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Can the Economic Value Added Be Used as the Universal Financial Metric?

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Abstract: Previous research into Economic Value Added (EVA) has extensively described it as a business metric of firms. Still, no studies have confirmed or denied that EVA is a universal metric and that one may use EVA in unstable markets in the same way as in stable and developed economies. Meanwhile, the green energy revolution, ensuring carbon neutrality through green innovations, requires enormous investments, and the projects realised must be appropriately tailored. These projects are realised by different firms, including those from developing countries, and investors need solid financial metrics. The study determines whether EVA is a universal metric of owners' value in the energy sector. The research proves that this metric does not correctly reflect the limitations of emerging markets, can lead to incorrect managerial decisions and limit shareholders' value. Therefore, there is a need to reanalyse financial metrics used in financial planning, including EVA. The study eliminates this research gap and, based on data from seven countries and the Euro Zone, explains why one may not perceive the currently used EVA formula as a universal financial metric. Consequently, the study modifies the EVA formula and presents a universal solution tailored to unstable economies. In the conducted research, literature studies were used, taking into account the methodology of a systematic literature review, including bibliometric analysis. Based on this review, it is shown that little is known about whether EVA as a financial measure can be used in energy management. Two conclusions emerged: first, the research contributes to developing the business and management science; second, identifying risks associated with EVA metrics helps practitioners. In addition, the study defined further research directions.

Keywords: energy policy; energy management; energy; risk; economic value added; contingency theory; shareholders' value; enterprise sustainability

Citation: Dobrowolski, Z.; Drozdowski, G.; Panait, M.; Babczuk, A. Can the Economic Value Added Be Used as the Universal Financial Metric? *Sustainability* **2022**, *14*, 2967. https://doi.org/10.3390/su14052967

Academic Editor: Mário José Baptista Franco

Received: 5 February 2022
Accepted: 28 February 2022
Published: 3 March 2022

1. Introduction

Most scholars and practitioners do not question that businesses exist to create profit for their owners, e.g., [1–3]. Young and O'Byrne [4] aptly note that every useful performance metric attempts to measure changes in shareholder value. They argue that economic value added (EVA) is the best metric available. EVA measures residual income, which means that it measures the difference between a firm's return and cost on capital. The other metrics have significant drawbacks, because one can easily manipulate traditional income measures. Market-based measures such as market value added, excess return and future growth value make sense in publicly traded entities. Cash flow from operations and cash flow return on investment do not account for the cost of equity or debt. The authors mentioned above believe that EVA includes debt financing and equity financing costs and, therefore, is the best metric.

Increasingly, economists believe that maximising profit for shareholders should not be companies' primary goal, given the complex environment in which they operate and the interactions that exist with various stakeholders. Maximising the positive impact companies have on stakeholders is a new approach that contributes to the metamorphosis of companies' business strategies in various fields, especially those that generate negative social and environmental expansions, such as companies in the energy sector [5–8]. The activity of these companies is increasingly pursued by various stakeholders such as portfolio investors, consumers and researchers, given the special economic performance they register to the detriment of protecting the environment [9,10].

Taking these arguments into account, the study follows contingency theory, e.g., [11–14], which assumes that there is no best way to show the firm's financial results. Instead, one may identify that the optimal course of action is contingent upon the internal or external situation. In this study, we recognise the research gap and decided to determine whether EVA is a universal economic metric for investors engaged in the green energy revolution, ensuring carbon neutrality through green innovations. The following hypothesis was formulated: the variable discount rate influences the EVA formula, requiring the redefinition of its assumptions. Formulating this hypothesis, it was noticed that most countries have unstable interest rates, and most of them try to follow the UN change climate assumptions presented during the Glasgow UN Climate Conference in 2021. We chose energy firms for our study because of their specific features and role in economies. Their investments are long-term and influence other sectors. One may argue that such characteristics of energy firms fit any business. However, the research underlines that energy firms do a business, but are simultaneously obliged to ensure the continuity of energy supply, and their activity is under governments' oversight. Energy companies are important both from the point of view of energy security, a significant national objective, and from the perspective of energy poverty, because the increase in energy prices directly impacts consumers' access to energy [15,16]. The energy transition comes with challenges for energy companies that need to adapt their business strategies and make significant investments to protect the environment and reduce their carbon footprint. Moreover, the interest of many companies is moving towards renewable energy. This is necessary in order not to lose out in the global competition to retain and attract new consumers and to improve image among stakeholders. These entities' financial and non-financial performance intertwine to maximise value for all stakeholders and not just shareholders. Therefore, this study argues that such firms are hybrid actors, linking business profit models with public tasks [17,18]. The research points out that correct financial metrics are necessary from the point of view of sustainable finance in energy sectors. In addition, energy companies are considering the interest of portfolio investors for companies that promote the principles of sustainable development and various Corporate Social Responsibility (CSR) actions. They must improve their non-financial performance in the context of intensifying divestments in sectors that pollute the environment.

The study does not discuss all managerial accounting research methods and topics, because it is impossible for a single paper to generalise the entire field properly. Instead, the study limits our study to EVA. We do not use survey data to examine issues related to the EVA perspective. The study does not focus on behavioural research, knowing that a study carried out by Young and O'Byrne [4] showed some managerial limitations related to EVA. From the research perspective, the study focused on filling the identified research gap.

For the best possible presentation of our research results, we proposed the following structure for the article. First, the EVA formula applied to interest rates is analysed. Second, evidence is provided that the EVA formula is not universal, and a new model is proposed a. Finally, conclusions and potential research opportunities are given.

2. Literature Review

Many articles published over the last 35 years involve the theory and applications of EVA, e.g., [17–26], and one may argue that a new study about EVA is unnecessary

because many have discussed how to use the EVA in unstable markets. However, based on a systematic literature review, including Pal and Sura's [27] study and Worthington and West's [28] review of the literature on EVA, and their survey of EVA's conceptual underpinnings, one may argue that there is still a need for further analyses of EVA. It is necessary to determine whether it is a universal economic metric in the energy sector.

Stewart's research published in The Quest for Value [29] introduces EVA to business practices. This concept is analysed mainly by many American scholars, as Sharma and Kumar noticed in 2010 [24]. One may argue that it should not surprise anybody because the EVA concept originated from the US market. However, such homogenous research may distort objective perception, as the American market is stabilised and has a different perspective than other markets. Since Sharma and Kumar presented their findings, new studies on EVA metrics have been published, involving other markets, sectors and regions, e.g., [28–33], and generally continuing the mainstream of EVA study.

The literature on EVA can be divided into several sub-themes. For example, EVA and stock returns, EVA and MVA's relationship, managerial behaviour and performance management, implementation issues of EVA, and value-based management and EVA. Proponents of EVA state that EVA is a reasonably reliable metric to understand a firm's value, being highly correlated with stock returns [24,34], and that it is better than other accounting-based performance indicators [24,35–37]. Synthetically, Machuga et al. [38] summarised these considerations and highlighted that EVA could enhance future earnings predictions. Lehn and Makhija [39] focused on the correlation between different performance measures and stock market returns. They proved that EVA is the most highly correlated measure with stock returns. Other researchers, for example, Bao and Bao [40], stated that EVA as a financial metric provides relatively more information than other measures of accounting profits. They also showed that EVA and residual income variables are highly correlated and identical to stock returns. Like those authors mentioned above, other researchers [41–45] and authors of more recent studies, e.g., [46–54], have also found the EVA useful in financial risk mitigation.

Researchers underline that EVA is a better alternative to traditional performance measures (profits, earnings per share or return of assets), because there is a strong connection between residual income-based incentives plans and business activity exhibiting increased income, and managers are better motivated to achieve better financial outcomes and multiply shareholder wealth creation [36,55–57]. Stewart [36] studied the relationship between EVA and MVA. He analysed US companies and found a stronger correlation between EVA and MVA—a calculation that shows the difference between the market value and the capital contributed by all investors. Others also found such a correlation, e.g., [56–59]. However, not all studies have generally been so enthusiastic about EVA. For example, Anastasis and Kyriazis [60] analysed Greek firms and concluded that net and operating income seem more valuable than EVA. These authors stated that the EVA formula adds only marginal information content compared with accounting profit. Additionally, Biddle [42] stated that EVA performs relatively poorly compared with other measures such as earnings in explaining the stock returns because some estimation errors in calculating capital charge (WACC) may occur.

To demonstrate the growing interest in this topic, the Web of Science database was queried based on authors keywords such as economic value added After querying by economic value added, 460 items were selected (Figure 1) from WoS Core Collections.

Most of the papers were framed as expected in economics,,management, business and business finance journals. Given the importance of EVA for substantiating investment decisions in various fields of activity (especially in the industry), articles on this topic have also been published in journals framed as environmental sciences or green sustainable science and technology.

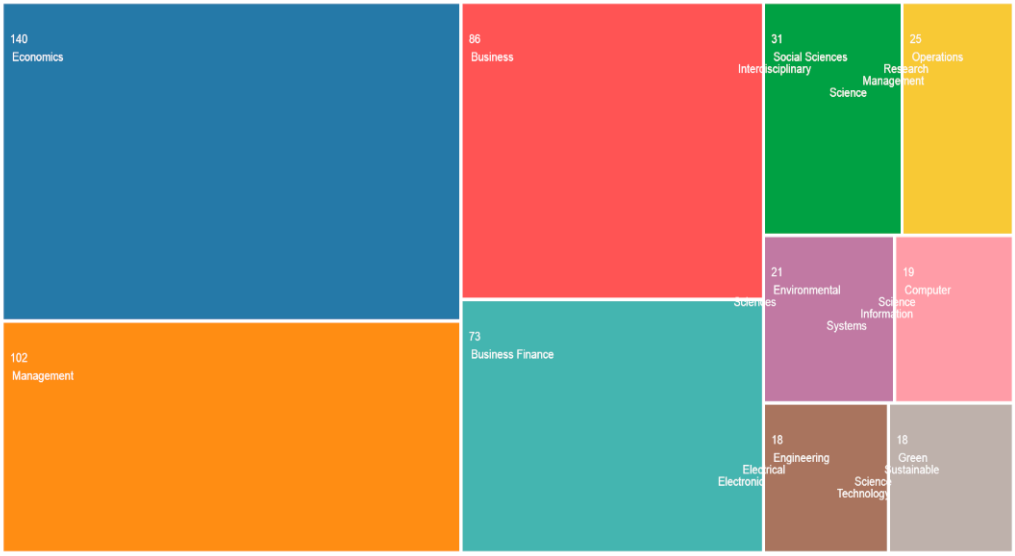

Figure 1. WoS query results by economic value added as authors keywords. Source: https://www-webofscience-com.am.e-nformation.ro, accessed on 18 February 2022 [61].

The Web of Science query based on economic value added as authors keywords demonstrates the importance of interdisciplinary research and the integrated approach to economic and environmental issues, in consideration of financial decisions in the energy sector. Given the importance of this economic indicator and the growing concern about sustainable development by companies, most articles on this topic were published in the journal Sustainability form MDPI Group (Figure 2).

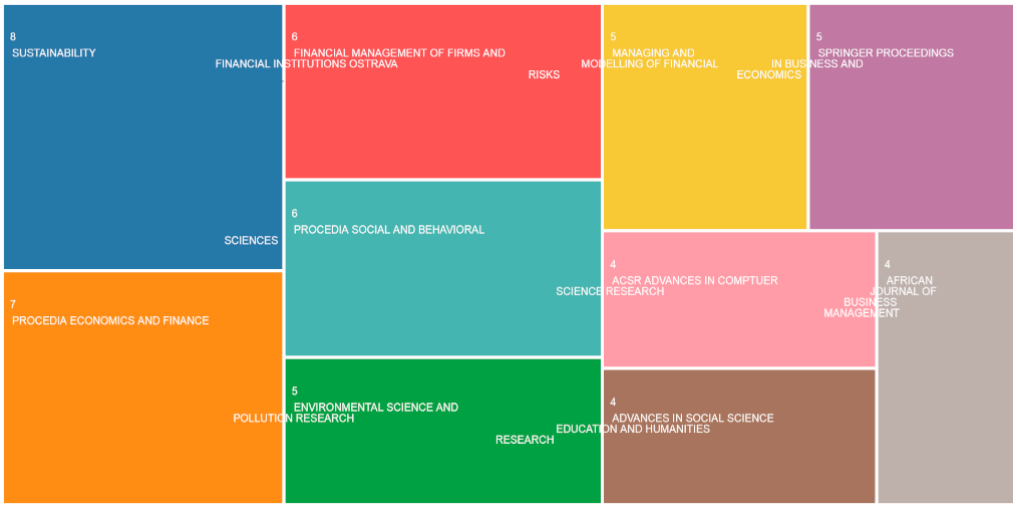

Figure 2. WoS query results as publication titles using economic value added as authors keywords. Source: https://www-webofscience-com.am.e-nformation.ro, accessed on 18 February 2022 [61].

The query of the database reveals the growing interest of researchers in the topic (Figure 3), especially in recent years, when growing numbers of energy companies are looking for economically viable solutions for a smooth and just energy transition for all stakeholders involved. Energy companies, both in the field of fossil fuels and renewable energy, are increasingly interested in achieving a balance between their financial performance and social and environmental performance, generically called non-financial performance.

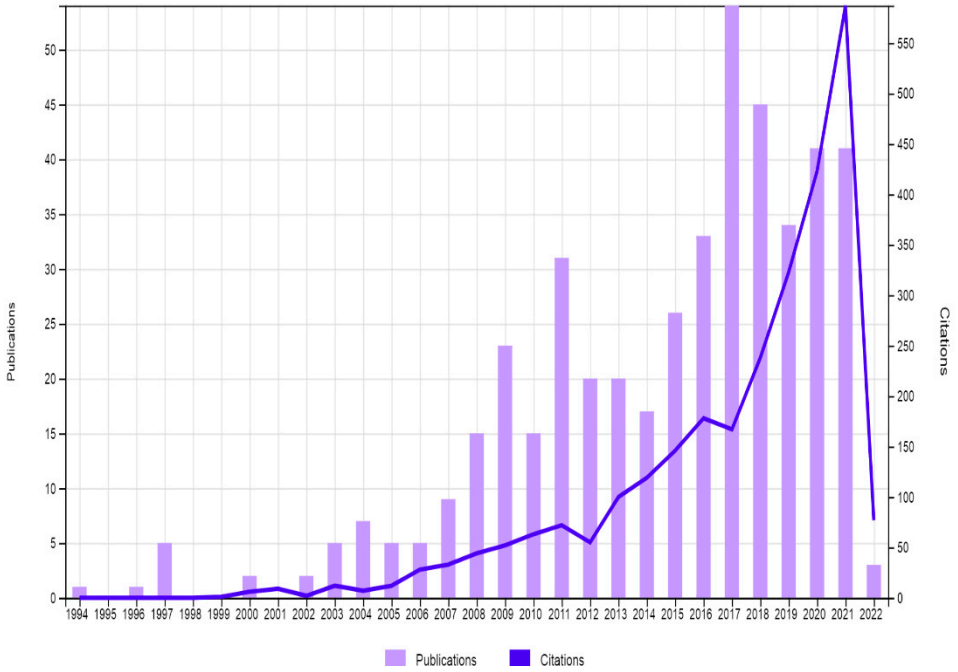

Figure 3. WoS articles and citations based on query results (until February 2022) by economic value added as authors keywords. Source: https://www-webofscience-com.am.e-nformation.ro, accessed on 18 February 2022 [61].

Two conclusions emerge from this analysis of the literature. First, the global interest in EVA results from convincing evidence that this metric supports business decision making. Second, the abundant evidence of the authors' belief that EVA is a proper performance metric. However, there are also criticisms regarding the use of EVA. There is no further need to show other published studies convincing everybody whether EVA enables economic performance measurement. However, there is a need to analyse whether EVA can be treated as a universal metric regardless of the interest rate stability, and at this point, the research gap is noticeable. After more than a decade from when Sharma and Kumar published their study [24], the authors of this paper agree with these scholars that research is needed to understand all limitations of EVA in different financial environments. It does not mean that the question of the sense of EVA was considered. It means that this article underlines the necessity of the further study of EVA usage in unstable markets.

It is no coincidence that energy companies were selected for this research. These companies conduct economic activity but also perform public tasks. They are responsible for ensuring energy security, and this requirement involves both energy producers and transmission system operators. They should ensure the correct level of security of grid operation, which means the continuous operation of the power grid. In addition, bibliometric analysis based on scientific principles [62,63] reveals an increase in interest in EVA, especially in the energy sector, which is facing multiple pressures from stakeholders to reduce negative externalities and increase the promotion of the principles of sustainable development.

Energy markets are highly regulated in many countries, and there are requirements for registration business activities with specific agencies. The regulations specify how energy enterprises transmit or distribute fuels or energy in a detailed manner. Energy companies realising public tasks may be equipped with special powers. For example, they may conduct audits of measurement and billing systems, compliance audits of clients' activities with concluded contracts and the correctness of settlements with energy companies [17,18,64–67]. In addition, the epochal green energy revolution ensuring carbon neutrality through green innovations is realised by energy firms. All arguments presented above lead to the assumption that although EVA as a financial metric is widely presented in the literature,

it is necessary to determine whether EVA in its current form can fit the investment and financial environments in any country.

3. Materials and Methods

According to Nordqvist and Gartner [68], the literature provides information about organisational phenomena. Therefore, a systematic literature review was performed [62,63], including bibliometric analysis, to prove that little is known about whether EVA as a financial metric can be used during investment planning in an unstable energy market. We assumed that the research explains the phenomenon in a specific context. Therefore, following Thomae [69], an idiographic approach was used. To resolve the research problem, central banks' data on a 10-year history of interest rate changes in the USA, United Kingdom, countries of the Euro Zone, Japan, Poland, Romania, Hungary and Croatia were analysed [70–77]. The comparative analysis allowed us to verify the following hypothesis: the variable discount rate influences the EVA formula, requiring the redefinition of its assumptions.

Following the approach of Kuhn, Burrell and Morgan to paradigms in science, we used the strategy of epistemological pluralism, allowing for the combination of approaches drawn from different paradigms. It means the possibility of using typically functionalist concepts, such as hypotheses, verification, falsification, and experimentation, but also interpretative concepts, such as meaning and interpretation. Thus, the study methodology is based on the assumption of complementarity, exemplified by the adopted methodological triangulation, which helps obtain a broader context of the studied phenomenon and limit measurement errors. We notice some research limitations and present them at the end of this article. However, these limitations do not reduce the relevance of our findings.

4. Results and Discussion

This research does not question the tax shield and leverage effect. These are financial solutions known in theory and practice, e.g., [78–80]. This paper does not question that the shareholders' money should be used to earn a higher return than they could make themselves by investing in other assets with the same risk [81–83]. For this study, the principle that value-based management (VBM) aims to consider the interests of shareholders foremost when making management decisions was analysed. However, contrary to Modigliani and Miller [84], it was assumed that companies may operate not only in perfect capital markets. Therefore, it was noticed that it is essential to know how a firm finances its debt. Cost of capital (CoC) is the rate of return expected by capital providers. The lower the cost of capital, the higher the efficiency of the company's projects. The cost of capital is calculated as the average cost determined by the capital structure and the cost of capital from individual sources, bank loans, and the issue of shares. Therefore, the cost of capital is the sum of the cost of debt and equity.

EVA measures residual income. It means it measures the difference between a firm's cost of capital and return on capital. EVA is calculated in the following way. The capital charges (invested capital multiplied by the WACC) are subtracted from the net operating profit after taxes (NOPAT). Calculations need to follow the generally accepted accounting principles (GAAP).

$$\text{EVA} = \text{NOPAT} - (\text{Invested Capital} \times \text{WACC}) \quad (1)$$

where

NOPAT—net operating profit after taxes;
Invested capital—debt + capital leases + shareholders' equity;
WACC—weighted average cost of capital.

The weighted average cost of capital (WACC) is EVA's most essential component, and it may limit the utility of EVA if it is not based on credible calculation. WACC is calculated in the following way:

$$WACC = (\frac{E}{V} \times Re) + (\frac{D}{v} \times Rd \times (1 - Tc)) \quad (2)$$

where

E—market value of the firm's equity;
D—market value of the firm's debt;
V—E + D;
Re—cost of equity;
Rd—cost of debt;
Tc—corporate tax rate.

Debt and equity are the two elements that constitute a company's capital funding, and WACC is a computation of the total cost of capital for a firm in which each category of capital is proportionately weighted. All sources of capital—stocks, bonds and other sources of long-term debt—are included in the WACC calculation (Investopedia, weighted average cost of capital). Calculating the cost of debt (Rd) plays an essential role in the WACC formula and is based on the market rate that a firm is currently paying on its debt.

Much attention has been devoted to capital structure theory and leverage, c.f. [78–91]. However, none of the presented concepts describing the business activity focused on a dynamic approach to the cost of capital. These concepts included assumptions of a stable interest rate throughout the investment cycle. However, this approach diverges from the financial realities that can be seen when looking at key interest rates in fragile economies. This is due to changes in key interest rates over the short and long term. Therefore, this approach does not reliably assess the usefulness of the universal and recommended EVA formula in the literature, which assumes that interest rates are fixed. The description presents a fundamental factor that limits the reliability of the EVA model, especially in unstable economic conditions. This study proves it in the following way.

The after-tax cost of debt formula is the average interest rate multiplied by (1 − tax rate).

$$Rd = R \times (1 - T) \quad (3)$$

where

R—interest rate;
T—tax rate;
Rd—the cost of debt.

Such a calculation makes sense in a situation of stable interest rates. Meanwhile, as we have shown below, in many countries, the interest rate fluctuations are significant. We illustrate the above problem by presenting interest rates in Central and Eastern Europe (from January 2010 to December 2020) in comparison with interest rates in the USA, Euro Zone, United Kingdom, and Japan (Figures 4 and 5).

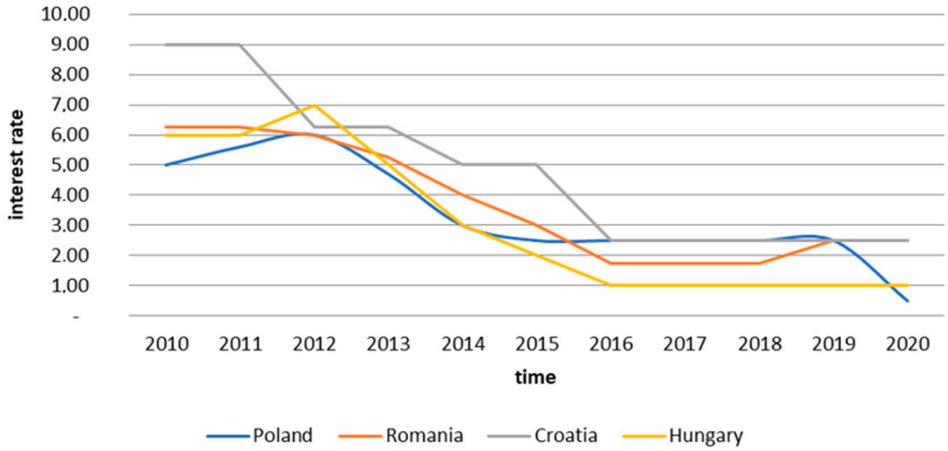

Figure 4. The level of the base rate (%) in the years 2010–2020. Source: [70,73,76,77].

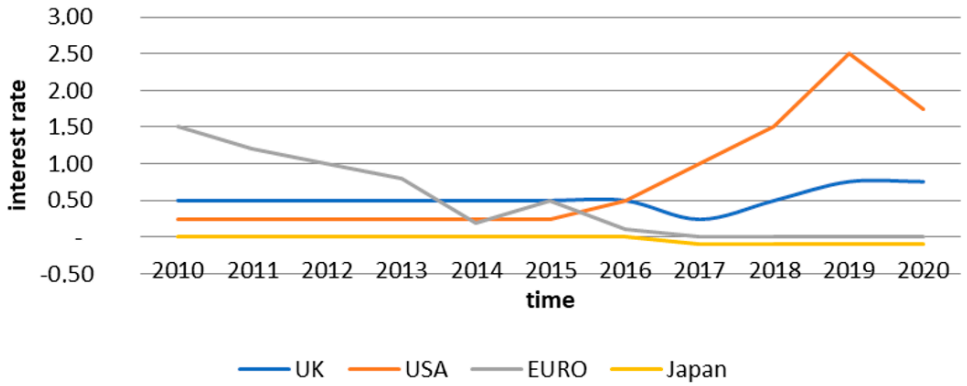

Figure 5. Changes in the base rate (%) in the years 2010–2020. Source: [71,72,74,75].

The analysis of the data presented confirms the high volatility of interest rates. In the case of Poland, the Lombard rate fell from 5 percent to 0.5 percent in ten years. So, the difference was 4.5 percentage points. Additionally, one can see that the interest rate has fluctuated on the upside and the downside. After a period of decline, the Lombard rate was raised (May 2012) by the monetary authorities (to 6.25%) and then lowered again [70]. Note that rediscount rates and WIBOR (Warsaw Interbank Offer Rate) are the interest rates to which bank loan rates are indexed, which is the basis for calculating the cost of capital. The situation is similar for interest rate levels in other Central and Eastern European countries: Romania, Croatia, Hungary [73,76,77]. The economic calculation in making investment decisions should be rational. The bounded rationality of the management process is strongly determined by the instability of the interest rate as a fixed parameter in the EVA model, since the occurring changes, which are seemingly the same for many companies, determine different opportunities and threats in an individual way.

Considering changes in interest rates in selected countries with stable monetary policy, let us first consider the example of the UK. From 2010 to 2020, interest rate changes were in the range of 0.25 per cent. The magnitude of the interest rate change can be treated as small and insignificant in indexing commercial bank interest rates. In the U.S., Euro Zone and Japan, interest rate changes did not exceed three percentage points during the years analysed. For example, in the Japanese economy, the difference in interest rate change over ten years (2010–2020) was 0.10 percentage points. Such a small change means that there is essentially no problem of variability in discount rates when calculating EVA. In the U.S. economy, the level of the prime rate has fluctuated (2.25%). However, its condition remained the same for six years (2010–2016). At that time, the prime interest rate was 0.25%. Similarly, analysis of the data in the Euro Zone demonstrates the high stability of the interest rate over time. Changes in the level of interest rates are not great and did not exceed 0.1 per cent for the period 2015–2020. [71,72,74,75]. This situation makes the problem of interest rate volatility virtually nonexistent when calculating EVA. In such a stable management area, business planning is more reliable and effective.

Therefore, let one consider that in a situation where the parameter "r" will change each year, the model should look as follows:

$$R = (1 + r_1) + (1 + r_1)(1 + r_2) + \cdots + (1 + r_1)(1 + r_2) \ldots (1 + r_n) \quad (4)$$

where $r_1, r_2 \ldots r_n$—discount rates for particular years.

$$Rd = R \times (1 - T) \quad (5)$$

$$Rd = ((1 + r_1) + (1 + r_1)(1 + r_2) + \cdots + (1 + r_1)(1 + r_2) \ldots (1 + r_n)) \times (1 - T) \quad (6)$$

The assertion that the period of the parameter "r" will not change for one year is also a simplification that ignores the realities of business. The algorithm to reflect actual market conditions is as follows:

$$\mathrm{Rd} = \left(\left(1+\frac{r_{11}t_{11}}{360}\right)\left(1+\frac{r_{12}t_{12}}{360}\right)\wedge\left(1+\frac{r_{1m}t_{1m}}{360}\right)+\left(1+\frac{r_{11}t_{11}}{360}\right)\left(1+\frac{r_{12}t_{12}}{360}\right)\wedge\left(1+\frac{r_{1m}t_{1m}}{360}\right)\wedge\left(1+\frac{r_{21}t_{21}}{360}\right)\left(1+\frac{r_{22}t_{22}}{360}\right)\wedge\left(1+\frac{r_{2m}t_{2m}}{360}\right)+\left(1+\frac{r_{11}t_{11}}{360}\right)\left(1+\frac{r_{12}t_{12}}{360}\right)\wedge\left(1+\frac{r_{1m}t_{1m}}{360}\right)\left(1+\frac{r_{21}t_{21}}{360}\right)\left(1+\frac{r_{22}t_{22}}{360}\right)\wedge\left(1+\frac{r_{2m}t_{2m}}{360}\right)\left(1+\frac{r_{nm}t_{nm}}{360}\right)\right)\times(1-\mathrm{T}) \quad (7)$$

where

$r_{11} \ldots r_{1m}$—annual interest rates (1 to m) in the first year of the investment;

$t_{11} \ldots t_{1m}$—the duration of the annual interest rate during the first year of the investment, expressed in days (the sum of t_{11} to t_{1m} equals 360 days);

$r_{21} \ldots r_{2m}$— annual interest rates (1 to m) in the second calculation year of the investment to be made;

$t_{21} \ldots t_{2m}$—the interest rate term in the second calculation year, expressed in days (the sum of t_{21} to t_{2m} equals 360 days);

$r_{n1} \ldots r_{nm}$—annual interest rates (1 to m) in the n-th year of the investment;

$t_{n1} \ldots t_{nm}$—the duration of the annual interest rate in the calculation year of the n-th investment to be made (the sum of t_{n1} to t_{nm} equal to 360 days).

The new calculation of the cost of debt should be used in the calculation of WACC and better reflect the economic environment.

$$\mathrm{WACC} = \left(\frac{E}{V}\times Re\right)+\left(\frac{D}{v}\times\left(\left(1+\frac{r_{11}t_{11}}{360}\right)\left(1+\frac{r_{12}t_{12}}{360}\right)\wedge\left(1+\frac{r_{1m}t_{1m}}{360}\right)+\left(1+\frac{r_{11}t_{11}}{360}\right)\left(1+\frac{r_{12}t_{12}}{360}\right)\wedge\left(1+\frac{r_{1m}t_{1m}}{360}\right)\left(1+\frac{r_{21}t_{21}}{360}\right)\left(1+\frac{r_{22}t_{22}}{360}\right)\wedge\left(1+\frac{r_{2m}t_{2m}}{360}\right)+\left(1+\frac{r_{11}t_{11}}{360}\right)\left(1+\frac{r_{12}t_{12}}{360}\right)\wedge\left(1+\frac{r_{1m}t_{1m}}{360}\right)\left(1+\frac{r_{21}t_{21}}{360}\right)\left(1+\frac{r_{22}t_{22}}{360}\right)\wedge\left(1+\frac{r_{2m}t_{2m}}{360}\right)\wedge\left(1+\frac{r_{nm}t_{nm}}{360}\right)\right)\times(1-Tc)\right) \quad (8)$$

Modifying the EVA algorithm, taking into account the different interest rates and the different maturity of those rates, leads to the following conclusions:

- Managers who make their business decisions in the energy sector based on the EVA firmness algorithm are subject to a high risk of non-objective calculation;
- In the case of business decisions, there is a high risk that a financially poor energy project will be chosen in the event of frequent and significant changes in interest rates;
- Persistent medium- and long-term interest rate fluctuations expose energy investors to subjective assessments of investment projects;
- There may be a negative interaction between discount rates and cash flow in the implementation of energy projects.

5. Conclusions

Following the contingency theory of the managerial accounting system, and the theory of optimal capital structure, we aim to determine whether economic value added is a universal metric of owners' value in energy companies making green investments and realising public tasks. The question of whether businesses exist to create value for their owners and increase shareholders' value, which is the core of the value-based management concept and its performance metrics, was not considered. The paper does not focus on the importance of investment in energy development, knowing that green energy revolution ensuring carbon neutrality through green innovations requires enormous investments. UN Climate Change assumptions and planned activities discussed during the Glasgow Climate Conference in 2021 were not analysed in this work. The authors agree with Fülöp, Szora Tamas, Ivan and Solovãstru [92] that any firm needs to determine the profit margin that indicates the profitability of the company's activities. Although EVA is widely presented in the literature, no one has paid attention to the fact that this method assumes the stability of interest rates. This assumption makes sense in stable markets, such as the USA, Euro Zone, United Kingdom or Japan. However, the stability of interest rates in other countries is not so evident as in these countries [93,94].

Based on a comparative analysis of interest rates in the USA, United Kingdom, Euro Zone, Japan, Poland, Romania, Hungary and Croatia, the economic value added in the current form is not the universal metric available. Taking into account the research conducted, the current EVA metric should be modified and adapted to all markets, not only stable

ones. Therefore, we modify the EVA formula and present a universal solution tailored to all markets, including unstable economies.

The research has some limitations. All world countries' markets were not taken into account, only a sample of them. However, the authors consider that this attempt seems sufficient to prove that EVA is not a universal metric of financial performance. In addition, we underline that this study is preliminary. One may argue that another limitation of our study is that the data of particular energy firms were used. However, other authors could continue this research and prove these assumptions using specific financial data of companies. Finally, one may argue that the problem of EVA identified in our study considers any firm and not only energy firms. However, the research was focused on energy companies bearing in mind their importance for the economy, the need to ensure energy security and the importance of digitalisation in this sector [95,96].

Given the complexity of capital market decisions and the growing importance of socially responsible investments, future studies will focus on analysing the impact of social and environmental performance on energy companies' financial performance. Concerns across the European Union over the disclosure of non-financial information by large companies will increase the impact of this data regarding social and environmental performance on stakeholders and especially on portfolio investors. The energy crisis facing many countries calls into question the ethics of the actions taken by companies. The enormous profits recorded by them should not lead to energy poverty generated by rising energy prices. Therefore, companies must strike a balance in economic, social and environmental performance in the context of intensifying efforts to move to a low-carbon economy.

The collected empirical material and literature studies enable the following conclusions to be drawn, which may form the basis for further research investigations:

1. The fluctuating monetary value over time influences investment decisions in the energy sector in both a stabilised and non-stabilised economy. However, in an unstable economy, this process is particularly important as the interest rate cannot be estimated over time.
2. The variable monetary value over time has a significant impact on the investment account of energy projects. This is due to the time difference between the time of the decision to invest in the energy market and the achievement of the impact.
3. With high and variable interest rates, even for short periods, the variable time value of money has a significant influence on the objectivity of the calculation of energy projects.
4. In the context of enterprise projects in the energy market, the issue of the dynamic estimation of capital allocation effects should be discussed in more detail in the literature. The factors that determine the magnitude of the calculated investment effects of the energy market at the time of decision making are often difficult to predict. Thus, the issue of fluctuations in the conditions that determine the achievement of the objectives of the investment projects at the time of the business decisions is subject to significant risks.
5. The expected outcome of business decisions in the energy market should be objective. If the decision data are unreliable (with too much uncertainty), it is a subjective statement that cannot be used as a basis for the decision.
6. The traditional EVA algorithm is based on the concept of a flat profitability curve. In principle, this understanding of the problem can only be applied to stabilised economies.
7. An immature financial market in volatile economies is no way to hedge the risk of a rise in the discount rate. Therefore, any mobilisation of public funds for the development of the energy market should serve to offset the negative effects of market or regulatory changes. This can be achieved, inter alia, by creating a system that guarantees the immutability of the basic rules of the game and reduces the risks for investors in the energy market.

Author Contributions: Conceptualisation, Z.D., G.D.; methodology, Z.D., G.D., M.P.; investigation, Z.D., G.D.; writing—original draft preparation, Z.D., G.D.; writing—review and editing, Z.D., M.P.; visualisation, Z.D., G.D., M.P., A.B.; supervision, Z.D., M.P.; project administration, Z.D.; funding acquisition, Z.D. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

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