

## SUSTAINABLE DEVELOPMENT THROUGH FIRM COMPETITIVENESS: THE CASE OF ROMANIA

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**Abstract:** *The purpose of this research is to analyze to what extent a country's sustainable development is influenced by firm competitiveness, addressing the issue from two points of view: a theoretical one, through an extensive literature review, and a practical one aiming at identifying how firm competitiveness (measured through return on assets and return on equity) affects sustainable development in Romania (measured through efficiency enhancers indexes), considering data over the last 7 years. Whereas sustainability and competitiveness are interconnected, our results show that firm competitiveness critically influences the sustainable development of Romania, thus providing reliable data for appropriate policy decision makers.*

**Key words:** *sustainable development, firm competitiveness, economic growth, factors, indicators*

### INTRODUCTION

Without a doubt, firms' activities have a large influence on the economy of a nation, no sustainable development being possible without a sustainable development of firms. Therefore, firm's competitiveness is a crucial factor in shaping the future development of the economy and society.

This creates a need for research initiatives focused on how sustainable development and firm competitiveness interact.

In this respect, our paper argues that sustainability and firm competitiveness go hand-in-hand, analyzing the relationship between Romanian firm's competitiveness (measured through return on assets and return on equity) and specific sustainable development indicators (particularly efficiency enhancers indexes), considering data over the last 7 years, taking into account previous national and international studies and their results.

We started with an analysis of the competitiveness and sustainable development theoretical concept tendencies, with a specific focus on competitiveness in the context of sustainable development, followed by the research framework and hypotheses, critically analyzing the current methodological approaches for both analyzed problems; we then underlined the employed methodology and the research's results, ending with a section dedicated to the study's conclusions and further research paths.

### LITERATURE REVIEW

In the context of the "Europe 2020" strategy, the interest in the issue of sustainable development increased, especially when considering policy decisions, be they economic, social or environmental. In this sense, competitiveness represents a key aspect of the knowledge based economy, underlining the need to identify competitive factors as basis of European policies' design.

The world wide debates on global prosperity and development strategies thoroughly employ the words competitiveness and sustainability although the actual relationship between the two concepts has yet to be studied extensively by academics, policy practitioners and international organizations.

This increased interest on the topic is a main consequence of public works, the most popular document being the report *Our Common Future* (1987) which defined sustainable development as "the development that meets the needs of the present without compromising the ability of future generations to meet their own needs." [8]. This

definition captures several dimensions of development that surpass economic growth in order to include the tangible and the intangible necessities of life. Although initially the concept only focused on the environmental aspects of development [12], it further evolved in including both an economic and a social dimension.

All of these political approaches determine the need to develop new facets of competitiveness as well as promote relationships between sustainable development and competitiveness.

Research and studies on competitiveness regard all elements that explain competitiveness success and try to identify the drivers of competitiveness [5, 13, 21, 33]. However, there is no unanimous agreement about its definition or appraisal: economists see it from a comparative advantage and/or price competitiveness perspective [30,34]; management and strategy researchers see it from a strategy and management perspective [25, 32] and sociologists and political theorists see it from a historical and socio-cultural perspective [17, 31]; while lately, the focus has shifted towards levels of competitiveness, as shown in table 1 below.

**Table 1**

**Approaches in defining competitiveness**

Definitions of competitiveness	Level	Author(s)
	Firm level competitiveness	Edmonds, 2000; Snieska & Draksaite, 2007; Balzaravičienė & Pilinkienė, 2012.
	Sectors competitiveness	Peters, 2010; Balkytė & Tvaronavičienė, 2010.
	Regional competitiveness	Kitson, Martin & Tyler, 2004; Sepic, 2005; Snieska and Bruneckiene, 2009.
	National competitiveness	Boddy et al., 2005; Van Ark, 2006; Arslan & Tathdil, 2012.
	International competitiveness	Hickman, 1992; Faucheux & Nicolai, 2011.

As stated above, the word “competitiveness” reflects a different meaning when applied to an individual firm or an individual sector or economic activity within a country or region.

In general, competitiveness reflects the ability of an organization to compete successfully with its commercial rivals [23], namely the ability to produce the right goods and services of the right quality, at the right price, at the right time, meeting customers’ needs more efficiently and more effectively than other firms [14].

When considering the issue of sustainability, [16] have proposed the following holistic definition of competitiveness: “Competitiveness is relative and not absolute. It depends on shareholder and customer values, financial strength which determines the ability to act and react within the competitive environment and the potential of people and technology in implementing the necessary strategic changes. Competitiveness can only be sustained if an appropriate balance is maintained between these factors which can be of a conflicting nature”.

Also, a great number of international institutions offered several definitions of the concept, the most relevant in view of the research’s topic being the one provided by the National Competitiveness Council (2009) that understands competitiveness as the ability of enterprises to successfully sell goods and services on international markets, a crucial determinant of national economic survival and future prosperity. Moreover, according to Berger [6], achieving firm competitiveness can be done from two points of view: the market-based-view (focus on the environmental factors of a company) and the resource-based view (successful utilization of internal resources).

As for its measurement, the widely used indicators of competitiveness are ratios concerning profitability and productivity [26], influenced by the way a firm adapts to and positions itself on the market.

Our literature analysis led to the conclusion that there is a disagreement not only about competitiveness definition, but also about its measurement and the emerged results, especially due to the absence of a definite, clear, and solid concept of competitiveness, the limitations caused by various evaluation methods, limited resources, the quality of, as well as the access to relevant information used in the evaluation process and so forth.

## RESEARCH FRAMEWORK AND HYPOTHESES

In line with the above strands of research, in this paper, we focused on the firm level of the term competitiveness (being that firms compete with one another in the market place) and its influence on a nation's sustainable development. Thus, in order to determine if there is a relationship between the two concepts, our first concern was to identify and study previous research and findings on the topic.

When addressing the issue of firm competitiveness measurement, various perceptions can be identified within the specific literature. Buckley et al. (1988) considers that competitiveness is synonymous with a firm's long-run profit performance and its ability to compensate its employees and provide superior returns to its owners, and Tangen (2003) argues that a firm's competitiveness should be measured through its financial performance. We identified several measurement instruments which can be attributed to various approaches: market measures [2,39], accounting measures [10,40] and even both [27]. Although all of these approaches imply different perspectives, theoretical implications [20] and limitations, the widely used measures are the accounting ones, as underlined in table 2 below.

**Table 2**

### Measures of financial performance

Author(s)	Financial performance measures
Cochran et al., 1985	<b>Return on assets (ROA), Return on Equity (ROE),</b> Net profit margin, Firm's assets
Hart & Ahuja, 1996	Return on sales (ROS), <b>ROA, ROE</b>
Agiomirgiannakis et al., 2006	<b>ROA</b>

As such, in accordance to our stated goal and given the advantages of financial performance measures (especially easiness of calculation and worldwide agreement on their defining), for our study we have selected as indicators of a firm's competitiveness Return on assets and Return on Equity. Moreover, the level of a firm's performance determines the sustainable level of prosperity that can be earned by an economy.

As for the second issue analyzed, sustainable development measurement, we narrowed our research on the efficiency enhancer subindexes of global competitiveness, as defined and calculated by The World Economic Forum, subindexes representative in this context since firms' activity influence goods market efficiency, constitute a major source of employment (impacting upon labor market efficiency) and so forth, contributing to a country's social and economic development. Besides, studies show that a firm's performance robustly influences economic growth [24], thus validating our approach.

Based on the specific literature findings, presented above, we have developed the following research hypotheses:

**H1: There is a correlation between firm competitiveness (measured through ROA) and sustainable development in Romania (measured through efficiency enhancers indexes).**

**H2: There is a correlation between firm competitiveness (measured through ROE) and sustainable development in Romania (measured through efficiency enhancers indexes).**

### RESEARCH METHODOLOGY AND RESULTS

In order to test and validate our research's hypotheses, we have selected a sample of 55 Romanian companies, with an industrial profile, from both heavy and light industry, the inclusion criteria targeting their listing on the Bucharest Stock Exchange. Although objections may appear in relation to the inclusion of the two sectors in the same sample, we argue that, in the absence of a sufficient amount of data, it is recommended to ensure the greatest possible homogeneity of the data, as well as a large enough sample to preserve the viability of the statistical analysis results.

Table 3 below underlines the measurement and data collection source for each of the 7 variables considered.

**Table 3**

#### Variables defining

Variable	Coding	Measuring	Source
Return on assets	ROA	Net income / Total assets	Firm data base
Return on equity	ROE	Net Income/Shareholder's Equity	Firm data base
Goods market efficiency	GME	Enhancer of efficiency subindex derived from the global competitiveness index	Extracted from The Global Competitiveness Report
Labor market efficiency	LME	Enhancer of efficiency subindex derived from the global competitiveness index	Extracted from The Global Competitiveness Report
Financial market development	FMD	Enhancer of efficiency subindex derived from the global competitiveness index	Extracted from The Global Competitiveness Report
Technological readiness	TR	Enhancer of efficiency subindex derived from the global competitiveness index	Extracted from The Global Competitiveness Report
Market size	MS	Enhancer of efficiency subindex derived from the global competitiveness index	Extracted from The Global Competitiveness Report

Given the nature of our research and of the collected data, we performed an econometric modeling using Microsoft Office Excel 2007. The descriptive statistic of the seven variables, for the seven years period of time taken under consideration (2007 - 2013) is presented in table 4. Although the variables present a platykurtic kurtosis, most of them are close to the normal distribution and therefore they can be interpreted in our approach.

**Table 4**

#### Descriptive statistics

Variable	Mean	Std. Dev.	Variance	Skewness	Kurtosis
ROA	0.034	0.097	0.009	-5.73	72.43
ROE	0.09	1.05	1.094	-0.494	92.37
GME	4.053	0.127	0.016	0.039	-1.134
LME	4.126	0.083	0.006	0.788	0.113
FMD	4.135	0.2	0.04	0.53	-1.472
TR	3.653	0.285	0.081	-0.063	-1.185
MS	4.355	0.095	0.009	-0.237	-1.312

The estimation strategy carries the running of a separate regression for highlighting the existing connections between each of the indicators.

An additional step in the advanced analysis is the development of regressions in order to estimate the intensity of the connections that can be outlined between the various forms of estimation of the dynamic in the outcome competitiveness indicator and the sustainable development indicators (formula 1).

$$y_{it} = \alpha_i + \chi_{it}\beta + \varepsilon_{it} \quad (1)$$

where:

$y_{it}$  – the dependant variable,  $i$ =entity,  $t$ =time;

$\alpha_i$  – the unknown intercept for each entity;

$x_{it}$  - independent variable;

$\beta$  - the coefficient for the independent variable;

$\varepsilon_{it}$  – within entity error.

The data are grouped as follows:

- at the level of the entire set of observations by grouping all of the companies within each sector in a single set;
- at the level of each sector, considered separately.

The implementation of the estimation strategy involves:

- obtaining the regression parameters;
- estimating the intensity of the links between endogenous and exogenous variables in terms of Student t-test (an empirical value of this test greater than 2 reflects a significant connection).

In order to avoid some multicollinearity problems that can be induced by the structural connections between the financial indicators considered, we performed separate regressions for each explanatory variable (table 5).

**Table 5**

#### Analysis results

Variable	Coefficient		Multiple R		R Square		t-stat	
	ROA	ROE	ROA	ROE	ROA	ROE	ROA	ROE
GME	13.22	0.33	0.33	0.08	0.21	0.007	6.40	1.57
LME	0.07	-0.03	0.08	0.04	0.007	0.001	1.59	-0.74
FMD	0.18	-0.005	0.08	0.02	0.007	0.008	1.58	-0.53
TR	11.45	0.32	0.32	0.09	0.21	0.008	6.10	1.65
MS	13.99	0.37	0.33	0.08	0.20	0.007	6.29	1.60
N obs	390	390	390	390	390	390	390	390

Based on the results obtained in the regressions we may notice the following issues:

- a 1% increase in the value of ROA determines the increase of GME by 13,22%;
- a 1% increase in the value of ROA determines the increase of TR by 11,45%;
- a 1% increase in the value of ROA determines the increase of MS by 13,99%;

However, for the return on equity of the firms, results show that there is no significant impact upon the sustainable development measures and as such, **H2 is not validated**.

Overall, the results of the analysis show that there is a strong positive correlation between firms' competitiveness, measured through ROA and sustainable development, measured through efficiency enhancers subindexes, observations that **partially validate H1**.

## CONCLUSIONS

Our analysis's results demonstrated that indeed firm competitiveness impacts upon sustainable development, however, debates arise when considering the appropriate measurement instruments.

In our case, only ROA was shown to be significant (the higher success of a firm in using assets to generate earnings independent of the financing, the higher impact on sustainable development), while ROE had no impact whatsoever. This is a consequence of

the availability of data; the majority of our firms did not register profit for the analyzed period which indicates that for a significant effect, a higher level of ROE is needed.

Nevertheless, the analysis model we developed might represent a useful instrument for policy makers and firm managers alike, assisting them in both public policy development and financial performance analysis.

Given that our research is focused solely on one aspect of sustainable development, results are debatable, implying a broader base of explanatory variables and further analysis. In this respect, we identified as further research paths, expanding the firm competitiveness' variables as well as those of sustainable development, or even extending the analysis for all of the five levels of competitiveness (firm, sector, national, regional and international level).

Our paper provides only a start within the topic, further research being required since it is widely acknowledged that sustainability and competitiveness involve a complex interactive process of social, political, and institutional issues. Furthermore, in light of the Europe 2020 strategy, our findings underline the impact of including the sustainable development perspective within the competitiveness theory, in order to meet the a nation's target of smart, sustainable and inclusive growth.

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