THE EXCESS MARKET VALUE ADDED FUNCTIONALITY FOR EXPECTATIONS BASED MANAGEMENT

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Purpose: The research presented in this article aims to investigate the usefulness of the excess measures of created value for the needs of Expectations Based Management. The theoretical and methodological objective is to propose extending the scope of classical measures of value by including shareholder expectations. The utilitarian objective is to measure value creation using excess market value added to equity WIG30 companies of the Warsaw Stock Exchange in 2017–2022, and its relations with companies capitalisation and market value added.

Design/methodology/approach: The proposed measure of excess market value added to equity compares expected value as an increase in companies capitalization related to a minimum rate of return on equity equivalent to its cost, decreased by this capital, with the actually achieved value. The analysis makes use of mathematical statistics tools, including non–standard ones, the measure of concentration, and the taxonomic measure of similarity.

Findings: Firstly, the research shows that excess measure does not distort market information and is an appropriate tool for assessing the effectiveness of shareholder value creation. Secondly, the managers of WIG30 WSE companies did not meet shareholder expectations in a satisfactory way. Value management in the analysed companies was given a negative assessment, both in terms of effectiveness and efficiency.

Research limitations/implications: The application of this method is limited by the availability of information but only in external analyses, and it only reduces the frequency of analyses. The trend for further research is the analyses of companies representing various industry indexes and the comparative analyses of individual entities from the perspective of above average values in relation to benchmarks.

Practical implications: The utilitarian value of the research study is the proposal of a method for measuring value creation which includes shareholder expectations for the needs of EBM. Moreover, the research offered an unbiased assessment of whether shareholder value in WSE WIG30 companies is created and simultaneously reflected in an increased value of shares (capitalization) to a higher degree than expected by shareholders.

Originality/value: The presented study mitigates a methodological gap in the area of unbiased assessments of measuring value creation which considers shareholder expectations. The study presents empirical evidence of shareholder value creation. As yet, similar research has not been conducted for Polish and foreign capital markets.

Keywords: Excess value, Expectations–based management, Value creation.

Category of the paper: Research paper.

1. Introduction

A company's development is based on its efficient and effective management. The effects of development can take various forms. The basis financial effect of development is corporate value creation (Copeland et al., 2020). Continuous efforts aimed to create corporate value are the main determinants of management activities. Generally, a company's performance is measured by its ability to adapt to change and its resilience to threats (Fijorek et al., 2021). These assumptions lay the foundations for the concept of Value Based Management (VBM). The key role in this concept is played by a standard measurement and assessment of corporate performance, which motivates managers to implement strategies aimed to create and maximise value (Black et al., 2001). It is shareholders who set a given objective and assess the degree of achieving value creation, but an increase in shareholder value must be coupled with an increase in stakeholder value (Rappaport, 2006).

The measurement of value creation has greatly evolved in past years and is currently based on market categories (Kaczmarek, 2019). The main internal measure of created value is Economic Value Added (EVA) and Market Value Added (MVA) as an external measure. The latter measure meets the requirement of an unbiased, market assessment. It is useful, but it has some deficiencies. They can be related to a specific measurement objective or its level (a point of observation, a group of information recipients). Generally, the effects of a company's development are measured by stakeholders expectations (Srivastava et al., 1998). However, it can be questioned whether MVA is a sufficient measure for assessing shareholder value creation. This issue can be understood in two ways: 1. Are expectations met (a minimum return covering capital costs)? 2. Is the level of value creation sufficient (at least average as compared with the benchmark)? This doubt can be expressed in the following way: do managers, implementing a specific corporate value management strategy (related to stakeholders), give sufficient attention to shareholder expectations?

The subtilizing of shareholders expectations is a basis for Expectations Based Management (EBM) (Copeland et al., 2020). The key role is played here by the way in which we measure shareholder value. Therefore, the article aims to assess the usefulness of excess market value added on the capital market in Poland. The assessment is presented in the context of relations with market value (company capitalisation) and market value added. The result of the assessment leads to the conclusion whether the management of the companies in question meets shareholder expectations with regard to value creation (the answer to the first question). The research comprised 30 companies (WIG30 index) with the highest capitalization (over 1/3) on the Warsaw Stock Exchange (WSE). The research period was 2017-2022, and the presentation of results on a quarterly basis.

The presented research has narrowed a methodological gap in the area of unbiased assessments of measuring value creation which considers shareholder expectations. Moreover, the research objectively examined in practice whether shareholder value in WSE WIG30 companies is created and simultaneously reflected in an increased value of shares (capitalization) to a higher degree than expected by shareholders. As yet, similar research has not been conducted for Polish and foreign capital markets. Unambiguously, the research methodology possesses utilitarian value and application in Expectations Based Management.

2. Literature Review

MVA is a tool for measuring the ability to increase shareholder value – the effect of managers' operations and, consequently, an assessment of the effectiveness and efficiency of management. As a difference between market value and invested capital, it should have a positive value, generating a premium. The market value of listed companies is reflected in company capitalisation. Therefore, MVA represents a difference between capitalization and equity. MVA is an external measure of created value, but it is correlated with EVA (internal measure): it is the sum of the net present value of a series of EVA values (O'Hanlon, Peasnell, 2002). The calculation of EVA for listed companies should give consideration to equity and its cost.

Generally, MVA represents a market opinion, and, unlike EVA, it does not measure results and has several drawbacks (Banerjee, 2000):

- it can be determined only at a company level (not at the level of a company's business entities),
- shareholders can benefit only from company capitalization (so without cash distributions to shareholders),
- as an absolute measure, it limits comparative assessments (in time and between companies),
- it does not consider shareholder expectations with regard to future value creation.

From the point of view of the scope and objective of this article, the last drawback on the above list is critical and has a major impact on the capital market. Despite positive value creation, return on investment below shareholders' expectations results in reduced share prices, and vice versa (Copeland, Dolgof, 2006) (Table 1).

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: (Copeland, Dolgoff, 2006).

This correlation results from differences in understanding the idea of corporate value creation (generally) and shareholder value creation (the perspective of company owners) (La Porta, 1996). In order to create shareholder value, it is necessary to both generate and realize value added. This realization is done through an increase in the value of shares – the effect of achieving results exceeding shareholders' expectations. Expected value is predicted by the market (the shareholders' market) and included in market share prices (the value of future increase). Therefore, the necessary consideration given to the difference between the actual value added (the achieved value) and the expected value directs us towards excess market value added. This criterion is more restrictive than market value added.

The concept of excess market value added stems from the combination of two measures: excess return and value added. In reality, excess return represents return on investment above the benchmark or index at a similar level of risk. Such a measure was proposed by A. Rappaport in the form of Cumulative Abnormal Return (Capron, Pistre, 2002). It was the effect of referring to the idea of Total Shareholder Return (TSR) (Fernandez, 2001), and Alfa Ratio M. Jensen (François, Hübner, 2020). In a broader sense, value added was practically applied as EVA (Stern et al., 1996), currently defined as Systemic Value Added (Magni, 2003). The idea was initiated by the works of A. Marshall (1890) and G. Preinreich (1936), and developed by K. Peasnell (1982) and J. Ohlson (1995). Within the framework of Expectations Based Management (EBM), these two approaches were combined as excess residual income (Copeland, Dolgof, 2006). It represents the difference between the actual and expected annual economic profit. The concept was developed for the needs of multi–year periods by J. O'Hanlon and K. Peasnell (2002).

Empirical research studies of value added were conducted on stock exchanges (Perotti, Wagenhofer, 2011; Baker et al., 2011) and bond markets (Bosse et al., 2013), including emerging markets (Gilmore, Hayashi, 2011) and Far East markets (Nurwati, Ramdi, 2013). The studies focused on 'classic' value added measures and the relationship between MVA and company performance, and the impact of planning on shareholder value (Quintiliani, 2018), the relationship of MVA and EVA and their impact on the stock rate of return (Johan, 2019; Udiyana et al., 2022).

Generally, the literature review points to gaps in defining and measuring market value added creation from the perspective of shareholders, and more precisely – the simultaneous assessment of the effectiveness of value added creation and the efficiency of the desired value

as defined by the concept of excess value. Some other research gaps are clearly visible in empirical research on excess market value added.

3. Research methods

The integration of shareholders expectations into the concept of MVA is done in a similar way as in the case of TSR (Superior Shareholder Return) (Kaczmarek, 2018). A positive value of TSR indicates the achievement of a superior return in relation to the benchmark (McTaggart et al., 2004). In turn, the actual return which exceeds the expected level results in Excess TSR (Rappaport, 2006). If it is expressed by equity capital cost, excess return is the rate of return that exceeds what was expected or predicted by models like CAPM (Capital Asset Pricing Model) (Capron, Pistre, 2002).

Invested equity (IC^C_E with equivalents) and the sum of future EVAs represent Market Value to Equity (MV_E), in other words, market capitalization. Therefore, if MVA_E is the difference between MV_E and IC^C_E, a positive value occurs when return on invested equity capital ($ROIC^C_E$) exceeds equity capital cost (ECC^C) (Pfeiffer, 2004).

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

$$ROIC^C_E > ECC^C \; \rightarrow \; MVA_E > 0$$

(1)

To extend the concept of MVA_E by integrating it with shareholders expectations (Mikołajek-Gocejna, 2014; Danielson, Dowdell, 2001), the presented analysis defines excess marked value added to equity (MVA_{EN}). It is the difference between the expected value (MVA_{EP}) and the actual value (MVA_{ER}). MVA_{EP} indicates an increase in MV_E in relation to the expected minimum return on invested equity capital ($ROIC^C_E$), equivalent to the cost of capital (ECC^C), decreased by this capital (IC^C_E). A positive value of MVA_{EN} indicates achieving excess value created (abnormal/superior). It should be noted that MVA_{EN} is not comparable with MVA_E but delta MVA_E (the difference in values in subsequent periods, which indicates value creation). Comparative analyses (rankings, benchmarks) should relativise delta MVA_E and MVA_{EN}, for example using the amount of invested capital (IC^C_E).

$$MVA_{EP} = MV_{Et-1} \cdot (1 + ECC^C_t) - IC^C_{Et-1} \; ; \; MVA_{EN} = MVA_{ER} - MVA_{EP}$$

$$MVA_{EN} > 0 \; \rightarrow \; excess\ value$$

(2)

Two research hypotheses are formulated in connection with the objective of the article:

− H1 excess market value added to equity is correlated with changes in companies capitalisation in the degree similar to increases in market value added,

− H2 the degree of market value added creation in listed companies meets their shareholders' expectations.

If H1 is confirmed, the value of correlation $r(MVA_{EN}, dMV_E)$ should be close to $r(dMVA_E, dMV_E)$. In turn, if H2 is confirmed, correlation $r(MVA_E, dMVA_P)$ should be almost complete.

To verify H1, it was necessary to use non–standard mathematical statistics tools. The analysis made use of Williams' test statistic (T_2) for the equality of two correlated r–Pearson coefficients (Meng et al., 1992; Steiger, 1980). H2 was verified using a test for r–Pearson single correlation coefficient[1].

The applied concentration measure (ZG) corresponds to the surface of the ellipse which covers the analysed set of objects (companies). A higher value of ZG indicates greater dispersion (Kaczmarek, 2022).

The applied taxonomic measure of similarity (TMS) calculates the sum of minimum shares of objects (companies) in the compared structures. Values closer to unity indicate greater similarity (Kolegowicz et al., 2022).

The expected rate of return on invested equity $(ROIC^C_E)$ was determined in CAPM (an increase in risk–free rate by the product of systemic risk measure *beta* and equity risk premium *ERP*)[2].

The study comprised all 30 companies representing WIG30 Warsaw Stock Exchange. They represent a major share of market capitalization (37.2%). The analysis covered the years 2017-2022. The article presents quarterly data (transformed from weekly data) and then transformed into annual data. The data was collected from emis.com, notoria.pl, gpw.pl, stockwatch.pl, and ekrs.ms.gov.pl. (commercial access). The scope of value calculation corrections is confined to information available in financial statements.

4. Results

4.1. Capitalization and value added creation

The capitalization of 30 WIG30 companies at the end of 2022 reached the level of PLN 446.4 bn (MV_E), which represents 37.2% of the WSE main trading floor. Until 2019, this figure was stable (annual average). A decrease in the lock down period (2020, -17.7%), a quick recovery in the following year, and another decrease pointed to the projections of steady growth according to path 'W' instead of a more optimistic path 'V'.

However, the readings of market value added to equity (MVA_E) present a different picture – a steady deterioration in value creation until 2019, and a real collapse in 2022, even more dramatic than during the lock down period. The worst performance in the analysed group is recorded for manufacturing companies. 22/24 quarters recorded MVL (market value lost), and the year 2022 was characterised by a drastic breakdown. In 2017–2022, the loss amounted to PLN 103.1bn (MVA_E, representing 64.3% of the analysed group). Finance companies were hardest hit, their total MVL amounting to PLN -40.9 bn. Trade companies always recorded a positive value of MVA_E, and their losses were the lowest (PLN -16.4 bn). Generally, the decreasing values of dMV_E (2017-2022, PLN -43.0 bn) indicate a negative assessment of the analysed indicators and a clear signal to investors (shareholders). Simultaneously, a decrease in $dMVA_E$ by PLN -160.4 bn represents an almost fourfold loss of shareholder value added (Figure 1).
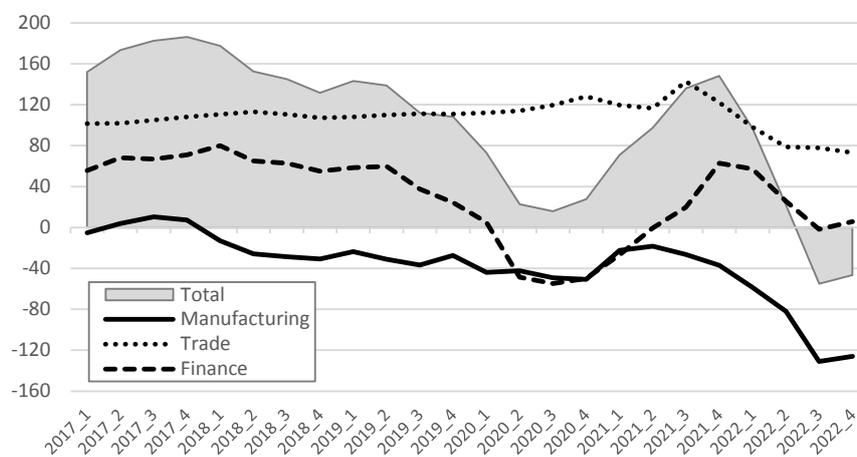
Figure 1. Market value added to equity (MVA_E) of WSE WIG30 listed companies in 2017-2022 (PLN billion, quarterly data).

Source: author's research based on data bases of limited access (commercial data bases): emis.com, notoria.pl, gpw.pl, stockwatch.pl, ekrs.ms.gov.pl. Available online: https://www–1emis–1com–1v9owocmt1833.hanbg.uek.krakow.pl/php/home, https://uekr–1notoria–1pl–1y3wmvzmt1837.hanbg.uek.krakow.pl/companies/dashboard/WIG30, https://www.gpw.pl/archiwum–notowan, https://www.stockwatch.pl/gpw/indeks/wig30,sklad.aspx, https://ekrs.ms.gov.pl/.

The particular companies varied in terms of dMV_E and $dMVA_E$ values. Positive values for dMV_E were recorded in 11 companies (PLN +51.9 bn), while the remaining 19 entities had negative values (PLN -94.8 bn). The majority of value creators were manufacturing companies (7/11), while the best entity represented the trade sector. A positive value of $dMVA_E$ was achieved only in 8 companies (PLN +38.5 bn), and the remaining 22 entities recorded a considerable negative value (PLN -198.9 bn). The composition of the first 10 positions with regard to dMV_E and MVA_E was different only in two cases. In–depth comparative analyses are presented in other research studies and discussed in other articles. The main destructors and creators of value in WSE WIG30 companies are presented in Table 2.

Table 2.

Changes of capitalization (dMV$_E$) and market value added to equity (dMVA$_E$) of the first and last five WSE WIG30 listed companies in 2017-2022

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	24.5	DNP	1	27.4	KGH	26	−11.9	CCC	26	−6.1
LPP	2	5.7	LPP	2	7.3	SPL	27	−13.3	SPL	27	−6.3
CDR	3	4.1	CDR	3	5.3	PGE	28	−16.5	PZU	28	−7.9
LVC	4	1.3	KGH	4	3.3	ALE	29	−32.7	PEO	29	−8.5
KTY	5	1.2	OPL	5	2.3	PKN	30	−48.7	ALE	30	−31.3

Note. A stock ticker was used to identify the companies. There is an explanation of it in the Appendix.

Source: as in Fig. 1.

4.2. Assessment of shareholder expectations

The article proposes excess market value added to equity (MVA$_{EN}$) as the main measure for assessing the degree of meeting shareholder' expectations. In 2017-2022, their investments in WSE WIG30 companies resulted in the loss of PLN -160.4 bn of value added (MVA$_E$). There are other aspects of this negative assessment. The gap in value measured by MVA$_{EN}$ amounted to PLN -280.7 bn (75.0% more). This level of value creation was expected by shareholders (the condition to be met was MVA$_{EN}$ = 0). Unfortunately, their expectations were not met, and in addition to that, companies recorded lo losses of value (MVA$_{EN}$ < 0).

The relative size of the gap (MVA$_{EN}$ to IC^C_E) as the average in the period 2017-2022 amounted to -13.2%. In relation to capital market capitalization (MVA$_{EN}$ to MV$_E$), it reached the level of -10.3%.

The biggest gap of value (PLN -107.7 bn) was recorded for finance companies (38.4% of the total gap), manufacturing (PLN -96.0 bn) and trading entities (PLN -77.0 bn). Interesting figures were recorded in the year 2020 – in the context of pessimistic predictions, the companies' results were not that bad, which resulted, quarter after quarter, in a reduced gap. However, in 2021, the conditions reversed. In the context of a quickly expected recovery, business conditions deteriorated. There were indications of the lock down recession being transformed into a more serious crisis caused by general disturbances in economic relations and the loss of hopes for embarking on path 'V' instead of path 'W'. Therefore, as of the middle of 2021, the gap increased dramatically, exceeding the lock down level by 71.7% in 2022 (peak Q2.2020 PLN -83.9 bn, Q2.2022 PLN -153.3 bn) (Figure 2).
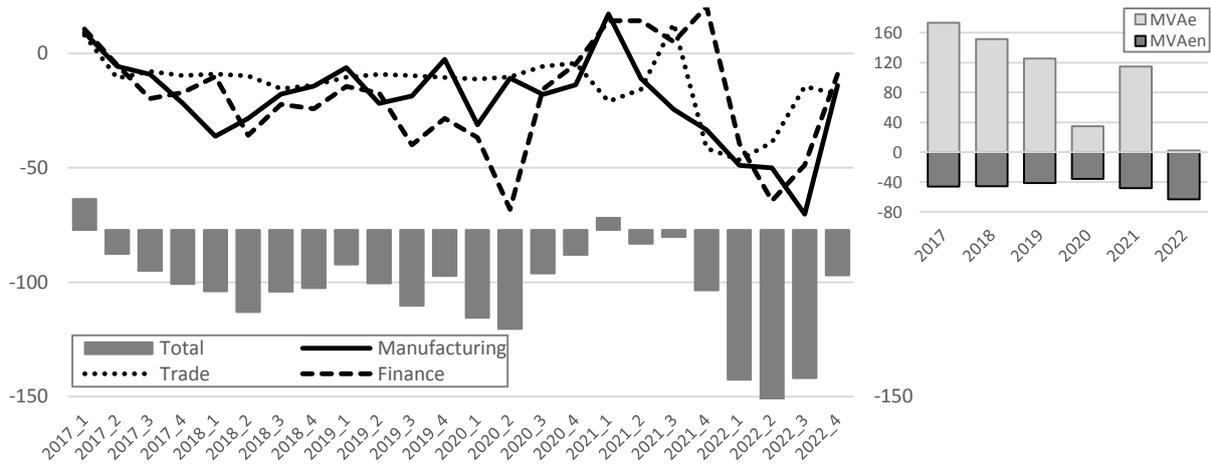
Note. Left panel – for the total figure of excess market value added to equity (MVA$_{EN}$), the right axis is appropriate. Right panel – excess market value added to equity (MVA$_{EN}$) vs. market value added to equity (MVA$_E$) (PLN billion, annual data).

Figure 2. Excess market value added to equity (MVA$_{EN}$) of WSE WIG30 listed companies by type of activity in 2017–2022 (PLN billion, quarterly data – left panel, annual data – right panel).
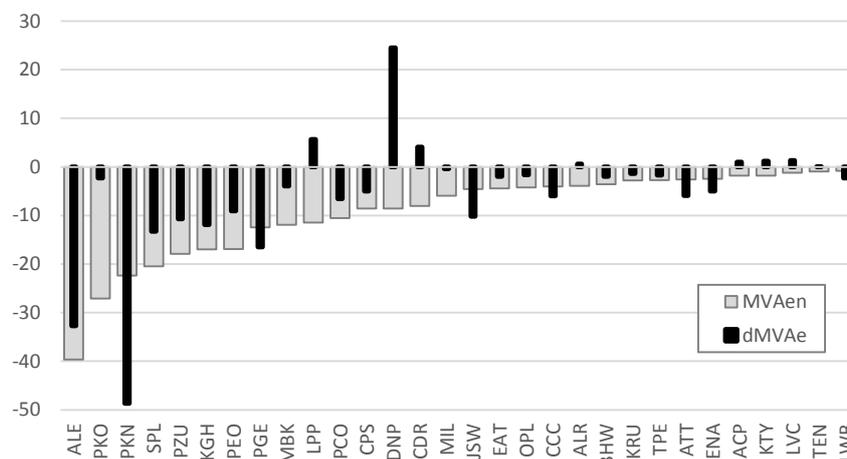
Source: as in Fig. 1.

In 2017–2022, companies presented in the coordinate system were dispersed and they changed their positions (dMVA$_E$; MVA$_{EN}$). The dispersion, as measured by ZG, increased 2.7–fold (annual average), and its quarterly changes with a linear growth tendency were weakly reversely proportional to MVA$_{EN}$ (r = -0,28). Increased dispersion indicates greater differences between companies (increased distances between them, marking greater differences). Generally, changes in positions were not favourable, moving towards the quadrant (-dMVA$_E$; -MVA$_{EN}$). In conclusion, value losses increased, which was accompanied by widened gaps between expectations and the achieved results (Figure 3).
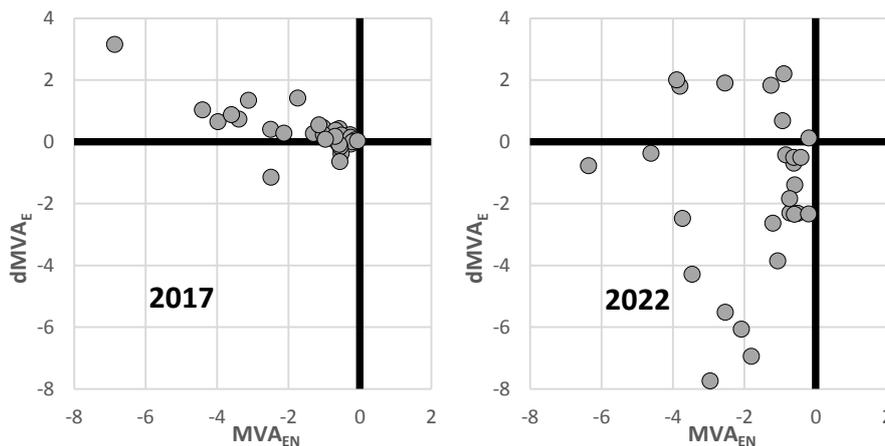
Figure 3. Position of companies in relation to excess value added to equity (MVA$_{EN}$) and changes in market value added to equity (dMVA$_E$) in 1997 and 2022 (PLN billion).

Source: as in Fig. 1.

MVA$_{EN}$ (the difference as excess value/gap) can be compared with changes in value added, i.e., dMVA$_E$ (the difference as an increase/decrease). These values had a different distribution in time and in the particular companies. A positive value of dMVA$_E$ occurred in 8 companies (5 manufacturing, 2 trade entities, and 1 finance company), while 22 companies recorded value losses. With regard to MVA$_{EN}$, no companies recorded a positive result (abnormal/excess value) (Figure 4).
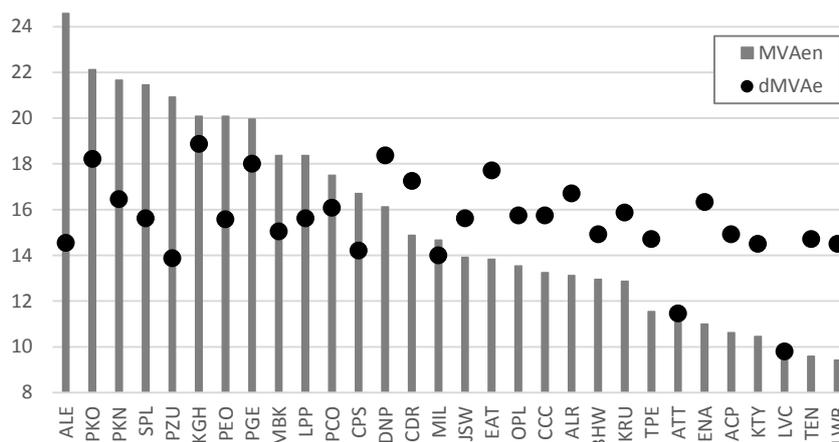

Note. A stock ticker was used to identify the companies. There is an explanation of it in the Appendix.

Figure 4. Cumulative excess value added to equity (MVA$_E$) and changes in market value added to equity (dMVA$_E$) in 1997-2022 (PLN billion).

Source: as in Fig. 1.

Differences in companies' rank positions with respect to dMVA$_E$ and MVA$_{EN}$ remained stable. In 13 cases the average rank position (ARP) was higher in terms of dMVA$_E$, and in 15 cases in terms of MVA$_{EN}$. Only two companies occurred proximity by ARP terms. The similarity measure IPS of rank positions showed a slightly increasing tendency, with a greater intensity recorded in 2020-2021 (0.92 compared to 0.85 in 2017). Gaps between minimum and maximum ARPs were greater for MVA$_{EN}$ (9.4 : 24.6) than for dMVA$_E$ (9.8 : 18.9) (Figure 5).

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

Note. A stock ticker was used to identify the companies. There is an explanation of it in the Appendix.

Figure 5. Average rank position (ARP) WSE WIG30 companies by excess value added to equity (MVA_E) and changes in market value added to equity ($dMVA_E$) in 1997-2022.

Source: as in Fig. 1.

4.3. Verification of the hypotheses

H1 was verified on the basis of 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 generally high, positive and statistically significant correlation (as the average for 30 companies, with each p-value < 0.000), respectively 0.941 and 0.875 (min = 0.715, max = 0.995, sd = 0.071). The difference between correlations is low (7.0%).

In light of the above, the first hypothesis is positively verified: H1 − excess market value added to equity is correlated with changes to companies capitalisation in a similar degree as increases in market value added. It indicates that MVA_{EN} is an appropriate (not deforming) measure for assessing the effectiveness of shareholder value creation.

The verification of H2 was based on the analysis of $dMVA_E$ and $dMVA_{EP}$ correlations. The expected result was close to unity. The obtained result r = 0.145 indicates a weak correlation (as the average for 30 companies, with each p-value < 0.000, min = -0.44, max = 0.406, sd = 0.09).

The above considerations allow for rejecting the second hypothesis as a null hypothesis and accepting an alternative hypothesis: the degree of market value creation in listed companies did not meet shareholder expectations.

5. Discussion

The markets provide information on market value as primary information. Decreases in share prices were caused by strong turbulences related to the pandemic and the nervousness of the capital market (Zhang et al., 2021). The revaluation of shares on the WSE was a short–term phenomenon, similarly to other emerging markets (Rakshit, Neog, 2022). In 2017-2022, the capitalization of WSE WIG30 decreased by 9.4%. Moreover, market value added, which took into account the capital invested by shareholders, showed a decreasing trend, but remained positive in all the analysed years. It distorted a true picture of the effectiveness of investments in shares (Johnson et al., 2020), and, therefore, did not cause investors' concern.

Excess market value added to equity (MVA_{EN}), used to measure effectiveness, revealed a huge value gap in each analysed year, which widened in the last two years. It represented 68.0% of the capital invested by shareholders and 61.6% of the companies' market value.

It should be noted in this context that the impact of the pandemic and lock down was not as great as originally expected, and the main indexes recovered quickly (Lento, Gradojevic, 2021). It resulted from a number of factors including unprecedented bailout policies. It should also be stressed that the largest value gap occurred in finance companies (banks and insurance companies). It was caused by the specificity of this sector (Demirgüç-Kunt et al., 2021). Neutral results were achieved by trade companies, which quickly and effectively implemented online trade systems (Kubiczek, Derej, 2021). On the other hand, manufacturing companies did not record large value gaps until the first half of 2022 (the cooling of economies, supply chain disruptions) (Graves et al., 2022).

The discussion should also give attention to the interpretation of results achieved by particular companies. Detailed comparative analyses are presented in other research studies and papers. It should be noted, however, a positive value of MVA_{EN} can be accompanied by a negative value of MVA_{ER} (actual value) as a result of a lower, also negative, value of MVA_{EP} (expected value). It leads to ambiguities in assessments (Du, 2019).

6. Conclusions

Undoubtedly, the years 2017–2022 mark a period of turbulent changes in capital markets. Despite these circumstances, the performance of WSE WIG30 in terms of capitalization cannot be regarded as extremely unsatisfactory. A decrease in capitalization, i.e., market value creation, amounts "merely" to PLN -43.0bn (-9.4%). This statement can be misleading because market value lost in this period reaches the level of as much as PLN -160.4 bn in the form of market value added loss, which takes into account invested capital. This statement is not the

final assessment, either, because the effectiveness of invested capital is measured from the perspective of expected benefits. In this context, unfortunately, the loss measured by excess market value added amounted to PLN -280.7 bn, representing -13.2% of invested capital.

The reliability of the above assessment is confirmed in the article by two analytical steps. Firstly, it was proved (a positive verification of H1) that excess market value added, as a measure based on a broader perception, taking into account shareholder expectations, does not distort the content provided by original market information.

Secondly, it was proved (a negative verification of H2) that the degree of market value creation in WSE WIG30 companies in 2017-2022, did not meet shareholder expectations. It is the basis for a negative assessment of both the effectiveness and efficiency of corporate value management in the analysed entities.

The measure proposed in the article requires a special source of information. It does not create any barriers in internal analyses – measurements can be continuous, as required by the application of Expectations Based Management. With regard to external analyses, information barriers limit periodization conducted more frequently than on a quarterly basis. A highly representative character of the research sample does not hinder the formulating of general conclusions.

Recognising a market–based assessment as a basis for assessing the effectiveness of corporate management is controversial. This issue is the subject of debates, and the position stated in the article is based on the assumption that it is only the markets that express unbiased opinions and, moreover, discount the ability to create value in the future.

The presented study opens the way for further research focused on companies representing various industry indexes, the analyses of above–average values compared to benchmarks, i.e., the comparative analyses of individual companies.

Acknowledgements

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Footnotes

1. The strengths of r–Pearson correlations used: <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 nearly perfect. Probability value (p–value) lower than critical significance level $\alpha = 0.05$ allows for temporary proceedings based on the assumption that the null hypothesis on the lack of correlation is rejected, which is the basis for accepting an alternative hypothesis on the existence of a correlation (Wasserstein, Lazar, 2016; Hubbard, Bayarri, 2012).

2. The *beta* measure was calculated on the basis of the rates of return of a given company in relation to the rates of return on the WIG30 portfolio (weekly rates, 2012-2022). ERP was calculated as the difference between the average annual rate of return on S&P500 in the last 30 years and the average yields of US 30-year treasury bonds. It was then increased by a sovereign risk premium as the difference of 10-year treasure bond yields in the USA and Poland.

Appendix

Table 3.
Stock ticker and business sector of the studied WSE WIG30 listed companies

Company	Ticker	Business sector	Company	Ticker	Business sector
Allegro.eu S.A.	ALE	E–commerce	LPP S.A.	LPP	Fashion trade
AmRest Holdings S.E.	EAT	Hospitality	Orange Polska S.A.	OPL	Telecommunications
Asseco Poland S.A.	ACP	Software systems	Pepco Group N.V.	PCO	Commerce
Grupa Azoty S.A.	ATT	Chemical industry	Polska Grupa Energetyczna S.A.	PGE	Coal mining and power
LW Bogdanka S.A.	LWB	Coal mining	Polski Koncern Naftowy Orlen S.A.	PKN	Oil refining
CCC S.A.	CCC	Footwear trade	Tauron Polska Energia S.A.	TPE	Energy sales
CD Projekt S.A.	CDR	Computer games	Ten Square Games S.A.	TEN	Computer games
Cyfrowy Polsat S.A.	CPS	Telecommunications	Alior Bank S.A.	ALR	Banking
Dino Polska S.A.	DNP	Commerce	Bank Millennium S.A.	MIL	Banking
ENEA S.A.	ENA	Energy sales	Bank Handlowy w Warszawie S.A.	BHW	Banking
Jastrzębska Spółka Węglowa S.A.	JSW	Coal mining	mBank S.A.	MBK	Banking
Grupa Kęty S.A.	KTY	Aluminum manufacturing	Bank Pekao S.A.	PEO	Banking
KGHM Polska Miedź S.A.	KGH	Copper mining	PKO BP S.A.	PKO	Banking
Kruk S.A.	KRU	Receivables management	Santander Bank Polska S.A.	SPL	Banking
LiveChat Software S.A.	LVC	Software systems	Powszechny Zakład Ubezpieczeń S.A.	PZU	Insurance

Source: as in Fig. 1.