Value relevance of accounting ratios: evidence from agricultural sectors in European markets

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Abstract

The aim of this paper is to examine the value relevance of analytical indicators based on financial reports of companies operating in European markets within the agricultural sector. The paper will conduct a series of regression analyses where company multiples will be set as dependent variables, and selected accounting indicators will be set as independent variables. The models explore the impact of changes in growth, risk, and profitability indicators on changes in the value of companies expressed through commonly known value multiples such as P/E, P/B, EV/EBITDA, and EV/EBIT. The research results indicate that changes in sales revenue growth and leverage significantly influence changes in the value of all multiples in the model, while profitability indicators such as ROA, ROE, and profit margin have a significant impact on some specific multiples. Research is significant for all stakeholders who want to learn about the value of the company and the factors that influence its movement. Especially for participants in the financial markets focused on investments in the agricultural sector.

Keywords: Value relevance. Multiples. Accounting ratios. European markets. Agricultural sector.

1. Introduction

Contemporary business conditions are characterized by the intensification of investment activities in all areas of business. This is evident in the expansion of capital beyond the borders of the home country, the emergence of institutional investors, the creation of horizontally and vertically integrated multinational companies, and so forth. The growth of investment activities, coupled with advancements in information technology, has led to an increase in the number of interested participants in these activities and their expansion from well-known financial centers to the global stage. It can be said that the focal point of modern economic trends is the investment process, which encompasses all activities directed towards decision-making in various types of transactions, such as stock purchases, participation in company recapitalizations, mergers, strategic corporate spin-offs, privatizations, and other similar transactions involving the exchange of parts or entire companies.

Market participants face challenges as they must make decisions in a dynamic environment. This means that decisions regarding transaction prices, investment amounts, the actual value they acquire or sell, assumed risks, and expected profits must be made quickly. All these decisions rely on the values prevailing in the market, i.e., on data that is publicly available through the financial reporting of companies.

Financial statements of a company can be used for various purposes, and one of them is the valuation of the company. The concept of value relevance pertains to the usefulness of using financial statements from the perspective of equity owners and other stakeholders who want to ascertain the value of the company or other information related to its value. In other words, the investigation on value relevance in accounting provides a thorough examination on the market's perception of accounting and financial data (Dunham and Grandstaff, 2022). The enhancement of value relevance in financial reporting systems is facilitated by accounting comparability. The study conducted by Chen et al. (2020) investigates the impact of accounting comparability among sector peers on the value relevance of earnings and book value and the findings indicate that financial statement comparability positively influences the value relevance of earnings, while it does not have a significant effect on book value. Value relevance implies the existence of a correlation between accounting information disclosed in financial statements (e.g., book values, accrual data, cash flow indicators, and other analytical indicators) and the market values of the company (stock values and other market indicators) (Saković, 2018). Greater interconnection implies higher value relevance of a specific accounting data. If there is no link between balance sheet positions and the value of the

company, there is no value relevance, and financial statements, in that case, do not fulfill one of their basic tasks. The strength of the connection between accounting data and market values largely depends on the efficiency of the market.

According to Jones (2008), an efficient market takes into account all information relevant for determining the value of stocks, such as profitability forecasts, management skills, demand growth, industry trends, etc. Trying to outsmart the market is considered a significant waste of time and money. Efficient capital markets, as per Fama (1970), imply much less restrictiveness compared to perfect market conditions. In efficient markets, available information is fully reflected in stock prices. Market efficiency can exist even if there is no perfect competition or the presence of transaction costs and regulatory bodies. The existence of hidden information or the making of irrational decisions does not necessarily indicate market inefficiency, meaning that prices may still be influenced by the information available.

Looking from a macroeconomic perspective on the European continent, there exist varying degrees of development among national economies. Such a situation also causes differences in the efficiency of capital markets in different parts of Europe. This paper analyzes the value relevance of accounting data, taking into account companies from across Europe that operate in agricultural business. Value relevance will be examined using market value multiples, also known as relative valuation models based on accounting data. Financial theory and contemporary trends in the field of corporate valuation imply adherence to the principle of value-relevant information, which means that accounting information and key financial indicators of companies are determinants of the market value of a company.

2. Literature Review

The value relevance of accounting information varies depending on the level of development of institutional infrastructure and is usually more pronounced in countries with a higher degree of economic development (Ali and Hwang, 2000). In financial theory, there are multiple interpretations of the meaning of value relevance depending on the context of its use, its significance in determining market prices, and decision-making.

One perspective (Collins et al. 1997) considers value relevance from the standpoint of using accounting information in making decisions to buy or sell stocks. According to this viewpoint, information is considered value-relevant if it alters the overall informational environment in the market, meaning that market participants actively use it when making

investment decisions. This perspective is guided solely by publicly available accounting information from the company's financial statements (Ball and Brown, 1968). Furthermore, Nguyen and Dang (2023) evaluate value relevance of accounting information provided by non-financial companies listed on the Vietnam stock exchange in period from 2010 to 2020. The results based on data from developing country indicate that there is a favorable and statistically significant relationship between both earnings and book value of equity and stock prices. The greater fluctuation in stock market values on the Vietnam Stock Exchange could be attributed to earnings rather than the book value of equity.

Chang (1999) views value relevance from the perspective of valuation models, where accounting information is considered value-relevant if it aids in predicting values that are essential in traditional valuation model analyses. For instance, accounting information is deemed value-relevant if it has the ability to forecast future free cash flows or dividend payouts in the context of discounted cash flow or dividend discount models, respectively. According to Francis and Schipper (1999), the interpretation of value relevance does not solely focus on accounting information and its ability to predict market values and indicators. According to this understanding, value relevance indicates the ability of all types of indicators to encompass and summarize all relevant information regardless of its source. This information may come from financial statements, but also from other sources such as plans, specific reports, etc.

El-Diftar and Elkalla (2019) examined accounting information's value relevance in Middle East and North Africa region (MENA), along with comparisons between Gulf countries (GCC) and non-GCC enterprises, emphasizing IFRS adoption's possible impact. The empirical results reveal that accounting information in the MENA area is value relevant since it has a highly significant beneficial association with market value per share for companies. Operating cash flows per share are only a significant predictor of value relevance in non-GCC enterprises, while book value and earnings per share are in both. The study also found that IFRS implementation reduces accounting data value relevance in MENA. Chehade and Procházka (2023) also investigated the economic impacts resulting from the implementation of IFRS in developing economies. They had a lack of consensus regarding certain accounting factors. Earnings and cash flows are considered value-relevant prior to as well as following the implementation of IFRS, while equity remains solely important after the adoption. All previous interpretations of the concept of value relevance point to the necessity of a correlation between financial statement positions, analytical indicators based on balance sheet or income statement information, and the current or future market values of a company,

i.e., various market value indicators. The concept of earnings value relevance pertains to the connection among a company's accounting profit and its stock's market value, indicating the extent to which a company's share price is influenced by accounting data (Zhang et al., 2024). According to Frankel and Liu (1998), the existence of equality between market value and the actual estimated value of a company by any valuation model indicates the presence of value-relevant information in the company's financial statements. The ways in which such a connection can be explained are diverse. Statistically, the ability of accounting information to explain changes in the market value of a company can be determined by applying linear regression, where the dependent variable would be market value or a market indicator, and the value-relevant accounting information would be set as independent variables (Saković and Ilić, 2018).

Brief and Zarowin (1999) advocate the view that determining the value relevance of accounting data starts with valuation models. In every valuation model, there are specific determinants that influence the value. For instance, in income-based methods, these determinants include free cash flows or dividend amounts, while in cost-based methods, it involves the book value of assets and liabilities. In multiplier models, financial statement positions create the multiplier. Authors Cheng and McNamara (2000) in their exploration of the accuracy of P/E and P/B multiplier models, concluded that there is value relevance in profits and the book value of equity. The proof of value relevance of the information used in these models arises from the accuracy of their estimates. If the result of a specific model accurately determines the value of a company, the information it relies on is considered value-relevant because it led to the correct value. Consequently, value relevance in this context is not limited to accounting information but extends to all other information contributing to the valuation of a company using a selected model. Earnings per share positively affect the stock price, but book value per share has a negative impact on the stock price (Tran Q. at al., 2023). Prusak (2017) investigates the accurateness of various share valuation methods in Poland. Their findings suggest that the EV/EBIT multiple yields the highest level of reliability. However, no statistically significant disparities are observed between the valuations derived from this multiple and those generated by the P/E and EV/EBITDA multiples.

Abou-El-Sood (2023) investigated the impact of Covid-19 pandemic on the value relevance of cash flows (CF) beyond accounting earnings and book equity. The author found there is limited value relevance of CF beyond accounting earnings and the book value of equity and also the distinction between operating and non-operating CF is not informative. However, the author implies that the value relevance is significant during the pandemic,

indicating that investors rely on CF for valuation purposes at times of uncertainty, corroborating further research on CF distress predictive ability. Belesis et al. (2022) indicate that the impact of the pandemic reduced the value relevance of financial statements. Financial statements affect market prices less than before the pandemic, meaning that investors have less trust in financial statements and rely less on accounting information when making investment decisions. Sami et al. (2020) examined whether and how the level of exposure to fair value accounting moderates the changes in the value relevance of equity book value and net income during a crisis period. Evidence suggests that the value relevance of equity book value increases whereas the value relevance of net income decreases during the financial crisis. The authors found that the impact of the crisis is less pronounced for firms whose financial statements are more exposed to fair value accounting. Authors Nicholas et al. (2023) examined the value relevance of ESG scores before, during, and after tumultuous economic periods taking into consideration a company's financial performance. The analysis, using Ohlson's price model, reached the results which underline that after each tumultuous economic period, there was a decline in the value relevance of ESG scores and an increase in investor focus on company financial performance.

Bankole et al. (2020) examined the value relevance of accounting information in financial service companies in Nigeria. The study concluded that there is a positive and significant relationship between share price and firm size. Also, we conclude that there is no value relevance between information in financial statements and share price. The details of cash flow, dividend per share, earnings per share, book value of share and dividend per share disclosed in financial statements will not necessarily influence share price. Tareq (2022) showed that the value relevance of the balance sheet for financial firms is higher than that for the income statement. He implies that firms with lower financial assets depend more on historical accounting and have higher-relevance income statements. And also that the higher the percentage of financial assets, the more the firm depends on fair-value accounting and consequently, the balance sheet becomes more value-relevant to investors compared to the income statement. Čupić at al. (2023) examined a sample of non-financial firms listed on the Belgrade Stock Exchange from 2005 to 2018 and use three regression models – price, return and differenced. The authors found evidence that accounting earnings are more value relevant than cash flows. The authors also found a negative relation of earnings changes with stock returns and argue that this is due to the lower persistence of negative earnings levels and changes. Finally, the authors concluded that the value relevance of accounting information in Serbia increases after the improvements in capital market regulation.

The quality of financial reporting plays a crucial role in the process of determining the value relevance of accounting data. Stakeholders primarily base their decisions on the information presented in official financial statements. According to International Accounting Standard 1- Presentation of Financial Statements, paragraph 9, financial statements depict the financial position and performance of the entity, aiming to provide information on the financial position, performance, and cash flows of the entity that is useful for making economic decisions by a broad range of users. Furthermore, the analysis of financial statements results in the calculation of various ratio numbers, the value relevance of which also requires reliable data as a foundation.

Čavić (2009) believes that financial statement analysis involves the selection, evaluation, and interpretation of financial data to understand the business performance and financial position of a company. Its role is to observe, examine, evaluate, and diagnose the processes that have occurred in the company and are summarized in the financial statements (Knežević, 2007). The primary goal of analysis is to provide information for making business decisions. Financial analysis essentially represents the so-called "ratio analysis", reflecting the relationship between one financial statement position and another in a basic quantitative equation (Ristić and Komazec, 2011). In terms of value relevance analysis, relying on traditional valuation models such as discounted cash flow models, dividend discounting models, or residual income models, it has been determined that there is similarity among all these models in the domain of fundamental value determinants (Saković and Ilić, 2018). Viewed through the lens of generally accepted valuation methods, value determinants are primarily related to analytical indicators of a company's growth, risk, and profitability (Saković, 2020). These determinants, primarily related to growth, suggest that a company with greater growth prospects, lower business risk, and higher profitability should have a higher market value, and vice versa. By analogy, such companies should also have higher individual value multiples, and the market should value these companies more through the company's multiples compared to the competition.

3. Methodology

Empirical research aims to investigate the relationships between selected analytical indicators and the values of individual multiples. The task is to determine a group of analytical indicators that can be statistically significant in explaining the values of market

multiples of selected companies from Agri business. Empirical analysis involves the following basic steps:

- Collecting financial statements from all companies in the sample;
- Conducting financial analysis and calculating analytical indicators;
- Selecting analytical indicators for examining value relevance with value multiples and their segmentation into indicators of growth, risk, and profitability of companies;
- Setting up linear regression equations (models) where value multiples are dependent variables, and analytical indicators are independent;
- Testing regression equations and presenting results.

The expected outcome of the research is the identification of a group of analytical indicators that are value-relevant, i.e., those that can be considered determinants of individual value multiples. To achieve the goal of empirical research, multiple linear regression analysis will be employed. The use of regression analysis here aims to determine and measure the relationships between selected analytical indicators, calculated based on data from the financial statements of companies, and individual value multiples. The linear model is expressed by the equation of a straight line:

$$y = a + b1x1 + \ldots + \varepsilon i \quad (1)$$

Where:

y- Value multiplier- dependent variable,

x- Analytical indicator- independent variable,

ε- Error

b- Regression coefficient

The basic assumption of the research is that a company with a greater growth perspective, lower business risk, and higher profitability should have a higher market value, and vice versa. By analogy, such companies should also have higher individual value multiples. In other words, the market should evaluate companies with these characteristics more highly through enterprise multiples compared to the competition. If we consider the analytical indicators of company growth, risk, and profitability as the fundamental determinants of company value, regardless of the valuation model used, companies with similar values must have similar indicators.

From the previous statements, the basic research hypothesis is formulated:

H_0: Analytical indicators related to the growth, profitability, and risk of a company are determinants of the value of selected market multiples.

3.1. Analytical indicators of company's growth

Trend analysis is a prerequisite for determining the realized and future growth rates of the company. The growth rate represents the percentage change in a specific indicator over a defined period.

A favorable growth rate aligns with economic development and poses no issues regarding the survival and advancement of companies (Vuković et al., 2022d). Insufficient resources amidst high growth prospects, or ample resources without the capability to capitalize on growth opportunities, hinder a company's ability to expand (Vuković et al., 2022c). The greater level of growth could increase the rate of profit (Aryantini, Jumono, 2021). The dynamics of a company's growth are an important determinant of value when assessing the company using traditional valuation models, serving as a critical input for discounted cash flow models. The role of financial analysis is to identify analytical indicators relevant for calculating growth and examine the strength of their correlation with the market value of the company.

For the purposes of empirical research, calculated analytical indicators of revenue from sales growth, total assets growth and earnings growth will be examined as determinants of the value of selected value multiples.

3.2. Analytical indicators of company risk

The primary objective of companies is long-term sustainability and profitability and a high level of profitability ensures steady operational cash flow and mitigates long-term risks (Kušter et al., 2023). Risk represents any uncertain situation in business, i.e., the probability of loss (reduction in profit) resulting from uncertain events in business operations. Calculating the total risk of investing in a company is an integral part of almost all valuation models, especially when valuation is done for investment purposes. In traditional valuation models, the risk of investing in a company (business risk) is expressed through the discount rate, which represents the measure of the expected return on the initial investment and is used to discount future cash flows or dividends to present value (Rodić and Filipović, 2010).

Calculating the company's risk involves analyzing all factors that may be associated with specific business risks and applying the selected model to calculate investment risk.

For the purposes of empirical research, the analysis of business risk has been narrowed down to the analysis of financial risk, i.e., the risk arising from indebtedness. The company's financing policy influences its long-term financial risk and overall value (Vuković et al., 2020c). The analysis of the financial risk of the company is examined through an analysis of the financial structure. The financial structure of the company is understood as the composition of all sources of company financing, or it is observed as the relationship between borrowed and equity financing sources (Krasulja and Ivanišević, 2000). Various degrees of leverage necessitate management to determine the most effective capital structure, as funding from borrowed sources enhances the company's value while also increasing financial risk (Vuković et al., 2022b). Capital structure of companies may affect to growth or decline companies performances (Mo, Yang, 2023). It should be noted that a low level of indebtedness is not always a good sign for a company, as it may indicate the company's inability and incapacity to obtain additional sources of financing (Gatawa, 2021). In empirical research, it is assumed that the risk of the company can be represented through the values of analytical indicators (ratios) of financial risk. For this purpose, the following analytical indicators are selected:

- Debt/Total Liabilities and Equity
- Leverage
- Interest coverage ratio

In line with this, defined analytical indicators of financial risk will be subjected to an analysis of value relevance in relation to the selected standard set of value multiples.

3.3. Analytical indicators of profitability of the company

According to Rodić et al. (2011) earning power represents the best indicator of profitability. This indicator shows the degree of the ability of a given investment to generate a return from its use.

Every company prioritizes profitability as the primary indicator of its bottom line (Vuković et al., 2020b). Analytical indicators of profitability are used to assess the earning power of the company. There are two types of profitability ratios: those that show profitability in relation to investments (capital employed) and those that show profitability in relation to sales revenue (Van Horne and Wachowicz, 2007).

Profitability rises in direct relation to the actualization of equity interest and serves as a crucial factor in determining the rationale for investing in or divesting assets (Vuković et al., 2017). The degree of a company's profitability is a crucial factor in financial decision-making (Vuković et al., 2022a). Return on Assets (ROA) reflects the efficiency of management in generating profit by utilizing the available assets. According to Tica et al. (2023a), it is calculated as:

$$ROA = \frac{Net\ income}{Average\ assets} \quad (2)$$

Return on Equity (ROE) evaluates the earning potential of a company by assessing the degree of return on its invested capital (Vuković et al., 2020a). It is the amount of net income returned as a percentage of shareholders' equity. According to Tica et al. (2023b), ROE is calculated as:

$$ROE = \frac{Net\ income}{Average\ shareholders\ equity} \quad (3)$$

Indicators of the profit rates (margins) represent the ratio of a certain result or intermediate result and realized business income, most often sales income. Their determination implies a vertical analysis of the profit and loss account, which is structured by separate segments of income and expenditure. The goal of the analysis is to see the "covering" of business expenses by the realized sales revenue, that is, to see how many monetary units of each realized sales revenue remain for the concrete intermediate result. In a detailed income statement, it is possible to calculate a number of profit rates. A margin can be calculated for each intermediate score level. In practice, they are most often used:

$$EBITDA\ margin = \frac{EBITDA}{Sales\ revenue} \quad (4)$$

EBITDA margin provides insight into a company's operational profitability, excluding the impact of interest, taxes, and non-cash depreciation and amortization expenses. A higher EBITDA margin suggests better operational efficiency in generating profits from core business activities.

$$Profit\ margin = \frac{Net\ profit}{Sales\ revenue} \quad (5)$$

Bearing in mind that profit margin aims to assess the relationship between profit and total sales of a company (Mijić et al., 2014), net margin reflects the proportion of net profit generated from each unit of net revenue. Analyzing the previously selected profitability indicators in empirical research within the context of determinants of value for a set of multiples will examine their value relevance concerning the chosen multiples.

3.4. Sample characteristics

The sample used in the empirical research consists of 422 agricultural companies headquartered on the European continent. The sample includes only listed companies on European stock exchanges that are classified as large according to international classification and for which publicly available data necessary for the research are available. All European continental countries are represented in the sample.

The type of research problem and the formulated basic hypotheses require data collection from official financial reports of companies, as well as data from the organized market regarding the value of stocks, achieved selling prices of entire companies, market capitalization, stock market indicators, and others. The time period covered by the collected data is from 2013 to 2022. The total number of companies in the initial sample is 422, representing a total of 4,150 observations in the initial sample. After forming the initial sample, companies were eliminated from the sample. Initially, companies with extreme market capitalization values were eliminated, and subsequently, companies for which all necessary data for analysis were not publicly disclosed were eliminated. After eliminations, the number of observations in the sample was reduced to 3,562. The sources for collecting the necessary data are the international Amadeus database.

Table 1: Descriptive statistics of the sample-Financial data

In 000 EUR	Sample	Average	Mean	Min	Max
Market capitalization	3,562	1,343,800	33,867	5,263	208,113,743
Enterprise value	3,562	1,611,593	39,045	5,856	214,198,906

Total assets	3,562	1,262,064	49,034	7,946	171,174,167
Earnings	3,562	125,563	2,985	0	71,723,746
Book value (B)	3,562	607,599	31,095	4,231	99,178,691
Sales income (S)	3,562	570,349	11,468	9,632	106,998,212
EBIT	3,562	136,029	3,375	0	30,890,807
EBITDA	3,562	169,315	3,659	0	32,921,547

Source: Authors calculation

The agricultural companies in the sample are classified according to the international classification of economic activities (NACE Rev.2– Classification of Economic Activities). According to this classification, companies are categorized into sectors, divisions, groups and classes. The empirical research sample consists of companies from two agricultural sectors:

- Manufacturing activities in Agriculture;
- Trading of agricultural products.

Table 2: Descriptive statistics of the sample-Sectoral data

Sector	Sample	Division	Group	Class	N. of countries
Manufacturing activities in Agriculture	2,480	4	11	34	35
Trading of agricultural products	1,082	3	4	21	29
Total	3,562	7	15	55	38

Source: Authors calculation

In the paper are conducted a series of regression analyses aimed at answering the question of how well the selected set of company-specific analytical indicators can predict the values of individual valuation multiples. Each regression analysis will focus on a specific valuation multiple from the chosen standard set within a particular sector. The goal is to find a model that best fits the data, meaning a model that includes only those analytical indicators that have an impact on the valuation multiple (optimal number of analytical indicators). Data duplication is not only unnecessary but also leads to a significant increase in the standard error of the estimated regression coefficients, thus reducing the quality of the analysis.

For data processing, IBM SPSS 20 statistical software will be utilized. The research will employ multiple stepwise regression analysis. The contribution of all analytical indicators to individual valuation multiples will be examined, and, in steps, a regression model that best fits the measured, observed values of multiples will be selected. The goal is to find a

combination of analytical indicators with the highest degree of value relevance concerning the tested valuation multiple. For each selected model, the significance of calculated parameters will be tested using the Student's T-test. The coefficient of determination will show the proportion of variance in individual multiples that can be explained by the model, and the statistical significance of each equation will be tested using analysis of variance methods, conducting an F-test.

4. Data and Results

4.1. Correlation of analytical indicators and P/E multipliers

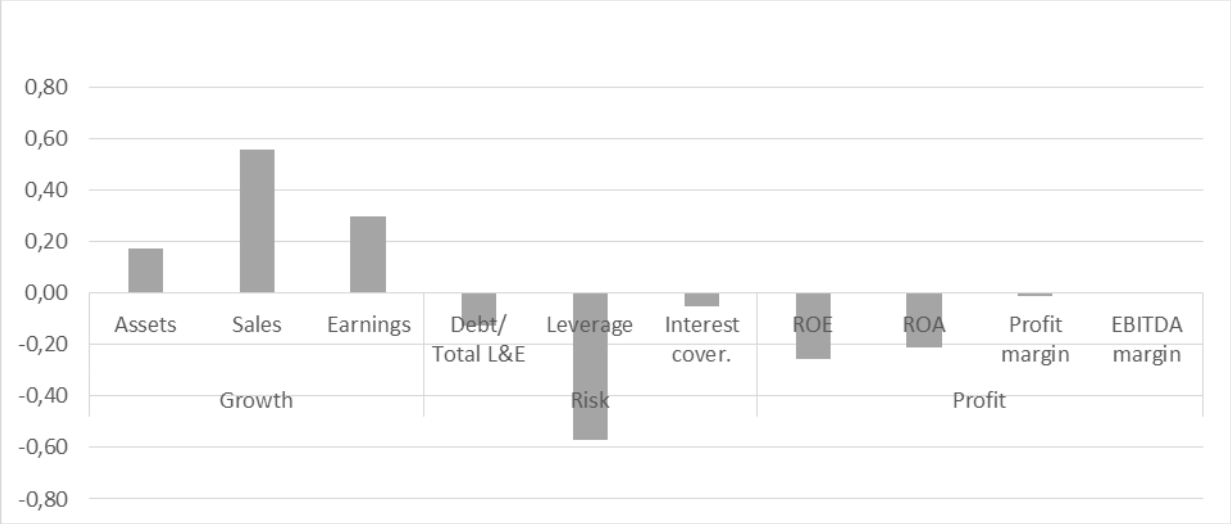
The linear Pearson correlation was used to examine the nature of the relationship between P/E multiples and variables related to growth (assets, revenue, earnings), risk (Debt/ Total L&E ratio, leverage, interest coverage), and profitability (ROE, ROA, profit margin, EBITDA margin). Based on the test results, it can be observed that growth variables positively correlate with the P/E multiple. The variable representing revenue growth shows the highest correlation. Risk-related variables negatively correlate with the P/E multiple, with leverage being particularly significant in this group. Profitability-related variables correlate with the P/E multiple but behave differently among groups. The commonality is that the correlations are generally low. ROE, ROA, and profit margin exhibit negative correlations, while EBITDA margin, in some measurements, shows a positive correlation. More detailed data are presented in Table 3.

Table 3: Correlation of analytical indicators with the P/E multiplier

P/E	Growth			Risk			Profit			
	Assets	Sales	Earnings	Debt/ Total L&E	Leverage	Interest cover.	ROE	ROA	Profit margin	EBITDA margin
Pearson correlation	0.172	0.557	0.297	-0.13	-0.572	-0.052	-0.25	-0.209	-0.012	0.000
Sign.	0.000	0.000	0.000	0.000	0.000	0.004	0.00	0.000	0.481	0.983

Source: Authors calculation

Chart 1: Correlation of analytical indicators with the P/E multiplier



Source: Authors calculation

On the basis of the previously presented correlations in the table, variables were selected for further investigation regarding their impact on the P/E multiplier. These variables demonstrated the strongest correlations with the P/E multiplier and the least correlation among themselves. This selection was made to identify variables that provide the best contribution to explaining the P/E multiplier's value while sharing minimal common variance with each other. Across all sectors and in the overall sample, the variables that performed best were sales growth and leverage. In one group, the variable EBITDA margin was also included. Descriptive statistics for the significant variables are presented in Table 4.

Table 4: Descriptive statistics for the variables P/E multiplier, Sales growth, Leverage

	Min.	Max.	Arithmetic mean	Standard deviation
P/E	0.00	39.95	14.9207	9.22243
Sales growth	-0.32	0.34	0.0599	0.12718
Leverage	0.00	1.20	0.4025	0.28026

Source: Authors calculation

The initial investigation aimed to determine whether and to what extent the scores on the revenue growth and leverage measurements could predict the value of the P/E multiplier in the overall sample. Multiple regression analysis was applied, with independent predictor variables being sales growth and leverage, while the dependent criterion variable was the P/E

multiplier. There was no multicollinearity between the independent variables, which was examined using Pearson's correlation.

The obtained results indicate that the regression model defined in this way is statistically significant. Predictor variables operationalized as sales growth and leverage significantly predict the values of the P/E multiplier in the overall sample. Data indicating the significance of the regression function are presented in Table 5.

Table 5: P/E multiplier-Significance of the regression function

Model		Sum of squares	Mean square	F	Sign.
1	Regression	145,080.147	72,540.073	1,757.738	0.000
	Residual	160,990.346	41.269		
	Total	306,070.492			

Source: Authors calculation

Indicators of the regression model suggest that the predictive set of independent variables describes 47.4% of the variance in the P/E multiplier in the overall sample. Considering the large number of cases included in the analysis, the adjusted coefficient of determination is equal to R^2 itself. Table 6 presents indicators of the regression model.

Table 6: P/E multiplier-Indicators of the regression model

Model	R	(R^2)	Adjusted R^2	Standard error of prediction
1	0.688	0.474	0.474	6.42409

Source: Authors calculation

Table 7 provides the individual contribution of predictor variables included in the regression model. From the presented table, both independent variables significantly predict the criterion. Sales growth predicts this criterion in a positive direction, while the risk variable, leverage, predicts the P/E multiplier in a negative direction. The contribution of these two variables is almost equal, as can be seen based on the standardized beta coefficients.

Table 7:P/E multiplier-Contribution of individual coefficients

Model		Unstandardized coefficients		Standardized coefficients	T	Sign.
		B	Stand. Error	Beta		
1	(constant)	19.252	0.220		87.327	0.000
	Sales growth	29.315	0.853	0.420	34.377	0.000
	Leverage	-14.447	0.411	-0.429	-35.125	0.000

Source: Authors calculation

4.2. Correlation of analytical indicators and P/B multipliers

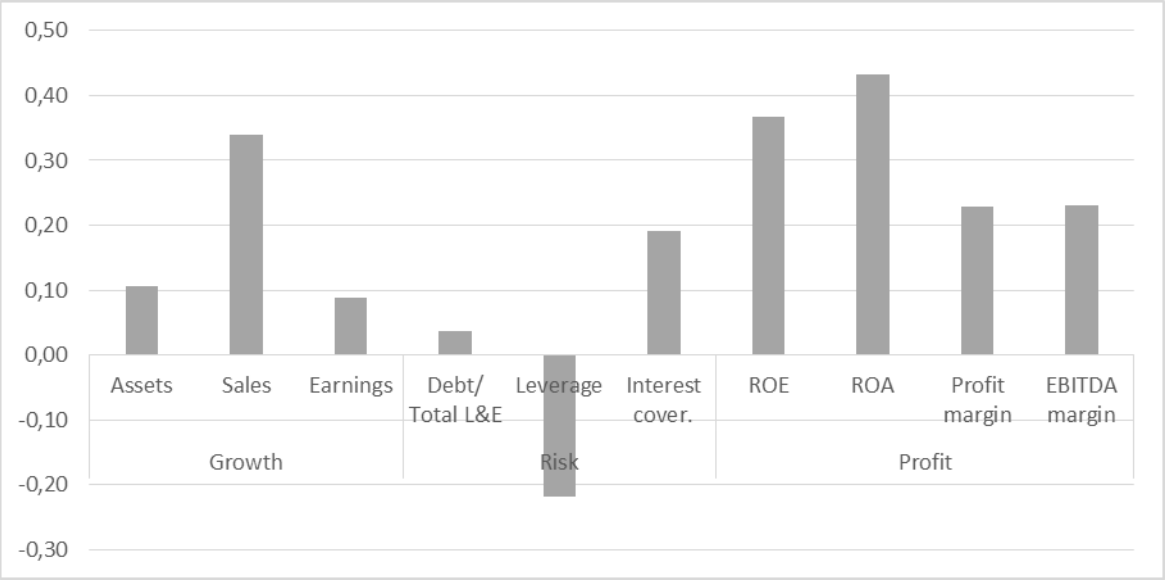
The analysis of P/B multipliers and potential predictors was initially examined through a series of Pearson correlations. The connection between the P/B multiplier and the same previously defined variables of growth, risk, and profitability was investigated. In the overall sample, all variables are statistically significantly associated with the P/B multiplier. Among the growth variables, the sales growth variable performed the best. Within the risk variables, Debt/total L&E and interest coverage are slightly positively correlated, while leverage is negatively correlated. All profitability variables are positively correlated with the P/B multiplier, with the best correlations observed for the ROA and ROE variables. The obtained associations are presented in Table 8.

Table 8: Correlation of analytical indicators with the P/B multiplier

P/B	Growth			Risk			Profit			
	Assets	Sales	Earnings	Debt/ Total L&E	Leverage	Interest cover.	ROE	ROA	Profit margin	EBITDA margin
Pearson correlation	0.105	0.339	0.088	0.037	-0.219	0.192	0.367	0.433	0.229	0.231
Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source: Authors calculation

Chart 2: Correlation of analytical indicators with the P/B multiplier



Source: Authors calculation

In further analyses, variables that showed the best correlations with the P/B multiplier and the least correlation among themselves were considered. This way, variables were chosen that provide the best contribution to explaining the criteria and share the least common variance among themselves. Descriptive statistics for these variables are provided in Table 9.

Table 9: Descriptive statistics for the variables P/B multiplier, Sales growth, Leverage, ROE

	Min.	Max.	Arithmetic mean	Standard deviation
P/B	0.00	10.00	1.6533	1.69877
Sales growth	-0.30	0.30	0.0274	0.10424
Leverage	0.00	1.25	0.3554	0.25096
ROE	0	30	7.28	5.677

Source: Authors calculation

To examine the predictive power of the variable set for predicting the P/B multiplier criterion, a multiple regression analysis was employed. The predictor set consisted of the variables: sales growth, leverage, and ROE. There is no multicollinearity between the independent variables. The conducted regression model is statistically significant. The

variables sales growth, leverage, and ROE can statistically significantly predict the values of the P/B multiplier. Data on the significance of the regression function is provided in Table 10.

Table 10: P/B multiplier-Significance of the regression function

Model		Sum of squares	Mean square	F	Sign.
1	Regression	1,252.009	417.336	411.799	0.000[b]
	Residual	3,461.932	1.013		
	Total	4,713.940			

Source: Authors calculation

Based on the indicators of the regression model provided in Table 11, it can be concluded that the predictor set explains a significant portion of the criterion, the P/B multiplier, in the total sample. This percentage is 26.6%. Given the large number of cases, the adjusted coefficient of determination differs very little from the initial estimate and amounts to 26.5%.

Table 11: P/B multiplier-Indicators of the regression model

Model	R	(R^2)	Adjusted R^2	Standard error of prediction
1	0.515	0.266	0.265	1.00670

Source: Authors calculation

In Table 12, the contribution of all predictor variables included in predicting the criterion variable is provided. Based on the obtained data, it can be concluded that all three variables significantly predict the P/B multiplier. The independent variables, sales growth, and ROE, predict the P/B multiplier positively, while leverage predicts the P/B multiplier negatively, also statistically significant. Among the examined variables, the criterion is best predicted by the predictor ROE, while revenue growth is the weakest predictor.

Table 12: P/B multiplier-Contribution of individual coefficients

Model		Unstandardized coefficients		Standardized coefficients	T	Sign.
		B	Stand. Error	Beta		
1	(constant)	0.832	0.038		21.854	0.000
	Sales growth	1.963	0.155	0.187	12.629	0.000
	Leverage	-0.983	0.077	-0.191	-12.819	0.000
	ROE	0.092	0.003	0.444	29.541	0.000

Source: Authors calculation

4.3. Correlation of analytical indicators and the EV/EBITDA

Using a series of Pearson correlations, we explored the relationship between the EV/EBITDA multiplier and a set of potential predictors. The nature of the relationship between the EV/EBITDA multiplier and selected variables was investigated. The obtained correlations are presented in Table 13. Based on these results, we can conclude that several predictors are statistically significantly associated with EV/EBITDA, yet the correlations are low. Notably, sales growth stands out, demonstrating a statistically significant positive association, and the risk variable leverage consistently exhibits a statistically significant negative association with the EV/EBITDA multiplier in all measurements. Profitability variables show variations in association depending on the examined group, with significant but low correlations.

Table 13: Correlation of analytical indicators with the EV/EBITDA multiplier

EV/EBITDA	Growth			Risk			Profit			
	Assets	Sales	Earnings	Assets	Sales	Earnings	Assets	Sales	Earnings	Assets
Pearson correlation	0.034	0.662	0.059	0.055	-0.555	-0.014	0.075	0.024	0.138	-0.043
Sig.	0.037	0.000	0.005	0.000	0.000	0.441	0.000	0.145	0.000	0.014

Source: Authors calculation

Chart 3: Correlation of analytical indicators with the EV/EBITDA multiplier

Source: Authors calculation

In further analyses, variables that had the best correlation with the EV/EBITDA multiplier and the least correlation with each other were considered. In other words, variables were selected that provided the best contribution to explaining the criterion and shared the least common variance among themselves. On the overall sample, the variables that performed best were sales growth and leverage. In some measurements, the profit margin variable was also included. Descriptive statistics for these variables are provided in Table 14.

Table 14: Descriptive statistics for the variables EV/EBITDA multiplier, Sales growth, Leverage

	Min.	Max.	Arithmetic mean	Standard deviation
EV/EBITDA	0.01	24.99	10.0455	6.04027
Sales growth	-0.31	0.33	0.0601	0.12417
Leverage	0.00	1.23	0.4828	0.26431

Source: Authors calculation

Considering that the variables from the predictor set of profitability have a low correlation with the criterion variable, only the sales growth and leverage variables were included in the regression equation. Pearson's correlation was used to examine the relationship between these independent variables, and the results indicate that there is no multicollinearity. Results obtained from multiple regression show that the applied regression model is statistically significant. Predictor variables operationalized as sales growth and

leverage significantly predict the values of the EV/EBITDA multiplier on the overall sample of firms. The data on the significance of the regression function are presented in Table 15.

Table 15: EV/EBITDA multiplier-Significance of the regression f.unction

Model		Sum of squares	Mean square	F	Sign.
1	Regression	65,712.392	32,856.196	2,074.586	0.000
	Residual	55,874.595	15.837		
	Total	121,586.986			

Source: Authors calculation

Indicators of the regression model suggest that the predictor set of variables explains a significant percentage of the criterion variance. Specifically, more than half of the variance of the EV/EBITDA multiplier is explained by the predictor set consisting of sales growth and leverage variables. From Table 16 presented below, you can see the indicators of the regression model, such as the percentage of explained variance.

Table 16: EV/EBITDA multiplier-Indicators of the regression model

Model	R	(R^2)	Adjusted R^2	Standard error of prediction
1	**0.735**	**0.540**	**0.540**	**3.97963**

Source: Authors calculation

In addition to examining the contribution of the predictor set, the contribution of individual independent variables to the EV/EBITDA multiplier in the total sample was also investigated. The obtained results show that both variables, sales growth, and leverage, significantly explain the dependent criterion variable. Sales growth makes a higher contribution that is positively directed. The leverage variable makes a lower but statistically significant contribution, which is negatively directed. Table 17 provides the individual contributions of all predictor variables included in the regression model.

Table 17: EV/EBITDA multiplier-Contribution of individual coefficients

Model		Unstandardized coefficients		Standardized coefficients	T	Sign.
		B	Stand. Error	Beta		
1	(constant)	12.410	0.168		73.756	0.000
	Sales growth	25.267	0.581	0.534	43.460	0.000
	Leverage	-7.934	0.282	-0.345	-28.093	0.000

Source: Authors calculation

4.4. Correlation of analytical indicators and the EV/EBIT multiplier

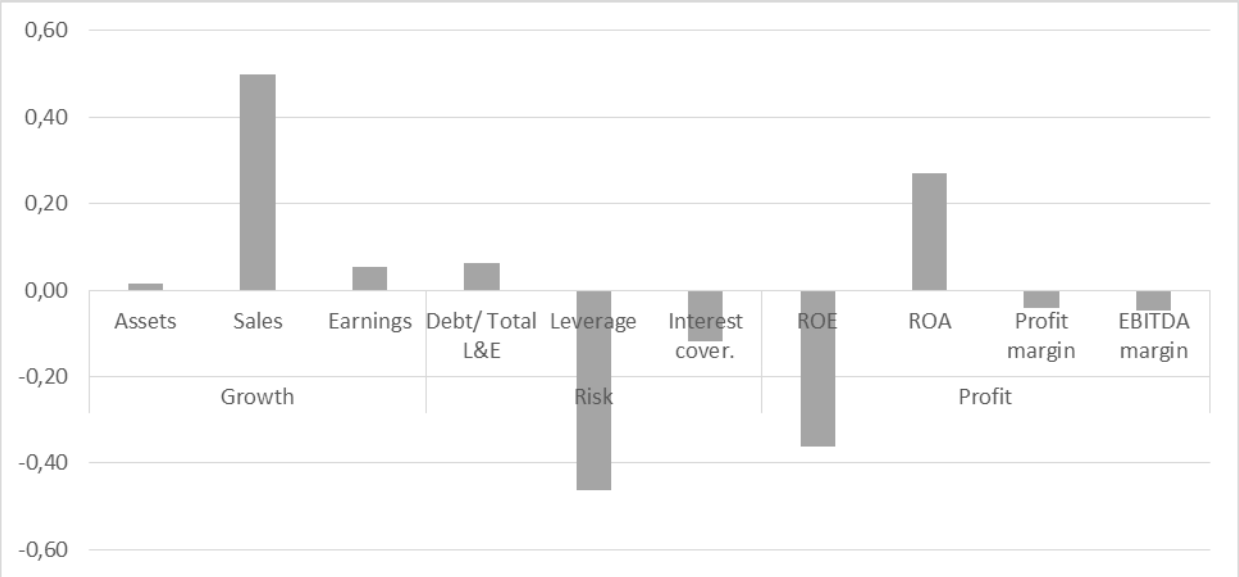
The results of Pearson correlations indicate that a larger number of independent variables are statistically significantly associated with the EV/EBIT multiplier. Within the variables describing growth, the sales growth variable stands out, being statistically significant and positively correlated with the EV/EBIT multiplier in all groups. The leverage variable stands out in the group of predictors measuring risk, as it is consistently and negatively correlated with the multiplier. Variables describing profitability are statistically significantly associated with the EV/EBIT multiplier. However, they differ in the nature of their associations. ROE is negatively correlated with the EV/EBIT variable, while ROA is positively correlated. The profit margin and EBITDA margin contribute negatively, but the contribution is low and, in some cases, does not reach the level of statistical significance. The obtained associations are presented in Table 18.

Table 18: Correlation of analytical indicators with the EV/EBIT multiplier

EV/EBIT	Growth			Risk			Profit			
	Assets	Sales	Earnings	Assets	Sales	Earnings	Assets	Sales	Earnings	Assets
Pearson correlation	0.016	0.498	0.052	0.063	-0.463	-0.119	-0.361	0.271	-0.043	-0.047
Sig.	0.315	0.000	0.012	0.000	0.000	0.000	0.000	0.000	0.012	0.011

Source: Authors calculation

Chart 4: Correlation of analytical indicators with the EV/EBIT multiplier



Source: Authors calculation

In further analyses, the variables that contribute the most to explaining the criterion while sharing the least common variance among themselves were selected. In all areas and in the overall sample, the variables that performed the best were sales growth, leverage, and ROA. Descriptive statistics for these variables are provided in Table 19.

Table 19: Descriptive statistics for the variables EV/EBITDA multiplier, Sales growth, Leverage, ROA

	Min.	Max.	Arithmetic mean	Standard deviation
EV/EBIT	0.01	41.05	15.2219	9.80955
Sales growth	-0.3087	0.3400	0.062799	0.1209807
Leverage	0.00	1.21	0.4247	0.25071
ROA	0.00	26.30	8.0711	5.61667

Source: Authors calculation

Multiple regression analysis was used to examine whether the predictive set significantly describes the criterion variable in the overall sample of companies. The predictive set consisted of variables related to growth, risk, and profitability, while the criterion variable was the EV/EBIT multiplier. Pearson's correlation was used to explore the relationship between the independent variables that make up the predictor set, and the results indicate that there is no multicollinearity.

The results obtained from multiple regression show that the applied regression model is statistically significant. The set of variables, composed of variables related to sales growth, leverage, and return on assets (ROA), significantly predicts a company's score on the EV/EBIT multiplier measure in the overall sample of firms. Table 20 contains data regarding the significance of the regression function, the magnitude, and the significance of the F-test.

Table 20: EV/EBIT multiplier-Significance of the regression function

Model		Sum of squares	Mean square	F	Sign.
1	Regression	104,841.528	34,947.176	622.438	0.000
	Residual	181,125.749	56.146		
	Total	285,967.277			

Source: Authors calculation

Indicators of the regression model, such as the coefficient of determination, suggest that the predictive set explains more than one-third of the criteria's variance. From Table 21 presented below, you can observe the indicators of the regression model. It can be concluded that sales growth, leverage, and ROA variables predict 36.6% of the variance of the EV/EBIT multiplier.

Table 21: EV/EBIT multiplier-Indicators of the regression model

Model	R	(R^2)	Adjusted R^2	Standard error of prediction
1	0.605	0.367	0.366	7.49304

Source: Authors calculation

Based on standardized and unstandardized coefficients, more insights can be drawn regarding the contributions of individual independent variables from the predictor set to predict the EV/EBIT multiplier in the overall sample. All three variables included in the study make a statistically significant contribution. The predictor of sales growth has the highest contribution to explaining the EV/EBIT multiplier, and it contributes positively. The predictor leverage makes a lower but still statistically significant contribution, describing the criterion negatively. The smallest contribution is made by ROA, and this variable positively describes the criterion. Table 22 provides the individual contributions of all predictor variables included in the regression model.

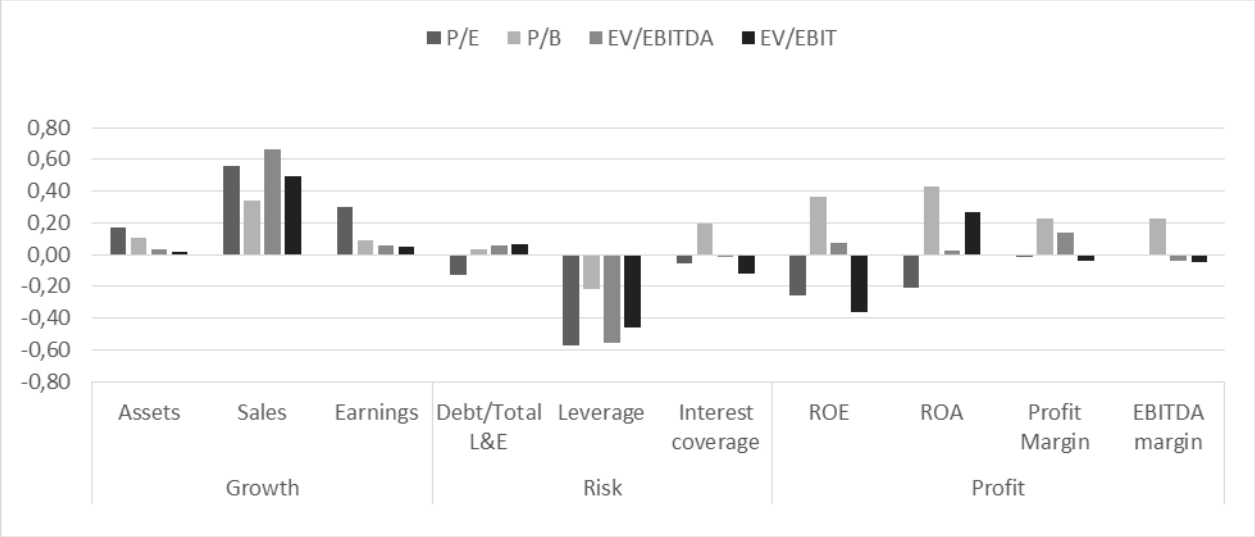
Table 22: EV/EBIT multiplier-Contribution of individual coefficients

Model		Unstandardized coefficients		Standardized coefficients	T	Sign.
		B	Stand. Error	Beta		
1	(constant)	18.183	0.381		47.713	0.000
	Sales growth	30.785	1.165	0.391	26.423	0.000
	Leverage	-13.584	0.572	-0.349	-23.731	0.000
	ROA	0.108	0.025	0.064	4.285	0.000

Source: Authors calculation

The following graphic shows the results of the connection of all the examined analytical indicators in relation to the standard set of multipliers.

Chart 5: Correlation of analytical indicators with a standard set of multipliers



Source: Authors calculation

In Table 23 shows a recapitulation of analytical indicators that, combined, best explain the values of individual multipliers. The predictive ability of each set of analytical indicators in relation to a specific multiplier is represented by the coefficient of determination of the set.

Table 23: Recap - Value-relevant analytical indicators

Multipliers	Value-relevant analytical indicators			Coefficient of determination (R^2)
P/E	Leverage	Sales growth	-	0.474
P/B	ROE	Leverage	Sales growth	0.265
EV/EBITDA	Sales growth	Leverage	-	0.540
EV/EBIT	Sales growth	Leverage	ROA	0.366

Source: Authors calculation

Overall results indicate that higher growth rate and lower financial risk have significant positive influence on company's market value, which proves their value relevance. These results are expected and in line with previous research which dealt with accounting measurements and their effect on market value of shares. (Ball and Brown 1968, Chang 1999, Zhang et al., 2024, Frankel and Liu 1998, Saković and Ilić 2018, Brief and Zarowin1999, Cheng and McNamara 2000). Specific profitability indicator influence on value multipliers can vary, but still there is present overall positive effect on value of the company. The results of this research can serve market participants and other stakeholders when making investment and other value-related decisions.

5. Conclusion

The empirical research examined the value relevance of selected analytical indicators of risk, growth, and profitability, created based on regular financial statements. The results indicate that analytical indicators of risk (leverage) and growth (sales growth) are value-relevant concerning all tested valuation multiples. Profitability-related analytical indicators that are value-relevant include: ROE for the P/B ratio, ROA for EV/EBIT.

Based on the results of the conducted research summarized in the previous tables, it can be concluded that the main hypothesis has been confirmed.

The results of the conducted empirical research indicate the following conclusions:

- The analytical indicator of sales revenue growth, as a representation of the overall company's growth, is value-relevant. There is a statistically significant correlation

between changes in the sales revenue growth indicator and the values of standard company valuation multiples.

- The leverage ratio (long-term debt/equity), as a representation of financial risk, is value-relevant. There is a statistically significant correlation between changes in this ratio and changes in the values of standard valuation multiples of the company.
- Analytical indicators such as the return on total assets, return on equity, and EBITDA margin, representing profitability, are value-relevant concerning certain valuation multiples from the analyzed set of standard multiples.

The first potential limitation of the research is related to the scope of the derived conclusions when viewed from the perspective of the characteristics of the utilized sample. Although the authors do not question the representativeness of the sample, a potential limitation is that the sample relies solely on companies from European countries within agricultural sector. The sample includes only listed companies on European stock exchanges, classified as large according to international standards, for which publicly available data necessary for conducting the research exist.

The second potential limitation of the research is associated with the use of historical data on the state and performance of companies when assessing their value. The limitation lies in the fact that modern valuation trends encourage the use of future values when evaluating companies. In the case of multiplier models, if available, it is common for the value to be based on projected financial statement positions. This further aligns these models with traditional yield models based on projected data. Due to the unavailability of projected data, empirical research is based on historical data.

A recommendation for further research on the topic of value relevance is to incorporate combined analytical indicators into the analysis. These indicators could include not only accounting information from company's financial statements but also specific data disclosed in the notes to financial statements, which could be value-relevant.

6. Reference

ABOU-EL-SOOD, H. The impact of Covid-19 pandemic on the value relevance of cash flows: evidence from banks, *International Journal of Emerging Markets*, Vol. ahead-of-print, 2023.

ALI, A.; HWANG, L.S. Country-Specific Factors Related to Financial Reporting and the Value Relevance of Accounting Data, *Journal of Accounting Research*, Vol. 38, p. 20, 2000.

Amadeus date base, downloaded on 04.09.2023 from web site: https://amadeus.bvdinfo.com/version-2017928/home.serv?product=AmadeusNeo, 2023.

ARYANTINI, S.; JUMONO, S. Profitability and value of firm: An evidence from manufacturing industry in Indonesia, *Accounting, Vol.* 7, p. 735-746, 2021.

BALL, R.; BROWN, P. An Empirical Evaluation of Accounting Income Numbers, *Journal of Accounting Research*, Vol. 6, p. 159-178, 1968.

BANKOLE, K.O.; UKOLOBI, I.O. Value Relevance of Accounting Information and Share Price in Financial Service Industry. *Research Journal of Finance and Accounting*, p. 34-49, 2020.

BRIEF, R.; ZAROWIN, P. The Value Relevance of Dividends, Book Value and Earnings. *New York University Dept. of Accounting Working Paper No. 99-3*, Available at SSRN: https://ssrn.com/abstract=173629.

CHANG, J. The decline in value relevance of earnings and book values, *Working paper, University of Pennsylvania*, p.16, 1999.

CHEN, B.; KURT, A.C.; WANG, I.G. Accounting comparability and the value relevance of earnings and book value. *Journal of Corporate Accounting & Finance, Vol. 31 No. 4*, p. 82–98, 2020

CHEHADE, S.; PROCHÁZKA, D. Value relevance of accounting information in an emerging market: The case of IFRS adoption by non-financial listed firms in Saudi Arabia. *Journal of Accounting in Emerging Economies*, Vol. 14 No. 1, 220–246, 2023

CHENG, C.S.A.; MCNAMARA, R. The Valuation Accuracy of the Price-Earnings and Price-Book Benchmark Valuation Methods, *Review of Quantitative Finance and Accounting, Vol. 15*, p. 349-370, 2000.

COLLINS, D.W.; MAYDEW, E.L.; WEISS, I.S. Changes in the value-relevance of earnings and book values over the past forty years. *Journal of Accounting and Economics, Vol. 24*, p. 39-67, 1997.

ČAVIĆ, D. Analiza i tumačenje finansijskih izveštaja, *Škola Biznisa, Časopis ¼, Visoka poslovna škola strukovnih studija*, Novi Sad, str. 70. 2009.

ČUPIĆ, M.; TODOROVIĆ, M.; BENKOVIĆ, S. Value relevance of accounting earnings and cash flows in a transition economy: the case of Serbia, *Journal of Accounting in Emerging Economies,* Vol. 13 No. 3, pp. 541-565, 2023.

DUNHAM, L.M.; GRANDSTAFF, J.L. The Value Relevance of Earnings, Book Values, and Other Accounting Information and the Role of Economic Conditions in Value Relevance: A Literature Review*. *Accounting Perspectives,* Vol. 21 No. 2, p. 237–272, 2022

EL-DIFTAR, D.; ELKALLA, T. The value relevance of accounting information in the MENA region: A comparison of GCC and non-GCC country firms. *Journal of Financial Reporting and Accounting*, Vol. 17 No. 3, 519–536, 2019.

FAMA, E.F. Efficient Capital Markets: A Review of Theory and Empirical Work, *Journal of Finance* 25, p. 383, 1970

FRANCIS, J.; SCHIPPER, K. Have Financial Statements Lost Their Relevance? *Journal of Accounting Research*, Vol. 37, p. 325, 1999.

FRANKEL, R.; LEE, C.M.C. Accounting valuation, market expectation, and cross-sectional stock returns, *Journal of Accounting and Economics,* Vol. 25, p. 283, 1998.

GATAWA, G. The Value Relevance of Financial Metrics to Publicly Listed Firms: Evidence from Large-, Mid-, and Small-Cap Firms Listed in NYSE and NSDAQ, *Advance, Vol.* 8, p. 1-16, 2021.

IAS 1- Presentation of Financial Statements, downloaded on 01.11.2023. from website: http://www.mfin.gov.rs/UserFiles/File/MRS/2014/IAS/IAS%201.pdf, 2023

JONES, C. P. The Intelligent Portfolio. Practical Wisdom on Personal Investing from Financial Engines, *John Wiley & Sons, Hoboken* p. 74, 2008.

KNEŽEVIĆ, G. Ekonomsko-finansijska analiza (teorija i analiza bilansa), *Univerzitet Singidunum*, Beograd, p. 4-15, 2007.

KRASULJA, D.; IVANIŠEVIĆ, M. Poslovne finansije, *Univerzitet Beograd, Ekonomski fakultet*, 2000.

KUŠTER, D.; VUKOVIĆ, B.; MILUTINOVIĆ, S.; PEŠTOVIĆ, K.; TICA, T,; JAKŠIĆ, D. Early Insolvency Prediction as a Key for Sustainable Business Growth. Sustainability, Vol. 15, n. 21, 1-24.

MO, H.; YANG, X. Impact of capital structure on firm performances: based on the Chinese alcohol industry. *Custos e @gronegocio on line, Vol.* 19, n. 2, p. 154-184, 2023.

NGUYEN, H.A.; DANG, T.T.G. Accounting reform and value relevance of financial reporting from non-financial listed firms on the Vietnam stock market. *Cogent Business & Management*, Vol. 10 No. 2, 2220193, 2023

NICHOLAS, D. B.; CHRISTOS, G. K.; ALKIVIADIS, TH. K. The Effect of COVID-19 on the Value Relevance of European Firms' Financial Statements. International Journal of Applied Economics Finance and Accounting. Vol. 14, No. 1, pp. 91-99, 2022.

MIJIĆ, K.; ZEKIĆ, S.; JAKŠIĆ, D.; VUKOVIĆ, B. Meat industry in Serbia: performance analysis of meat-processing and livestock companies. *Custos e @gronegócio on line*, Vol. 10, n. 3, p. 124-144. 2014.

PRUSAK, B. The accuracy of alternative stock valuation methods – the case of the Warsaw Stock Exchange. *Economic Research*, Vol. 30 No. 1, 416–438, 2017

RISTIĆ Ž.; KOMAZEC S. Globalni finansijski menadžment, *Etno Still, Beograd*, p. 768-780, 2011.

RODIĆ, J.; LAKIĆEVIĆ, M.; VUKELIĆ, G.; ANDRIĆ, M. Analiza finansijskih izveštaja, *Proletere a.d. Bečej,* 2011.

SAKOVIĆ, D. Analysis of value-relevant analytical indicators of companies in selected Western Balkan countries, *Financing*, 01/2020, 65-73, 2020.

SAKOVIĆ, D.; ILIĆ, M. The Role of financial Analysis in Company Valuation Processes Using the P/E Multiples Model, *Journals of Faculty of Economics in Subotica*, Vol 54, p. 201-214, 2018.

SAKOVIĆ, D.; ILIĆ, M. Value Relevance-Evidence from food industry. *Economics of agriculture, Balkan Scientific Association of Agricultural Economists.* p. 1099-1110, 2018.

SAHLIAN, D. N.; POPA, A. F.; BANŢA, V. C.; RAPAN, C. M.; CHIRIAC S. C. V. The Value Relevance of Financial Performance and ESG Scores During Tumultuous Economic Periods, *Eastern European Economics*, p. 68-75, 2023.

SAMI, A.; ALAA A.-I.; GIRARDONE, C. Fair value accounting and value relevance of equity book value and net income for European financial firms during the crisis. *Journal of International Accounting, Auditing and Taxation.* Vol. 39, issue C, 2020.

TAREQ, M. The Effect of Fair-value Accounting on the Value Relevance of the Balance Sheet and the Income Statement. *Jordan Journal of Business Administration,* p. 501-512, 2022.

TICA, T.; VUKOVIĆ, B.; PEŠTOVIĆ, K.; MEDVED, I. Profitability determinants of Serbian joint-stock companies. *Ekonomski horizonti*, VOL. 25, n. 3, p. 245-260, 2023a.

TICA, T.; VUKOVIĆ, B.; SAKOVIĆ, D.; JAKŠIĆ, D. Specific Impact of the COVID-19 Pandemic on the Profitability of Logistics Companies Based in the Western Balkan Countries. *Ekonomika preduzeća, Vol. 71, n.* 5-6, p. 313-324. 2023b.

TRAN Q. T.; NGUYEN T. P.; TRAN K. L. The value relevance of earnings and book value at Vietnamese listed enterprises, *Investment Management and Financial Innovations*, Vol. 20, n. 2, p. 182-192, 2023.

VAN HORNE, J.C.; WACHOWICZ, J.M. Osnovi finansijskog menadžmenta, trinaesto izdanje, Data Status, Beograd, 2014

VUKOVIĆ, B.; ANDRIĆ, M.; JAKŠIĆ, D. The impact of working capital management on company's profitability: empirical evidence from Serbia, *Custos e @gronegócio on line, Vol.* 13, n. 1, p. 333-349. 2017.

VUKOVIĆ, B.; MILUTINOVIĆ, S.; MILIĆEVIĆ, N.; JAKŠIĆ D. Corporate Bankruptcy Prediction: Evidence from Wholesale Companies in the Western European Countries. *Ekonomický časopis/Journal of Economics*, Vol. 68, n. 5, p. 477-498. 2020a.

VUKOVIĆ, B.; MILUTINOVIĆ, S.; MIROVIĆ, V.; MILIĆEVIĆ, N. The Profitability Analysis of the Logistics Industry Companies in the Balkan Countries. *Promet-Traffic & Transportation*, Vol. 32, n. 4, p. 497-511. 2020b.

VUKOVIĆ, B.; MILUTINOVIĆ, S.; MILIĆEVIĆ, N.; JAKŠIĆ, D. The Analysis of Indebtedness of Retail Companies in the Balkan Countries. *Икономически изследвания/Economic Studies*, Vol. 29, n. 3, p. 83-104. 2020c.

VUKOVIĆ, B.; MIJIĆ, K.; JAKŠIĆ, D.; SAKOVIĆ, D. Determinants of cash holdings: evidence from Balkan countries. *E&M Economics and Management*, Vol. 25, n. 1, p. 130–142. 2022a.

VUKOVIĆ, B.; MILUTINOVIĆ, M.; MIJIĆ, K.; KRSMANOVIĆ, B.; JAKŠIĆ, D. Analysis of financial performance determinants: evidence from the European agricultural companies. *Custos e @gronegócio on line, Vol.* 18, n. 1, p. 285-306. 2022b.

VUKOVIĆ, B.; TICA, T.; JAKŠIĆ, D. Sustainable Growth Rate Analysis in Eastern European Companies. *Sustainability, Vol.* 14, n. 17, p. 1-21. 2022c.

VUKOVIĆ, B.; PEŠTOVIĆ, K.; MIROVIĆ, V.; JAKŠIĆ, D.; MILUTINOVIĆ, S. The Analysis of Company Growth Determinants Based on Financial Statements of the European Companies. *Sustainability*, Vol. 14, n. 2, p. 1-17. 2022d.

ZHANG X.; YU Y.; CAO Y.; HAO J. Margin trading and value relevance of earnings: Evidence from China. *Finance Research Letters*, Vol. 61, 104975, 2024