A Review of the Application of the Concept of Economic and Smart Sustainable Value Added (SSVA) in Industries Performance Evaluations

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Abstract

In today's global digital world, smart sustainable development, value and wealth creation are among the most important goals of society. Industry performance entails the incorporation of the objectives of smart sustainable development, namely social and territorial cohesion, economic efficiency, innovation, digital and environmental performance, into a company's operational practices. Companies that compete globally are increasingly required to commit to and report on the overall smart sustainability performances of operational initiatives. The current indicator frameworks that are available to measure overall business sustainability do not effectively address all aspects of sustainability at an operational level, especially in developing countries such as Romania, Belarus or Macedonia. For the sake of achieving these goals and objectives, the corporation, investor and government need some instruments in order to measure the potential value of each investment opportunity. It is clear that these instruments are not capable of predicting the exact future, they just provide some piece of information and advice that help the investor and government in the decisions he makes. Among these criteria, the most common types are Return on Investment (ROI), economic and sustainable value added (EVA and SVA). These criteria follow the performance assessment with regard to the changes in the sustainable value and alongside maximizing the long-term shareholder and society returns. In this paper, one of the most important criteria; i.e. EVA, is investigated from several viewpoints. First, it is demonstrated the attempt to calculate EVA at the industry level using aggregate indicators according to the common business methodology. For this, we generally assume that economic value is created by investment in excess return compared to its cost. We adopted EVA indicator to Belarusian general economic conditions and specifics of available aggregate sector data by adjusting return on investment and cost of capital.

Keywords: Performance Evaluation; Performance Analysis; Value Creation; Economic Value Added; Smart Sustainable Value Added.

1. Introduction

The main current strategy of development Europe 2020 (A strategy for smart, sustainable and inclusive growth) puts forward three mutually reinforcing priorities:

- Smart growth: developing an economy based on knowledge and innovation.
- Sustainable growth: promoting a more resource efficient, greener and more competitive economy.
- Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.

But growth itself does not create value. Economic value is created by investment in excess return compared to its cost. This statement is central in the microeconomic theory and drives the

development of a single firm through industry to a country's economy. The principle of economic value added to invested capital is directly employed in Economic Value Added (EVA) indicator.

Industry performance entails the incorporation of the objectives of smart sustainable development, namely social and territorial cohesion, economic efficiency, innovation, digital and environmental performance, into a company's operational practices. Companies that compete globally are increasingly required to commit to and report on the overall smart sustainability performances of operational initiatives.

The objective of the paper is to propose a modified and more accurate model for measuring the industry economic and sustainable performance. The model integrates digital, environmental, social, economic and corporate governance indicators. It aggregates different indicators from different frameworks and allows the industries to compare their performance effectively. Two main factors of smart sustainability assessment (EVA and SSVA) are depicted. It is demonstrated the attempt to calculate EVA at the industry level using aggregate indicators according to the common business methodology.

Then, the materials and methods used for smart sustainability assessment are described. This is done by presenting an overview of the used indicators. The method of smart sustainability value added calculation is suggested as the main indicator of industry performance.

2. EVA - Basic value indicator

It is been argued that traditional accrual based earning measures like operating income, operating profit, profit after tax, return on investment etc. are often incompetent, manipulative and misleading in explaining value creation (Altaf, 2016). Accordingly, a number of empirical studies have been focused on determining as to which metric is best for measuring value creation. All value indicators calculations respect the neoclassical theory of the behavior of market subjects (The theory of rational expectations...) from microeconomics, suggesting the basic premise that the purpose of companies is to maximize profits (Berzakova et. al., 2015).

The idea behind EVA is rooted in economic income as opposed to accounting income. The concept of economic profit appeared a long time ago, around 1890 (Marshall). As economic income moves up or down, so goes the value of the business (Valetka et. al., 2010).

The theory of Economic Value Added has traditionally suggested that every company's primary goal is to maximize the wealth of its shareholders, which should be a given since it is the shareholders who own the company and any sensible investor expects a good return on his or her investment. In the past, however, other methods such as Return on Investment (ROI) and Earnings per Share (EPS) have been the most important performance measurement systems and have been used in determining bonus-based incentives even though they do not correlate well with shareholder value creation.

Economic Value Added (EVA) is probably the most widely used approach to measuring value-creation nowadays. The analytical tool called EVA, for Economic Value Added, was commercially developed in 1982 by the corporate advisory team from Stern Stewart & Co. of Joel M. Stern and G. Bennett Stewart and others (Stern, 2001; Sharma & Kumar, 2010; Qi; 2011). Stern Stewart & Company came out with a new metric "Economic Value Added (EVA)" that, according to them, drives stock prices, creates wealth and can explain the changes in shareholder value in a better possible way than other traditional performance measures. They claim EVA as the performance measure that comes closer to measuring the true economic profitability of a company and is directly linked to the shareholders' value. In An empirical evidence by Stewart, it was amplified that EVA is about 50% better than traditional earning based measures in explaining changes in shareholders' value on a contemporaneous basis.

The first person who used the term EVA in a publication was Finegan in 1989, after him it was Walter, in 1992, but the attention of the wider economic public EVA received after the publication of a related article in Fortune magazine in 1993 (Tully) when it started to be used as a metric of business performance. Consequently, this issue handled a number of experts.

Putting forward by Stern Stewart EVA is established on the basis of enterprise value evaluation theory researched by Franco Modigliani (2005), Merton H. Miler (1980) and William F. Sharpe (1987).

Large firms like Coca Cola, Diageo, Lilly (Eli), Guidant, and SPX have used EVA as a guide to creating economic value for their shareholders (Grant, 2003). Bonuses and incentive pay schemes at these firms have been built around the manager's ability (or lack thereof) to generate positive EVA within the firm's operating divisions. Positive payments accrue to managers having divisional operating profits that on balance exceed the relevant "cost of capital," while negative incentive payments may occur if the longer-term divisional profits fall short of the overall capital costs. Thus, by accounting for both the cost of debt and equity capital, EVA gives managers the incentive to act like shareholders when making corporate investment decisions. James S Wallace also found that the former managers' behavior followed by the incentive, which preferred the behaviors for maximization the shareholders' wealth by processing assets, reducing investment, assigning excess funds to investors, fully using assets, etc. (Wallace, 1997). Other researches pointed out that EVA index has superior ability to explain stock price changes than the traditional index (O'Hanlon & Peasnell, 1998) and we should use a comprehensive evaluation index to make up for EVA inherent defects in the performance evaluation (Mcintyre, 1999), analyzed the influence degree of the inflation to EVA calculation results and their improving methods (Villiers, 1997), how to use EVA index into specific application of enterprise performance management, and how to establish a perfect system for value management, which includes strategic planning, capital spending decisions, performance management and evaluation, compensation plan and others (Rogerson, 1997; Ehrbar, 1998).

It is against this backdrop, scholars have devoted considerable time and effort on the investigation of the claim whether EVA is a better measure to explain market value addition (MVA) than traditional earning based measures. The results of different empirical studies are divided into two distinct camps, one camp belongs to those researchers who found EVA to dominate earning based measures in explaining MVA. Contrary to this, another field belongs to those researchers who found earning measures dominate EVA in explaining MVA.

In theoretical discussions, there are new arguments in favor or against the application of the concept of EVA and other criteria based on the value of the company in the context of ongoing changes in accounting and tax legislation, financial market conditions and the like in Romania, Belarus or Macedonia or another transition country.

Keeping in view the above mentioned literature, this study attempts to advance the research in the following ways. Firstly, we revisit the claim made as "EVA stands well out from the crowd as the single best measure of wealth creation" in the context of an emerging market like Belarus and thus further strengthens the applicability of the metric to the nascent body of research on the dominance of performance measure in emerging market firms, sectors and industries. Moreover, the only measured evidence of EVA as a superior performance is an in-house study conducted by Stern Stewart; except that, only few firms or industry field studies have been conducted to examine the relevance of EVA as the best metric for explaining industry performance. Second, in the process of determining the best metric for explaining EVA of Belarusian industries and sectors, the study seeks to shed light on the divergent findings of prior studies. Third, this study uses samples from both the service and manufacturing sector and treats them separately, since there are a priori reasons to believe that the two sub-sectors will behave differently. This will again broaden the existing body of knowledge on the metric war between EVA and traditional earning based measures. Further, it must be acknowledged that Belarus has certain unique characteristics that provide a natural setting for testing the aforementioned relationships. For instance, financial market imperfections and information asymmetries; under-developed capital markets and opaque financial reporting practices; limited role and size of the capital markets in allocating resources, under-utilized banking sector, incapable of providing demanded credit to the corporate sector, providing of preferential rates for housing construction credits, substantial governmental support and subsidies. All these factors,

along with the lack of empirical evidence on the superiority of a metric to explain value creation, make Belarus a unique country for testing these relationships.

EVA is also gaining popularity in the investment community. Since June 1996 Conference on "Economic Value Added" at CS First Boston "buy side" investment firms like Global Asset Management and Oppenheimer Capital use EVA in their stock selection, portfolio construction, and risk control processes.

Economic Value Added is most generally calculated as the difference between net operating profits after tax less market money value of capital invested. Building on the relationships, at first glance it is clear that the calculation of EVA will not be easy, given the ambiguity of the contents of sub-indicators in a country. Just to quantify NOPAT - net operating profit after tax - the company Stern Stewart & Co. introduces about 160 possible adjustments (Salaga et. al., 2015).

The calculation of EVA gives the same mathematical results as Discounted Cash Flow (DCF) or Net Present Value (NPV), both of which have historically been deemed the best analysis tools for determining shareholder value. However, the equivalence with EVA and NPV/DCF holds only in valuation and not in performance measurement.

EVA is expressed as money value in the currency of operation of a certain company. It estimates what amount of value is added to the invested capital. This value usually results in a higher net economic profit of a firm and higher dividends. Negative EVA indicates that either i) cost of capital is higher than the return on capital (the firm is currently earning less than expected giving its cost of capital) or ii) capital invested does not create enough of value for specific investment projects.

The EVA indicator of a firm is even more informative when considered in dynamic over a certain period of time. Increasing EVA indicates either a lower cost of capital, or higher returns (provided the invested capital is the same over the considered period). Diminishing EVA points to a higher cost of capital or lower profit (if invested capital is the same over the considered period).

EVA can be used as a qualitative indicator of growth at the level of industries and economy at general. EVA results are logically connected to specific operating conditions for a firm or an industry by considering debt and equity share in capital structure as well as a specific risk premium for each industry.

Calculating EVA for industries, the structure of the economy can become clearer revealing the best performing and worst performing sectors in terms of their economic value added. In practice, one can break down the economy into sectors with high EVA and little EVA for both positive and negative indicators. After a close look at each of the best or worst performing sector taking into account their specifics recommendations for using high potential or improving sector's conditions might be drawn.

EVA allows watching the development of industries and a country's economy in dynamic over a chosen period of time. For instance, growing EVA for a country's economy might indicate its growing potential for further development and sustainability. Alternatively, diminishing EVA in a chosen industry might be a signal for the poor quality of investments, the inadequate structure of capital invested or poor management.

Using EVA as a performance indicator of economic sectors defined according to the industrial classification system as opposed to the traditional Soviet Union type division we get a possibility to make international comparisons.

Finally, economic value added (EVA) indicator calculated for Belarusian industries provides us with objective information about the current situation of the market when no stock exchange information is available.

Basic indicators for Belarusian industries according to NACE are presented in a research (Altaf, 2016). A few important conclusions can be drawn according to EVA estimation results for Belarusian industries:

1. six industries created more than 2/3 of economic value added in Belarusian economy: manufacture of chemicals, wholesale trade, transport and communication, agriculture, construction and manufacture of refined petroleum products and coke.
2. almost ¼ of the entire economic value was added in the chemical industry (manufacture of chemicals, chemical products and man-made fibers).
3. four sectors created no economic value and have negative EVA indicator: education, health, community, social and personal services, and real estate activities. and, surprisingly, real estate activities.
4. the most striking finding of estimations was that the lowest EVA indicator showed the division called „Real estate activities". This can be explained by having a close look at the sector's further structure. According to NACE „Real estate activities" behind direct services of selling estate and real estate agencies includes also the management of estate on a fee or contract basis, the services of numerous halls of residence. In Belarus, the latter is simply maintenance services for households which are traditionally low-profitable and government-subsided. A governmental straight involvement in the construction sector production, providing of preferential rates for housing construction credits and other economic peculiarities in Belarus have led to the unexpected result that firms from a should-be profitable NACE class „Development and selling of real estate" do not create economic value.

Ranking of indistries. Finding the "best" companies and industries in the marketplace is of primary importance to investment managers. With the proper financial tools, portfolio managers may be able to enhance their active performance over-and-above the returns available on similar risk indexed-passive strategies.

Industry rank calculations were based on the three indicators:

- the share of industry EVA in total economy EVA is used as an indicator of the industry's role in the economy (weight is equal to 0.3);
- EVA/ Employment ratio estimates the efficiency of human resources on one hand and technological advance on the other (weight is equal to 0.3);
- EVA/Invested Capital ratio is used to reflect the level of profitability of industries (weight is equal to 0.4).

The ranking shows that top-10 investor attractive sectors in Belarusian economy were:
- Manufacture of coke and refined petroleum products;
- Manufacture of chemicals, chemical products and man-made fibers;
- Sale, maintenance and repair of motor vehicles and motorcycles;
- Wholesale trade and commission trade;
- Manufacture of leather and leather products;
- Computer and related activities;
- Mining and quarrying;
- Manufacture of basic metals and fabricated metal products;
- Manufacture of transport equipment.

The least attractive sectors are „social" ones: education, health, community, social and personal services, and real estate activities. Such negative EVA indicates that either the cost of capital for a sector is higher than the return of capital (the firms are currently earining less than expected, given their cost of capital) or capital invested does not create enough value for specific investment projects. The first three mentioned sectors have clear „social" character in Belarus by receiving substantial governmental support and subsidies. We can state that these sectors and a real estate operate „at the cost" of other industries.

Industries with higher rank can attract more foreign investors.

3. Smart Sustainable Value Added

Some papers are identifying directions for research of economic modelling of sustainable corporate performance and reporting, which include environmental indicators (measuring the environmental impact on resources), social indicators (health and safety, human rights, ethical behavior etc.), corporate governance indicators (related to efficiency, structure and responsibilities of the governance) and the economic value of the company, where it is considered a combination of Sustainable Value Added, Economic Value Added and Data Envelopment Analysis methods (Kassem et. al., 2016).

The question of how to establish a Sustainable Value Added (SVA) indicator has been asked by Figge and Hahn (Figge & Hahn 2002) and who have defined the method of the SVA calculation. However, even its authors are aware that the SVA model does not do sufficiently, whether the value of the company is sustainable.

We consider that Smart Sustainability Value Added (SSVA) is a more effective method for sustainability assessment. Sustainability valuation plays a strategic role in decision making (Kassem et. al., 2016). It encourages companies and industries to deal with resources more effectively and efficiently. Smart Sustainable Value Added represents the extra value created as a result of using digital, economic, environmental and social resources, compared to a benchmark. It expresses in absolute monetary terms. According to the method published by (Figge & Hahn, 2004) the SSVA value calculation can be expressed as follows: The gross value added of the company should be calculated (in unit €). After that, the amount of each digital, environment or social resources should be determined (e.g gb., t, m3, ..etc). Then efficiency computed by dividing the gross value added on the amount of resources (unit €/t, €/m3). The same steps should be done for the benchmark. Finally, the last two values are subtracted from each other and the result multiplied by the amount of considered indicator.

Whereas the improvements should include several modifications, in order to achieve the following factors:

- Comprehensive smart sustainability assessment: we focused our efforts on developing a comprehensive smart sustainability assessment. Therefore, digital, environmental, social, economic and corporate governance indicators should be integrated. In this case, the proposed model will not only deal with financial indicators but should also include nonfinancial ones. With the ongoing development of new manufacturing technologies and progressing digitalization, decentralized production units fostered by the development of additive manufacturing technologies such as 3D-printing, already show an impact on gaining a better understanding of the possible contributions of factories to more sustainable value creation enables them to be a positive component of a smart development (Juraschek et. al., 2018).
- Simplicity and suitability: The assessment should be done for different industries for example in Belarus, Romania and Macedonia to compare results. However, the model cannot be universal, because the indicators should reflect the specifics of the industry of the country in which they operate. Therefore, different available sustainability frameworks are used and a specific set of indicators is chosen for each sector (e.g. agriculture, manufacture ...).
- Applicability: The modified model should be easy, simple, smart, suitable and accurate. It reflects not only four dimensions (digital, economic, environmental, and social), but also the corporate governance pillar is added. As mentioned above, EVA is the most important and measured indicator which combines all the basic components required to describe the economic situation of industries. For this reason, the gross value added (VA) is replaced by Economic Value Added to describe the financial situation of the companies more efficiently.

The evaluation of these factors and data will be part of a future assessment and subject to further research.

4. Conclusion

Industry performance entails the incorporation of the objectives of smart sustainable development, namely social and territorial cohesion, economic efficiency, innovation, digital and environmental performance, into a company's operational practices. Companies that compete globally are increasingly required to commit to and report on the overall smart sustainability performances of operational initiatives.

The data obtained in both SSVA, EVA and foreign investor attractiveness rankings based on EVA may be helpful for both foreign investors and government.

Smart Sustainability assessment is a comprehensive process to achieve the best performance and determine the weak points of the studied industries performance. The smart sustainable development and incursive growth system are the models used for smart sustainability assessment.

This paper aims to propose an improved method of investment industry performance smart sustainability assessment. It employs important and widely used financial value (e.g SSVA, EVA) for evaluating the efficiency of industries development. This work can be extended by making it reflect the specific requirements of the country and the industry in which the company operates. This can be implemented by calculating the weights and benchmark values for each sector (e.g. agriculture, bio-gas plants, manufacture, breweries...). Finally, the results visualization can be presented in the case study for that specific sector.

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