related to EBIT (Earnings Before Interest and Taxes) as the important financial result of enterprises' activity. In its essence EBIT establishes the principal measure, which allow (in vicariously way) the enterprises strategy effectiveness estimation as well as its market position. EBIT are also treated as the one of important component, which should be taking into consideration in enterprise value estimation. The significance of EBIT caused the necessity of examination the potential determinants, which may impact on the level of enterprise financial result.

The main objective of the paper is the identifications of EBIT determinants. The researches are focused on the largest polish quoted companies. The examinations are based on financial data from financial statements of enterprises quoted on the Warsaw Stock Exchange.

2 The essence of EBIT and its determinants – theoretical studies results

The contemporary enterprises financial theories emphasize the significance of constantly maximizing company value¹. According to A.C. Shapiro, S.D. Balbirer (2000) maximizing company value is treated as specific compromise between enterprise and its personnel, customers and contractors². That occurrence consequences in the necessity of enterprise management orientation on increasing benefits for owners through maximizing expectations value of interest groups connected with company. The above theory constitute in Value-Based Management conception, which are treated as the principle enterprise attitude. R.A. Morrin, S.L. Jarrell (2001) indicates that Value-Based Management conception is treated as a culture, which embrace all enterprise – from managers to direct workers³.

It should be remarked that company value are dependent on determinants, which are usually entitle as the “value drivers”⁴. The literature analysis indicates heterogeneous „value drivers“ classifications, which generally emphasize the rank of micro and macro-economical factors. To the significant corporate value determinants depiction is recon A. Rappaport (1999) classification, which accents the importance of strategic “value drivers” connected directly with enterprise board activity⁵. Through selected “value drivers” A. Rappaport special attention puts on EBIT, especially on its margin, which impact on the value of net profit, cash flows from operational activity and, in consequences, on enterprise value⁶.

The importance of EBIT is also expressed as the essential component in the majority of methods, which allow the estimation company value. The special attention on EBIT emphasise especially income based valuation methods, which base on establishment that the principle of enterprise value constitute incomes from company activity in particular period of time in future⁷. The significance of EBIT in company value calculation is especially seen in Equity Cash Flow (ECF) method, Free Cash Flow (FCF) method, Capital Cash Flow (CCF) metod as well as Adjusted Present Vaule (APV) metod⁸.

The conducted consideration indicates the significance of EBIT in enterprise. Therefore, there is essential to hold examinations connected with the identification the determinants, which influence on the level of company Earnings Before Interest and Taxes. It has to be said that the estimations should concentrate on such determinants as: operating revenues, operating costs, other operating revenue, other operating costs.

3. The methodology of examinations

The researches were concentrated on EBIT determinants identification. To the examinations were chosen the largest polish companies quoted on Warsaw Stock Exchange. The selections of enterprises were based on WIG20 Index, which consists of twenty dominant and the most liquid companies from main stock market⁹. According to WIG20 Index at the end of 2011, to the researches were chosen the following companies¹⁰: POWSZECHNA KASA OSZCZĘDNOŚCI BANK POLSKI S.A. (PKO), KGHM POLSKA MIEDŹ S.A. (KGHM), BANK POLSKA KASA OPIEKI S.A. (PEKAO), POWSZECHNY ZAKŁAD UBEZPIECZEŃ S.A. (PZU), POLSKI KONCERN NAFTOWY ORLEN (PKNORLEN), PGE POLSKA GRUPA ENERGETYCZNA S.A. (PGE), TELEKOMUNIKACJA POLSKA S.A. (TPSA), TAURON POLSKA ENERGIA S.A.

⁴ Golebiowski, G., Szczepankowski P.: *Analiza wartości przedsiębiorstwa*. Warszawa: Difin, 2007. ISBN 978-83-7251-793-7. 22 p.

⁵ Szczepankowski, P.: *Wycena i zarządzanie wartością przedsiębiorstwa*. Warszawa: Polskie Wydawnictwo Naukowe PWN, 2007. ISBN 978-83-01-14961-1. 52 p.

⁶ Skoczylas, W. (ed.): *Determinanty i modele wartości przedsiębiorstw*. Warszawa: Polskie Wydawnictwo Ekonomiczne, 2007. ISBN 978-83-208-1723-2. 119 p.

⁷ Nita, B., *Metody wyceny i kształtowania wartości przedsiębiorstwa*. Warszawa: Polskie Wydawnictwo Ekonomiczne, 2007. ISBN 978-83-208-1678-5. 67 p.

⁸ Myers, M.C.: *Interactions of Corporate Financing and Investment Decisions – Implications for Capital Budgeting*. “Journal of Finance” 1974, nr 29, 1-25 p.; Szczepankowski, P.: *Wycena i zarządzanie wartością przedsiębiorstwa*. Warszawa: Polskie Wydawnictwo Naukowe PWN, 2007. ISBN 978-83-01-14961-1. 202–227 p.

⁹ Nita, B., *Metody wyceny i kształtowania wartości przedsiębiorstwa*. Warszawa: Polskie Wydawnictwo Ekonomiczne, 2007. ISBN 978-83-208-1678-5. 67–105 p.

¹⁰ Zarzecki, D.: *Metody wyceny przedsiębiorstw*. Warszawa: Fundacja Rozwoju Rachunkowości, 1999. ISBN 83-86543-32-9. 63–94 p., 203–219 p; Myddelton D.R.: *Financial Decisions*. Singapore: Longman, 1989. 64–71 p; Dean J.: *Measuring the Productivity of Capital*. “Harvard Business Review” 1954, January-February, 120–130 p; Pratt S.P., Reilly R.F., Schwaichs R.P.: *Valuing a Business. The Analysis and Appraisal of Closely Held Companies*. Chicago: Irwin Publishing, 1996. 126 p; Collins S.: *Forward Look at a Possibly Backward Business Method*. “Accountancy” 1986. May. 106–107 p; Zygmunt J.: *Nowoczesne metody wyceny przedsiębiorstw*. Opole: Oficyna Wydawnicza Politechniki Opolskiej, 2013. ISBN 978-83-64056-19-2. 54–124 p.

¹¹ http://www.gpw.pl/pub/files/PDF/opisy_indeksow_en/WIG20opis_ang.pdf [04.06.2013].

¹² *Rocznik Gieldowy 2012. Dane Statystyczne za rok 2011*: Warszawa: Wydawnictwo Gieldy Papierów Wartościowych w Warszawie, 2012. ISSN 1428-1171, 105 p.

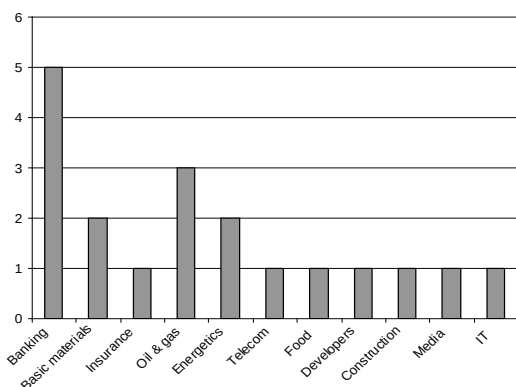
¹ See more among others: Jensen, M.C., Meckling, W.H.: *Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure*. “Journal of Financial Economics” 1976, vol. 3, no. 4; Harris, M., Raviv, A.: *A Capital Structure and the Informational Role of Debt*. “Journal of Finance” 1990, vol. 45; Masulis, R.W.: *Changes in Ownership Structure. Conversion of Mutual Savings and Loans to Stocks Charter*. “Journal of Financial Economics” 1987, vol. 18.

² Shapiro, A.C., Balbirer, S.D.: *Modern Corporate Finance. A Multidisciplinary Approach to Value Creation*. New Jersey: Prentice-Hall, Upper Saddle River, 2000. ISBN 0130800988. 8 p.

³ Morin, R.A., Jarrell, S.L.: *Driving Shareholder Value: Value-Building Techniques for Creating Shareholder Wealth*. New York: McGraw-Hill, 2001. 77 p.

(TAURONPE), POLSKIE GÓRNICtwo NAFTOWE I GAZOWNICTWO S.A. (PGNIG), BANK ZACHODNI WBK S.A. (BZWBK), GETIN HOLDING S.A. (GETIN), BRE BANK S.A. (BRE), ASSECO POLAND S.A. (ASSECOPOL), KERNEL HOLDING S.A. (KERNEL), LUBELSKI WĘGIEL BOGDANKA S.A. (BOGDANKA), GLOBE TRADE CENTRE S.A. (GTC), ČEZ. A.S. (CEZ), GRUPA LOTOS S.A. (LOTOS), TVN S.A. (TVN), PBG S.A. (PBG).

It has to be said that from examinations was excluded company CEZ, because approximately 70% of its shares belonged to Czech Republic Treasury¹¹. The sector's structure of analysed enterprises indicates that the majority of them representing banking sector (graph 1). Significant group of enterprises from WIG20 Index compose also oil and gas companies as well as basic materials and energetics enterprises.



Graph 1. The sector's structure of largest Polish quoted companies (according to WIG20 Index at the end of 2011)
Source: Own calculations.

The researches contain period 2001–2011. In studies were used financial data from financial statements of analysed enterprises.

The examinations concern on the EBIT determinants in enterprises qualified to the largest Polish quoted companies were based on simple linear regression¹²:

$$\hat{Y} = \alpha_0 + \alpha_1 X + \varepsilon \quad (1)$$

where:

Y – endogenous variable,

α_1 – regression coefficient variable Y in regard to variable X ,

α_0 – intercept,

X – exogenous variable,

ε – random component.

The significance of estimated models structural parameters was verified using t-Student test with $n-(k+1)$ degrees of freedom.

The identification of the level of model matching to empirical data were conducted using the coefficient of determination (R^2)¹³:

$$R^2 = \frac{\sum_{i=1}^n (\hat{y}_i - \bar{y})^2}{\sum_{i=1}^n (y_i - \bar{y})^2} \quad (2)$$

where:

$\hat{y}_i$ – theoretical value of variable Y ,

To first order autocorrelation testing was used Durbin – Watson test. In that area was applied empirical statistics d ¹⁴:

$$d = \frac{\sum_{t=2}^n (e_t - e_{t-1})^2}{\sum_{t=1}^n e_t^2} \quad (3)$$

where:

e_t – the rest of the current period,

e_{t-1} – the rest delayed by one period.

In reserchers as endogenous variable Y was accepted the arithmetic average value of EBIT of the largest Polish companies quoted on Warsaw Stock Exchange.

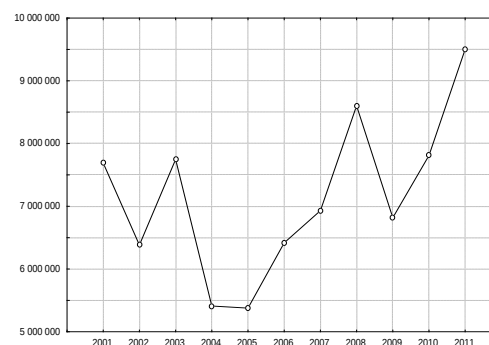
The exogenous variables were comprised the following EBIT determinants: net sales revenues (X_1), operating costs (X_2), other operating revenues (X_3) and other operating costs (X_4). The above variables were quantifiable as the following:

- (X_1) was expressed as the arithmetic average of the analysed companies operating revenues value,
- (X_2) was described as the arithmetic average of the analysed enterprises operating costs value,
- (X_3) was expressed as the arithmetic average of the analysed companies other operating revenues,
- (X_4) was described as the arithmetic average of the analysed enterprises other operating costs value.

The examinations indicate the sufficient variation of exogenous variables (the coefficient of variation was higher than 0,1) as well as the lack of collinearity between them.

4. The results of EBIT determinants' estimation in the largest Polish quoted companies

The examinations indicate the lack of homogeneous tendency of the level of analysed EBIT determinants in the largest Polish companies quoted on Warsaw Stock Exchange (graph 2 – graph 5).



Graph 2. The presentation of the arithmetic average of operating revenues in the analysed companies in period 2001–2011 (in thousand PLN).
Source: Own calculations.

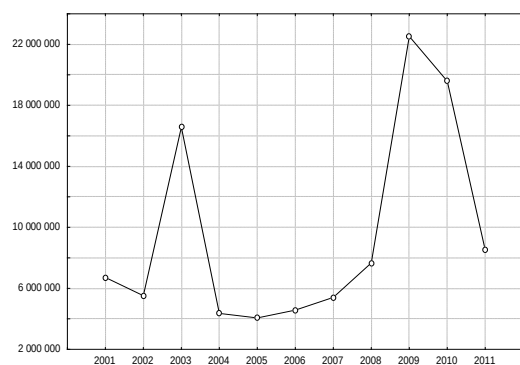
The calculations show that from analysed EBIT determinants the highest changes appeared in period 2001–2011 in the value of operating revenues in the largest Polish companies quoted on Warsaw Stock Exchange (graph 2). That situation is especially seen in periods 2003–2004 and 2008–2009 and might constitute the consequences of Polish economic slowdown, which were observed in the above periods, on enterprises operating revenues. Moreover, the analysis shows the positive occurrences of operating revenues value increasing in the period 2009–2011, especially in the face of the significant decreasing level of operating cost in analysed companies (average value).

¹¹ http://www.gpw.pl/karta_spolki/CZ0005112300/#akcjonariat [05.06.2013].

¹² Ignatczyk, W., Chromińska, M.: *Statystyka. Teoria i zastosowanie*. Poznań: Wydawnictwo Wyższej Szkoły Bankowej, 2004, ISBN 8372052042, 165 p.

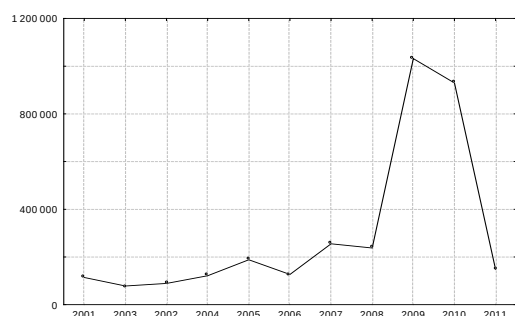
¹³ Zeliaś, A.: *Metody statystyczne*. Warszawa: Polskie Wydawnictwo Ekonomiczne, 2000. 832081247X. 100 p.

¹⁴ Gatnar, E. (ed.), Walesiak, M. (ed.): *Metody statystycznej analizy wielowymiarowej w badaniach marketingowych*. Wrocław: Wydawnictwo Akademii Ekonomicznej im. Oskara Langego, 2004. ISBN 8370117031. 93 p; Osińska M. (ed.): *Wybrane zagadnienia z ekonometrii*. Olsztyn: Wydawnictwo Wyższej Szkoły Informatyki i Ekonomii TWP, 2005. ISSN 8387867276, 81 p.



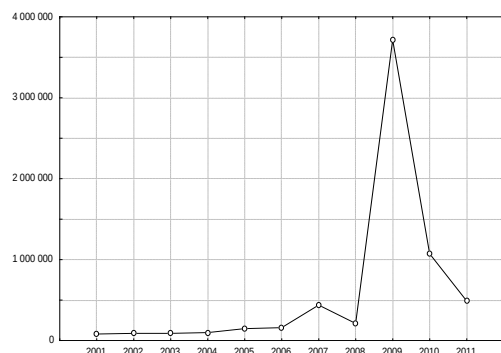
Graph 3. The presentation of the arithmetic average of operating costs in the analysed companies in period 2001–2011 (in thousand PLN).

Source: Own calculations.



Graph 4. The presentation of the arithmetic average of other operating revenues in the analysed companies in period 2001–2011 (in thousand PLN).

Source: Own calculations.



Graph 5. The presentation of the arithmetic average of other operating costs in the analysed companies in period 2001–2011 (in thousand PLN).

Source: Own calculations.

The results of studies emphasize that average value of other operating costs are higher than average value of other operating revenues in period 2001–2011 in the largest polish companies quoted on Warsaw Stock Exchange (according to WIG20 Index at the end of 2011) (graph 4–graph 5). The effects of examinations show that in three quarters of analysed enterprises the value of other operating costs was on average higher than 10908 thousand PLN while in the same three quarters of companies the value other operating revenues was on average higher than 8853 thousand PLN. Furthermore, the estimations indicate that analysed enterprises characterized the similar tendency between other operating revenues and other operating costs.

The statistical significance verification of exogenous variables was conducted on the base of the following hypothesis:

H_0 : exogenous variable insignificantly impact on endogenous variable Y,

H_1 : exogenous variable significantly impact on endogenous variable Y.

The results of simple linear regression, which described the influence of exogenous variables on endogenous variable Y present table 1.

Table 1. The simple linear regression results of exogenous variable X_1 , X_2 , X_3 , X_4 , and endogenous variable Y in the largest polish companies quoted on Warsaw Stock Exchange

Variable	Coefficient	t_{ei}	Value p	R^2
a_0	4569245,193	0,170	0,869	
X_1	0,134	1,723	0,119	0,248
a_0	26782293,818	0,565	0,586	
X_2	0,263	0,064	0,950	$0,454 \cdot 10^{-3}$
a_0	34005921,375	0,951	0,586	
X_3	-15,541	-0,193	0,950	0,004
a_0	26698705,732	0,878	0,403	
X_4	4,326	0,169	0,869	0,003

Source: Own calculations.

The results of the estimations emphasise the lack of statistical significance impact exogenous variables X_1 , X_2 , X_3 , X_4 on endogenous variable Y. Therefore, the effects of examinations indicate that operating revenues, operating costs, other operating revenues as well as other operating costs not affect on Earnings Before Interest and Taxes in the largest polish companies quoted on Warsaw Stock Exchange.

Moreover, the calculations show that the level of model matching to empirical data was very low, especially for X_2 , X_3 and X_4 , and amount in the range $0,454 \cdot 10^{-3} \leq R^2 \leq 0,248$.

Conclusions

The effects of examinations conduct to the conclusions that the largest polish companies quoted on Warsaw Stock Exchange (according to WIG20 Index at the end of 2011) characterize lack of EBIT dependence on operating revenues, operating costs, other operating revenues and other operating costs in whole period 2001–2011. Thereby, the above determinants, which might be treated as internal, do not influence directly on Earnings Before Interest and Taxes in analysed enterprises. It means, that the largest polish companies quoted on Warsaw Stock Exchange have not got possibility to influence on their value through proper shaping of EBIT determinants. Furthermore, the achieved results show that in the largest polish companies quoted on Warsaw Stock Exchange the EBIT might be determined by other factors, which might be connected with macro-economic surroundings of companies.

The complexity of EBIT determinants require further studies. They should be connected with the identification other factors, which might statistical significant influence on Earnings Before Interest and Taxes in the largest polish companies quoted on Warsaw Stock Exchange. On the other hand, the future examinations should continued the undertaken researches in the other analysed period context.

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Primary Paper Section: A

Secondary Paper Section: AH