REVERSIBLE IMPAIRMENT OF ASSETS AND THE IMPACT ON ECONOMIC PERFORMANCE

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Abstract
Economic performance is an essential objective of economic entities activating in the energy sector. The profit and loss account provides relevant information for performance analyzes, but evaluating the factors which determined the modification of the financial result demands detailed analyzes based on specific techniques. This paper develops and implements an econometric model that analyses the relation between gross profit and the reversible impairment of assets. The results of the analysis have shown that, in the energy sector, there is a significant connection between those two variables.

Key words: performance, impairment, financial situations, econometric model, energy sector

JEL Code: M40, M41

1. Introduction

Analysing a economic entity represents the act by which initiated or uninitiated people, independent from the entity or not, are trying to assess the measure in which the analysed company is able to achieve their objectives, in order to extract accurate information necessary to support their decisions. Regardless of the analysed area of an economic entity (economic analysis, financial, commercial, juridical, technical, human resources, informational, environmental, etc.), the analysis overlaps (or even includes), most of the time, the concept of „performance" (that can be economic, financial, environmental, commercial, technical, etc.).

The level of performance is given by the indicators provided by the Profit and Loss Account. According to IFRS, this statement is known under the name of „a statement of profit or loss and other comprehensive income for the period" or „a statement of income and expenses". We can appreciate that any factor that has influence on the indicators from this statement will also influence the economic performance of the entity. We are considering, in particular, indicators such as net profit, sales revenues, results from different types of activity, etc. Performance can be appreciated using other indicators, resulting from the annual financial statements stipulated by the legislation. Any factor of influence will be reflected also in the variation of these categories of indicators.

Performance of the entities depends on the existence and the manifestation intensity of the factors belonging to the entity's internal environment (marketing, production, management, etc.), or on factors from outside the entity (national and international economic conditions, competition, degree of interest or demand for products, services or works of the entity, etc.). A pertinent analysis of performance should not resume to simply studying the components of financial statements, but it has to go even further, in order to determine the influence of each factor in achieved performance. These actions fall mainly in the responsibility of management, which must decide the necessary actions starting from analyzing the influence of each factor on the achieved performance, in order to correct the negative influences and to maximize the actions of the factors that have positive influence.

The performance of an entity can be influenced by a sum of values of production factors that is why it is not enough to know what value is, but it is necessary to know where the value comes from. (Damodaran, 2012). Moreover, it is necessary to analyse the possible impairments and their impact on performance.

Impairments are among the factors which can strongly influence the economic performance of an entity, especially in the context of reporting under IFRS. Irreversible impairments (such as amortization) have a certain

predictability regarding their dimension and impact over performance, determined by the fact that their lifespan and depreciable value are known from the moment in which an asset is recognised. Reversible impairments are characterized by the fact that their appearance and disappearance are difficult to identify in the moment of initial recognition. This incertitude has an major impact on performance.

The incertitude phenomenon is analyzed by some authors in the context of it's impact on the manifestation of the financial crisis from 2007-2009, which highlights the utility of this study (Bloom, 2013). Extending the analysis at macroeconomic level, we can say that the unpredictable nature of the reversible impairments can have a negative impact on a country's bank system, by unrealistic evaluation of the assets constituting collateral for loans.

The main objective of this study is to highlight the impact of reversible impairments on economic performance of entities from energy sector. This sector is one of strategic importance in the national economy due to a high degree of added value created in Gross Domestic Product, and also because of the dependence of other economic sectors on the companies operating within it. In the energy sector operate companies in which fixed assets (those that are most vulnerable at risk of impairment) reach significant values. For this reason it is essential to correctly dimension these impairments, so that the possible distortions that may arise in the financial statements to tend to zero. In this way, the users of the financial information will receive accurate data regarding economic reality. The presented issues show the fact that analysing the impact of impairments on the performance is able to offer valuable information to the stakeholders that are using the annual financial statements of companies.

After finishing this study, it has been shown that the performance is significantly influenced by the size of reversible impairments. This influence is demonstrated by the econometric model developed and tested in the present study.

2. Research Methodology

Based on studying specialized bibliography and specific economic legislation in the accounting area, our research shows some current benchmarks in the field of the analysis of economic performance, and develops an econometric model which is able to characterize the influence that reversible impairments have on performance in energy sector.

The theoretical documentation has allowed us to show the opinions of some authors regarding the concepts of performance and impairment. The analysis of the concept of performance has highlighted the way in which performance is affected by several factors, especially reversible impairments of value.

The empirical research consisted in developing, testing and analyzing a simple linear econometric model that emphasizes the influence of reversible impairments on performance. The analyzed sample consisted of a number of 10 companies activating in the energy sector, and the financial data have been taken from their financial statements from 2011-2013. The selected companies are listed at Bucharest Stock Exchange, they are representative for the energy sector and they are part of BET-NG index. Implementation and validation of the model were based on established statistical methods performed by Eview software.

3. Literature review

Performance is a complex and evolving concept which generally characterizes human actions. From this point of view, performance is associated with the result and success of human action (Pintea and Achim, 2010). In economy, performance is appreciated through „achievement of the organizational goals, whatever their nature and their variety" (Bourguignon, 2000). In the analysis of economic entities there are frequently found the concepts of „low performance", „underperforming systems" or „counter performance", which decrease the remarkable character given by the main sense of performance. Moreover, taking into account the fact that appreciating performance often implies a mathematical calculation of some indicators, we can say that analyzing the performance of economic entities does not interfere with the analysis of their exceptional achievements, but rather with an analysis of the existence and size of successes and lack of success, of achievements or failures, of compliance or non-compliance with certain criteria, etc.

Regarding these facts, we consider that it's correct the assertion from specialized literature according to which the definition of the performance concept is an approach that tends mostly to appreciating performance in relation with other concepts, such as efficiency, effectiveness and value (Albu and Albu, 2005). Some authors replace "value" with "economicity" in the association of those three terms and performance (Ristea, 1997).

Other insights in the specialized literature refer to performance as resulting from the competitively provided by productivity and effectiveness which lead to a durable presence on the market (Niculescu and Lavalette, 1999).

Economic performance is seen differently by the users of financial and economic information. „The current and potential investors perceive performance through ROI, managers are interested in the general performance of the organizations that they lead, employees perceive performance through profitability and stability of their jobs and the

creditors are interested in the organization's stability" (Pintea and Achim , 2010). There are specialized papers which often give a non-financial character to the concept of performance, such as customer's loyalty and the satisfaction of the employees. These aspects can lead to changes of the indicators that measure performance from a financial point of view (Ittner and Larcker, 2003).

In conditions of sustainable development, the performance in economy has a global perspective generated by corporate social responsibility and includes economic, social and environmental issues. (Reynaud, 2003). The general approach of performance is absolutely necessary in the energy sector, which generates environmental problems through technological processes and social issues through its impact on all socio-economic activities.

We can certainly say that economic and financial performance of entities shows a high importance. This depends on the ability of the entrepreneurs shown in the process of using their production factors and on the economic circumstances. Establishing the dimension of performance and analyzing the factors that influence it is an initiative in a continuous dynamic and the studies related to it are appropriate whenever there are transitions from a stage of economic development to another.

In the specialized literature we can find studies approaching the concept of performance and how it can be influenced. Among these, we subscribe the opinion presented by Burja and Burja (2014) according to which there are a number of variables that can influence the performance of an entity, such as the current liquidity ratio or leverage.

The utility of performance analysis, especially through profitability, is given by the fact that it helps dimensioning the potential changes of the economic resources which the company will be able to control in the future and anticipating the ability to generate cash flows with the existing resources.

In the energy sector, technical performance highlights the importance of assets (especially the tangible ones) in the process of obtaining and increasing economic performance of entities (Aste and Pero, 2010). This fact requires developing analyzes that can show the influence that different changes on this assets can have over the economic performance.

In the energy sector, environmental protection requirements are more and more restrictive. Respecting these requirements can be achieved through massive investments in tangible assets (filter systems, renewable energy systems, etc.), which are likely to be subjects of impairments.

Meade (2012) argues that there are different types and ways through which impairments can manifest them selves, which leads us to the idea according to which the analysis of the impact of impairments on performance can be done depending on these types and ways of manifestation of impairments. From the total mass of reversible impairments recognized by an entity, a significant share is determined by the implementation of IAS 36 „Impairment of assets". However, this does not cover the entire mass of impairments of assets. They do not apply to stocks, assets resulting from construction contracts, accounts payable regarding deferred tax, assets arising from employee benefits. Also they do not refer to financial assets that are covered by IAS 39 „Financial instruments: Recognition and Measurement", property investments that are evaluated at fair value, biological assets related by the agricultural activity evaluated at fair value minus estimated costs at selling points. Deferred acquisition costs and intangible assets generated by the insurer's contractual rights, in insurance contracts, are covered by IFRS 4 „Insurance contracts" and fixed assets (or disposal groups) classified as owned for selling, according to IFRS 5 „Non-current Assets Held for Sale and Discontinued Operations" (IAS 36).

Regardless of the standard depending on which it is decided the recognition or derecognition of a reversible impairment, one thing is certain: recognizing an impairment leads to the recognition of a loss in the profit or loss account (by registering an expense), and derecognizing an impairment leads to the recognition of a gain in the profit and loss account (by registering a revenue). At the same time, the existence of an impairment of assets leads to changes in a company's own capital, which strengthens the motivation of studying the impact of the impairments.

Sooriyahumaran and Velnampy (2013) analyze the correlation between impairment of Assets and Return on Assets (ROA), Return On Capital Employed (ROCE), Net Profit Margin (NPM), Operating Profit Ratio (OPR), and Earning Per Share (EPS). The result of the analysis shows that the impairment of assets has a significant impact on the profit and performance of a company.

4. Results and discussions

The energy sector has a crucial importance for the social and economic activity of Romania in terms of sustainable development and has major implications for increasing the quality of life. This is why the development of this sector is a major objective of the strategies for sustainable development that take into account satisfying the demand for high quality energy and safety in conditions of environmental protection.

Ensuring the functionality and development of the energy sector involves major investments in energy production and distribution from public or private founds and it is obvious that all companies from this sector are interested in increasing economic performance, which will ensure the recovery of their expenses and help them obtain the expected

profits. That is why analyzing the factors that influence the performance of companies in the energy sector is an important objective for stakeholders. Impairments of assets can influence the economic results through their impact on expenses that is why an analysis of this influence is necessary.

Quantifying the impact that impairments have over performance in the energy sector can be realised by developing and implementing an econometric model to characterize the evolution of performance indicators depending on the size of depreciation value established at the end of a financial year. Taking into account the high informational potential of the annual financial statements, in order to evaluate the performance there are some indicators that can be used from the profit and loss account (Net Profit, Operating profit, Profit Before Tax, Operating Expenses, etc.). For more laborious analysis, we can also use relative performance indicators, calculated based on data provided by profit and loss account: Return on Equity (ROE), Return on capital employed (ROCE), , Return on Assets (ROA), Net Profit Margin , risk indicators, etc.

For example, we analyzed a sample consisting of companies from the energy sector which are listed at Bucharest Stock Exchange (those that are part of BET-NG index), namely OMV Petrom SA (SNP), S.N.G.N. Romgaz S.A. (SNG), Electrica S.A. (EL), S.N.T.G.N.Transgaz S.A. (TGN), C.N.T.E.E. Transelectrica S.A. (TEL), S. N. Nuclearelectrica S.A. (SNN) Conpet S.A. (COTE), RRC S.A. (RRC), Rompetrol Well Services S.A. (PTR), Oil Terminal S. A. (OIL), using profit before tax as the indicator of performance.

The analysis of the evolution of the impairments reported by every company and their registered profit highlighted the connection between these two variables. For example, at Romgaz SA (TGN), we can see from Table 1 that the company has made a good return, especially in the last 3 years of the analyzed period. The volume of impairments was relatively constant over the four years, registering a slight increase in 2012. EBIT registered an increase of over 2.5 times in 2011 compared to 2010, and after that the indicator remains relatively constant, with a slight increase in 2011. The level of profitability ratios increased sharply in 2010 due to the growth of EBIT, and after that they remained relatively constant.

Table 1. Evolution of the impairment of assets and economic performance at Romgaz SA (SNG)

Specifications		2010	2011	2012	2013
EBIT, mil. lei		523.88	1343.56	1396.20	1300.67
The impairment, mil, lei		1091.04	1029.41	1127.89	1007.27
ROA, %		3.49	11.09	10.76	9.50
ROE, %		3.97	12.96	11.98	10.71
ROCE, %		5.60	13.80	14.20	13.39
Year 2010 %	EBIT	-	256.5	266.5	248.3
	The impairment	-	94.4	103.4	92.3
	ROA	-	317.9	308.3	272.4
	ROE	-	326.7	301.9	270.0
	ROCE	-	246.2	253.4	238.9

Source: Own calculation based on annual financial statements

The presented issues suggest that there is a correlation between the evolution of impairments and EBIT and also return rates. This correlation seems rather reversed from an economic point of view. Although impairments are expenses, their growth does not diminish performance. The time series is, however, small and the information come from a single company and therefore it is required a larger number of observations to analyze these correlations. For this it has developed a simple linear econometric model (assuming that the assumptions required for its construction are met) as a function of production:

$$y_i = a + bx_i + \varepsilon_i, i = \overline{1, n} \quad (1)$$

In which the variables of the regression equation are:

y   - profit before tax;
x   - the impairments of assets.

The characteristics of the variables belonging to the 10 companies analyzed are shown in Table 2.

Table 2. Characteristics of variables

Characteristics	Profit before tax	The impairment of Assets
Mean (mil.lei)	746.43	383.87
Standard deviation	1560.57	489.95
Minim value	-713.26	1.14
Maxim value	5667.o9	1469.01

Source: Own calculation based on annual financial statements

The estimation of the functional connection between Profit and Impairment has been made based on a panel of data which refers to companies from the energy sector between 2010-2014. The preliminary analysis showed that X and Y data sets are stationary, which is a prerequisite for obtaining correct estimations. The empirical model was obtained by using Eviews software (fixed effects option) and it has the following form:

$$Y = 1335.7 - 1.535X$$

Validation of the model is reflected by statistical tests as it is shown in Table 3.

Table 3. Validation of the model

Specifications	Values	Specifications	Values
R-squared	0.983374	Mean dependent var	746.4310
Adjusted R-squared	0.974623	S.D. dependent var	1560.571
S.E. of regression	248.6006	Akaike info criterion	14.14615
Sum squared resid	1174243.	Schwarz criterion	14.65992
Log likelihood	-201.1922	Hannan-Quinn criter.	14.31051
F-statistic	112.3774	Durbin-Watson stat	2.035854
Prob(F-statistic)	0.000000		

Source: Own calculation from Eview

The quality of the obtained model is appreciated based on the F statistics. The value of F function is 112.27 with a probability of 0.05 (5% level). The explanatory power of the model is high (97.4%), suggesting that the impairment of assets has had a significant impact on profit in the energy sector during the analysed period.

Tests of serial correlation, heteroskedasticity şi normality showed the quality of residual terms and the fact that the estimators are not influenced by error terms. Durbin-Watson test also revealed mismatch errors (DW = 2.03).

Regression parameters were tested using t test and the result was obtaining significant estimators. The negative value of the variable X coefficient suggests a reverse association between the two variables.

5. Conclusions

There is no doubt that the impairments of assets are costs that affect the financial results of companies. These can not be avoided due to obsolescence or conjuncture factors that lead to impairments. The result of research on representative companies activating in the energy sector has proved the existence of a correlation between the impairments of assets and economical performance measured by profit before tax. Econometric analysis turned out to be a useful tool for demonstrating the link between profit and impairment in energy sector.

The evolution of economic performance is both negatively and positively influenced by a series of factors. The researches regarding the factors that influence economic performance must represent a continuous and sustained process for the accountants, because the continuous changes of the economic sphere will lead to changes in the structure of the factors that influence performance. Increasing performance is a fundamental objective of all the companies, and the analysis of the factors that influence performance is meant to generate information that helps the companies to amplify the effects of the factors which lead to high performance and to minimize the effects of the factors that influence performance in a negative way.

6. References

[1] Albu, N., Albu, C., *Soluţii practice de eficientizare a activităţilor şi de creştere a performanţei organizaţionale*, Editura CECCAR, Bucureşti, 2005.

[2] Aste N., Del Pero C.,, *Technical and economic performance analysis of large-scale ground-mounted PV plants in Italian context,* Copyright 2010 John Wiley & Sons, Ltd., Published online 29 April 2010 in Wiley InterScience (www.interscience.wiley.com).

[3] Bloom, N., *Fluctuations in uncertainty*. No. w19714. National Bureau of Economic Research, 2013.

[4] Bourguignon A.,*Performance et contrôle de gestion, Encyclopédie de Comptabilité, Contrôle de gestion et Audit*, Ed. Economica, pp. 931-941,2000.

[5] Burja C., Burja V., *Key performing factors of leading Romanian companies*, Annals of the „Constantin Brâncuşi" University of Târgu Jiu, Economy Series, Issue 4/2014.

[6] Damodaran A. , *Investment valuation. Tools and techniques for determining the value of any asset*, 3rd edition, published by John Wiley & Sons, Inc., Hoboken, New Jersey, USA, 2012.

[7] IAS 36, *International Accounting Standards IAS 36*: Impairment of Assets.

[8] Ittner C.D., Larcker D. F., *Coming up Short on Nonfinancial Performance Measurement*, Harvard Business Review, 2003.

[9] Meade J.E., *A Neo-Classical Theory of Economic Growth (Routledge Revivals),* published by Routlege, 2 Park Square, Milton Park, Abingdon, Oxon, United Kingdom, 2012.

[10] Niculescu M., Lavalette G., *Strategii de creştere*, Editura Economică, Bucureşti, 1999.

[11] Pintea M.O., Achim M.O., *Performance - an evolving concept*, Annals of University of Craiova-Economic Sciences Series, Vol.no. 38, 2010.

[12] Reynaud E. ,*Développement durable et entreprise : vers une relation symbiotique*, Journée AIMS, Atelier développement durable, ESSCA Angers, pp. 1-15,2003.

[13] Ristea M., *Contabilitatea rezultatului intreprinderii*, Ed. Tribuna Economica, Bucuresti, 1997.

[14] Sooriyakumaran L., Velnampy T., *Disclosures and impacts of impairment of non-current assets in the financial statements: A study on listed manufacturing companies in Colombo Stock Exchange (CSE) in Sri Lanka*, Merit Research Journal of Accounting, Auditing, Economics and Finance Vol. 1(6) pp. 122-133, 2013.