



The impact of intangible assets on stock prices on Bulgarian stock exchange: A panel data analysis

Ani Stoykova

South-West University "Neofit Rilski" - Blagoevgrad, Bulgaria.
Email: ani_stoykova_st@abv.bg

Abstract

This study examines the factors influencing stock prices of Bulgarian non-financial listed companies, employing descriptive statistics, correlation model, panel regression model, and Granger causality test for the period 2015-2022. The research investigates the impact of computer software assets, intellectual property rights, goodwill, earnings, book value, and dividend on stock prices. The results indicate that software products per share (SFS), book value per share (BVS), dividend per share (DPS), and earnings per share (EPS) have statistically significant impacts on the stock prices of non-financial publicly traded companies in Bulgaria. Intellectual property rights per share (IPS) and goodwill per share (GPS) do not significantly influence stock prices. Additionally, the study highlights the dynamic relationships and causality between these variables and stock prices over the examined period. This research not only contributes to the academic discourse on financial market dynamics but also offers pragmatic insights for investors and policymakers. As financial markets continue to evolve, this research provides a timely and relevant contribution to the ongoing dialogue surrounding stock price determinants and their implications for market participants.

Keywords: Bulgarian stock exchange, Intangible assets, Panel data, Panel regression analysis, Stock prices.

JEL Classification: E22.

1. Introduction

The main purpose of financial reporting is to assist investors in making informed economic decisions and assessing the value of a company. Exploring and understanding the main factors that influence stock prices is paramount for investors, policymakers, and stakeholders. Certainly, the correlation between accounting data and the financial markets is among the most extensively analyzed and debated subjects in the realms of financial and accounting literature. In particular, intangible assets such as computer software and intellectual property have gained unprecedented significance, especially in their contribution to the computerization of inventory management and production processes within the manufacturing sector. Intangible assets play a pivotal role in businesses' future growth and success. Companies with more intangible assets tend to exhibit greater innovation and competitiveness, resulting in augmented market values. Furthermore, the size of intangibles is positively correlated with the market value of a firm. Consequently, both companies and investors need to consider the extent of intangible assets when evaluating the market value of a company. [Basheva \(2017\)](#) suggests that the adoption of consistent and universal accounting standards will improve the effectiveness of capital markets by promoting the comparability of accounting information in financial statements.

The main goal of this research is to examine the effect of intangible assets on the share prices of non-financial public enterprises listed on BSE (Bulgarian Stock Exchange). The following hypotheses are developed:

H₁: Computer software assets have a significant influence on the share prices of listed companies in Bulgaria.

H₂: Intellectual property rights have a significant influence on the share prices of listed companies in Bulgaria.

H₃: Goodwill have a significant influence on the share prices of listed companies in Bulgaria.

H₄: Earnings per share, book value per share, and dividend for share have a significant influence on the share prices of listed companies in Bulgaria.

The research underscores the critical role of specific intangible assets and traditional financial metrics in shaping stock prices. These insights offer valuable implications for investors, policymakers, and stakeholders in understanding and predicting stock market behavior in emerging markets like Bulgaria.

2. Literature Review

Intangible assets have a significant impact on the market value of firms ([Qureshi and Siddiqui, 2021](#); [Pan, 2022](#); [Lim and Jones, 2023](#)). [Ionita and Dinu \(2021\)](#) find that intangibles like R&D and patents do not have a positive impact on firm value, but IT programs do have a positive and significant impact on firm value.

Figure 1 presents the visualization map of the keyword network. The co-occurrence of keywords formed eight distinct clusters. There is a significant correlation between the keywords in each cluster. The main elements within these eight clusters are as follows: intangible assets; investments; value relevance; disclosure; research and development; intellectual capital; innovation; and financial performance. The distance between the two circles illustrates the proximity of the two keywords. The lines connecting them in the figure represent the relationships between the elements. Additionally, a thicker line indicates a stronger relationship between the items. The link strength of the keyword "intangible assets" is 148 points.

4. Methodology and Data

This research presents an empirical analysis of the effect of intangible assets on the share prices of the capital market in Bulgaria. It uses annual panel data spanning from January 1, 2015, to December 31, 2022. Employing panel data enables the observation of a particular variable at one specific moment and simultaneously observes another variable at another moment, facilitating the exploration of various relationships, interactions, and patterns (Kapitanov, 2021).

Table 1 lists the accounting and financial variables used in the empirical analysis.

Table 1. Variables used in the empirical analysis.

Variable	Type of variable	Abbreviation	Formula
Stock price	Dependent	SP	Stock price at the end of the year (December 31st)
Earnings per share	Independent	EPS	$\frac{\text{Profit after taxes}}{\text{Weighted average number of shares}}$
Book value per share	Independent	BVS	$\frac{\text{Shareholders' equity}}{\text{Number of shares outstanding}}$
Dividend per share	Independent	DPS	$\frac{\text{Total amount of dividends paid}}{\text{Number of shares outstanding}}$
Intellectual property rights per share	Independent	IPS	$\frac{\text{Total Intellectual Property Rights}}{\text{Number of shares outstanding}}$
Software products per share	Independent	SFS	$\frac{\text{Total Software products}}{\text{Number of shares outstanding}}$
Goodwill per share	Independent	GPS	$\frac{\text{Goodwill}}{\text{Number of shares outstanding}}$

This study uses several accounting metrics, including intellectual property rights per share, software products per share, Goodwill per share, earnings per share, book value per share, and dividend per share. These variables were chosen based on previous research and data availability for computation (Stoykova, 2022). The accounting data were gathered from the individual annual financial statements of the examined companies. Moreover, the Bulgarian capital market mandates listed companies to disclose detailed quarterly and annual financial statements. Consequently, all accounting information was sourced from the Bulgarian Stock Exchange (BSE). Table 2 outlines the explanatory variables utilized in the regression equation along with the anticipated sign for each of their coefficients.

Table 2. Independent variables and the anticipated sign for each of their coefficients.

Independent variables	Expected sign
Earnings per share (EPS)	Positive +
Book value per share (BVS)	Positive +
Dividend per share (DPS)	Positive +
Intellectual property rights per share (IPS)	Positive +
Software products per share (SFS)	Positive +
Goodwill per share (GPS)	Positive +

The sample for this study includes 20 individual joint-stock companies across various sectors in Bulgaria. Consistent with Hellström's (2006) methodology, financial firms are excluded due to notable differences in structure and accounting compared to non-financial entities (Hellström, 2006; Stoykova, 2021). All included companies are publicly listed on BSE. Market indices such as SOFIX, BGBX40, BGTR30, and BGREIT are based on the market capitalization of the common stock issued by chosen Bulgarian companies. These companies must meet specific criteria for liquidity, market capitalization, and shareholder count to be included in these indices. This study focuses on companies from diverse sectors of the Bulgarian economy, including manufacturing, professional activities and research, transport, storage and post, real estate operations, hotels and restaurants, extractive industry, and construction. These 20 companies were chosen because they provide complete accounting data spanning the analysis period from 2015 to 2022.

Before conducting the empirical analysis regarding the influence of accounting data on share prices, it is necessary to apply a Panel Unit Root Test. This test is used to assess the stationarity of the analysed panel data, determining whether the panel is stationary or non-stationary.

Correlation model and Granger causality test are employed to test the relationship between the examined variables. Regression analysis is commonly used to determine the presence and direction of relationships between two or more variables. For empirical analysis purposes, Ordinary Panel Least Squares Model is applied. The simple panel regression can be expressed by the following formula:

$$y_{it} = \alpha + \beta X_{it} + \varepsilon_{it} \quad (1)$$

The following explanatory legend applies to Equations (4):

For $i = 1, 2, \dots, N$ и $t = 1, 2, \dots, T$.

Where:

y – dependent variable; x – independent variables; t - reflects the time range; T - the number of periods; i - reflects the spatial range; N - the number of individual or spatial data; α - intercept of the model; β - unknown parameter subject to calculation; ε - error.

In panel regression, the model error ε_{it} combines the error associated with temporal data and the error associated with spatial data (Nenova, 2020).

5. Empirical Analysis

First, the panel unit root test was applied. The results of Levin, Lin & Chu t panel unit root test show that all the panel time series are non-stationary at level (zero order), thus requiring acceptance of the null hypothesis indicating the presence of non-stationarity in the variables under study at level (0) (p-value > 0.05). Consequently, transformation into the first difference is necessary. The first difference of all examined variables is stationary, so the empirical analysis can be proceeded.

Figure 2 presents graphically the mean values by date for each of the examined variables.

The trend observed for software products is upward for the period 2018-2022, suggesting that enterprises are allocating increasing funds towards the implementation of digitalization and innovation (Figure 2). On the other hand, the mean values of intellectual property per share and goodwill per share are relatively stable and unchanged for the period 2018-2022. Moreover, the highest mean value was registered for book value per share (24.2 for 2022), whereas the lowest was observed for IPS (0.003 for 2020, 2021, 2022). The highest mean value of stock prices is observed in 2022 (17.1), while the lowest mean value of SP is registered in 2019 and 2020. This could be attributed to the COVID-19 pandemic that has started in March 2020, which negatively affected capital markets. Table 3 presents the descriptive statistics for the whole sample.

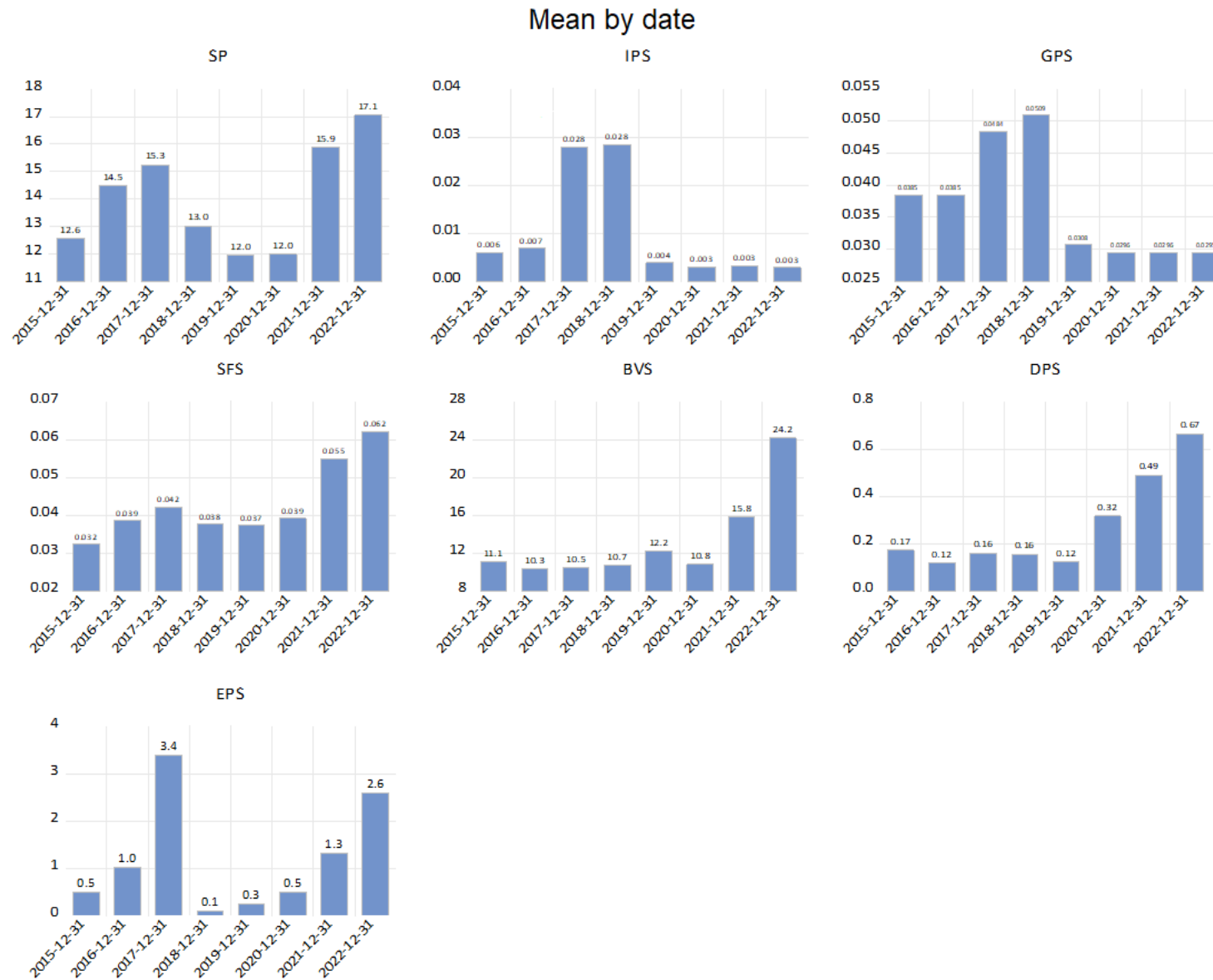


Figure 2. Graphic presentation of the descriptive statistics results for mean by date.

The descriptive statistics for each variable that shows the mean, median, maximum, minimum, standard deviation, skewness, kurtosis, and Jarque-Bera are presented in Table 3.

Table 3. Descriptive statistics.

	SP	SFS	IPS	GPS	BVS	DPS	EPS
Mean	14.02913	0.043079	0.010320	0.036985	13.21526	0.275750	1.209532
Median	6.200000	0.000968	0.000000	0.000000	3.188523	0.000000	0.211219
Maximum	112.0000	0.618675	0.482796	0.721946	243.7282	5.250000	57.87126
Minimum	0.135000	0.000000	0.000000	0.000000	0.004040	0.000000	-7.794385
Std. dev.	19.14543	0.117860	0.053256	0.134889	28.38166	0.885507	5.445477
Skewness	2.307171	3.203110	8.256242	3.853410	4.758727	4.687908	8.003638
Kurtosis	9.206820	12.25544	71.82785	16.61302	32.34882	24.97632	78.22793
Jarque-Bera	398.7784	844.6851	33399.57	1631.396	6346.234	3805.765	39436.49
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	2244.661	6.892657	1.651262	5.917587	2114.442	44.12000	193.5251
Sum sq. dev.	58281.06	2.208681	0.450959	2.893000	128077.4	124.6755	4714.862
Observations	160	160	160	160	160	160	160

The mean stock price (SP) is 14.02913, indicating a relatively high average. The skewness value of 2.31 suggests a moderate positive skewness, implying a distribution that is slightly skewed to the right. The kurtosis value of 9.21 indicates a distribution with heavier tails compared to a normal distribution. The median value is 6.20, indicating that half of the observations fall below this value. The maximum value is 112.00 and the minimum value is 0.135.

The mean software product per share (SFS) is 0.0431, with a relatively low standard deviation of 0.1179. The skewness and kurtosis values are both high, indicating a distribution that is highly skewed to the right and has heavy tails. The standard deviation is 0.1179, suggesting a relatively low degree of variability. The Jarque-Bera statistic is 844.69 with a p-value of 0.000, indicating a departure from normality. The mean intellectual property per share (IPS) is 0.0103, with a low standard deviation of 0.0533. The skewness and kurtosis values are extremely high, indicating a highly skewed and leptokurtic distribution. The maximum value is 0.48280. The mean value for goodwill per share (GPS) is 0.037, with a moderate standard deviation of 0.1349. The skewness and kurtosis values suggest a distribution that is moderately skewed to the right and has moderate tails. The Jarque-Bera statistic is 1631.40 with a p-value of 0.000, indicating a departure from normality. The mean book value per share (BVS) is 13.22, with a substantial standard deviation of 28.38. The mean dividend per share (DPS) is 0.2758, with a moderate standard deviation of 0.8855. The skewness and kurtosis values of DPS show a distribution that is moderately skewed to the right and has moderate tails. The mean earnings per share (EPS) is 1.2095 and the maximum value is 57.87126. The Jarque-Bera statistic of EPS is 39436.49, indicating a departure from normality. Table 4 presents the correlation matrix. A strongest positive correlation is observed between stock price and dividend per share (0.572148). Also, a positive moderate correlation is revealed between stock price and software product per share (0.501062). The correlation coefficient between stock price and book value per share is 0.400182, suggesting that the relationship between these two variables is moderate and positive. Moreover, as the earnings per share rise, there is a corresponding increase in the stock price. The strongest correlations observed involve DPS, BVS, and SP.

Table 4. Correlation matrix.

	SP	SFS	IPS	GPS	BVS	DPS	EPS
SP	1.000000	0.501062	-0.068537	-0.153580	0.400182	0.572148	0.368951
SFS	0.501062	1.000000	-0.063865	-0.099904	0.217786	0.553162	0.105884
IPS	-0.068537	-0.063865	1.000000	0.244818	-0.008781	-0.039126	-0.005738
GPS	-0.15358	-0.099904	0.244818	1.000000	-0.126507	-0.085297	-0.059756
BVS	0.400182	0.217786	-0.008781	-0.126507	1.000000	0.593100	0.571932
DPS	0.572148	0.553162	-0.039126	-0.085297	0.593100	1.000000	0.401969
EPS	0.368951	0.105884	-0.005738	-0.059756	0.571932	0.401969	1.000000

Table 5. Ordinary panel least squares model.

Dependent variable: D(SP)				
Method: Panel least squares				
Sample (Adjusted): 2016 2022				
Periods included: 7				
Cross-sections included: 20				
Total panel (Balanced) observations: 140				
Variable	Coefficient	Std. error	t-statistic	Prob.
C	0.310009	0.504711	0.614231	0.5401
D(SFS)	44.96278	19.19743	2.342125	0.0207
D(IPS)	16.50182	26.39834	0.625108	0.5330
D(GPS)	-18.00604	31.36429	-0.574094	0.5669
D(BVS)	0.130089	0.049427	2.631920	0.0095
D(EPS)	0.262823	0.070880	3.708009	0.0003
D(DPS)	-2.829344	0.997535	-2.836335	0.0053
Root MSE	5.647378	R-squared		0.210661
Mean dependent var	0.639557	Adjusted R-squared		0.175052
S.D. dependent var	6.379282	S.E. of regression		5.794088
Akaike info criterion	6.400260	Sum squared resid		4465.004
Schwarz criterion	6.547342	Log likelihood		-441.0182
Hannan-Quinn criter.	6.460030	F-statistic		5.915909
Durbin-Watson stat	1.865914	Prob(F-statistic)		0.000017

The Ordinary Panel Least Squares model is applied and the results are presented in Table 5. The results of the panel regression show that the accounting variables can have a statistically significant impact on the stock prices (SP) of the Bulgarian Stock Exchange for the period 2015-2022. The highest statistically significant coefficient in the model is for software products per share (SFS) and it is 44.96278. These results show that a one-unit increase in the SFS is associated with an increase in the dependent variable SP by approximately 44.963 units. The coefficient for this variable is positive, aligning with the expected sign (+). On the other hand, the coefficients for the other two intangible assets (IPS and GPS) are not statistically significant. This suggests that intellectual property rights per share (IPS) and goodwill per share (GPS) are not significantly related to the dependent variable (SP).

The coefficient for BVS is 0.130089, and it is statistically significant at the 1% level (p-value = 0.0095). These findings suggest that book value per share is a significant accounting variable for determining stock prices alongside other accounting variables incorporated in the model. The sign of this coefficient is positive and it matches the expected sign. This implies that high BVS is directly related to stock price; that is, the higher the book value per share, the higher the stock price. These results reconfirm findings obtained by other researchers (Malhotra & Tandon, 2013; Almumani, 2014; Warrad, 2017). The coefficient for earnings per share (EPS) is 0.262823, and it is statistically significant (p-value = 0.0003). A one-unit increase in EPS is associated with an increase in SP by 0.262823 units. The coefficient for EPS is positive, aligning with the expected sign. Other researchers have also established a positive and statistically significant correlation between EPS and SP (Kwon, 2009; Khanna, 2014; Shehzad & Ismail, 2014). The coefficient for dividend per share (DPS) is -2.829, and it is statistically significant. DPS has a negative impact on stock prices, indicating that high values of DPS are inversely correlated to stock prices (i.e. an increase in the dividend amount results in a decline in the stock price). The sign of this coefficient does not align with its anticipated positive sign. These findings align with those of numerous research papers (Srinivasan, 2012; Malhotra & Tandon, 2013; Neupane, 2020). In summary, the results show that software products per share (SFS), book value per share (BVS), earnings per share (EPS), and dividend per share (DPS) are statistically significant predictors of stock price (SP). The regression model employed on the panel data can be expressed by the following equation (in the equation, the statistically significant coefficients for each individual variable are indicated in bold):

$$D(SP) = 0.31009012703 + 44.962775713 * D(SFS) + 16.5018171526 * D(IPS) - 18.0060414184 * D(GPS) + 0.130089177323 * D(BVS) + 0.26282260112 * D(EPS) - 2.82934365585 * D(DPS) \quad (2)$$

The results from granger causality test for time period of 2 lags are presented in Table 6.

Table 6. Granger Causality Test for time period of 2 lags.

Pairwise granger causality tests			
Sample: 2015 2022			
Lags: 2			
Null hypothesis:	Obs	F-statistic	Prob.
SFS does not granger cause SP	120	7.92696	0.0006
SP does not granger cause SFS		0.87892	0.4180
IPS does not granger cause SP	120	0.14600	0.8643
SP does not granger cause IPS		0.43222	0.6501
GPS does not granger cause SP	120	0.02390	0.9764
SP does not granger cause GPS		0.09288	0.9114
BVS does not granger cause SP	120	6.39914	0.0023
SP does not granger cause BVS		3.05442	0.0510
DPS does not granger cause SP	120	46.2584	2.E-15
SP does not granger cause DPS		3.88799	0.0232
EPS does not granger cause SP	120	7.10495	0.0012
SP does not granger cause EPS		6.97371	0.0014

These results validated the findings from the previous tests. Therefore, there is evidence to reject the null hypothesis that changes in software products per share (SFS) do not provide useful information about future changes in SP. In summary, software products per share (SFS), book value per share (BVS), dividend per share (DPS), and earnings per share (EPS) granger cause changes in stock price (SP).

Considering the results from correlation matrix, panel regression model and granger causality test, we can except H1 and H4. SFS, EPS, BVS, DPS have an impact on stock prices. Contrarily, we have enough evidences to reject H2 and H3 because GPS and IPS have no statistically significant impact on stock prices.

6. Conclusion

The relevance of accounting information describes how investors respond to its disclosure. This reaction demonstrates the importance of accounting information in the investment decision-making process, underscoring its value for investors (Scott, 2015). This empirical analysis assesses how intangible assets and other accounting variables affect the stock prices of non-financial listed companies on the Bulgarian Stock Exchange between 2015 and 2022. The study employs descriptive statistics, correlation analysis, panel regression models, and Granger causality tests, to test the relationships between stock prices and key accounting variables. The results of the descriptive statistics reveal upward trends in software products per share (SFS) from 2018-2022, while intellectual property per share (IPS) and goodwill per share (GPS) remain relatively stable. The highest mean value is observed for book value per share (BVS), indicating its significance in market valuation. Correlation analysis reveals a moderate positive relationship between stock prices (SP) and variables such as dividend per share (DPS), book value per share (BVS), and software products per share (SFS). The results of the panel regression model show that software products per share (SFS), book value per share (BVS), earnings per share (EPS), and dividend per share (DPS) are statistically significant predictors of stock prices. The study affirms that these accounting variables are beneficial for investors and analysts in examining and assessing companies across various sectors, thereby aiding informed economic decision-making. The study results demonstrate the value of accounting information for investors, albeit with considerable variation over time and among different companies. However, the results also reveal that intellectual

property per share (IPS) and goodwill per share (GPS) lack statistical significance, challenging the hypotheses positing their impact on stock prices. Additionally, the results from the Granger causality test validated the findings from the previous tests (correlation matrix and panel regression model). In summary, based on the results obtained, Hypothesis 1 (H1) stating that computer software assets have a significant influence on the share prices of listed companies in Bulgaria is accepted. Hypothesis 2 (H2) positing that intellectual property rights have a significant influence on the share prices of listed companies in Bulgaria is rejected. Hypothesis 3 (H3) that goodwill has a significant influence on the share prices of listed companies in Bulgaria is rejected. Hypothesis 4 (H4) suggesting that earnings per share, book value per share, and dividend per share have a significant influence on the share prices of listed companies in Bulgaria is accepted. This research gives practical insights into the Bulgarian stock market and the findings help investors, policymakers, and analysts better understand the factors shaping stock prices. The primary focus for future research related to this issue involves exploring the application of artificial intelligence (AI) in financial reporting and forecasting, leveraging AI techniques, such as machine learning algorithms and natural language processing.

References

- Abdulhadi, K., Dashtbayaz, M. & Salehi, M. (2022). Comparing the effect of intangible assets and macroeconomic parameters on the stock prices in firms listed on the stock exchange of Iran, Saudi Arabia and Iraq. *CEMJ*, Vol.30, No.4, pp. 52–76. Retrieved from https://journals.kozminski.cem-j.org/index.php/pl_cemj/article/view/4
- Al-Ani, M. K., & Tawfik, O. I. (2021). Effect of intangible assets on the value relevance of accounting information: Evidence from emerging markets. *Journal of Asian Finance, Economics and Business*, Vol. 8, No. 2, pp. 0387–0399. <https://doi.org/10.13106/jafeb.2021.vol8.no2.0387>
- Almumani, M. A. (2014). Determinants of equity share prices of the listed banks in Amman stock exchange: Quantitative approach, *International Journal of Business and Social Science*, Vol.5, No.1, pp. 91-104. <https://doi.org/10.3126/pravaha.v26i1.41648>
- Andersson, M. & Saiz, L. (2018). Investment in intangible assets in the euro area, *Economic Bulletin Boxes*, European Central Bank, 7.
- Aulia, F., Koeswayo, P., & Bede, D. (2020). Relevance of intangible asset, equity book, and earning value on stock price in information technology era, *Journal of Accounting Auditing and Business*, Vol. 3 No. 1, pp. 135-146.
- Basheva, S. (2017). Advantages, disadvantages and general characteristics of principles-based accounting standards. Issues in the development of principles-based accounting standards. Collection of scientific articles, Department of "Accounting and Analysis" 1920 – 2017, pp. 140-151, <http://unicat.nalis.bg/Record/PU.000049542>
- Dancaková, D, Sopko, J, Glova, J, & Andrejovská, A. (2022). The impact of intangible assets on the market value of companies: Cross-sector evidence, *Mathematics*. Vol. 10, No. 20, 3819. <https://doi.org/10.3390/math10203819>
- Glezakos., M., Mylonakis., J. & Kafouros, C. (2012). The impact of accounting information on stock prices: Evidence from the athens stock exchange, *International Journal of Economics and Finance*, Vol. 4, No. 2, pp. 56-68, <https://doi.org/10.5539/IJEF.V4N2P56>
- Hellström, K. (2006). The value relevance of financial accounting information in a transition economy: The case of the czech republic, *European Accounting Review*, Vol.15, No.3, pp. 325-349, <https://doi.org/10.1080/09638180600916242>
- Ionita, C., & Dinu, E. (2021). The effect of intangible assets on sustainable growth and firm value - Evidence on intellectual capital investment in companies listed on bucharest stock exchange, *Kybernetes*, Vol. 50, pp. 2823-2849. <https://doi.org/10.1108/K-05-2020-0325>
- Jaba, E., Robu, I-B., Istrate, C., Balan, C. B. & Roman, M. (2016). Statistical assessment of the value relevance of financial information reported by romanian listed companies, *Journal for Economic Forecasting*, Institute for Economic Forecasting, Vol.0, No.2, pp. 27-42
- Kapitanov, K. (2021). Influence of foreign direct investments on the investment process of groups of countries from Europe, Abstract, University of Economics – Varna.
- Khanna, M., (2014). Value relevance of accounting information: An empirical study of selected Indian firms, *International Journal of Scientific and Research Publications*, Vol.4, No.10, pp. 1-6. <https://www.ijsrp.org/research-paper-1014/ijsrp-p3462.pdf>
- Kimouche, B., & Rouabhi, A. (2016). The impact of intangibles on the value relevance of accounting information: Evidence from French companies, *Intangible Capital*, Vol. 12, No. 2, pp. 506–529. <https://doi.org/10.3926/ic.653>
- Kwon, G. J., (2009). The value relevance of book values, earnings and cash flows: Evidence from Korea, *International Journal of Business and Management*, Vol.4, No.10, pp. 28-42. <https://doi.org/10.5539/ijbm.v4n10p28>
- Lim, K., & Jones, W. (2023). The effect of regional differences on the value-relevance proposition for intangible assets, *International Journal of Finance & Banking Studies* (2147-4486), Vol. 11, No. 4, pp. 89–94. <https://doi.org/10.20525/ijfbs.v11i4.2348>
- Malhotra, B. & Tandon, K. (2013). The relevance of accounting information on investor decision. *Accounting and Financing*, Vol.18, No.3, pp. 1-49.
- Nenova, R. (2020). Influence of rent on the price of agricultural land in Bulgaria. Yearbook, volume CXXIII, Tsenov Academic Publishing House, pp. 123-158 <https://dlib.uni-svistov.bg/bitstream/handle/10610/4451/f777931ecf92b334eef385450d317c17.pdf?sequence=1&isAllowed=y>
- Neupane, B. (2020). Impact of Earnings, Book value and dividend on market price of stock of nepalese manufacturing firms listed in NEPSE, *Pravaha*, Vol.26, No.1, pp. 21-30. <https://doi.org/10.3126/pravaha.v26i1.41648>
- Owiredu, A., Oppong, M. & Churchill, R. (2014). The effects of the intensity of firm's intangible assets on the volatility of their stock prices, *Research Journal of Finance and Accounting*, Vol. 5, No. 14, pp. 179- 185.
- Oryina, E., & Suleiman, S. (2020). Effect of intangible assets on value relevance: Evidence from listed manufacturing firms in Nigeria, *Journal of Economics and Sustainability*, Vol. 2, No. 2, 13. Retrieved from <https://www.e-journal.uum.edu.my/index.php/jes/article/view/12561>
- Pan, S. (2022). Effects of the growth of intangible capital value on firms, *American Journal of Industrial and Business Management*, Vol. 12, pp. 1552-1563. <https://doi.org/10.4236/ajbm.2022.1210085>.
- Paolone, F., Tiscini, R., & Martiniello, L. (2020). *Journal of Modern Accounting and Auditing*, Vol. 16, No. 5, pp. 201-210. <https://doi.org/10.17265/1548-6583/2020.05.001>
- Pereira da Silva, J. F. (2019). Value relevance of accounting indicators in Europe: The case of intangible items. Thesis, <https://repositorio-aberto.up.pt/bitstream/10216/141221/2/362712.pdf>
- Qureshi, M. & Siddiqui, D. (2021). The effect of intangible assets on financial performance, financial policies, and market value of technology firms: A global comparative analysis, *Asian Journal of Finance and Accounting*, Vol. 12, No. 1, pp. 26-57, <https://doi.org/10.5296/AJFA.V12I1.16655>.
- Scott, W. R. (2015). *Financial accounting theory: Seventh edition*. Pearson Canada Inc. ISBN 978-0-13-298466-9, 2015. <https://uwaterloohome.files.wordpress.com/2020/08/afin-401-scott-financial-accounting-theory-7ed.pdf>
- Shehzad, K. & Ismail, A. (2014). Value relevance of accounting information and its impact on stock prices: Case study of listed banks at Karachi stock exchange, *Journal of Economic Info*, Vol. 3, No.1, pp. 40-48.
- Srinivasan, P. (2012). Determinants of equity share prices in India: A panel data approach, *The Romanian Economic Journal*, Vol. 15, pp.205-228.
- Stoykova, A. (2022). Accounting aspects of the functions of capital markets. University Publishing House "Neofit Rilski", Blagoevgrad, (In original: Stoykova, A. (2022). "Accounting aspects of the functions of capital markets", UI "Neofit Rilski", Blagoevgrad)
- Vasconcelos, T., Forte, D., & Basso, L. F. C. (2019). The impact of intangibles of German, English and Portuguese companies: From 1999 to 2016, *Revista de Administração Mackenzie*, Vol. 20, No. 4.
- Warrad, L.H. (2017). The Effect of market valuation measures on stock price: An empirical investigation on Jordanian banks, *International Journal of Business and Social Science*, Vol.8, No.3, pp. 67-74.