CERTAIN INDUSTRY, BIG GIVING: MODELLING THE CORRELATION BETWEEN SRI AND INDUSTRY RISK

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Abstract. Today, tomorrow's success has to be planned and evaluated according to the principles of two major theories: complexity theory and chaos theory. Concepts of globalization and sustainable development require new rules related to contemporary (investment) performance. The goal of this paper is to highlight a sustainability-based approach on investment decision optimization. The empirical study conducted in this area by estimating the parameters of a PANEL data regression model, provides that the relation between socially responsible investments (SRI) and company's performance is based indirectly on risk opportunities.

Key words: decision, investment, PANEL, risk, sustainability

1. Introduction

Since ancient times, was imposed among mankind the necessity of management and organization. Accelerating economic change and the compounding complexity of the business world are reflected in and stimulated by the rapid emergence and transcendence of new management ideas and values. A proliferation of management paradigms is occurring, defining paradigm as model for thinking, "constellation of concepts, values, perceptions and practices shared by community which forms a particular vision of reality that is the way a community organizes itself" (Kuhn, 1970). Different concepts of management paradigms have been at the centre of critical debate in recent years, and the notion of changing paradigms captures the flux of organizational resulting from the surging changes in the business environment (Clarke and Clegg, 2000). Bennis *et al.* (2004) in a brave attempt to balance economics, ethics and ecology, identify northern, western and eastern paradigms of management, and suggest the elements of a path of cultural evolution to a new global paradigm (Table 1).

Table 1. Management paradigms (Bennis *et al.*, 1994)

	Old paradigms			New global paradigm
	Northern	Western	Eastern	
Individual Manager	Effective Management (Drucker)	Entreprenurial Management (Peters)	Total Quality Management (Toyota)	Self-Mastery
Social Group	Effective Teamwork (Likert)	Shared Values (Deal/Kennedy)	Quality Circles (Sony)	Social Synergy
Organization as a Whole	Hierarchical Organization (Chandler)	Networked Organization (Handy)	Lean Organization (Honda)	Organizational Learning
Economy and Society	Corporate Responsibility (Steiner)	Free Enterprise (Gilder)	Human Capitalism (Ozaka)	Sustainable Development

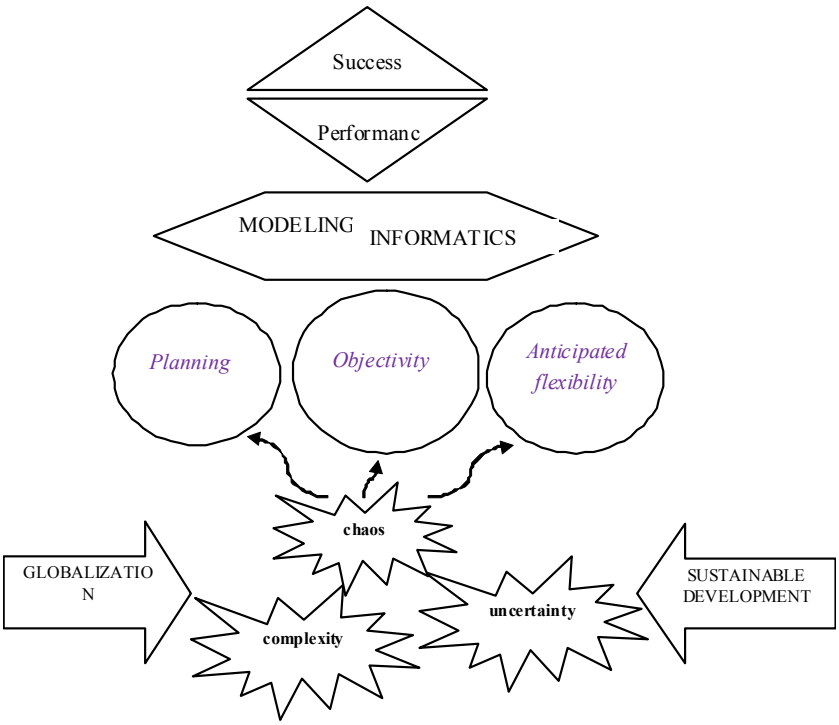

Fig. 1. Today's business success

The current management involves people, performances, relationships and processes that are constantly evolving (Gomez-Mejia *et al.*, 2005). It is oriented towards ethics, adherence to socially responsible principles and implicitly to the control of the evolution speed and degree of uncertainty imprinted by the nature of these principles.

Any activity carried out or that wants to be achieved in the contemporary world, is involuntary and often decisively influenced by two phenomena that we face today: globalization and sustainable development. While globalization requires an organization to adapt to new markets and new cultures,

sustainable development sets out the need to respect and support the sustainability of these cultures, by allocating a special importance to the socio-economic and ecological elements. If in the beginning the environment could not be understood without development, it was later stipulated that sustainable development cannot exist without the existence of a quality environment (Durac, 2015). Any economic activity is primarily based on staff and its knowledge, skills and experience (Azim *et al.*, 2014). The chaos caused by the increased complexity and uncertainty derive primarily from the need to manage the people as the main actors in the economic activity. For achieving performance, are necessary to include in the management process a proper planning, anticipated flexibility and objectivity in evaluation (Fig. 1).

Anticipated flexibility and proper planning implies the rationale to "be one step ahead of the events that could have an influence on the organization", and objectivity is sustained by modelling and computerization (Kohli and Devaraj, 2004).

This paper aims to support the importance of investment planning and evaluation. Based on statistical studies and analysis, is discussed the importance of the elements that underlying the substantiation of a sustainable investment decision. Factors regarding the economic conditions of the analyzed period (pre-crisis, crisis, post-crisis) and difference between the development levels of the world countries have been considered. Is supported putting into practice an approach to make the transition from corporate responsibility to the development based on sustainable investments.

2. Background and research methodology

2.1. Sustainability – new challenge of the investment decision

The best known definition of sustainable development is the one of World Commission on Environment and Development (WCED, 1987) in its report Our Common Future, also known as the Brundtland Report: "Sustainable development is the kind of development that meet the needs of present without compromising the ability of future generations to meet their own needs". Performance of an organization is according to this concept, the result of adopting a socially responsible management, whose decisions take into account the three performance levels: economic, environmental and social (Bell and Morse, 2003; Clayton *et al.*, 2015).

If the sustainable development has been a theme approached in macroeconomic terms before the year 2000, nowadays it is particularly debated in microeconomic terms, at the level of the economic entities. The issue regards especially the big multinational companies, taking into account their turnover and presence in all countries of the world, including the ones in which human rights or the struggle against corruption do not represent a priority of the governments. Thus framed, it is appreciate that the corporate social responsibility is important for the organizational success for at least three reasons: improves the image of the organization, this ones being obliged to adopt an ethical behavior that bring benefits to the society too; the company will benefit in crisis situations of a higher customer credibility; and the organization gets the benefit of a different kind of publicity (Dobrea and Dinu, 2012). What should be said is that social responsibility

should not be understood as a mere donation of money in philanthropic activities, but rather as a special way of doing business, an integrated style in the organizational culture and in all of its operational and strategic levels, at any time point. As any approach includes both advantages and disadvantages, costs cannot be excluded from the CSR equation.

Organizational decisions thus include social, environmental and economic concerns, and are more complex and interrelated than the ones from the past (Peptenatu *et al.*, 2012; 2014; Pintilii *et al.*, 2015). Organizations and their decision support systems must adopt procedures that are able to interact with this complexity, exceeding the purely technological orientation (Courtney, 2001; Capusneanu *et al.*, 2015). Implementation of such management has an important influence on the undertaken or planned investment processes in the organization, in terms of their quantitative intensification as well as in terms of diversification of evaluation criteria and substantiation of investment projects (Dinu, 2011).

This paper addresses issues related to investments sustainability, specifically in the substantiation process of the investment decision. Optimal portfolio selection requires projects assessment and selection of implementation variants that contribute most effectively to meet the organizational objectives (Mantel *et al.*, 2011). The problem of the "happiness" can be seen in the terms of how to adequate the objectives to the resources (Sârbu, 2013). Before finance a project, must be assessed the level of performance that can be supported by implementing the respective version. Investments have their source in the past achievements (or failures), are edified in the present, but always aim in the future (Românu, 2005). Investment projects represent a unique set of objectives, activities and resources interrelated in order to achieve a predetermined goal (Project Management Institute, 2008).

Evaluating a project, but especially the substantiation of the investment decision indicators are processes that mainly involve elements of risk (Ciocoiu, 2008) and uncertainty (Damghani *et al.*, 2011). The risk and the reduction of uncertainty by transforming it into "simple" risk must be managed according to contemporary business environment. The accuracy in predicting external events play an important role in this process. Establishing the specific deadlines of each project, resource allocation taking into account their specifics, availability and costs, forecasts of macroeconomic factors that may influence the project or customer requirements, are sources of uncertainty.

In today's business environment, characterized by significant "turmoil", decision-making optimization is based on the ability to manage the ambiguity appeared in this world of informational uncertainty (González González and López González, 2015). Hatfield (2008) points out: projects are complex and include interfaces, interdependent, and many assumptions which may prove too easy to be wrong. In addition, projects are managed by people, and this increases the uncertainty. Gale (2008) claims that the uncertainty includes everything, from legislation which can change the business activity, to natural disasters.

To take advantage of investments opportunities offered by the national, and especially international, economic

environment, in order to obtain competitive advantage in a particular context is required the study of the determining characteristics of the respective context and of its evolution forecast.

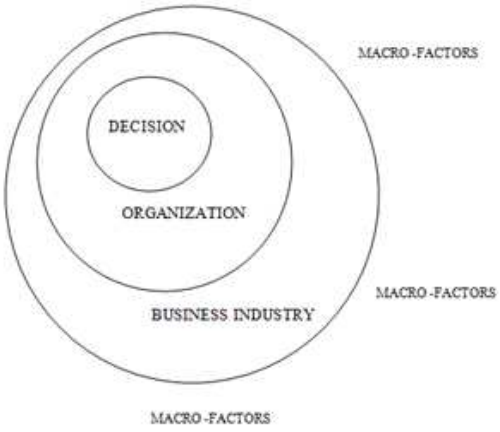

Fig. 2. Managerial decision environments

Investment decision is strongly influenced by the specific of the business sector (Fig. 2) in which the activity of the beneficiary organization is performed and implicitly by the changes occurred or which will occur at this level. Another category that influences investment decision is the macro-factors. These macro-factors influence the business environment and implicitly the investment decision. They are: the legal systems, economic conditions and cultural norms. In this paper are discussed the elements related to the risk and specificity of the business sector/industry; in actual research were not included cultural variables.

2.2. Research hypothesis

The sustained development of the companies in the ethical, community or social limits gains increasing importance in the business culture. Corporate social responsibility is a priority for world companies' managers. The development of socially responsible investment (SRI) in recent years, some paper argues that not only has it grown significantly but it has also matured, in the sense that it has become more complex and begun to enter the mainstream of investment practice (Lydenberg, 2002; Sparkes and Cowton, 2004).

The specialized literature argues that socially responsible investment and CSR have become tools involved in organizations activity that interact and collaborate to increase the overall performance (Cismaş and Stan, 2010). It is stated that if socially responsible behaviour creates value for firms in the long-run, then such value creation will be reflected in the investment recommendations of the analysts (Ioannou and Serafeim, 2010). Van de Velde *et al.* (2005) investigated the interaction between sustainability and financial performance and indicate that investors are ready to pay a premium for companies with good management of their relations with shareholders, clients and suppliers. The study is limited to 2000-2003 periods and includes an analysis based on scores given by a CSR agency, which involves a significant dose of subjectivity.

Further, this paper highlights the analysis and the possible answers to the following questions: *Can socially responsible investors, integrating environmental, social and ethical issues in their investment policy, expect the same return as traditional investors? Are there any differences between developed countries and the developing ones? Are the economic crisis and current economic conditions affecting the investor's sustainability?*

Currently, the models studied reveals significant differences between the situation observed for companies in developing countries, and companies

with significant history in the development of CSR programs. The relationship between performance indicators and SRI is a direct one, bidirectional in the analysis based on data regarding the performances of the international companies, while the data of the Romanian companies do not provide a statistically significant relationship (Dobrea *et al.*, 2012). So the question is: the performance of world renowned companies is really influenced by investment responsibility, or there is a discussion about a false regression that is based on good general situation of the analyzed companies?

From our point of view, the differences in economic conditions from different countries or different sectors influence the socially responsible investments more than the vision of sustainable management. From a statistical viewpoint, the direct relationship established between SRI and performance, is based on an autocorrelation of errors (based on the value of Durbin Watson statistic). Economically, the social responsible budget of the analyzed companies represents a percentage of company profits, therefore indirectly depend on social and economic conditions and thus on the specificity of the industry and its associated risk level.

The corporate use of capital budgeting techniques has been examined extensively (Damghani *et al.*, 2011; Kengpol, 2004; Tang and Chang, 2012). Most research, in the field, has focused on the use of capital budgeting techniques in particular country contexts. Research findings demonstrate cross-country differences in the use of capital budgeting techniques (Carr *et al.*, 2010). The optimal investment strategy for the multinational firms with foreign operations depends on some market and risk factors, as well as correlations among them (Chen and Chang, 2012; Restrepo *et al.*, 2012; Sanjo, 2012).

Regardless of the sophistication degree of the techniques used, procedure or assessment level, traditional investment decision is based on indicators (Bojanc *et al.*, 2012) that are discounted with a particular risk factor. The issue that this paper wants to highlight is whether the sustainable investments are guided by the same principle of differentiation based on risk. The research model tested aims to validate the influence of the industry risk on the value of the sustainable investment. Demonstration of these statements starts from the following equation:

$$SRI = a \cdot Risk + u \qquad (1)$$

Where:

- Dependent variable (*SRI*) - data regarding the value of Social Responsible Investment made by companies from different areas of activity. Data source are the reports "Giving in Numbers" presented by The Committee Encouraging Corporate Philanthropy (2007-2011), which includes data on leading companies and some of the top 100 companies in FORTUNE 500.
- Explanatory variable (*Risk*) – the variable is composed of specific capital cost values for each business sector considered, presented by professor Damodaran (2012) on its website.
- a - coefficient of explanatory variable; shows the influence of industry risk changes on SRI.
- u - free term.

For the analysis were taken into account indicators values for the period 2005-2012. Area of activity based on which the study was conducted are: Consumer Discretionary, Consumer Staples, Energy, Financials, Health Care, Industrials, IT, Utilities.

3. Results

Firstly, in the model it was used the median of SRI variable. When a group of numbers is sorted from highest to lowest, the median value is the number in the middle of the list. If the list has an even number of entries, the median is the average of the middle two figures. Medians are used in because they are less sensitive to extreme values than averages, which can be skewed by very high or very low values.

Then, the method used for the parameters estimation is Pooled Least Squares with GLS (Cross Section Weights) used for the elimination of error autocorrelation and heteroscedasticity. On testing the significance of the regression line slope we have applied the classical t-Student test (statistic test applied for establishing the signification of a regression model's parameters). The test's hypothesis is: H_0: a = 0 (the slope of the regression line does not significantly differ from zero, which is equivalent with saying that the regression model is not significant) and H_1: a ≠ 0 (the slope of the regression line differs significantly from zero). Because the signification threshold Prob. is 0.0016<0.05 we reject the null hypothesis and we accept that the regression model is significant from statistical point of view. For model validation was applied Fisher Test - values of Prob (F) lower than 0.05. The tested hypothesis were: errors autocorrelation (Durbin-Watson statistic - by comparison of the limits in the Durbin-Watson distribution table and the Durbin Watson statistic value), normal repartition of the residue (Jarque-Bera test - values for Jarque-Bera Probability) and homoscedasticity (White test - probability higher than 0.05) (Stock and Watson, 2003). Estimation of the used software (see Appendix A) for the parameters of the 64 total panel observations highlights the following regression equation:

$$SRI = -5.69 \cdot RISK + 81.68 \qquad (2)$$

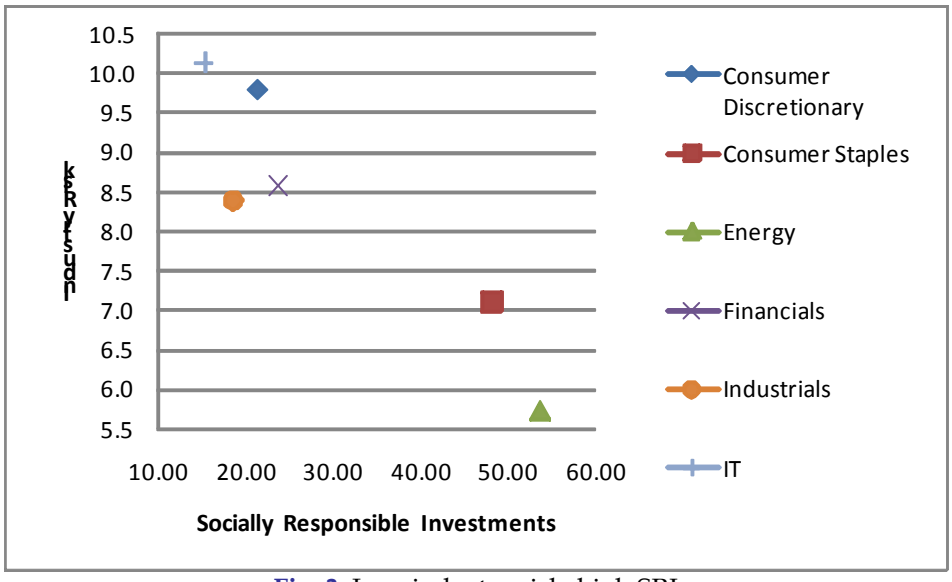

Fig. 3. Low industry risk, high SRI

Therefore, for increasing the risk level of investment field with 1%, the investment (SRI) decreases by 5.69 million dollars. Since the regression model has a small constant term, and the value for determining R^2 is 0.74, we can say that a significant part from the dispersion of the SRI variable can be explained through risk variable. So the risk is one of the most important variables that are included in the investment decision, even when discussing about a responsible investment. To emphasize the indirect relationship observed between socially responsible investment value and the risk level of the business sector of the investing company, the average values of the two indicators for the analyzed period are presented in Fig. 3. To highlight the indirect relation we excluded the series outliers (Health Care and Utilities values).

Relations established for each sector, concerning the time evolution of the risk sector and of the socially responsible investments are not statistically significant due to the low number of years considered. Another limitation of the model tested is the use of different companies as the basis of the research. Also, the cost of capital (element used to quantify risk) does not include all elements of a specific business sector.

4. Discussions

A country business environment consists of the aggregate of specific conditions that influence the benefits, the costs and risks of making business there. To manage a business requires compliance with the host-country rules, and those become quickly issues which interact and affect the organization.

Conducting an economical activity, and especially developing an investment, absolutely involves risk. The risk level vary according to the background specificity, differs from country to country, and from one field of activity to another. However, in an environment characterized by complexity and uncertainty like that of the present, the risk is a positive element. Transforming uncertainty into risk is one of the biggest challenges that make a decision performing. Risk cannot be avoided and nor should it want it, it is important to quantify it in order to make realistic decisions.

Specialized sources (Restrepo *et al.*, 2012; Yean Yng Ling and To Phuong Hoang, 2010), classifies risk into three classes: political - present especially in developing countries, refers to governmental changes, social revolts or terrorism – it is rated for each country by specialized agencies, as (Ball *et al.*, 2002): Bank of America World Information Services, Business Environment Risk Intelligence BERI, Control Risks Information Services, Economist Intelligence Unit EIU, Euromoney, Institutional Investor, Standard and Poor's Rating Group, Moody's Investor Services; economic – covers items like the inflation rate, exchange rate or the interest rate; and legal – specific law rules.

The contemporary management, built on the operational and behavioral theories, is the way of their improvement and interrelation. System theory (Daft, 2010), risk theory and learning organization, are new approaches considered of great interest and importance by specialists. Organization as a system is the base of this paper approach, and the risk is considered an implicit element of this theory. Existing relationships within the system and between systems involves

elements characterized by risk and uncertainty. Regarding the learning organization, we consider that the organization is a synergic human system composed of people and relationships between them. If "a man learns all his life", means that the organization should always be based on learning. However, would be required an approach that exceed the limit of "to learn from our mistakes". Today's organization should be based on a forecasted and planned learning, not based on its own mistakes.

In this context, a performing company is that which maximizes the expected value of its stakeholders (Gomez-Mejia *et al.*, 2005). The expected value of each stakeholder category is constantly changing due to their internal and external environment. Thus, adaptation is no longer the best way to practice a successful investment management. Given the current world economy, we have to make decisions before the event occurs. We need to be "one step ahead of crisis", whether if we understand that the crisis means a situation that affects the world (economic international crisis) or a simple dismissal or employment decision, or an investment project resources budgeting. People, the stakeholders that we relate with, charged any event that positively or negatively affect their welfare and work as a "crisis" and appropriately react. Their reaction to the crisis determines the change that needs to be in advance managed.

To obtain an optimum investment performance, should be given greater importance anticipation and forecasting, in order to reduce the future necessity to adjust. To argue the presented approach, it is translate into an equation:

$$opt\ P = \max \sum_{i=1}^{n} \alpha_i \cdot I_i \qquad (3)$$

Where:

P = performance level;

I = indicator affected by the occurrence of an event;

i = event, i = 1, n;

a = foresight degree of the occurred event;

And:

$a_i \cdot I_i > b_i \cdot I_i > c_i \cdot I_i$

$a_i + b_i + c_i = 1\ (100\%)$

When: $C_b < C_c$

Where:

b = adjustment level to the event occurrence (the lack of planned scenarios require to adapt);

c = rate of failure against the indicator objectives, due to the event occurrence (the proportion of the unplanned and unadjusted differences caused by the event occurrence becomes failures);

C_b = adjustment cost;

C_c = failure cost.

5. Conclusions

In a successful organisation, people are wisely managed and resources are used efficiently and effectively. This approach helps managers to fulfil the purpose and objectives of the organization in a rapidly changing environment that offers constant technological, legal or competitive challenges. In any organization, efficiency and effectiveness must be interrelated to bring and to sustain the desired level of performance. Efficiency requires optimal allocation of resources and choosing the right people. Effective management, maximizes results, based on the situation, or achieves its objectives with minimal resources. In either of the two situations, efficiency involves the optimization of setting standards and allocation of resources.

An investment project is not likely to succeed without flexibility (Mantel *et al.*,

2011). We agree with the need for a low level of rigidity in setting parameters and objectives of a project, but both the variation level and possible ways to approach each deviation must be established and evaluated from the beginning. Changes can be (with a margin of error of course) provided. It is not possible, in the XXI century, to wait for a deviation to appear and to adapt to it because we are flexible; we have to know since the pre-investment phase what deviations can occur and what actions we will take. Today, money is "too expensive" to allow us to be surprised by the external factors.

Socially responsible investments are made by large companies in low-risk business sectors and territories, that can afford to spend without a safe short-term benefit. Organizations operating in developing countries (e.g. Romania), in conditions of economic crisis, does not grant great importance to this category of investment. As the business is smaller and operates in a high risk sector, the less are the social investments that it makes.

Sustainable investment should represent for any category of organizations, the inclusion in the substantiation of any decision of a proper planning and evaluation. In the current economic conditions, an investment that not fails can be considered sustainable. Thorough environmental analysis, three-dimensional evaluation of investment performance (financial, economic, environmental), and simulated internal indicators variability to the environmental changes are elements that should be included in decision-making process.

To develop this point of view, future research aims at developing a decision support indicators-system for sustainable investment decision. In our opinion, special attention should be paid to the aspect of subjectivity and freedom of decision making (Damodaran *et al.*, 2005). People think differently and have different education, beliefs and cultures. Therefore the assessment processes should lead to an objective decision. That is why the results of this research will form the basis for the design of support software for optimizing the sustainable investment decision based on simulation and planning. Also, based on the presented approach can be made further studies concerning the inclusion or exclusion of certain classical investment decision substantiation elements in the sustainable investment decision. Another important aspect that we consider appropriate to be a continuation of this paper, targets the analysis of the relation between cultural diversity, as part of social sustainability, and (foreign) investment partnerships made.

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