УДК 657:330.143.2
JEL Classification G10, G23
DOI https://doi.org/10.33146/2307-9878-2022-2(96)-43-48

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Value-Based Controlling & International Accounting of Economic Value Added (EVA) – An Overview

Abstract. *This paper will discuss an important target variable in value-based management: the Economic Value Added (or EVA). EVA is a measure of a company's financial performance based on the residual wealth calculated by deducting its cost of capital from its operating profit, adjusted for taxes on a cash basis. EVA can also be referred to as economic profit, as it attempts to capture the true economic profit of a company. This measure was devised by management consulting firm Stern Value Management, originally incorporated as Stern Stewart & Co. This research will also discuss adjustments and different types of assumptions that are necessary for the calculation as well as how to use them properly to obtain an interpretable result. Paper will explain the formula and which conversions should be considered. It remains to be noted that the EVA concept only leads to small progress from a scientific point of view, but that the clever marketing by Stern & Stewart has initiated a renaissance of the underlying residual profit concept. The paper provides practitioners and academics with a good overview of the demonstrable added value of EVA controlling and, in contrast, also illustrates the weaknesses of the calculation model or the inaccuracy due to interpretation variables, which overall limit the value of EVA as a management key performance indicator. The research includes comprehensive and substantial discussion in the scientific literature on EVA and its interpretation.*

Keywords: *Conversions, Cash Value Added, Economic Value Added, Value-Based Management, Controlling.*

Suggested Citation
Hammer, T., Siegfried, P. (2022). Value-Based Controlling & International Accounting of Economic Value Added (EVA) – An Overview. *Oblìk ì finansi, 2(96),* 43-48. https://doi.org/10.33146/2307-9878-2022-2(96)-43-48

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Контролінг на основі вартості та міжнародний облік економічної доданої вартості

Анотація. *Ця стаття присвячена дослідженню важливої цільової змінної в управлінні на основі вартості – економічної доданої вартості (EVA). Економічна додана вартість або економічний прибуток – це показник, заснований на методі залишкового доходу, який служить індикатором прибутковості виконаних проектів. Його основна передумова полягає в ідеї, що реальна прибутковість виникає, коли для акціонерів створюється додаткове багатство, і що проекти повинні приносити прибуток вище вартості капіталу. У цьому дослідженні проводиться аналіз коригувань та різних типів припущень, які необхідні для розрахунку економічної доданої вартості, а також як правильно їх використовувати для отримання результату, який можна інтерпретувати. Наведено відповідні формули з поясненнями, а також визначено які перетворення слід враховувати. Виявлено, що коригування мають суттєвий вплив на кінцевий показник, а тому при здійсненні помилкових коригувань інтерпретація отриманих результатів буде неефективною для цілей*

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управління. Концепція EVA призводить лише до невеликого прогресу з наукової точки зору, але розумний маркетинг консультантів Stern & Stewart ініціював ренесанс основної концепції залишкового прибутку. Результати дослідження надають практикам та науковцям хороший огляд засад контролінгу економічної доданої вартості, і в той же час ілюструють слабкі сторони моделі розрахунків або неточність через змінні інтерпретації, які в цілому обмежують значення EVA як ключового показник продуктивності. Стаття містить детальний огляд варіативності розрахунку і можливостей використання та інтерпретації показника економічної доданої вартості в управлінні компанією.

Ключові слова: *конверсії, додана вартість грошових коштів, економічна додана вартість, управління на основі вартості, контролінг.*

1. INTRODUCTION

„With just a few decisions, top managers can create or destroy a significant amount of value“.
Josef Ackermann,
former CEO of Deutsche Bank AG
(15th of October 2005, Die Welt)

Value-oriented corporate management to increase the corporate value (= increase in shareholder value) has established itself internationally as a central management principle for companies and will continue to do so for the foreseeable future (Müller & Hirsch, 2005). Concerns that a sole orientation towards the interests of the shareholders would neglect the interests of other groups with which the company is in contact (= stakeholders), such as suppliers, customers, and employees, can be countered by the fact that this is merely a question of priorities and not exclusivity (Hostettler, 2002) since an increase in shareholder value can only be achieved if the needs of the other stakeholders of the company are also taken into account and satisfied accordingly. For example, satisfied and motivated employees are indispensable for the success of a company (Müller, Klatt & Pfitzmayer, 2001).

The most important ratios in this context are the cash value added (CVA) of the Boston Consulting Group and the economic value added (EVA) of Stern Stewart & Co. While the CVA measures value-added on a cash flow basis, the EVA is defined as "operating profit less the cost of all of the capital employed to produce those earnings" (Stewart, 1991). The EVA concept therefore only creates value from the shareholders' point of view if not only an accounting profit is generated, but also the risk-dependent, imputed costs for the invested equity capital are generated in addition to the costs for debt capital, which are already included in the accounting profit. This concept is also known under the term “residual profit” (Bramsemann & Heineke, 2003). In practice, EVA is the most frequently used value-oriented key figure for both companies and equity analysts, and thus the book value-based residual profit concept, is regarded as the “state of the art of value management” (Crasselt & Schmidt, 2007).

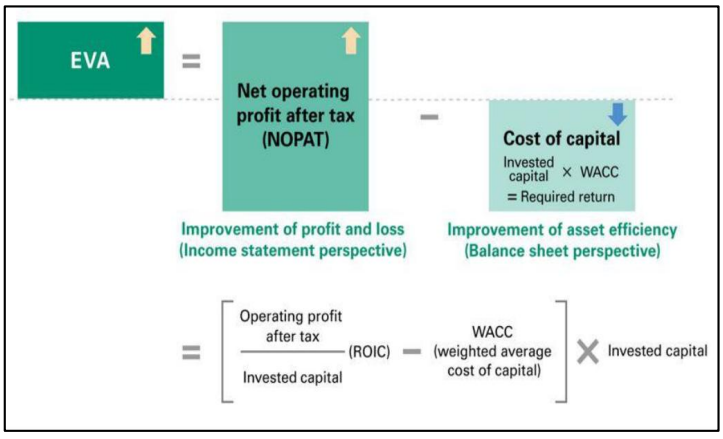
2. THE EVA CONCEPT

The term EVA is a registered trademark of the US management consultancy Stern Stewart & Co. and is based on the work "The Quest for Value" published by Stewart in 1991 (Stewart, 1991). The EVA concept is often regarded in the literature as the marketing of the residual profit concept by Stern Stewart & Co. (Ray & Choudhuri, 2005).

EVA Calculation Model

To understand the EVA concept, it is useful to deal with the calculation formula. In the following, the capital charge and the value spread formula for the EVA calculation are examined.

EVA – Capital Charge Formula:
EVA = NOPAT – (NOA * WACC)



Annotation:

EVA = **E**conomic **V**alue **A**dded

NOPAT = **N**et **O**perating **P**rofit **A**fter **T**axes

NOA = **N**et **O**perating **A**ssets

WACC = **W**eighted **A**verage **C**ost of **C**apital

Figure 1. **EVA – Capital Charge Formula**
Source: https://www.kao.com/global/en/investor-relations/management-information/economic-value-add/, accessed 24.11.2019.

This formula reflects the need to deduct from operating profit after taxing the cost of capital for all operating assets. The cost of capital is calculated as the product of the operating assets using the weighted average cost of capital which includes the cost of debt and the cost of equity on a pro-rata basis. Consequently, the residual profit is always smaller than the operating profit because a positive "capital charge" is always deducted from it.

EVA – Value Spread Formula:

If one defines the quotient from the NOPAT and the NOA as the internal rate of return (= r), the capital charge formula can be converted into the value spread formula by the following simple transformation in which on the one hand the quality of the company (value spread = r - WACC; negative value spread destroys company value) and on the other hand the size of the company (NOA) is visible (Böcking & Nowak, 1999):

EVA	**= NOPAT – (NOA * WACC)**	**I : NOA**
EVA : NOA	**= (NOPAT : NOA) - WACC**	**I r = NOPAT : NOA**
EVA : NOA	**= r - WACC**	**I * NOA**
EVA	**= NOA * (r – WACC)**	**I (r – WACC) = "Value Spread"**
EVA	**= NOA * "Value Spread"**	

In principle, EVA can be improved by increasing profitability (e.g. process efficiency, purchasing or sales optimization), profitable growth (e.g. mergers & acquisitions or entering new markets), or reducing the cost of capital (e.g. rating improvements or a modified target capital structure).

Conversion Accounting Model into the Economic Model

Starting from the accounting model, the operating conversions must first eliminate all non-operating items from both the asset size and the profit size. The purpose of the funding conversions is to identify the financing resources used for operating activities and to show hidden, previously unrecognized forms of financing (off-balance-sheet financing) to make it possible to compare, for example, financial statements or different divisions. The tax conversions determine the income-dependent taxes on the operating result and eliminate non-cash taxes from the result. Finally, the shareholder conversions should take into account assets which, due to the prudence principle, were not or only to a very limited extent recognized in the balance sheet (Steinhauer, 2007).

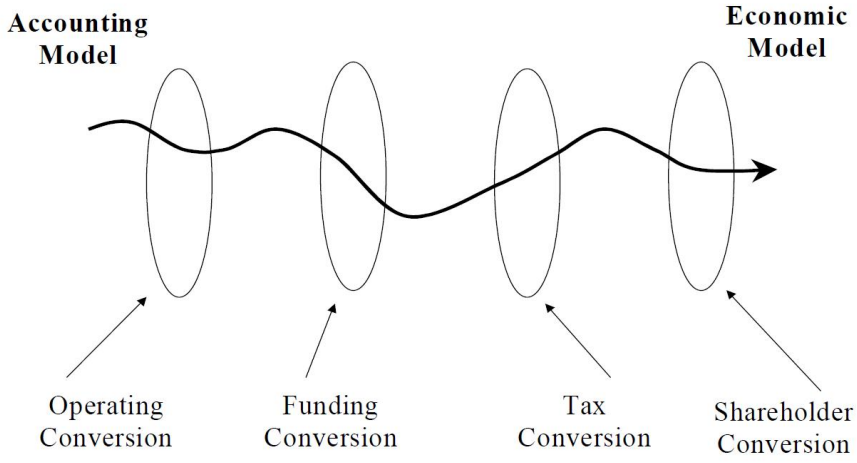


Figure 2. **EVA – Operating Conversions**
Source: https://wiki.hslu.ch/controlling/EVA:_Operating_Conversions, accessed 24.11.2019.

3. OVERVIEW OF EVA CONVERSIONS

Operating Conversions

The adjustments allocated to operating conversions aim to adjust the profit figure and balance sheet total for non-operating profit components and non-operating balance sheet items, whereby an asset is to be regarded as operating if it is required for the sale of goods and services as well as for ensuring long-term operational readiness (Hirsch, 2007). Cash and cash equivalents and short-term financial assets that are not permanently used for business operations must be shown in the balance sheet under current assets and therefore a possible adjustment must be examined here to determine whether a possible correction of the profit and capital figures within the framework of the EVA concept is necessary. These short-term and marketable financial assets are to be distinguished from long-term financial assets used for ongoing business operations, which are shown on the balance sheet as fixed assets. The difficulty in determining EVA now lies in assessing the extent to which cash and cash equivalents and short-term financial assets are required for operating purposes. There is no uniform or conclusive opinion on this in the literature. Copeland, Koller, and Murrin, therefore, assume in their approach that cash and cash equivalents and short-term financial assets must be regarded as operating until they

exceed a certain benchmark (0.5% to 2% of sales revenue). However, this approach has the disadvantage that in practice it is very difficult to estimate the necessary benchmark (Copeland, Koller & Murrin, 2000).

Funding Conversions

Funding conversions ensure that all of the company's financing resources are recorded in full to ensure comparability of the annual financial statement data of different companies. In addition to the forms of financing reported, such as minority interests, hidden forms of financing, such as rental and leasing transactions, must also be considered. In the context of funding conversions, for example, it must be examined whether companies that buy their assets are disadvantaged compared with companies that lease their assets because, in addition to depreciation, these companies are also affected by capital costs that are not charged to the other companies because, according to the accounting regulations, the leased assets are not accounted for by the lessee in the context of an operating lease. Furthermore, assets whose capital costs have already been included in the operating result must be deducted from the balance sheet total because this would result in a double charge on the capital costs in the EVA concept (Hüllmann, 2003).

Tax Conversions

Since the operating result is a performance indicator after corporate taxes, the tax payments reported in the income statement must be adjusted to the operating result. Therefore, income taxes attributable either to unusual components of income or to interest expense must be eliminated. The objective is therefore to calculate the company's tax liability as if the company were 100% financed by equity and only carried out operating activities. The tax advantage from external financing ("tax shield") is taken into account in the EVA concept when determining the cost of capital rate. To avoid double-counting of the tax advantage of debt capital, the tax shield for financial expenses must be calculated and subtracted from the NOPAT. In addition, only paying taxes should be taken into account, therefore an increase (decrease) in the provision for deferred taxes is deducted (added) from the tax expense (Hostettler, 2002).

Shareholder Conversions

Using shareholder conversions, the perspective of a risk-averse equity investor is to be adopted. Shareholder conversions focus on the determination of equity equivalents, which represent an asset position that is not taken into account in the IAS/IFRS and US-GAAP accounting regulations but contributes to the sustainable success of the company. Due to the principle of prudence, accounting standards permit the capitalization of expenses that are more likely to be regarded as an investment from a business perspective - e.g. research and development, marketing costs - only under clearly defined, restrictive conditions (Baetge, Kirsch & Thiele, 2010). In addition, the shareholder conversions adjust the book values used in the applicable accounting standards and try to determine the market values, which are the basis for a valuation by the investor, and take them into account in the valuation. Shareholder conversions lead to a high degree of transparency because of a large number of assumptions (Böttger, 2003).

4. DIFFERENT FIELDS OF EVA APPLICATIONS

To increase the acceptance of the EVA concept, it is necessary to have a transparent decision-making framework for the selection of the adjustments and to develop assumptions. For this reason, a different decision-making framework must be developed for each of the two main areas of application of the EVA concept as the basis for company valuation (Val-EVA) and as the basis for corporate governance (CG-EVA). The following chart provides an overview of the areas of application of CG-EVA:

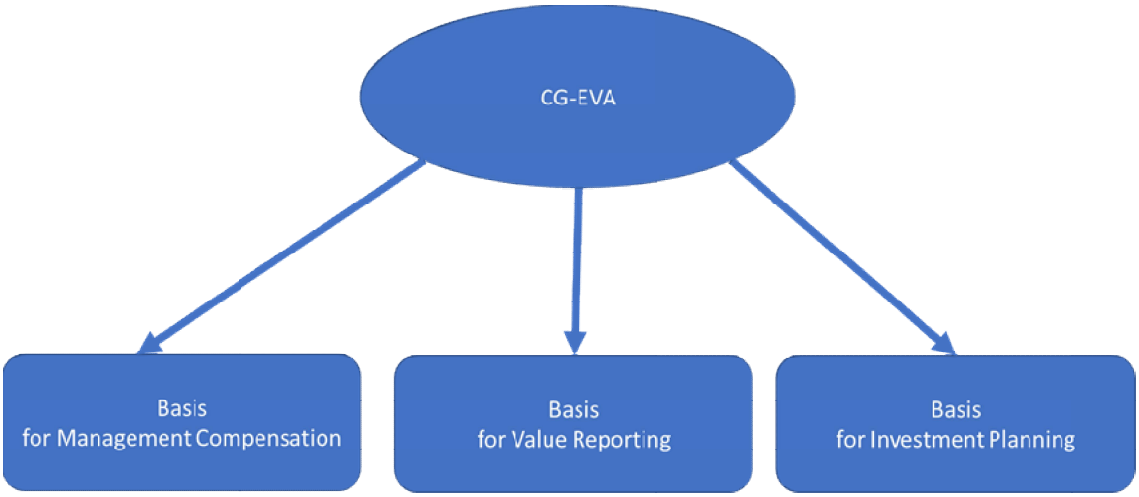


Figure 3. **CG-EVA Applications**
Source: personal illustration, according to Stern Stewart Research (1991).

Management Compensation by EVA

Stewart expresses the goal to be achieved with the EVA key figure as follows: „Our aim at Stern Stewart has been to decompose NPV, which is fundamentally a multi-year or long-term capital budgeting tool, into annual (or even monthly) instalments called EVA that can be used to evaluate the periodic performance of corporate managers and their businesses“ (Stern Stewart Research, 1994).

The suitability of EVA as a basis for management compensation can therefore be measured by the following how well he succeeds in reconciling management behaviour with the interests of the owners. Different interests of management and owners arise in public listed corporations through the separation of ownership (= shareholder) and decision-making authority (= board of directors). This phenomenon has long been referred to as the "Principal-Agent Problem" (Grossman/Hart, 1983). The coupling of EVA with the variable remuneration of management is essential for the successful implementation of value-based management. The assessment basis of the incentive system is the requirements **“incentive compatibility”, “influenceability”, “communicability”, “economic efficiency”, and “behaviour control of management”**. Stewart proposes for the “reward function”, both a variable threshold above which an additional bonus is paid, and a variable bonus cap, from which no additional bonus is paid to avoid a manager no longer exerting himself when he can no longer reach the threshold, or stopping exerting himself when he has reached the bonus cap. Bonus payments are a proven tool for directing management's focus not on short-term optimization but on long-term value creation by deferring bonus payments and offsetting them against each other. A study by Stern Stewart & Co. shows that in practice the company size has the greatest correlation to the amount of variable compensation for the first management level and not its value creation or performance (Stern Stewart Research, 2000).

Value Reporting based on EVA

The Working Group External Corporate Accounting of the Schmalenbachgesellschaft für Betriebswirtschaft e.V. has defined a total of seven principles for value reporting. Value reporting is an integral part of value-based management as it reduces information asymmetry between management and potential investors, resulting in a higher market value through lower capital costs. For EVA to be used as the basis for value reporting, it must be possible to subjectively reconstruct and verify the adjustments made in the calculation based on the published value reporting. This ensures that the lack of objectivity and reliability is eliminated and that the EVA is appropriate for the investor's decision-making. The following information is relevant for this:

– Related to the **NOPAT** calculation: level of risk-free interest rate, depreciation period for R&D costs.

– As regards the **cost of equity**: the level of the risk-free interest rate, the level of the market risk premium (ß-factor).

– For the calculation of **debt costs**: level of risk-free interest rate, level of credit spreads (depending on the rating of the company), level of tax ratio.

EVA as Source for the Investment Planning

The investment calculation is the central element for decision-making in operational investments and attempts to make the investment decision on a rational basis. The EVA and thus also the shareholder value increase when profitable investments are identified and implemented by the company. By introducing an EVA-based investment calculation, a consistent control system can be created that applies a uniform key performance indicator from strategic and operational planning to decision-making and ex-post performance measurement. In addition, the data from the investment calculation can be transferred directly to operative planning, which simplifies planning. Future planned EVAs can be found as realized EVAs in the current period, thus simplifying project and post-merger controlling. Managers can derive the effect on their assessment basis (EVA) directly from the investments that have been made (Dörr, Fiedler & Hoke, 2003).

EVA as Basis for Equity Portfolio Construction

EVA was developed primarily to measure corporate performance, but it can also be used as a basis for equity portfolio building (Val-EVA). If the return achieved by the portfolio compiled based on Val-EVA is higher (lower) than the overall market, the assessment of this strategy is positive (negative). Analyses by Elton et al. show that companies with a high value spread on average also achieve a higher total shareholder return (TSR) than companies with a low-value spread (Elton et al., 2007).

Advantages and Disadvantages of the EVA Concept

With EVA as the target figure for value-oriented management (CG-EVA), a consistent management system can be established that may be used for operational and strategic planning, decision-making, ex-post performance measurement by management, and communication with the capital market. It is irrelevant whether the calculated EVA reflects the "actual" enterprise value because it is exclusively a question of generating a key figure that steers the behaviour of the executives in the direction favoured by the shareholders and understood by the executives. Studies demonstrate, on the one hand, a high correlation between the TSR and the value spread achieved and, on the other hand, a pronounced positive correlation between the theoretical price potential and the price potential in the subsequent period of the return achieved (Val-EVA). A correlation between high-value spread and enterprise value (MVA) can also be demonstrated. The main points of criticism are the high lack of transparency in the execution of the adjustments and the high subjectivity in the implementation of the assumptions (no comparability of the calculated EVAs possible). In addition, the degree of detail in the implementation of the assumptions is counteracted by the high deviation, which already exists for minor deviations in the WACC amount (Grundel, 2011).

5. CONCLUSIONS

This assignment aims to give an overview of the EVA as a target variable for value-based management. Different types of EVA were defined (CG-EVA and Val-EVA) for their areas of application adjustments and assumptions exist. It became clear that these adjustments can have a high impact on the level of EVA and that their amount depends very much on the assumptions made. The calculation is also very strongly influenced which in turn has a very high influence on the level of EVA. Therefore, it is necessary to publish the adjustments and assumptions made when calculating the EVA, because otherwise, no interpretation of the present EVA is possible. The result of this is that the calculation of EVA is very subjective and intransparent. In particular, small deviations in the calculation of the WACC lead to such high deviations in the amount of EVA that the sense for the laborious adjustments to be made is questionable. It remains to be noted that the EVA concept only leads to small progress from a scientific point of view, but that the clever marketing by Stern & Stewart has initiated a renaissance of the underlying residual profit concept.

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