Article

Effectiveness of Company Value Creation Based on Excess Market Value-Added Assessment

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Abstract: This article aims to assess the usefulness of excess market value added to equity as an external measure of company value creation from the perspective of meeting shareholder expectations. This measure compares the expected value as an increase in stock exchange capitalisation in relation to return on equity, equivalent to its cost, decreased by this capital, in relation to the actually achieved level of capitalisation. This paper investigates relations with other external and internal measures. This research is based on measuring value creation in WIG30 Warsaw Stock Exchange companies in 2017–2023. The assessment of the research results was based on mathematical statistics tools, the density measure and the taxonomic measure of similarity. The study tested four hypotheses. The results of this research showed that the excess measure does not distort market information and can be used to assess the effectiveness of shareholder value creation, taking into account shareholder expectations. Secondly, the paper pointed to an unsatisfactory level of value creation in WSE WIG30 companies. The negative assessment of value creation management refers both to effectiveness and efficiency. Thirdly, shareholders continue to use classical financial measures despite the existence of a wide spectrum of value measures. Fourthly, the paper points to the lack of theoretical equality between the market value added (an external measure) and capitalised economic value added (an internal measure). The presented research contributes to unbiased assessments of whether or not shareholder value is simultaneously created and realised in increased share prices (capitalisation) to a higher degree than shareholder expectations. Up to now, no such research studies have been conducted for Polish and foreign capital markets. The research methodology has practical applications in expectations-based management.

Keywords: excess value; expectations based management; value creation

1. Introduction

1.1. The Nature of Shareholder and Stakeholder Models—A Contradiction of Objectives

Development as a key microeconomic category describes the purposefulness of a company's operations. From the perspective of management sciences, development is a process that occurs when a company's growth is justified by an increase in the efficiency of management processes. It should be assumed that growth ensures more favourable conditions for a company's adaptation to its environment and development. There is a two-way relationship (feedback) between the two categories [1]. Effectiveness is a quantitative characteristic of a company's development. It determines a company's core activities and objectives, and, consequently, its functioning and development [2]. Moreover, some authors claim that corporate development is positively correlated with stakeholder relationship management.

Without elaborating on the above in its theoretical dimension, it can be stated that, in the current practice, company value creation is the fundamental financial effect of corporate development, or, more precisely, it is a universal and comprehensive measure of a company's effective performance [3]. As a result, efforts aimed at achieving sustained company value creation become the dominant drivers of corporate management. The

crucial role in this process is played by shareholders, who use such efforts in motivating managers to implement value maximisation strategies—shareholders' core objective.

Debate on the conflict between shareholder and stakeholder models results from the fact that, in contemporary industrialised nations, both international accounting standards and company laws reflect, to a great extent, shareholders' perspective [4,5]. It would be hardly possible to introduce regulations that would make companies account for all the needs of their stakeholders. The main obstacle is the great number of goals and parties for which management boards would be held accountable, which means that, in practice, boards would not be accountable to any one [6].

Focus on maximising all stakeholders' wealth does not guarantee introducing transparent rules for allocating benefits in the form of cash flows between various groups of stakeholders [7]. Moreover, it would be necessary to identify a company's legitimate stakeholders and to find a proper balance between their interests. This would mean, in practice, that management boards would have to make their own independent decisions, without any conceptual support, making of the allocation of benefits to particular groups of stakeholders difficult [8].

A solution based on remunerating board members for their focus on stakeholder wealth maximisation can be an economic incentive, simultaneously strengthening the protection of stakeholder interests. However, the implementation of this policy is hindered by the lack of an aggregate measure of stakeholder wealth [9]. Therefore, despite persistent criticism of it, the shareholder model is still strongly supported [10].

However, in the shareholder model, there is a threat of overrating short-term value creation and strictly financial benefits. Such an approach contradicts the concepts of corporate social responsibility (CSR) [11] and sustainable development [12,13], jeopardising shareholders' long-term benefits.

Presently, CSR does not only represent 'doing good', but it also indicates creating shared value (CSV) [14]. CSR focuses on stakeholders' objectives. Stakeholders have legitimised 'interests' that possess internal value [15]. This leads to conflicts between CSR and value-based management (VBM), in which shareholder value creation is a financial goal. The achievement of stakeholders' objectives can have a negative impact on company value creation. Because shareholder value is the difference between company value and debt (external capital), shareholder value creation could also decrease.

1.2. Balancing Interests and Durability of Value Creation

Undoubtedly, the conflict between VBM and CSR is the effect of the above-described broader context of discrepancies between shareholders and stakeholders and their goals, hence the proposed concept of 'illuminated' VBM, which assumes the complementarity of stakeholders' interests and VBM. According to this concept, shareholder value creation should not disregard shareholders' interests (implying the lack of conflicts) [16,17]. It indicates seeking sustainability between the two groups of interest. The achievement of a proper balance is threatened not only by the diversity of stakeholder interests in a specific company but mainly by the previously mentioned lack of a stakeholder wealth measure. The issue becomes even more complicated when the environment and communities as 'mute' shareholders are to be involved in the process of measuring value.

However, the assumption that concern about the environment and communities (surroundings) translates to increased company value is subject to much criticism of it being false [18]. Moreover, company performance is still measured by financial ratios. It is true that environmental and social factors are considered but only to the extent that they contribute to improved financial results [19,20].

The above statement can be questioned in the context of ongoing changes—the evolution of institutional investors' goals, expectations and behaviour [21]. Increasingly, they reflect the necessity to account for social, environmental and corporate governance factors (ESGs). They are consistent with CSR goals. This change might indicate that, according to institutional investors' assessments, sustainable business practices lead to long-term

profitability and reduce risk. However, it should be noted that institutional investors are frequently forced to exercise strict control over company shares independently of the achieved results [22]. Fortunately, institutional investors encourage management boards to adopt a pro-ESG approach in allocating benefits to particular groups of stakeholders [23]. This is related to institutional investors' conciliatory approach to setting company objectives that are in agreement with those of stakeholders [24], ensuring that mutual preferences are accounted for [25].

The impact of 'sustainability' on a company's financial results is confirmed in a number of research studies. However, the financial result can be understood in different ways and identified through company performance [26], premium profits [27], competitive advantage [28], the sustainable value added [29] and long-term shareholder value [30]. Generally, the benefits derived from sustainable development can be different, but the key measures of its effects as financial effects, including the value created, are still the same. There is only an additional component of them—premium profits [31].

Sustainability can be implemented at the management level through the combination of VBM and CSR as the balance between shareholder and stakeholder interests [32], which is part of the idea of 'lluminated' value-based management, and developed in expectations-based management (EBM). This sustainability has another dimension—the ability to ensure durable, long-term value creation [33]. For this to take place, it is necessary to both generate the value added and realise it. This realisation takes place, among other things, via increasing share prices, as discussed in the next section.

Generally, the ability to ensure sustainable value creation is the assessment of a company's efficiency in adapting to changes in the environment and its resilience to shocks; thus, it can be understood as the development potential [34]. These postulates underly the concept of value-based management [35].

1.3. The Perception of Value Creation

As mentioned above, financial measures of value creation remain, despite the criticisms, an adequate basis for measuring value creation, even in sustainability terms. This statement reflects the epistemological reasoning presented in this article. The objective of a company is to achieve a specific financial result. This also strengthens the role of value creation analysis in the context of companies' sustainable development. Evidently, because of the multi-argument nature of the income utility function, the achievement of financial results is not a categorical imperative. However, the presented study relates exclusively to listed companies, so value creation as a financial result is their primary objective.

The key to determining value creation is the use of a developed standard for measuring and assessing company performance, motivating managers to implement strategies aimed at creating and maximising value [36]. The level of value creation is that of shareholders' goal and the assessment tool, but increased shareholder value is conditioned by increased stakeholder value [37].

The measurement of value creation has evolved considerably, currently being based on market factors instead of accounting values and based on still widely used financial measures [38]. The value created is mainly measured via the economic value--added (EVA) and market value-added (MVA).

EVA is determined using the economic surplus, the operating result and the cost of invested capital, or the rates of return on invested capital, and the cost of capital [39]. The weakness of EVA is bias in calculation corrections, and, generally, its characteristic as an internal measure of created value [40]. Listed companies can apply an external measure, i.e., MVA. This meets the requirements for unbiased market measurement [41]. Market value is represented by company capitalisation and is referred to as invested capital. Importantly, MVA does not reflect a company's performance but the opinions expressed by investors—shareholders.

1.4. Rationale, Purpose and Research Questions

The above statement is well grounded, but the question arises as to whether or not measurements based on MVA have some deficiencies. In a broad perspective, the verification of the effects of corporate development is based on the assessment of meeting stakeholder expectations [42,43]. Therefore, the question arises as to whether or not MVA is a sufficient measure for assessing value creation from the perspective of shareholders. It should be understood in a double sense: (1) Does the level of creation meet expectations (a minimum return covering the cost of capital)? (2) Does it create above average value, e.g., in relation to the benchmark (this is not the subject of study in this article)? In other words, the question is whether or not the managers who manage a specific company value management strategy, reflecting stakeholders' interests, meet stakeholder expectations in a satisfactory way.

The attribution of a key role to shareholder expectations underlies the concept of expectations-based management (EBM) [44]. Measuring shareholder value creation plays a key role in this concept.

The above-expressed doubt included in the first question, as to whether or not the market value added adequately reflects value creation as satisfactory from the shareholders' point of view, is the premise of the study undertaken in this article.

The research problem undertaken in this article is the external measurement of company value creation from the perspective of meeting shareholder expectations. Hence, the main objective of this work is to assess the usefulness of the modified measure—excess market value added. Usefulness means that the proposed measure is an appropriate measure, i.e., one that does not deform market information, and therefore a measure suggested for use in assessing the effectiveness of value creation for shareholders, taking into account their expectations. This assessment concerns correlations between market value (company capitalisation) and the market value added. The adopted approach to the assessment is based on shareholder value creation, i.e., shareholders' invested equity.

The empirical results of the assessment are the basis for formulating another conclusion as to whether or not the management in the analysed companies in fact results in expected shareholder value creation. The scope and objective of the presented study is extended via the verification of the adequacy of internal measures of created value—EVA, the income-related value determined by the discounted cash flow (DCF) method, as well as the description of their relations with the external measures of created value.

Two main hypotheses are formulated in the context of the objective of the article:

H1: The excess market value added to equity is correlated with changes in companies' capitalisation of a similar degree to changes in increases in market value added to equity;

H2: The degree of market value-added creation meets shareholder expectations.

The extension of the scope of this study allows for the formulation of two additional hypotheses:

H3: Changes in DCF_{FCFE} are correlated with the market value added to equity;

H4: The capitalised expected economic value added to equity corresponds to the market value added to equity.

The Polish capital market provided data for the achievement of the research goal and verification of the four hypotheses. The study comprised 30 companies with the highest level of capitalisation on the Warsaw Stock Exchange (WIG30 index) in 2017–2023, based on the presentation of monthly and annual results.

The presented research contributes to unbiased assessments of whether or not shareholder value is simultaneously created and realised in increased share prices (capitalisation)

to a higher degree than shareholder expectations. Up to now, no such research studies have been conducted on Polish and foreign capital markets. The research methodology has practical applications in expectations-based management.

The Section 1 placed the research in a wider context, and further, the structure of the article presents a literature review of created value measurements, the research methodology concerning internal and external value creation measurements, and the proposed modification to measurement methods based on the concept of excess value. The empirical part starts with the presentation of the author's research, and its subsequent parts include a discussion and summary of the research results.

2. Created Value Measurement

2.1. An Internal and External Perception of Value

The measurement of a company's effectiveness with respect to the value created, within the framework of the practical application of value-based management (VBM), is mainly based on external measures such as total shareholder return (TSR) and market value-added (MVA). Internal measures include economic value added (EVA) and discounted cash flow (DCF) (also DDM, dividend discount model and APV—adjusted present value approach).

The concept and measurement of value added is also used in broad practice, such as in EVA, currently defined as systemic value added [45]. The beginnings of this concept go back to the works of A. Marshall (1890) and G. Preinreich (1936), while D. Solomons used it for the first time in empirical research (1965) [46]. This measure was also developed by K. Peasnell (1982) [47] and J. Ohlson (1995) [48].

EVA is economic surplus understood in a double sense: (1) the difference between adjusted operating profit and capital cost with equivalents; (2) the difference between the weighted average cost of capital with equivalents and the rate of return on that capital. Equity cost is determined using the CAPM (capital asset pricing model). Operating profit adjustments refer to changes in a given period of the equivalents of invested capital and the eradication of those components of operating profit that are not generated with the use of operating assets [49]. As a result, they bring the adjusted operating result closer to free cash flows to the firm (FCFF).

Because EVA is an absolute measure, its positive value indicates value creation, while its negative value indicates its loss. As an absolute measure, it makes comparisons more difficult. This is critically deficient. The relativisation can be achieved by referring EVA to the value of invested capital, which allows for comparisons in time in relation to the benchmark.

DCF is applied to determine the value of a broadly understood investment (also, a company) as a form of capital investment. DCF perceives a company's value from the perspective of its ability to generate revenue in future periods. Future revenues are understood as cash flows. They represent benefits derived by investors from their assets (shares, bonds, etc.). DCF has two components: a predicted value for a given period and residual value (based on Gordon's approach) with a fixed rate of changes (q) of value after the period of forecast. Cash flows can be defined as free cash flows to the firm (belonging to all stakeholders, FCFF) and as free cash flows to equity (belonging to shareholders, FCFE). In the context of the objective of this article, the reason for the wide use of DCF is the proven positive correlation between DCF and listed companies' share prices in longer periods of time [50]. From the point of view of the purpose of the study in this article, this is a desirable, positive relationship.

A simple but external measure of created value is total shareholder return (TSR). Originally, TSR comprised two factors of value creation in capital markets: shareholder relative income from appreciation expressed as a share price, and from the dividend per share (DPS). Ultimately, the extension of the formula with additional cash payments (ACP) for shareholders resulted in a solution based on company capitalisation and all payments for shareholders, including the controversial purchase of own shares [51]. The critical deficiency is that the assessment of value creation using TSR requires relativisation. This

is carried out in relation to value creation rates in other investments (benchmarks). The difficulty, however, is the ability to obtain comparable data.

In its essence, market value added (MVA) is used to measure the ability to increase shareholder value. It is an external measure of created value—an unbiased measure used in capital markets. MVA is the effect of managers' operations, and, consequently, an assessment of effectiveness and efficiency as well as management itself. It represents the difference between market value and invested capital, so it should have a positive value, generating a premium [52]. In the contrary case, we deal with market value lost. The market value of listed companies is reflected in company capitalisation. Hence, MVA is the difference between capitalisation and equity.

However, MVA also deserves criticism. It can be determined only for listed companies, and only at the company level (not business units) [53]. Moreover, in MVA, benefits for shareholders include only a company's market capitalisation (without cash distributions to shareholders). As an absolute measure, it makes comparative analyses more difficult. However, it is possible to determine its increases between subsequent periods (value creation) and to refer its values to invested equity (relativisation).

MVA is an external measure of created value, but it is correlated with EVA (an internal measure); it is the sum of the net present value of a series of EVA values [54]. In the case of listed companies, the calculation of EVA should only account for equity and its cost. Apart from the above, MVA—generally speaking—is an opinion expressed by the markets, and, unlike EVA, is not a measuring tool [55]. This is a fundamental attribute with consequences and arousing discussion. Most importantly, MVA does not consider shareholder expectations with respect to value creation in the future.

2.2. The Shareholder Expectations Imperative

From the perspective of this article, the above-mentioned weakness has its major impact on capital markets. Despite value-added creation, a return on investment below shareholder expectations results in reduced share prices, and vice versa (Table 1).

This correlation results from a different understanding of the general idea of company value creation and shareholder value creation [56]. Shareholder value creation is conditioned by value added creation as well as its realisation. This realisation is affected, among others, by an increase in share prices resulting from achieving results above shareholder expectations. Expected values are predicted by markets (shareholders) and included in share prices (the value of future increases).

Table 1. Correlations between value added and share prices.

	Return on Capital < Cost of Capital	Return on Capital > Cost of Capital
Return on capital: actual > expected	Value added: negative Increase in share prices	Value added: positive Increase in share prices
Return on capital: actual < expected	Value added: negative Reduction in share prices	Value added: positive Reduction in share prices

Source: author's compilation based on [57].

The presented critical assessment implies the necessity to account for the difference between the actually achieved and expected value added. This shifts the measurement of value creation towards excess market value added. Undoubtedly, this criterion is much more restrictive than market value added, but is required from the perspective of expectations-based management (EBM).

The proposed excess market value added results from combining two measures: surplus return and value added. The surplus return is commonly understood as a return on investment above the benchmark or an index at a similar level of risk. An example of such a measure is presented by A. Rappaport in the form of cumulative abnormal return [58]. This is the effect of the extended concept of the previously mentioned total shareholder

return (TSR), or Alfa ratio (M. Jensen) [59]. In turn, EVA is an example of the idea of value added. The combination of two approaches in the form of excess residual income [60] leads to an establishment of the difference between the actual and expected annual economic profit. This concept has been elaborated a number of times by J. O'Hanlon and K. Peasnell (2002) [61].

The presented literature review indicates that hitherto empirical studies of value added have been conducted for stock [62,63] and bond markets [64], as well as emerging [65] and Far East markets [66]. However, they focused on 'classic' value-added measures and relationships between MVA and company performance, the impact of planning on shareholder value [67], the relationship between MVA and EVA, and their impact on the stock rate of return [68,69].

To summarise the considerations so far, this literature review points to the lack of definitions and measuring methods for market value-added creation from the perspective of shareholders. The issue to be resolved is the simultaneous assessment of the effectiveness of value-added creation and efficiency concerning required values. Effectiveness is understood as the achievement of positive values of the market value added and its creation, and efficiency indicates the achievement of such values being satisfactory from the perspective of owners. This approach complements the concept of excess value proposed in the article. In the context of the identified theoretical and methodological gap, there is an obvious lack of empirical research on excess market value added. Most empirical studies focus exclusively on MVA, ignoring the minimum required rate of return expected by shareholders.

3. Methods

3.1. The Current Status

The article aims to assess company value creation from the perspective of meeting shareholder expectations. It indicates that, from the point of view of company owners and the previous remarks, an assessment of value-added creation (EVA_E) is based on the description of correlations between adjusted operating profit, $NOPAT^C$ (net operating profit after taxes), invested equity capital with equivalents (IC^C_E—share capital, reserves and surplus with less revaluation reserve and accumulated losses plus equivalents, e.g., adjustments for deferred tax reserve) and equity capital cost (ECC^C), using the CAPM (capital asset pricing model). Positive EVA_E values indicate value creation (a positive assessment).

$$EVA_E = NOPAT^C_t - IC^C_{Et-1} \cdot ECC^C_t; \; EVA_E = \left(\frac{NOPAT^C_t}{IC^C_{Et-1}} - ECC^C_t \right) \cdot IC^C_{Et-1} \tag{1}$$

Invested equity (IC^C_E with equivalents) and the sum of future EVA_Es represent market value to equity (MV_E), in other words market capitalisation. If MVA_E is the difference between MV_E and IC^C_E, a positive value occurs when the return on invested equity capital ($ROIC^C_E$) exceeds the equity capital cost (ECC^C) [70]. Positive MVA_E values indicate value creation (a positive assessment). In the MV_E formula, the sum of future values of EVA_E can be divided into two components—value during a predicted period and residual value, according to Gordon's model, with a fixed rate of changes (q) of economic value after the period of forecast [71].

$$MV_E = IC^C_{Et-1} + \sum_{t=1}^{\infty} \frac{EVA_{Et}}{\left(1 + ECC^C_t\right)^t}; \; MVA_E = \sum_{t=1}^{\infty} \frac{EVA_{Et}}{\left(1 + ECC^C_t\right)^t}; \; MVA_E = MV_E - IC^C_E \tag{2}$$

$$MVA_E = MV_E - IC^C_E; \; ROIC^C_E > ECC^C \; \rightarrow \; MVA_E > 0 \; \rightarrow value\ creation \tag{3}$$

According to the applied DCF method, a company's value, upon valuation, is related to cash revenue, understood as discounted free cash flows to equity (FCFE). They include cash flows from operating activities, expenditure related to fixed assets, debt and interest repayments, and the value of non-operating assets [72]. In the DCF formula, the sum of

future FCFEs can be divided into two components—value during the period of forecast, and residual value, according to Gordon's model, with a fixed rate of changes (q) of economic value after the period of forecast.

$$DCF_{(value)} = \sum_{t=1}^{\infty} \frac{FCFE_t}{\left(1 + ECC_t^C\right)^t}; \ \Delta DCF > 0 \ \rightarrow value \ creation \tag{4}$$

3.2. Excess Measure Proposal

Shareholder expectations can be accounted for in two ways, similarly to the case of the previously mentioned TSR [73]. The first method is the relativisation of value creation rates in other investments treated as benchmarks. However, this is an analysis of above-average values, expressed as superior shareholder return (SSR) [74]. Therefore, this method is not sufficient in the context of the objectives of this article. The other method is based on the comparison between actual and expected return, i.e., excess return [75]. When expected return is expressed by equity capital cost, excess return is the rate of return that exceeds what was expected or predicted by models like the CAPM (capital asset pricing model) [76]. This method is used in the article.

Therefore, for the purpose of extending the area of perception of MVA_E towards shareholder expectations [77–79], the article defines excess market value added to equity (MVA_{EN}). This is the difference between the expected (MVA_{EP}) and actual value of MVA_{ER}. In this context, MVA_{EP} indicates an increase in MV_E in relation to an expected minimum rate of return on invested equity capital ($ROIC^{C_E}$), equivalent to the equity capital cost margin (ECC^C). This increase is reduced by invested equity (IC^{C_E}).

A positive value of MVA_{EN} indicates that excess value created is achieved. Importantly, MVA_{EN} can be compared not with MVA_E but delta MVA_E (the difference between values in subsequent periods, indicating value creation). For the purpose of comparative analyses (rankings; benchmarks), delta MVA_E and MVA_{EN} should be relativised, e.g., by the amount of invested capital (IC^{C_E}).

$$MVA_{EP} = MV_{Et-1} \cdot \left(1 + ECC_t^C\right) - IC_{Et-1}^C; \ MVA_{EN} = MVA_{ER} - MVA_{EP}$$
$$MVA_{EN} > 0 \ \rightarrow \ excess \ value \tag{5}$$

The construction of MVA_{EN} is logical and consistent from the point of view of shareholder expectations. Market value added does not meet this requirement. Its positive value indicates that shareholder value increased in a given period, and its change between periods indicates value creation. However, it does not provide information on whether or not this increase is satisfactory for owners. This measure does not relate to any cut-off value, ignoring the minimum required rate of return expected by shareholders in the form of the cost of capital. This condition is fulfilled in the case of MVA_{EN}, which is the difference between expected value (which accounts for the cost of capital and thus is understood as a cut-off value) and the actual (achieved) value. Therefore, MVA_{EN} represents a form of excess value, though this is not above-average value. Above-average value is represented by the abnormal or superior measure (as surplus return), which requires a point of reference as a benchmark or index. However, as already mentioned in the Section 1, these measures are not discussed in this article.

The establishment of excess economic value, which accounts for the expected minimum rate of return, is not justified. This criterion is inherent in EVA_E. A positive EVA_E value indicates that company shareholders receive (or should receive) benefits that are greater than the invested equity. This implies that such benefits exceed the expected returns indicated by equity costs. However, returns are not verified by the markets because EVA_E is an internal measure of value created.

3.3. Research Workflow and Analytical Tools

The research hypotheses stated in the Section 1 can be expressed as the expected values of the analysed correlations:

- If H1 is true, the value of correlation $r(MVA_{EN}, dMV_E)$ should be close to that of $r(dMVA_E, dMV_E)$;
- If H2 is true, the correlation $r(MVA_E, dMVA_P)$ should be almost complete;
- If H3 is true, correlation $r(dDCF_{FCFE}, MVA_E)$ should be almost complete;
- if H4 is true, the values of EVA_{EP}/ECC^C and MVA_E should be equal (also completely correlated as time series).

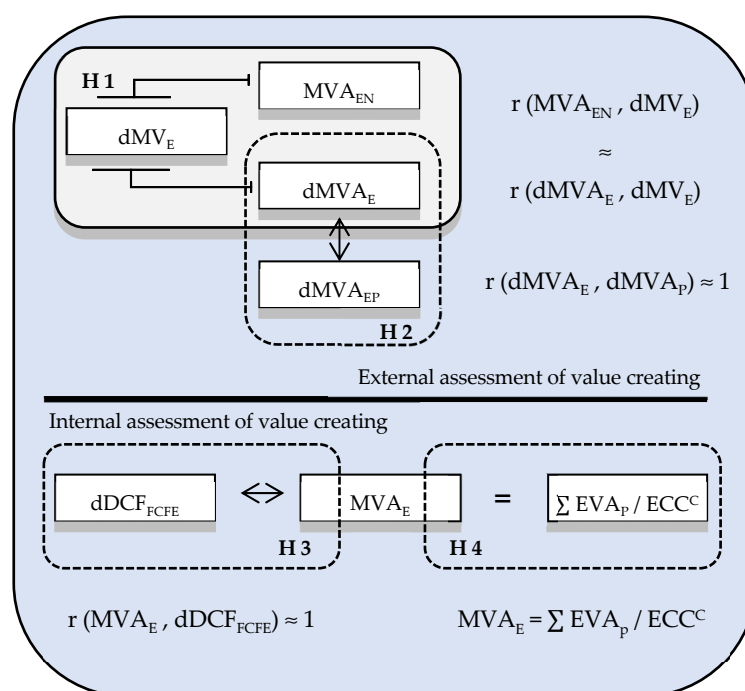The workflow of this research and the hypothesis verification scheme are shown in Figure 1.

Figure 1. Structure of assessment of the analysed measures of created value. Source: author's research.

To verify H1, it was necessary to use non-standard mathematical statistics tools. Williams' test statistic (T_2) was applied for the equality of two r-Pearson correlation coefficients [80].

$$T_2 = \left(r_{jk} - r_{jh}\right)\sqrt{\frac{(N-1)(1+r_{kh})}{2\left(\frac{N-1}{N-3}\right)|R| + \bar{r}^2(1-r_{kh})^3}} \tag{6}$$

where
$\bar{r}^2 = \frac{1}{2}\left(r_{jk} + r_{jh}\right)$; $|R| = \left(1 - r_{jk}^2 - r_{jh}^2 - r_{kh}^2\right) + \left(2r_{jk}r_{jh}r_{kh}\right)$
N is the sample size,
r is the Pearson correlation coefficient.

H2 and H3 were verified using the test for a single *r*-Pearson correlation coefficient (the strengths of correlations: <0.1 slight; 0.1–0.3 weak; 0.3–0.5 average; 0.5–0.7 strong; 0.7–0.9 very strong; >0.9 almost perfect).

The critical significance level is $\alpha = 0.05$. A probability value (*p*-value) lower than α allows for the adoption of a temporary procedure, as in the case when the null hypothesis about the lack of a correlation is rejected, which is a basis for accepting an alternative hypothesis about the existence of a correlation [81,82].

The ranking is based on the average rank method. The adopted principle was to assign the lowest rank to the highest value of the analysed measure. The average rank position (ARP) was calculated for time series.

The density of objects (companies) was analysed using a specially designed density measure (DM). Its value corresponds to the surface of the ellipse that covers the analysed set of objects (companies) on a geometry plane. Higher DM values indicate greater dispersion [83].

$$DM = \sqrt{s_x^2 s_y^2 \cdot \left(1 - r_{xy}^2\right)} \tag{7}$$

where

$s^2{}_x$ and $s^2{}_y$ are the variance of determinant x and variance of determinant y;
$r^2{}_{xy}$ is the Pearson linear correlation factor between x and y.

The adopted taxonomic measure of similarity (TMS) allows for a determination of the absolute and relative differences between the shares of particular components of the structure (companies) and the accumulated effect of changes at comparable moments of time for the same or many different elements of the structure. When values are closer to unity, the similarity of structures is greater [84].

$$TMS = 1 - \sum_{i=1}^{n} \min\left(p_{ij}, p_{ik}\right) \tag{8}$$

where

p_{ij} is the share of the i-th object in structure j;
p_{ik} is the share of the i-th object in structure k.

The expected rate of return on invested equity (ROIC$^C{}_E$) was determined in CAPM (an increase in the risk-free rate by the product of the systemic risk measure *beta* and equity risk premium, ERP). The calculations were made individually for each company. Beta was calculated on the basis of the rates of return on a company's shares in relation to WIG30 rates of return (weekly rates, 2012–2022). ERP was calculated as the difference between the S&P500 annual average rate of return in the last 30 years and the average 30-year US bond yield. The value was then increased by a premium for sovereign risk as the difference between US and Polish 10-year treasury yields.

4. Empirical Data

The research comprised all 30 companies belonging to the WIG30 Warsaw Stock Exchange. They account for a major part of stock market capitalisation (39.9%). The research covered the period of 2017–2023. The periodic input data are based on the monthly periodisation (transformed from the weekly periodisation), and expressed as annual data. This means that they are not temporary observations. Market value added, and the categories that compose it and are derived from it are, by nature, cumulative volumes.

The analysed WSE WIG30 companies represent the most important entities on the Polish stock exchange. Their assets at the end of 2023 amounted to PLN 3206 bn, and they generate a revenue of PLN 940 bn. Their equity amounts to PLN 626 bn, while their capitalisation stands at PLN 498 bn. The companies represent 4 sectors, with a dominant share of the finance (banking and insurance) sector in terms of the value of assets and capitalisation. From the perspective of the value of assets and the volume of sales, the largest companies represent production (mining and manufacturing) (Table 2). The individual characteristics of the analysed companies are presented in Table 3.

Table 2. Characteristics of the WSE WIG30 groups of companies studied (2023, in percent).

Group of Companies—Sectors	Number of Companies	Assets	Equity	Sales	Capitalisation
Finanse (banking and insurance)	9	73.3	32.6	20.2	39.5
Production (mining and manufacturing)	9	20.7	55.7	64.4	27.8
Commerce and hospitality	6	3.0	4.9	10.5	24.0
Information and communication	6	3.0	6.8	4.9	8.7
Total WSE WIG30	30	100.0	100.0	100.0	100.0

Source: author's research based on data bases with limited access: emis.com (available online: https://www-1emis-1com-1v9owocmt1833.hanbg.uek.krakow.pl/php/home), accessed on 12 January 2024.

Table 3. Characteristics of the studied companies in the WSE WIG30 (2023, PLN bn).

Companies	Ticker	Assets	Equity	Sales	Capital.	Business Sector
Allegro.eu S.A., Luxembourg City, Luxembourg	ALE	22.0	10.7	9.9	33.2	E-commerce
AmRest Holdings S.E., Madrid, Spain	EAT	11.8	2.1	11.9	5.1	Hospitality
Asseco Poland S.A., Rzeszów, Poland	ACP	21.9	6.2	17.3	6.5	Software systems
Grupa Azoty S.A., Tarnów, Poland	ATT	28.9	8.3	14.0	2.9	Chemical industry
LW Bogdanka S.A., Bogdanka, Poland	LWB	6.1	4.4	3.7	1.3	Coal mining
CCC S.A., Polkowice, Poland	CCC	9.1	0.9	9.7	2.4	Footwear trade
CD Projekt S.A., Warszawa, Poland	CDR	2.8	2.5	1.3	13.0	Computer games
Cyfrowy Polsat S.A., Warszawa, Poland	CPS	42.3	17.7	13.9	9.9	Telecommunications
Dino Polska S.A., Krotoszyn, Poland	DNP	11.2	6.0	26.9	40.4	Commerce
ENEA S.A., Poznań, Poland	ENA	44.0	17.5	45.5	3.8	Energy production and sales
Jastrzębska Spółka Węglowa S.A., Jastrzębie-Zdrój, Poland	JSW	35.0	18.8	15.9	5.3	Coal mining
Grupa Kęty S.A., Kęty, Poland	KTY	4.3	2.1	5.5	5.9	Aluminium manufacturing
KGHM Polska Miedź S.A., Lubin, Poland	KGH	63.8	38.0	34.7	23.9	Copper mining
Kruk S.A., Kraków, Poland	KRU	10.6	4.3	1.8	7.6	Receivables management
LiveChat Software S.A., Wrocław, Poland	LVC	0.2	0.1	0.3	3.4	Software systems
LPP S.A., Gdańsk, Poland	LPP	15.8	4.9	17.6	19.0	Fashion trade
Orange Polska S.A., Warszawa, Poland	OPL	29.6	15.4	13.1	9.6	Telecommunications
Pepco Group N.V., London, United Kingdom	PCO	24.8	6.3	22.7	19.3	Commerce
Polska Grupa Energetyczna S.A., Warszawa, Poland	PGE	130.8	64.1	95.8	16.6	Coal mining and power
Polski Koncern Naftowy Orlen S.A., Płock, Poland	PKN	294.2	174.0	347.1	73.3	Oil refining
Tauron Polska Energia S.A., Katowice, Poland	TPE	56.2	21.4	43.0	5.2	Energy production and sales

Table 3. *Cont.*

Companies	Ticker	Assets	Equity	Sales	Capital.	Business Sector
Ten Square Games S.A., Wrocław, Poland	TEN	0.6	0.4	0.4	0.7	Computer games
Alior Bank S.A., Warszawa, Poland	ALR	99.3	9.9	9.7	6.8	Banking
Bank Millennium S.A., Warszawa, Poland	MIL	142.5	7.6	10.3	7.0	Banking
Bank Handlowy w Warszawie S.A., Warszawa, Poland	BHW	83.2	10.4	6.1	11.2	Banking
mBank S.A., Warszawa, Poland	MBK	259.2	15.7	18.6	17.3	Banking
Bank Pekao S.A., Warszawa, Poland	PEO	356.4	32.6	23.1	28.3	Banking
PKO BP S.A., Warszawa, Poland	PKO	543.9	52.2	39.2	45.9	Banking
Santander Bank Polska S.A., Warszawa, Poland	SPL	319.8	38.4	22.7	37.8	Banking
Powszechny Zakład Ubezpieczeń S.A., Warszawa, Poland	PZU	536.3	33.0	57.8	34.8	Insurance

Source: as in Table 2.

The data were collected from emis.com, notoria.pl, gpw.pl, stockwatch.pl and ekrs.ms.gov.pl. (commercial access). The scope of corrections in value calculations was confined to information provided in financial statements [85].

5. Results

5.1. Capitalisation and Value-Added Creation

At the end of 2023, the capitalisation (MV_E) of the analysed 30 companies belonging to WIG30 amounted to PLN 574.9 bn, accounting for 39% of the WSE main trading floor. Until 2019, their capitalisation (annual average) was stable. In the light of lockdown decreases (2020) and the quick recovery in the following year, the forecasts of returning to the previous levels according to path 'V' quickly became outdated. The process was prolonged and followed path 'W'.

Changes in market value added to equity (MVA_E) were different in relation to MV_E. Steady decreases in value creation started as early as in 2018, and the year 2022 was marked by a stronger decline than that during the lockdown (2020). Manufacturing companies recorded the worst results. As of 2018, they were hit by market value lost (MVL), and counteracting a negative trend in 2023 was not effective (PLN −155.6 bn). The response of finance companies to the lockdown was different—their MVL amounted to PLN −82.4 bn. On the other hand, trade companies always recorded a positive value of MVA_E.

Generally, the increase in dMV_E in 2017–2023 by PLN +40.7 bn is a poor result (+8.9%). Simultaneously, a decrease by PLN −205.2 bn ($dMVA_E$) was a very negative signal sent to investors (shareholders). The share of manufacturing companies in those losses was the highest (PLN −159.7 bn, 77.8%) (Figure 2).

The values of dMV_E and $dMVA_E$ were different in particular companies. Positive values of dMV_E were recorded in 17 entities (PLN +106.1 bn), while 13 of them had negative values (PLN −65.4 bn). Value creators were represented by a small group of manufacturing companies (3/13); most of them were trade and finance companies, and a trading company took first place. A positive value of $dMVA_E$ was achieved only by 8 companies (PLN +47.6 bn), while the remaining 22 entities recorded a substantially negative value (PLN −252.8 bn). The composition of the first 10 positions in terms of dMV_E and $dMVA_E$ was similar in 6/10 cases. Detailed comparative analyses are presented in other research studies and articles. The major value creators and destroyers belonging to WSE WIG30 are presented in Table 4.
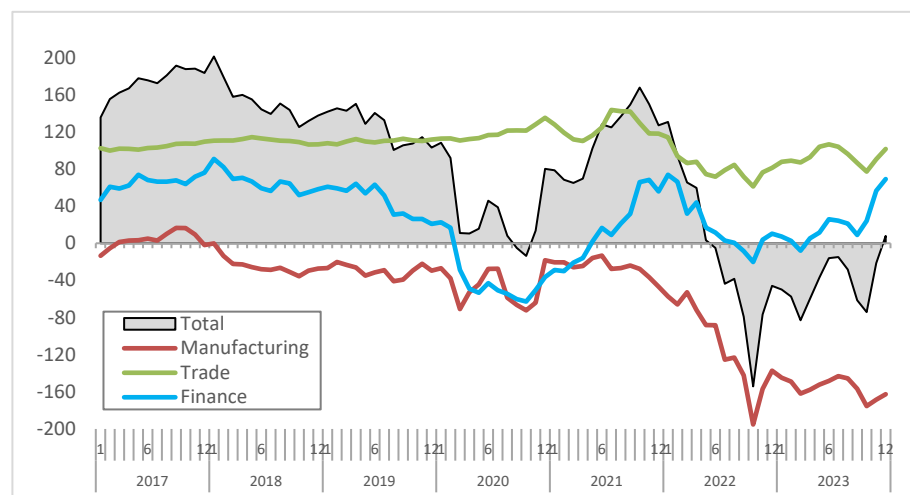
Figure 2. Market value-added to equity (MVA$_E$) of WSE WIG30-listed companies in 2017–2023 (PLN billion, quarterly data). Source: author's research based on databases with limited access: emis.com (available online: https://www-1emis-1com-1v9owocmt1833.hanbg.uek.krakow.pl/php/home), accessed on 12 January 2024, notoria.pl (available online: https://uekr-1notoria-1pl-1y3wmvzmt1837.hanbg.uek.krakow.pl/companies/dashboard/WIG30), accessed on 8 January 2024, gpw.pl (available online: https://www.gpw.pl/archiwum-notowan), accessed on 14 January 2024, stockwatch.pl (available online: https://www.stockwatch.pl/gpw/indeks/wig30,sklad.aspx), accessed on 12 January 2024 and ekrs.ms.gov.pl (available online: https://ekrs.ms.gov.pl/), accessed on 8 January 2024.

Table 4. Changes in capitalisation (dMV$_E$) and market value added to equity (dMVA$_E$) of the first and last five WSE WIG30-listed companies in 2017–2023.

	dMVA$_E$			dMV$_E$			dMVA$_E$			dMV$_E$	
Ticker	Rank position	PLN billion	Ticker	Rank position	PLN billion	Ticker	Rank position	PLN billion	Ticker	Rank position	PLN billion
DNP	1	31.6	DNP	1	35.8	KGH	26	−15.1	PGE	26	−4.9
LPP	2	5.9	PKN	2	29.3	JSW	27	−15.4	CPS	27	−5.2
CDR	3	4.0	LPP	3	8.0	PGE	28	−18.7	PCO	28	−6.0
LVC	4	2.1	CDR	4	5.3	ALE	29	−27.2	CCC	29	−6.1
KTY	5	1.8	SPL	5	4.4	PKN	30	−93.7	ALE	30	−26.2

Notes: A stock ticker was used to identify the companies—see Table 3. Source: as in Figure 2.

5.2. The Assessment of Shareholder Expectations

The main measure of meeting shareholder expectations proposed in this article is excess market value added to equity (MVA$_{EN}$). In 2017–2023, as a result of investments in WSE WIG30 companies, shareholders lost PLN −205.2 bn in value added (MVA$_E$). Moreover, the value gap measured using the MVA$_{EN}$ amounted to PLN −324.4 bn (an increase of 58.1%). This level of value creation was expected by shareholders (on the condition that MVA$_{EN}$ = 0). Unfortunately, shareholder expectations were not met, and, additionally, the loss of value was recorded (MVA$_{EN}$ < 0).

The relative gap (the relation between MVA$_{EN}$ and IC^C_E) as an average value in 2017–2023 reached the level of −12.1%, while in relation to market capitalisation (MVA$_{EN}$ to MV$_E$), it showed a decrease of −10.0%.

The greatest value gap (PLN −127.4 bn) was recorded in finance companies (39.2% of the total gap), manufacturing companies (PLN −109.1 bn) and trade entities (PLN −87.9 bn). The year 2020 was an interesting period; despite negative market sentiments and pessimistic expectations, the results achieved by companies were not so bad, and the gap decreased in the second half of the year. The opposite situation occurred in 2022. The expected quick recovery did not happen, and the signs of a recession appeared as a result of

post-pandemic global economic disturbances. The gap decreased in the following year, but it was greater than that in the period preceding the pandemic (PLN −55.5 bn) (Figure 3).
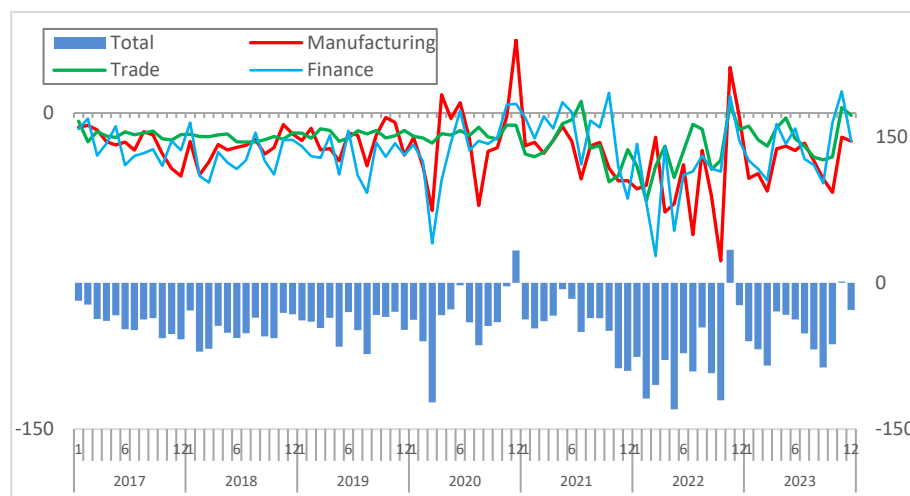

Figure 3. Excess market value-added to equity (MVA_{EN}) of WSE WIG30-listed companies by type of activity in 2017–2023 (PLN billion). Notes: total values—right axis. Source: as in Figure 2.

MVA_{EN} (as excess value or value gap) is comparable with the change in value added $dMVA_E$ (as an increase or decrease in value). These values had different distributions in time in particular companies. Positive values of $dMVA_E$ were recorded for 8 companies (5 manufacturing entities, 2 trade entities, and 1 finance firm), while negative values were recorded for 22 companies. Simultaneously, no companies recorded a positive value of MVA_{EN} (excess value) (Figure 4).
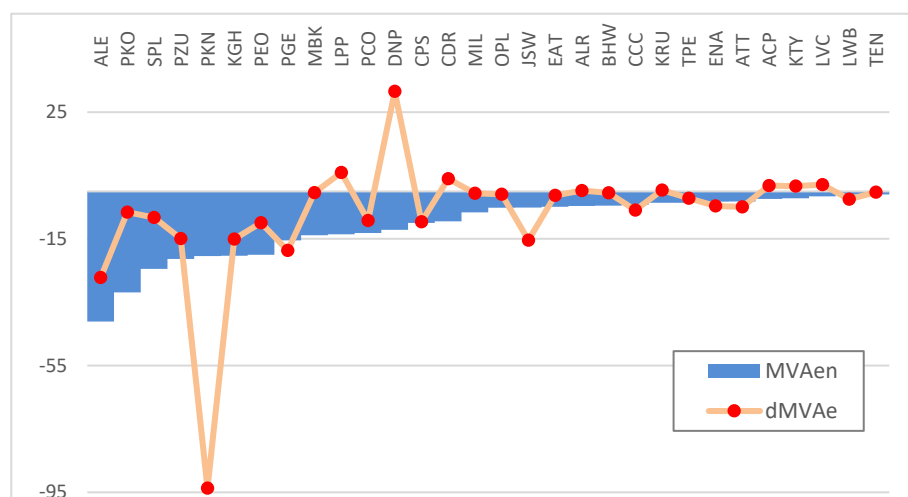
Figure 4. Cumulative excess value-added to equity (MVA_{EN}) and changes in market value added to equity ($dMVA_E$) in 1997–2023 (PLN billion). Notes: A stock ticker was used to identify the companies—see Table 3. Source: as in Figure 2.

Detailed comparative analyses are presented in other research studies and articles.

In 2017–2023, companies in the coordinate system were dispersed and repositioned ($dMVA_E$; MVA_{EN}). Dispersion measured by DM increased 1.6-fold (annual average), and its monthly changes, characterised by a linear growing trend, were slight and reversely proportional to market capitalisation (MV_E) (r = −0.27). Increased dispersion indicates greater differences between companies (increased distances and differences). In most cases, company relocations represented an unfavourable trend towards the quadrant (−$dMVA_E$;

$-$MVA$_{EN}$). In conclusion, an increase in value lost was coupled with greater gaps between expected and actual results (Figure 5).
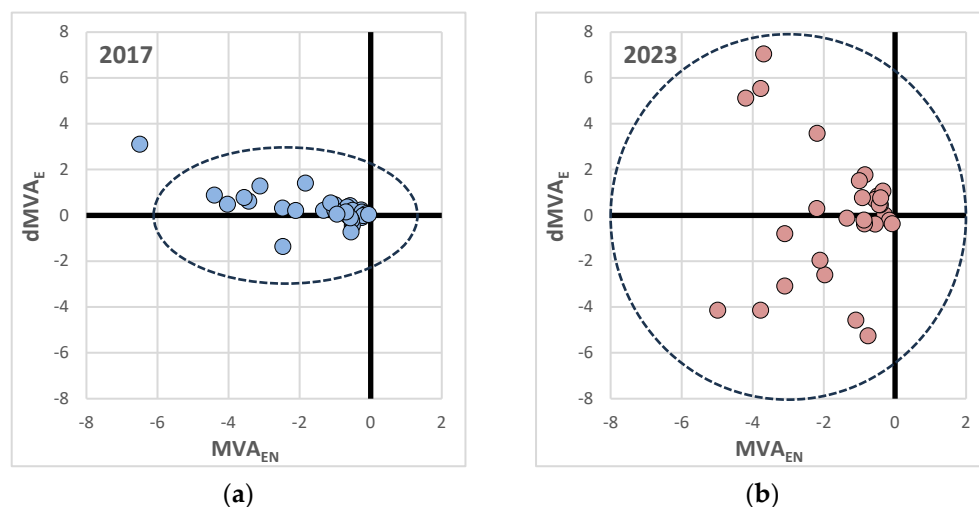

(**a**)   (**b**)

Figure 5. Position of companies in relation to excess value-added to equity (MVA$_{EN}$) and changes in market value-added to equity (dMVA$_E$) (PLN billion); (**a**) in 1997; (**b**) in 2023. Source: as in Figure 2.

The annual values of dispersion measures (DM) are greater than monthly values, being negatively correlated with market capitalisation (MV$_E$). They also indicate that considerable decreases in MV$_E$ in 2020 and 2022 were accompanied by an increase in companies' dispersion in terms of value added creation dMVA$_E$, and gaps between expected and actual market value added, i.e., a value gap or excess value (MVA$_{EN}$) (Figure 6a).

(**a**)   (**b**)
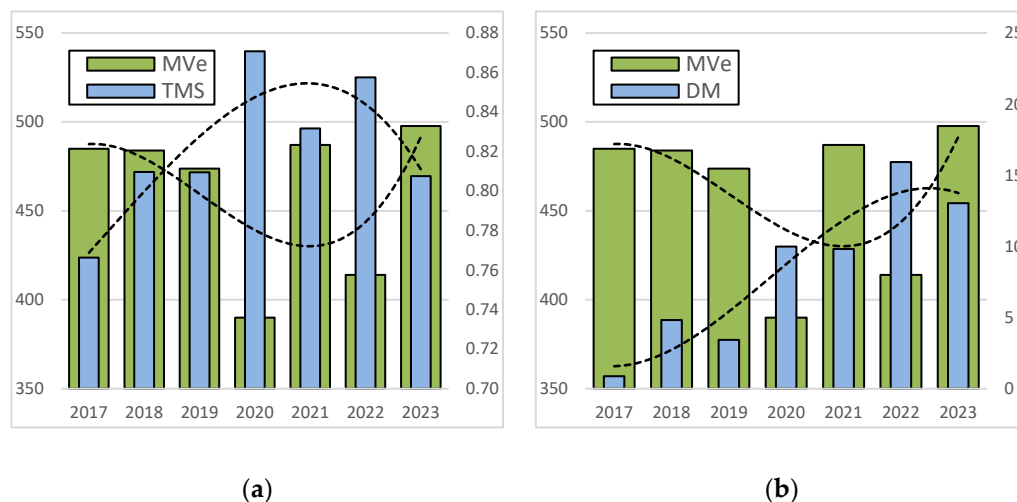
Figure 6. (**a**) Market value (MV$_E$) vs. density measure (DM) for dMVA$_E$ and MVA$_{EN}$ of WSE WIG30 listed companies in 2017–2023. Notes: MV$_E$—PLN billion; DM—right axis (dimensionless values). Source: as in Figure 2; (**b**) Market value (MV) vs. taxonomic measure of similarity (TMS) for dMVA$_E$ and MVA$_{EN}$ of WSE WIG30 listed companies in 2017–2023. Notes: MV$_E$—PLN billion; TMS—right axis (dimensionless values). Source: as in Figure 2.

This conclusion is confirmed by an analysis based on ranking positions and structure similarity measures (IPS). Ranking eliminates the impact of outliers, while IPS describes structural differences in time, simultaneously accounting for both dMVA$_E$ and MVA$_{EN}$.

On a monthly basis, IPS—a similarity measure of ranking positions in two structures., i.e., dMVA$_E$ and MVA$_{EN}$, tended to rise until 2020, and decreased in later periods. Correlation with market capitalisation (MV$_E$) was inversely proportional (r = $-$0.43). Annual

average values reflect a higher degree of correlation (also negative values), but they mainly point to the impact of the considerably lower level of market capitalisation (MV_E) on increasing differences between the analysed structures in 2020 and 2022. Those two years recorded a considerable difference in companies' ranking positions with regard to $dMVA_E$ and MVA_{EN}—the structures which differed considerably from the levels achieved in the previous year (2019 and 2021, respectively) (Figure 6b).

Differences between companies' ranking positions with respect to $dMVA_E$ and MVA_{EN} were slight. The average ranking position (ARP) prevailed in 16 companies with respect to $dMVA_E$ and in 14 entities from the perspective of MVA_{EN}. ARP was similar for both measures only in two companies.

The gap between minimum and maximum ARP values was higher for MVA_{EN} (6.8: 26.0) than for $dMVA_E$ (12.2: 17.8). It indicates that companies differed to a larger degree with regard to MVA_{EN} than $dMVA_E$ (Figure 7).
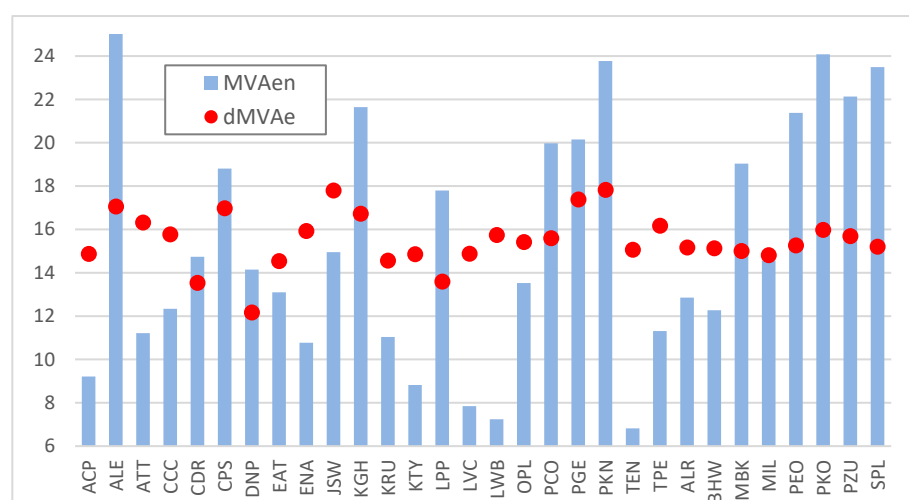
Figure 7. Average rank position (ARP) WSE WIG30 companies by excess value added to equity (MVA_{EN}) and changes in market value added to equity ($dMVA_E$) in 1997–2023. Notes: A stock ticker was used to identify the companies—see Table 3. Source: as in Figure 2.

Detailed comparative analyses are presented in other research studies and articles.

As an internal measure, economic value added (EVA_E) is based on companies' results, not on opinions expressed by capital markets. In 2007–2023, the analysed entities generated PLN 177.3 bn (EVA_E). 74.3% of this amount can be attributed to finance companies, and 21.6% to manufacturing firms. Generally, three observations can be made: (1) a relative stability of value added creation until 2019; (2) a radical decrease in 2020 (lockdown), and negative value added created by manufacturing and trade companies; (3) a considerable increase in value added in manufacturing entities in 2021 and 2022, and a spectacular increase in finance entities in 2023 as compared with a decrease in manufacturing companies (Figure 8).

The total value of EVA_E was 4.4-fold larger than dMV_E, while the correlation between EVA_E, as an internal measure of value creation, with changes of market capitalisation (dMV_E), an external measure of value creation, was weak (r = 0.187).
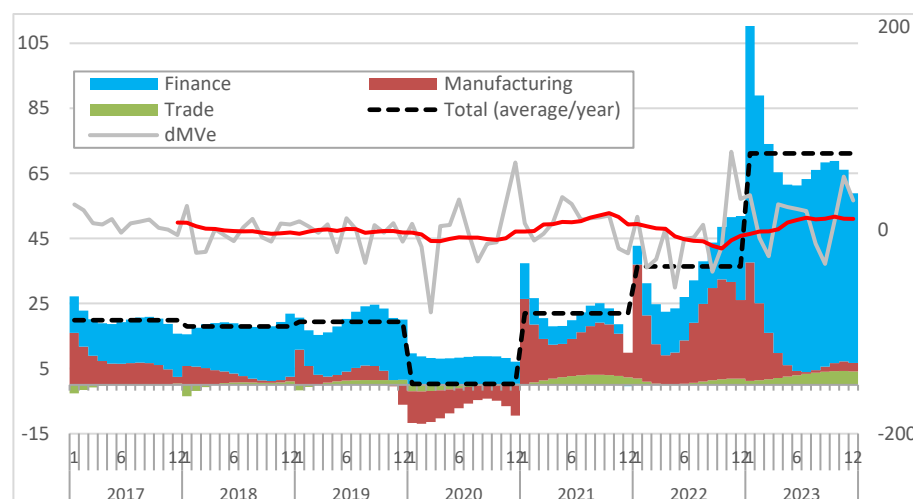
Figure 8. Economic value-added to equity (EVA_E) of WSE WIG30 listed companies by type of activity and increases in market value (dMV_E) in 2017–2023 (PLN billion). Notes: dMV_E—right axis. Source: as in Figure 2.

A positive value of dMV_E was achieved by 17 companies (PLN +106.1 bn), while 13 entities recorded a negative (PLN −65.4 bn). Positive values were mainly created by trade and finance firms. A positive value of EVA_E was created by 23 companies (PLN +199.8 bn), and the remaining 7 entities recorded a negative value (PLN −22.5 bn). Among the first 10 companies, 7/10 represented the finance sector. A manufacturing company turned out to be the greatest value destroyer, followed by trade entities. Detailed comparative analyses are presented in other research studies and articles. The main market and economic value creators and destroyers among WSE WIG30 companies are presented in Table 5.

Table 5. Changes of market value (dMV_E) and economic value added to equity (EVA_E) of the first and last five WSE WIG30 listed companies in 2017–2023.

	dMV_E			EVA_E			dMV_E			EVA_E	
Ticker	Rank position	PLN billion	Ticker	Rank position	PLN billion	Ticker	Rank position	PLN billion	Ticker	Rank position	PLN billion
DNP	1	35.8	PKO	1	35.4	PGE	26	−4.9	ALE	26	−1.2
PKN	2	29.3	PKN	2	34.2	CPS	27	−5.2	CCC	27	−1.4
LPP	3	8.0	PZU	3	27.3	PCO	28	−6.0	OPL	28	−1.8
CDR	4	5.3	SPL	4	17.2	CCC	29	−6.1	ATT	29	−2.1
SPL	5	4.4	PEO	5	16.1	ALE	30	−26.2	PGE	30	−15.1

Notes: A stock ticker was used to identify the companies—see Table 3. Source: as in Figure 2.

5.3. The Verification of the Hypotheses

The verification of H1 was based on the analysis of two correlations: dMV_E and $dMVA_E$, and dMV_E and MVA_{EN}. The correlations were expected to be similar. William's test (T2) showed a strong, positive and statistically significant correlation (the average for 30 companies, for each entity p-value < 0.000)—0.941 and 0.875 (min = 0.715, max = 0.995, respectively, sd = 0.071). The difference between correlations was slight (7.0%) (Figure 9a).

The above allows for us to regard the first hypothesis as true; $H1_0$–H1: excess market value added to equity is correlated with changes in companies' capitalisation to a similar degree to the correlation with increases in market value added. This indicates that MVA_{EN} is an appropriate, non-distorting measure that can be used to assess the effectiveness of shareholder value creation accounting for shareholder expectations. The requirements of the concept of EBM are met (the trajectory of the dMV_E and MVA_{EN} time series is presented in Figure 9b).
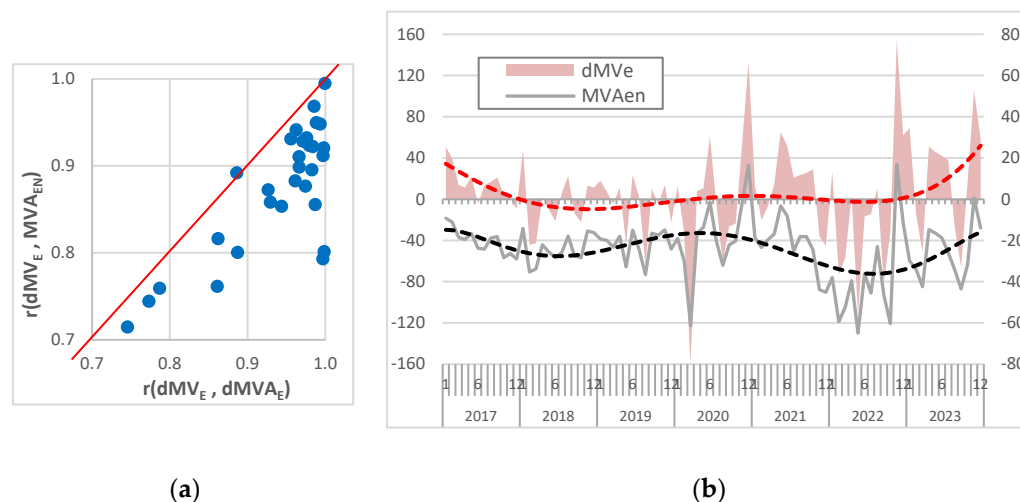
(**a**)　　　　　　　　　　　　　　(**b**)

Figure 9. (**a**) Position of WSE WIG30-listed companies by correlation of r(dMV$_E$, dMVA$_E$) and r(dMV$_E$, MVA$_{EN}$) in 2007–2023. Source: as in Figure 2. (**b**) Excess market value-added to equity (MVA$_{EN}$) and changes in market value (dMV$_E$) of WSE WIG30-listed companies in 2017–2023 (PLN billion). Notes: dMV$_E$—right axis. Source: as in Figure 2.

The analysis of results from the groups of companies indicates that correlations were the most similar in finance companies (0.970 and 0.923, respectively, a 4.8% difference), followed by manufacturing entities (0.907 and 0.844, respectively, a 7.0% difference), while the smallest similarity was recorded for trade companies (0.991 and 0.894, respectively, a 9.9% difference).

The verification of H2 was based on the analysis of correlations between dMVA$_E$ and dMVA$_{EP}$. A result close to unity was expected. The obtained result, r = 0.132, represents a weak correlation (as an average value for 30 companies for each entity p-value < 0.000, min = −0.140; max = 0.407, sd = 0.11). The obtained result is not greatly improved by an analysis using polynomials of a higher degree.

The above statements lead to the conclusion that the second hypothesis as a null hypothesis should be rejected, and the alternative hypothesis should be accepted: the degree of market value -added creation in WSE WIG30 companies in 2017–2023 was not satisfactory from the perspective of shareholder expectations.

The analysis of the correlation between dDCF$_{FCFE}$ and MVA$_E$ was used to verify H3. The obtained result was r = 0.041 (p-value < 0.000). A slightly better fit was obtained for higher-degree polynomials. Simultaneously, an annual approach showed an almost perfect correlation, but observations were not statistically significant (p-value = 0.104 > α = 0.05) (Figure 10a).

The verification of H4 was based on the analysis of the theoretical equality between market value added and the sum of future (expected) economic values added, relativised by the cost of capital (vide formula 2). The obtained result is negative. Firstly, the values are not equal (a 2.5-fold advantage of the latter value in an annual perspective), and, secondly, their correlation is weak and negative (r = −0.414). An almost perfect linear correlation would be expected (moreover, the results of the correlation using higher degree polynomials would not lead to the expected result) (Figure 10b).

Therefore, H4 should be rejected as the null hypothesis and the alternative hypothesis should be accepted: capitalised expected economic value added to equity does not correspond to market value added to equity in the analysed WSE WIG30 companies.
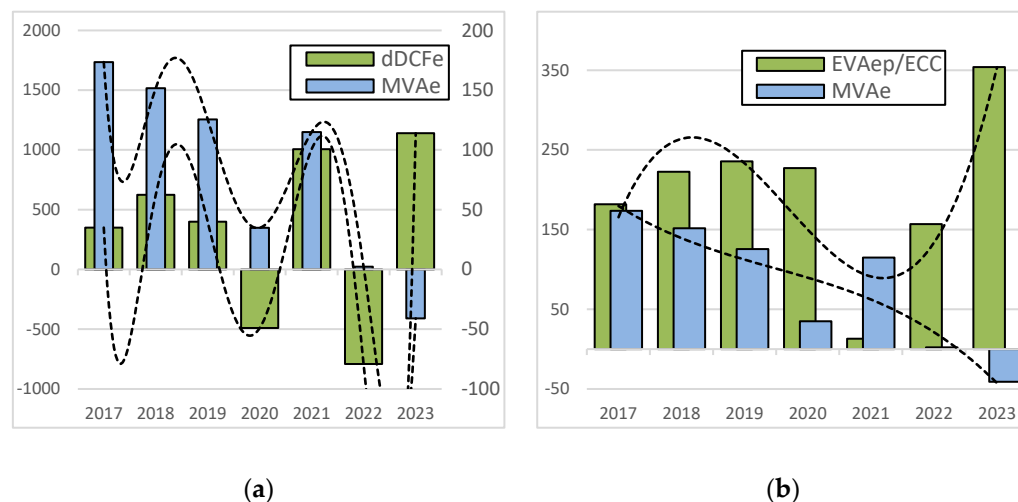
(**a**)	(**b**)

Figure 10. (**a**) Changes in discounted free cash flows to equity (dDCF$_E$) vs. market value-added to equity (MVA$_E$) of WSE WIG30-listed companies in 2017–2023 (PLN billion). Notes: MVA$_E$—right axis. Source: as in Figure 2. (**b**) Expected economic values added relativised by the cost of capital (EVA$_{EP}$/ECC^C) vs. market value-added to equity (MVA$_E$) of WSE WIG30-listed companies in 2017–2023 (PLN billion). Source: as in Figure 2.

6. Discussion

The primary information delivered by the markets is the level of stock market capitalisation (market value). In 2017–2023, the capitalisation of WSE WIG30 companies rose merely by 8.9%. This period, however, coincides with the unprecedented shock caused by the pandemic and economic lockdown. The spectacular decreases and disturbances are reminiscent of Black Thursday. The capital market responded nervously to a series of unexpected and unfavourable signals [86]. The fear of the unknown was reflected in decreasing share prices [87]. Price changes also hit the WSE as an emerging market. In 2020, the capitalisation of WSE WIG30 fell by 17.7%. However, the economy showed its ability to quickly adapt to new conditions. A significant role in this process was played by unprecedented intervention policies. The sell-off of shares on the WSE turned out to be a short-term phenomenon, which was also the case of other emerging markets [88,89].

The markets announced optimistic forecasts of the quick recovery, and the main indexes began to rise [90]. However, the 2022 marked another decline and decreased capitalisation of WSE WIG30 by 15.0%. This time, adverse conditions did not result from the lockdown but the delayed effects of the pandemic and new global threats (including disrupted supply chains and the military conflict in Ukraine) [91].

It should be noted that decreases in market value occurred regularly before the pandemic, and they were considerable (−16.4% in 2018–2019). Those decreases, as well as the negative effects of the lockdown (2020), were not always negatively assessed by shareholders, which can be explained by the so called pseudo-isochromatic effect and the efficient market hypothesis (EMH) at the time of the pandemic [92].

However, companies' market value is not relativised to the size of engaged capital. This information is included in the market value added, which followed a strongly decreasing trend as of 2017, but had positive values. This information distorted the true picture of the effectiveness of investment in company shares [93]. It was not until 2022 that the slight market value lost was recorded, which increased in 2023. It became clear that the pandemic year and the economic recovery represented temporary phenomena with regard to value creation and that the general trend shifted towards value losses. The following questions arise: Could this signal be taken into account earlier [94]? More importantly, did it carry reliable information for investors? The answers to both questions are to be found in the excess market value added to equity. This measure takes into account shareholder expectations. Also, this measure anticipated the permanently occurring value gap as early

as in 2017. It did not deteriorate drastically in the pandemic year but in 2023, when the actual (poor) results, compared with the expected high values, pointed to a considerable gap. Finally, its accumulated value (PLN −324.4 bn) in 2017–2023 accounted for 60.2% of shareholders' invested capital and 65.2% of the market value of WSE WIG30.

The internal measure of value-added creation (EVA_E) suggested the existence of solid foundations for future results right after the pandemic year. However, market estimations were much less optimistic, allowing for future threats to development, which were already visible at that time [95]. Hence, the assumed theoretical equality of market value added as the sum of future (expected) economic values added, relativised by equity costs, was not only achieved, but a new trend appeared in which differences between internal and external (market) assessments increased. As a result, managers were optimistic about future scenarios, while investors remained sceptical. However, this is only a general explanation [96]. The unsatisfactory levels of market value added in WSE WIG30 were greatly affected by an exponential increase in invested equity in the last two years, i.e., of 44,7% (until then, it was linear and moderate). In the context of low market capitalisation (PLN 498 bn in 2023), invested capital was at the level of PLN 539 bn. The difference as a loss for shareholders was even greater for stakeholders due to the higher interest rates on long-term debt (up to the amount of PLN 1969 bn).

The analyses of value creation using DCF_{FCFE}, also an internal measure, led to two conclusions. Firstly, similarly to EVA_E, its level does not correspond to market value (stock market capitalisation). Secondly, however, its changes are fully consistent with the trend of changes in market value. Therefore, it can be concluded that despite the availability of numerous advanced measures of value and its creation, investors, in their assessments, rely on classical financial measures of future results in the form of a monetary surplus.

An issue that deserves attention is the diversity of the situations of WSE WIG30 companies from the perspective of their core business. The greatest losses of market value in the year of the lockdown were suffered by financial entities (banks and insurance companies). This was a result of the specificity of the sector [97]. The sectoral results and internal value added rose sharply in 2023, its gains during one year equalling the total of 5 preceding years. An increase in market value was achieved by trade companies, which showed great responsiveness via implementing online sales methods [98]. Manufacturing companies suffered less considerable value losses than finance entities did as a result of substantial financial inputs and the protection of intervention policies. They faced major problems in the first half of 2022 (during the cooling of economies and disrupted supply chains) [99,100], but the following year recorded a positive change. However, the above results are not conclusive. From the perspective of excess value, the value gap was a permanent problem in the analysed years and it concerned all types of activity, especially finance (39.3%) and manufacturing entities (33.6%).

Undoubtedly, the presented discussion should pay attention to the interpretation of results achieved by particular companies. Detailed comparative analyses are presented in other research studies and articles. However, it should be noted here that a positive value of MVA_{EN} can coincide with negative MVA_{ER} (actual value) because of a lower, also negative MVA_{EP} (expected). This creates an ambiguous situation [101]. Despite the loss of value added, an assessment from the perspective of MVA_{EN} can be positive. Some authors regard it as a type of a specific premium [102,103]. This is not a valid opinion. It distinguishes companies with positive values of MVA_{ER}—something that cannot be questioned, and that is a key measure of value creation.

7. Conclusions

Undoubtedly, the years 2017–2023 marked a period of turbulent changes in capital markets. In this context, the capitalisation of WSE WIG30 companies was not interpreted as drastically unfavourable. The level of capitalisation in these entities, reflecting market value creation, reflected a slight increase (8.9%). This statement can be confusing—market value lost in this period reached the level of PLN −205.2 bn, representing the loss of the

market value added, accounting for invested capital. However, this statement is not the final assessment, either. We should bear in mind that the effectiveness of invested capital is an assessment from the perspective of expected benefits. In this context, unfortunately, the value gap measured via excess market value added to equity amounted to PLN -324.4 bn, i.e., -12.1% in terms of invested capital.

The correctness of the above assessment based on the concept of excess value was verified in the article in two steps.

In the first step, it was proven (a positive verification of H1) that excess market value added to equity, as a broader measure accounting for shareholder expectations, does not distort the original market information on stock market capitalisation (market value). Therefore, excess market value added to equity is useful in analysing value creation. It is a more restrictive criterion, but it provides reliable information on shareholder expectations. Shareholders expect a reliable assessment of the effectiveness of value creation.

In the second step, it was proven (a negative verification of H2) that the degree of market value-added creation in WSE WIG30 companies in 2017–2023 did not meet shareholder expectations. This empirical verification is the basis for a negative assessment of both effectiveness and efficiency in managing the companies' value. Managers did not ensure a satisfactory degree of meeting shareholder expectations (expectations were at a lower level in light of the deterioration of economic conditions). A minimum requirement was to ensure the coverage of shareholders' invested capital.

The verification of the remaining hypotheses allowed for us to draw conclusions based on the internal measures of created value.

Different levels of absolute stock market capitalisation and revenue value (DCF_{FCFE}, an internal value), and their changes as a representation of value creation were perfectly correlated (verification of H3). Therefore, it can be concluded that shareholders' assessments rely on classical financial measures (such as discounted cash flows) despite the availability of the wide range of advanced new measures of value creation. Ultimately, shareholders' assessments are based on opinions about companies' results—stock market capitalisation.

The negative verification of H4 led to the conclusion about the lack of equality between market value added (an external measure) and capitalised economic value added (an internal measure), which is also a theoretical assumption. In practice, then, company managers viewed value creation much more favourably than did the markets. More negative assessments of market value added resulted from the markets' scepticism with regard to development prospects as well as from the sharp increase in equity investments in recent years.

The measure proposed in the article requires a great deal of additional information. It does not hinder internal analyses in which measurements, as monitoring activities, can be continuous (as recommended under expectations-based management). In internal analyses, information barriers result from periodisations, which cannot be carried out more frequently than on a quarterly basis. The high representativeness of the research sample (39.9% of the WSE's capitalisation) allows for the formulation of general conclusions.

The recognition of market assessments as the basis for evaluating the effectiveness of corporate management (as argued in the article) can be regarded as questionable. It is the subject of current scientific debates, and the article assumes that the markets represent the only source of unbiased information. In addition to that, they discount companies' ability to create value in the future.

The presented study paves the way for further research. A requirement is to analyse companies representing various industry indexes and to investigate above-average levels of performance in relation to benchmarks. In other words, there is a need for conducting comparative analyses of individual companies.

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References

1. Straková, J.; Korauš, A.; Váchal, J.; Pollák, F.; Černák, F.; Talíř, M.; Kollmann, J. Sustainable Development Economics of Enterprises in the Services Sector Based on Effective Management of Value Streams. *Sustainability* **2021**, *13*, 8978. [CrossRef]
2. Obrenovic, B.; Du, J.; Godinic, D.; Tsoy, D.; Khan, M.A.S.; Jakhongirov, I. Sustaining Enterprise Operations and Productivity during the COVID-19 Pandemic: Enterprise Effectiveness and Sustainability Model. *Sustainability* **2020**, *12*, 5981. [CrossRef]
3. Copeland, T.; Koller, T.; Murrin, J. *Valuation: Measuring and Managing the Value of Companies*; John Wiley & Sons: Hoboken, NJ, USA, 2020; pp. 20–27.
4. Rogge, M. Bringing Corporate Governance Down to Earth: From Culmination Outcomes to Comprehensive Outcomes in Shareholder and Stakeholder Capitalism. *CRI Work. Pap. Harv. Kennedy Sch.* **2020**, *72*, 1–84. [CrossRef]
5. Blair, M.M.; Stout, L.A. A team production theory of corporate law. *Va. Law Rev.* **1999**, *85*, 247–290. [CrossRef]
6. Tirole, J. Corporate Governance. *Econometrica* **2001**, *69*, 1–35. [CrossRef]
7. Bebchuk, L.A.; Tallarita, R. Will Corporations Deliver Value to All Stakeholders? *Eur. Corp. Gov. Inst. Law Work. Pap.* **2022**, *645*, 1–60. [CrossRef]
8. Mayer, C. The Future of the Corporation and the Economics of Purpose. *J. Manag. Stud.* **2021**, *58*, 887–901. [CrossRef]
9. Bebchuk, L.A.; Tallarita, R. The Illusory Promise of Stakeholder Governance. *Cornell Law Rev.* **2020**, *106*, 91–178. [CrossRef]
10. Bradford, C.; Shapiro, A.C. Corporate stakeholders, corporate valuation and ESG. *Eur. Financ. Manag.* **2021**, *27*, 196–207. [CrossRef]
11. Alexander, G.; Buchholtz, R. Corporate social responsibility and stock market performance. *Acad. Manag. J.* **1978**, *21*, 479–486. [CrossRef]
12. Lidgreen, A.; Kotler, P.; Vanhamme, J.; Maon, F. *A Stakeholder Approach to Corporate Social Responsibility: Pressures, Conflicts, and Reconciliation*; Routledge: London, UK; New York, NY, USA, 2016.
13. Kreibich, R. *Nachhaltige Entwicklung: Leitbild für die Zukunft von Wirtschaft und Gesellschaft (Sustainable Development: Vision for the Future of Business and Society)*; Beltz: Weinheim, Germany; Basel, Switzerland, 1996. (In German)
14. Porter, M.E.; Kramer, M.R. Creating Shared Value. *Harv. Bus. Rev.* **2011**, *89*, 62–77. Available online: https://hbr.org/2011/01/ the-big-idea-creating-shared-value (accessed on 3 January 2024).
15. Donaldson, T.; Preston, L. Stakeholder Theory of the Corporation: Concepts, Evidence and Implications. *Acad. Manag. Rev.* **1995**, *20*, 65–91. [CrossRef]
16. Smith, C.N.; Ansett, S.; Erez, L. How GAP engaged with its stakeholders. In *Managing Sustainable Business: An Executive Education Case and Textbook*; Lenssen, G.G., Smith, C.N., Eds.; Springer: Dordrecht, The Netherlands, 2019; pp. 224–225. [CrossRef]
17. Cwynar, A.; Cwynar, W. *Kreowanie Wartości Spółki Poprzez Długoterminowe Decyzje Finansowe (Creation of Company Value Through Long-Term Financial Decisions)*; Polska Akademia Rachunkowości: Rzeszów, Poland, 2007; pp. 13–14. (In Polish)
18. Doś, A. Warunki i strategie kreacji wartości przedsiębiorstwa w oparciu o odpowiedzialność społeczną-ujęcie syntetyczne (Conditions and Strategies of Creating Company Value on the Basis of Corporate Social Responsibility—Synthetic Presentation). *e-Finanse* **2011**, *7*, 29–41. Available online: https://www.researchgate.net/publication/308115952 (accessed on 5 January 2024).
19. Schepers, D.H.; Sethi, S.P. Do socially responsible funds actually deliver what they promise? Bridging the gap between the promise and performance of socially responsible funds. *Bus. Soc. Rev.* **2003**, *108*, 11–32. [CrossRef]
20. Hahn, T.; Figge, F.; Barkemeyer, R. Sustainable value creation among companies in the manufacturing sector. *Int. J. Environ. Technol. Manag.* **2007**, *7*, 496–512. [CrossRef]
21. Dressler, E.; Mugerman, Y. Doing the Right Thing? The Voting Power Effect and Institutional Shareholder Voting. *J. Bus. Ethics* **2023**, *183*, 1089–1112. [CrossRef]
22. Helwege, J.; Intintoli, V.; Zhang, A. Voting with Their Feet or Activism? Institutional Investors' Impact on CEO Turnover. *J. Corp. Financ.* **2012**, *18*, 22–37. [CrossRef]
23. Chen, L.; Liao, C.-H.; Tsang, A.; Yu, L. CEO career concerns in early tenure and corporate social responsibility reporting. *Contemp. Account. Res.* **2023**, *40*, 1545–1575. [CrossRef]
24. Levit, D.; Malenko, N.; Maug, E.G. Trading and Shareholder Democracy. *J. Financ.* **2024**, *79*, 257–304. [CrossRef]

25. Kakhbod, A.; Loginova, U.; Malenko, A.; Malenko, N. Advising the Management: A Theory of Shareholder Engagement. *Rev. Financ. Stud.* **2023**, *36*, 1319–1363. [CrossRef]

26. Klassen, R.D.; McLaughlin, C.P. The impact of environmental management on firm performance. *Manag. Sci.* **1996**, *42*, 1199–1214. [CrossRef]

27. Russo, M.V.; Fouts, P.A. A resource-based perspective on corporate environmental performance and profitability. *Acad. Manag. J.* **1997**, *40*, 534–559. [CrossRef]

28. Dangelico, R.; Pujari, D. Mainstreaming Green Product Innovation: Why and How Companies Integrate Environmental Sustainability. *J. Bus. Ethics* **2010**, *95*, 471–486. [CrossRef]

29. Figge, F.; Hahn, T. Sustainable value added. Measuring corporate contributions to sustainability beyond eco-efficiency. *Ecol. Econ.* **2004**, *48*, 173–187. [CrossRef]

30. Lo, S.F.; Sheu, H.J. Is Corporate Sustainability a Value-Increasing Strategy for Business? *Corp. Gov. Int. Rev.* **2007**, *15*, 345–358. [CrossRef]

31. York, J. Pragmatic Sustainability: Translating Environmental Ethics into Competitive Advantage. *J. Bus. Ethics* **2009**, *85*, 97–109. [CrossRef]

32. Jabłoński, A. Scalability of Sustainable Business Models in Hybrid Organizations. *Sustainability* **2016**, *8*, 194. [CrossRef]

33. Schoenmaker, D.; Schramade, W. Investing for long-term value creation. *J. Sustain. Financ. Invest.* **2019**, *9*, 356–377. [CrossRef]

34. Kaczmarek, J.; Náñez Alonso, S.L.; Sokołowski, A.; Fijorek, K.; Denkowska, S. Financial threat profiles of industrial enterprises in Poland. *Oeconomia Copernic.* **2021**, *12*, 463–498. [CrossRef]

35. Chari, L.; Mohanty, R.P. Understanding Value Creation: The Shareholder Value Perspective. *LBS J. Manag. Res.* **2009**, *7*, 12–26. Available online: https://api.semanticscholar.org/CorpusID:10772239 (accessed on 5 January 2024).

36. Black, A.; Bachman, J.; Wright, P. *In Search of Shareholder Value: Managing the Drivers of Performance*; Financial Times/Prentice Hall: London, UK, 2001.

37. Rappaport, A. Ten Ways to Create Shareholder Value. *Harv. Bus. Rev.* **2006**, *84*, 66–77. Available online: https://hbr.org/2006/09/ten-ways-to-create-shareholder-value (accessed on 5 January 2024).

38. Kaczmarek, J. The Mechanisms of Creating Value vs. Financial Security of Going Concern—Sustainable Management. *Sustainability* **2019**, *11*, 2278. [CrossRef]

39. Stewart, G. *Quest for Value. The EVATM Management Guide*; Harper Business: New York, NY, USA, 1991; pp. 112–117.

40. Dobrowolski, Z.; Drozdowski, G.; Panait, M.; Babczuk, A. Can the Economic Value Added Be Used as the Universal Financial Metric? *Sustainability* **2022**, *14*, 2967. [CrossRef]

41. Carini, C.; Comincioli, N.; Poddi, L.; Vergalli, S. Measure the Performance with the Market Value Added: Evidence from CSR Companies. *Sustainability* **2017**, *9*, 2171. [CrossRef]

42. Srivastava, R.K.; Shervani, T.A.; Fahey, L. Market-Based Assets and Shareholder Value: A Framework for Analysis. *J. Mark.* **1998**, *62*, 2–18. [CrossRef]

43. Sakawa, H.; Watanabel, N. Institutional Ownership and Firm Performance under Stakeholder-Oriented Corporate Governance. *Sustainability* **2020**, *12*, 1021. [CrossRef]

44. Copeland, T.; Dolgoff, A. *Outperform with Expectations-Based Management: A State-of-the-Art Approach to Creating and Enhancing Shareholder Value*; John Wiley & Sons: Hoboken, NJ, USA, 2011.

45. Magni, C.A. Decomposition of net final values: Systemic Value Added and residual income. *Bull. Econ. Res.* **2003**, *55*, 149–176. [CrossRef]

46. Solomons, D. *Divisional Performance: Measurement and Control*; Richard D. Irwin Publishing: Homewood, IL, USA, 1965.

47. Peasnell, K.V. Some formal connections between economic values and yields and accounting numbers. *J. Bus. Financ. Account.* **1982**, *9*, 361–381. [CrossRef]

48. Ohlson, J.A. Earnings, book values, and dividends in equity valuation. *Contemp. Account. Res.* **1995**, *11*, 661–687. [CrossRef]

49. O'Hanlon, J.F.; Peasnell, K.V. Residual income and EVA. *Econ. Financ. Comput.* **2000**, *10*, 53–95. [CrossRef]

50. Benning, S.Z.; Sarig, O.H. *Finanse Przedsiębiorstwa: Metody Wyceny (Corporate Finance: Valuation Methods)*; WIG-Press: Warszawa, Poland, 2000; p. 90. (In Polish)

51. Fernandez, P. A Definition of Shareholder Value Creation. *Work. Pap. Univ. Navar. IESE Bus. Sch.* **2001**, *4*, 3–4. [CrossRef]

52. Hillman, A.J.; Keim, G.D. Shareholder Value, Stakeholder Management, and Social Issues: What's the Bottom Line? *Strateg. Manag. J.* **2001**, *22*, 125–139.

53. Nyiramahoro, B.; Shooshina, N. *Creating and Measuring Shareholder Value, Applicability and Relevance in Selected Swedish Companies*; Elanders Novum AB: Göteborg, Sweden, 2001; p. 50.

54. O'Hanlon, J.F.; Peasnell, K.V. Wall Street's contribution to management accounting: The Stern Stewart EVA® financial management system. *Manag. Account. Res.* **1998**, *9*, 421–444. [CrossRef]

55. Banerjee, A. Linkage between Economic Value Added and Market Value: An Analysis. *Vikalpa J. Decis. Makers* **2000**, *25*, 23–36. [CrossRef]

56. La Porta, R. Expectations and the Cross-Section of Stock Returns. *J. Financ.* **1996**, *51*, 1715–1742. [CrossRef]

57. Copeland, T.; Dolgoff, A.D. Expectations-Based Management. *J. Appl. Corp. Financ.* **2006**, *18*, 82–97. [CrossRef]

58. Chiu, A.-A.; Chen, L.-N.; Hu, J.-C. A Study of the Relationship between Corporate Social Responsibility Report and the Stock Market. *Sustainability* **2020**, *12*, 9200. [CrossRef]

59. François, P.; Hübner, G. Classical Portfolio Performance Measures: A Primer. *Soc. Sci. Res. Netw.* **2020**, *1*, 1–28. [CrossRef]
60. Copeland, T.; Dolgoff, A.; Moel, A. The Role of Expectations in Explaining the Cross-Section of Stock Returns. *Rev. Account. Stud.* **2004**, *9*, 149–188. [CrossRef]
61. O'Hanlon, J.F.; Peasnell, K.V. Residual Income and Value Creation: The Missing Link. *Rev. Account. Stud* **2002**, *7*, 229–245. [CrossRef]
62. Perotti, P.; Wagenhofer, A. Earnings quality measures and excess returns. *J. Bus. Financ. Account.* **2011**, *41*, 545–571. [CrossRef]
63. Baker, M.; Bradley, B.; Wurgler, J. Benchmarks as Limits to Arbitrage: Understanding the Low-Volatility Anomaly. *Financ. Anal. J.* **2011**, *67*, 40–54. [CrossRef]
64. Bosse, P.M.; Wimmer, B.R.; Philips, C.B. Active bond-fund excess returns: Is it alpha…or beta? *Vanguard Res.* **2013**, *8*, 1–14. Available online: https://personal.vanguard.com/pdf/s809.pdf (accessed on 5 January 2024).
65. Gilmore, S.; Hayashi, F. Emerging Market Currency Excess Returns. *Am. Econ. J. Macroecon.* **2011**, *3*, 85–111. [CrossRef]
66. Nurwati, A.; Ramdi, Z. The Effect of Market Excess Returns, Size, Market-to-Book Ratio and Earnings Yield on Stock Returns. *Int. Bus. Manag.* **2013**, *7*, 267–277. [CrossRef]
67. Quintiliani, A. The Relationship between the Market Value Added of SMEs Listed on AIM Italia and Internal Measures of Value Creation. *Int. J. Financ. Res.* **2018**, *9*, 121–131. [CrossRef]
68. Johan, S. The Relationship between Economic Value Added, Market Value Added and Return on Cost of Capital in Measuring Corporate Performance. *J. Manaj. Bisnis Kewirausahaan* **2019**, *2*, 23–35. [CrossRef]
69. Udiyana, I.B.G.; Astini, N.N.S.; Parta, I.N.; Laswitarni, N.K.; Wahyuni, L.A. Economic Value Added (EVA) and Market Value Added (MVA) Implications on Stock Returns. *J. Ekon. Bisnis Jagaditha* **2022**, *9*, 15–22. [CrossRef]
70. Pfeiffer, T. Net Present Value—Consistent Investment Criteria Based on Accruals: A Generalisation of the Residual Income-Identity. *J. Bus. Financ. Account.* **2004**, *31*, 905–926. [CrossRef]
71. Ma, G.; Du, Q.; Wang, K. A Concession Period and Price Determination Model for PPP Projects: Based on Real Options and Risk Allocation. *Sustainability* **2018**, *10*, 706. [CrossRef]
72. Vayas-Ortega, G.; Soguero-Ruiz, C.; Rojo-Álvarez, J.-L.; Gimeno-Blanes, F.-J. On the Differential Analysis of Enterprise Valuation Methods as a Guideline for Unlisted Companies Assessment (I): Empowering Discounted Cash Flow Valuation. *Appl. Sci.* **2020**, *10*, 5875. [CrossRef]
73. Kaczmarek, J. The concept and Measurement of Creating Excess Value in Listed Companies. *Inz. Ekon. Eng. Econ.* **2018**, *29*, 376–385. [CrossRef]
74. McTaggart, J.M.; Kontes, P.W.; Mankis, M.C. *The Value Imperative: Managing for Superior Shareholder Returns*; DIANE Publishing Company: Darby, PA, USA, 2004.
75. Rappaport, A. *Creating Shareholder Value: A Guide for Managers and Investors*; The Free Press/Simon and Schuster: New York, NY, USA, 1999; pp. 60–66.
76. Capron, L.; Pistre, N. When do acquirers earn abnormal returns? *Strateg. Manag. J.* **2002**, *23*, 781–794. [CrossRef]
77. Holler, A. *New Metrics for Value-Based Management: Enhancement of Performance Measurement and Empirical Evidence on Value-Relevance*; Springer Science & Business Media: Wiesbaden, Germany, 2009; p. 217. [CrossRef]
78. Mikołajek-Gocejna, M. *Investor Expectations in Value Based Management*; Springer International Publishing: Cham, Switzerland, 2014; p. 237.
79. Danielson, M.G.; Dowdell, T.D. The Return-Stages Valuation Model and the Expectations within a Firm's P/B and P/E Ratios. *Financ. Manag.* **2001**, *30*, 93–124. [CrossRef]
80. Meng, X.-L.; Rosenthal, R.; Rubin, D.B. Comparing correlated correlation coefficients. *Psychol. Bull.* **1992**, *111*, 172–175. [CrossRef]
81. Wasserstein, R.L.; Lazar, N.A. The ASA's Statement on p-Values: Context, Process, and Purpose. *Am. Stat.* **2016**, *70*, 129–133. [CrossRef]
82. Hubbard, R.; Bayarri, M.J. Confusion Over Measures of Evidence (p's) Versus Errors (α's) in Classical Statistical Testing. *Am. Stat.* **2012**, *57*, 171–178. [CrossRef]
83. Kaczmarek, J. The Stance, Factors, and Composition of Competitiveness of SMEs in Poland. *Sustainability* **2022**, *14*, 1788. [CrossRef]
84. Kaczmarek, J.; Kolegowicz, K.; Szymla, W. Restructuring of the Coal Mining Industry and the Challenges of Energy Transition in Poland (1990–2020). *Energies* **2022**, *15*, 3518. [CrossRef]
85. Stern, J.M.; Stewart, G.B.; Chew, D.H., Jr. Eva®: An integrated financial management system. *Eur. Financ. Manag.* **1996**, *2*, 223–245. [CrossRef]
86. Nogueira, M.C.; Madaleno, M. Are Sustainability Indices Infected by the Volatility of Stock Indices? Analysis before and after the COVID-19 Pandemic. *Sustainability* **2022**, *14*, 15434. [CrossRef]
87. Zhang, H.; Ding, Y.; Li, J. Impact of the COVID-19 pandemic on economic sentiment: A cross-country study. *Emerg. Mark. Financ. Trade* **2021**, *57*, 1603–1612. [CrossRef]
88. Rakshit, B.; Neog, Y. Effects of the COVID-19 pandemic on stock market returns and volatilities: Evidence from selected emerging economies. *Stud. Econ. Financ.* **2022**, *39*, 549–571. [CrossRef]
89. Hailu, S.M.; Vural, G. The Impact of COVID-19 Pandemic on Financial Markets: Evidence from Developed and Developing Countries' Stock Markets Indexes. *Eur. J. Bus. Manag. Res.* **2021**, *6*, 372–377. [CrossRef]

90. Lento, C.; Gradojevic, N. S&P 500 Index Price Spillovers around the COVID-19 Market Meltdown. *J. Risk Financ. Manag.* **2021**, *14*, 330. [CrossRef]

91. Rokicki, T.; Bórawski, P.; Bełdycka-Bórawska, A. Disruptions in the COVID-19 Pandemic in the Supply Chains of the Automotive Industry as Crucial for the Polish Economy. *Sustainability* **2024**, *16*, 269. [CrossRef]

92. Dias, R.; Teixeira, N.; Machova, V.; Pardal, P.; Horak, J.; Vochozka, M. Random walks and market efficiency tests: Evidence on US, Chinese and European capital markets within the context of the global COVID-19 pandemic. *Oeconomia Copernic.* **2020**, *11*, 585–608. [CrossRef]

93. Johnson, T.L.; Kim, J.; So, E.C. Expectations Management and Stock Returns. *Rev. Financ. Stud.* **2020**, *33*, 4580–4626. [CrossRef]

94. Huang, C.-M.; Yang, W.; Zeng, R.-Q. Analysis on the Efficiency of Risk Management in the Chinese Listed Companies. *Mathematics* **2020**, *8*, 1831. [CrossRef]

95. Lv, X.; Li, M.; Zhang, Y. Financial Stability and Economic Activity in China: Based on Mixed-Frequency Spillover Method. *Sustainability* **2022**, *14*, 12926. [CrossRef]

96. Tarighi, H.; Hosseiny, Z.N.; Akbari, M.; Mohammadhosseini, E. The Moderating Effect of the COVID-19 Pandemic on the Relation between Corporate Governance and Firm Performance. *J. Risk Financ. Manag.* **2023**, *16*, 306. [CrossRef]

97. Demirgüç-Kunt, A.; Pedraza, A.; Ruiz-Ortega, C. Banking sector performance during the COVID-19 crisis. *J. Bank. Financ.* **2021**, *133*, 106305. [CrossRef] [PubMed]

98. Kubiczek, J.; Derej, W. Financial performance of businesses in the COVID-19 pandemic conditions—Comparative study. *Pol. J. Manag. Stud.* **2021**, *24*, 183–201. [CrossRef]

99. Chang, C.-W.; Hsueh, M.-H.; Wang, C.-N.; Huang, C.-C. Exploring the Factors Influencing the Impact of the COVID-19 Pandemic on Global Shipping: A Case Study of the Baltic Dry Index. *Sustainability* **2023**, *15*, 11367. [CrossRef]

100. Graves, S.C.; Tomlin, B.T.; Willems, S.P. Supply chain challenges in the post-Covid Era. *Prod. Oper. Manag.* **2022**, *31*, 4319–4332. [CrossRef]

101. Du, K. Investor expectations, earnings management, and asset prices. *J. Econ. Dyn. Control* **2019**, *105*, 134–157. [CrossRef]

102. Malmi, T.; Ikäheimo, S. Value Based Management practices—Some evidence from the field. *Manag. Account. Res.* **2003**, *14*, 235–254. [CrossRef]

103. Knight, J.A. *Value Based Management: Developing a Systematic Approach to Creating Shareholder Value*; McGraw-Hill: New York, NY, USA, 1997.