Novum Organum Oeconomicum

"In order to generate science, the collection of observations, valuable to the critical moment of intervention in a particular case, must prove its validity not in an ontologically defined system, but in an epistemological one."

Reductionism was so faultily installed in the conceptualization of Economics that it has started to obscure the greater picture. The evaluations of the states of rationality mostly take into account the intra-conditionings of the part to the detriment of the inter- and supra-conditionings regarding the whole. In Economics' recent manner of configuring its concepts, the context which includes meanings and irradiates solutions has been substituted by the structure of the contingent and useful element.

Thus, excessively rationalized, the understanding of things was closed within the exclusive hypothesis and the explanation was limited to the immediate and sufficient functional. The over-segmented perspective and the spurious instrumentalisation have created the basis for the deductive certification of unique solutions. The drawing of epistemic borders has followed the principle of the homogeneity of means in reaching measurable goals, behaviors being approached in a normative-technological manner. The preference for empirism and econometrics has thus found, in turn, its comfort. The qualitative analysis, the theoretical horizon and the conjugation of methods in the founding of explicative models of reality – though complex, dynamic and integral – have all been sent to the periphery.

In fact we cannot talk of a normal conformation of Economics to the Baconian pattern of scientific knowledge. The decantation of concepts through experimentation traces an eminently indirect path in Economics. In a particular way, Economics – like all sciences of the humane – practices the theoretical exercise, building it hypothetically and counterfactual, with the experimentation of the hypothesis not being a de facto direct actional form. If this is the fundamental distinctiveness of Economics as a science, it means that the integral and integrative theoretical vision is inevitable, while the method is flexible.

Equally, the special epistemic condition of Economics can be distinguished only if the propensity for assimilating practical experience – as a laboratory for producing economic science – is correctly interpreted. The logic of the system for the promotion of economic research, being overly attached to empiricism, could be the source for the mixing of the planes of perception. The indistinct understanding of the research levels – one centered on the study of theoretical experience and the other focused on the practical experience – is favored by the growing demand for management consulting. In the first case the creation of the conceptualization is made a priori, while in the second case deduction is being used, reducing reality to the abstract. One highway line of cognition is frequented by the sophisticated logic of scientific research while the other facilitates the transport of fuel for the motor of economic action.

The two highway lines run in parallel, their direction being opposite and logically consistent: one way from idea towards idea and the other way from facts towards facts. The analogy with the physical form of a two-way highway does not help us really understand the type of movement, because forward and backward for instance, as indicators of sense in the circulation of knowledge, exist here for both directions. Meaning that the backwards-forwards movement takes place on the direction of ideas while the same motion occurs in the realm of facts. It is a sort of coming and going of the meanings of creation and recreation from an idea, or group of ideas, to another idea or group of ideas – a transfer of mutually validated connotations having a cognitive added value as a result.

In the actional plane the transfer of meanings has, on the one hand, the consistency of a good practice with a potential resonance in the plane of ideas and, on the other hand, a randamental finality, reopening the back-and-forth balancing motion in the plane of practical experience. An autonomy of movement is being configured in the two planes due to the differing substantiation, and due to the finality of the movement as well: explicative models in the case of ideas and efficiency of action in the case of facts.

What we have here is an insufficiently deciphered dialectic through which the paths of communication between theoretical knowledge and practical knowledge are entwined. The unclear part is the manner in which the transaction of connotations takes place and, especially, the way in which the fusion of the cognitive values between the two highways takes place. It is probable that the suggestions of the logic of the third state (T-state) may help us see the highways of theoretical and practical knowledge in Economics as lanes of the same highway. Frankly, here is where we find the sources for the blockage of cognitive cooperation and they have the consistency of professional sufficiency.

The preference for expertise-type studies is a natural fact for a performance economy, but in time it proves its limitations when it tries to substitute the process of scientific research. It is as if a surgeon would pretend that files containing the observations on an operated organ could replace fundamental knowledge in medical science. In order to generate science, the collection of observations, valuable to the critical moment of intervention in a particular case, must prove its validity not in an ontologically defined system, but in an epistemological one. The insertion in scientific discourse is a problem solved by coherence within the main conceptual body. This test is itself preliminary to a testing of the epistemic consistency by which the area of relevance is drawn and cognitive potential is certified.

The differential between the two levels of economic cognition pertains to the fact that science colonizes the world of ideas, while expertise habits the world of facts. The conceptual horizon of the scientific type of research approach has the relevant idea as a unit of measure in the reproduction of generic ideas, while the expertise type of studies are interested in advancing concrete solutions, specific to problems of conjuncture, of political economics.

Complementarity mustn't be a way of mixing up referential plans and also not an option for the substitution of perspectives. Complementarity signifies the circular essence of knowledge, in which the principle of univocal causality is relativized in the actional space of the determinist chaos which structures theoretical experience and practical experience, ideas and facts.

The preparation for epistemological fragmentation arrived in Economics by way of making academic disciplines autonomous and of the tunneling of specialized education. The sociological consequence was double-sided: the micro-dimensioning of competence and the installing of autism in the community of economists. The vehicle of scientific communication has been damaged, and the transfer of knowledge has been linearized. The cognitive transfer took place between the adjacent methodologies interested in short-term yield. The objective-function of synthesis was at most activated in the actional space circumscribed to the making of the current decision. The coherence of the temporal three-dimensionality of evolutions was a random fact.

The image of a cog in the machine located beyond the cognitive border is the best illustration for the state of Economics. Punctiform knowledge, the assumption of self-regulated scientificity and the expertise-type studies have become reproductive, dislocating the established research practices, especially those of a fundamental nature. What is left of Economics, as a matrix for the conceptual meanings of the integral state of rationality – certifiable as an inter-subjective transaction of utility, is the escape into the instrumentation borne by pragmatism.

The bad part is that, under the pressure for the presentation of current policies, it cannot avoid falling into ideology.

Marin Dinu

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Note: The authors are responsible for the content of their articles and for obtaining necessary permissions.

Text revision:
Gabriela Ochianã
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Cover:
Nicoleta Bobocea
Subscriptions distribution:
Mircea Dinu
Tel./Fax: 021/210.73.10; 021/210.63.07
021/210.63.08

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International Consortium for the Advancement of Academic Publication (ICAAP)
http://www.icaap.org
CNCSIS B+

www.economieteoreticasiaplicata.ro; www.ectap.ro

Reception of texts: economia.ta@edeconomica.com

ISSN 1841-8678 (Print)
ISSN 1844-0029 (Online)

Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 5-16

Corporate Governance in Emerging Economies: The Case of Romania

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Abstract. *In Romania corporate governance has emerged beginning with the early 2000s. The delay is explainable by the difficult steps taken on the line of political, legal, economic and social reform. In recent years, however, the corporate governance environment in Romania has changed. Transparency and accountability have become key factors not only for shareholders, but also for investors, buyers, suppliers, and other stakeholders.*

In this context, it is worth to consider, based on statistical data, the degree of development of corporate governance in Romania. The selected indicators are linked to attributes of the Board of directors, in particular Board structure, size, independence, frequency of meetings, and other factors. The sources used are based on the official data published by companies listed on the Bucharest Stock Exchange (BSE). The results will be compared with results of other case studies of emerging countries and the European best practice.

Keywords: corporate governance; emerging economies; Romania; disclosure; corporate governance indicators.

JEL Code: G3.
REL Code: 17G.

1. Introduction

Corporate governance represents a set of "rules of the game" through which companies are managed internally and supervised by Boards of directors, aiming to protect the interests of corporate stakeholders. It specifies the distribution of rights and responsibilities among different participants in the corporation, such as the Board, managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs. By doing so, it also provides the structure through which the company objectives are set, and the means of attaining those objectives and monitoring performance (OECD, 1999, p. 2).

The last three decades' ground-shaking bankruptcies, financial crises and the gap between executive compensation and corporate performance results have demonstrated that instituting corporate governance is not only a means to survive in today's world, it is a strategy to prosper. Corporate governance helps companies to attract investments and to enhance economic performance and competitiveness on the long term. A sound system of corporate governance insures that transparency is maintained in relation to all significant transactions of a company, especially through the adoption of disclosure standards in dealing with investors and creditors. Moreover, corporate governance aims to enhance the managerial attributes of a company, by limiting the abuse of power from insiders and by safeguarding the resources of companies, through a monitoring system insuring corporate accountability (Omar et al., 2004, p. 6).

Since the development of corporate governance has proven to be beneficial for companies, the regulators in developed countries have made substantial effort for updating and improving accountability systems. Corporate governance systems have been reformed through the issuance and the adoption of best practice codes. The implementation of corporate governance principles into the practices of enterprises is a non-mandatory practice, but it is subject to market pressure for conformance. As we speak, there are more than 180 corporate governance codes worldwide, which have a great degree of similitude and convergence regarding their formulations and content (Aguilera, Cuervo-Cazurra, 2004, pp. 417-446).

Drawn firstly in developed countries, best practice recommendations have been disseminated beyond their borders. Some emerging countries were quick in adapting some of these corporate governance codes. However, in order for corporate governance principles to have any impact in an economy, there must be a priori a set of core democratic market institutions. Therefore, instituting corporate governance in emerging countries necessitates more than just copying external models which display a proper functioning in developed economies. Emerging countries must make the passage from institutions of economic and

political governance that tend to be heavily relationship-based to institutions that are more effectively rules-based. This passage is difficult because of the expropriation problem and because of the widely damaging effects of negative-sum game rivalry among powerful interest groups entrenched in local structure of political and economic power (CIPE, 2002, p. 9).

Our research aims to analyze the principles of corporate governance implemented by companies from emerging countries, where competitiveness in today's global economy is more difficult. The case of Romania serves the purpose of demonstrating that functioning market rules need to exist prior to the implementation of corporate governance codes, which would otherwise fail in their purpose of insuring accountability.

The rest of the paper is organized as follows. Section 2 discusses the background literature on corporate governance in emerging economies. Section 3 presents the corporate governance environment of Romania. Section 4 describes the research method and presents the results. In the final section, the conclusions are accompanied by a description of tentative avenues of research.

2. Background literature on corporate governance in emerging economies

In this section, we provide a brief overview of the theoretical and the empirical literature on the implementation of corporate governance principles in emerging economies. The literature focusing on these aspects is extremely rich. Some studies discuss the attributes and dynamic of corporate governance in only one emerging country (Black, 2001, on Russia, Jandik, Rennie, 2005, on Czech Republic, Sarkar, Sarkar, 2005, on India, Black, Jang, Kim, 2006, on Korea, Vitezić, 2006, Croatia, Siddiqui, 2010, Bangladesh). Other papers are multi-country studies (Faccio et al., 2001, Lefort, Walker, 2003, Klapper, Love, 2004, Allen, 2005, Durnev, Kim, 2005, Driffield et al., 2005, Love, Rachinsky, 2007).

The thematic approach is also different. Some studies are focusing on the economic behaviour of companies which are tied to a group or conglomerate which exerts control over them through a significant participation in their share capital. Conglomerates have been able to grow and increase their scope and self-intermediation practices even during times of fierce economic reform and deregulation (Lefort, Walker, 2000, p. 7). Therefore, several studies have sought to evaluate whether an entity's affiliation to a conglomerate is a good thing for the investors. Khanna and Palepu (1999, pp. 271-310) reported that in Chile and India the affiliation of a firm to such a conglomerate lead to a growth of economic performance and that the degree of diversification of the conglomerate increased performance only after it had reached a certain threshold. Still regarding Chilean companies, Lefort and Walker (2003, p. 8) indicate that affiliation to a group tends

to decrease the value of the firm and that the effect is partially reduced when there is a separation between cash flow and control rights.

Other studies based on emerging economies have analyzed the impact of implementing corporate governance principles on the performance of entities. In 2001, Credit Lyonnais Securities Asia (CLSA) has devised a series of corporate governance rankings for 495 companies from 25 emerging countries. The report underlined the fact that companies ranked high on the governance index have better operating performance and higher stock returns. Klapper & Love (2004, pp. 287-322) used the governance rankings produced by CLSA to investigate the relationship between corporate governance and firm performance by employing multivariate regression. Their tests showed that better corporate governance is highly correlated with better operating performance and market valuation. Additionally, the two researchers emphasized the fact that well-governed firms benefit more in bad corporate governance environments and that firms can partially compensate for ineffective laws and enforcement by establishing good corporate governance and providing credible investor protection.

The study conducted by Black (2001, pp. 89-108) on a sample of Russian firms analyzed for the year 1999 reported a strong correlation between a corporate governance index and the market value. Similarly, for the period 1999-2004, Black et al. (2006, pp. 361-379) signaled an economically important and statistically strong correlation between governance and market value. In the financial sector there are some significant, but economically unimportant relationships between governance and contemporaneous operating performance and an even weaker link with the subsequent performance (Love, Rachinsky, 2007, p. 17).

Numerous other studies have focused on the role of debt in corporate governance systems from emerging economies. Debt is an important mechanism for solving monitoring issues in firms where there is a separation between ownership and control. It is obvious that managers have the incentive to extend the size of the company even by reducing corporate profits, because large companies are drivers of power, fame and remuneration for the respective managers. In this case, debt is imposed as a disciplinary mechanism, aiming to reduce agency costs and to align the interests of managers with those of the shareholders, within the "control hypothesis" for debt creation (Jensen, 1986, p. 326). Thus, Faccio et al. (2001, p. 2) noticed that companies from Eastern Asian countries that were more vulnerable to expropriation were more levered, giving the shareholder control of more resources to expropriate without direct liability for more debt. However, Tian (2005, p. 5) has found no evidence regarding the disciplinary role of debt, in the case of Chinese companies.

The study of Harvey et al. (2004, p. 24) on 18 emerging economies has diagnosed a limited disciplinary effect of debt, in correlation with the nature of the borrowed capital. Thus, the study indicates that the incremental benefit of debt is

concentrated in firms with high expected managerial agency costs that are also most likely to have overinvestment problems resulting from high levels of assets in place or limited future growth opportunities. Subsequent internationally syndicated term loans are particularly effective at creating value for these firms.

Driffield et al. (2005, pp. 23-27) provided evidence that, on a sample of companies from Korea and Indonesia, higher ownership concentration is associated with higher leverage irrespective of whether a firm is family owned or not. But the effects of higher control rights on leverage and profit margin depend on whether a firm is family owned or not and also whether it has a controlling manager.

Similarly, Sarkar and Sarkar (2005) examined a sample of Indian companies, analyzing the role of institutional change in strengthening the disciplining effect or mitigating the expropriating effect of debt. The results indicated that, while in the early years of institutional change, debt did not have any disciplinary effect on either standalone or group affiliated firms, the disciplinary effect appeared in the later years as institutions become more market oriented. In addition, the study provided limited evidence of debt being used as an expropriation mechanism in group firms that are more vulnerable to such expropriation.

There are also studies which have attempted to characterize the models of corporate governance adopted in emerging countries. In developed countries there are two models of corporate governance: the shareholder model and the stakeholder model. While the former has the objective of shareholder value maximization, the latter aims to defend the interests of firm constituencies (employees, commercial partners, shareholders, managers etc.). The results of such studies indicate that some emerging economies tend to adopt the shareholder model, despite the fact that this model is based on hypotheses and mechanisms such as efficient markets and equity financing (Mukherjee-Reed, 2002, India, Reed, 2002, South Korea, West, 2006, South Africa). Many of the mentioned countries are former British colonies, with a common law system. Other emerging economies have adopted the stakeholder model (Rwegasira, 2000, on Africa, Vitezić, 2006, on Croatia, Feleagă, 2008, on Romania, Siddiqui, 2010, on Bangladesh), and some of them have been influenced by the French system of Roman law. In emerging economies, companies are less motivated to act in a socially acceptable manner, if their actions are not matched by the available resources. This justifies why the stakeholder model is more appropriate for such countries.

3. The corporate governance environment in Romania

Corporate governance became a part of Romanian economic life, both from a conceptually and from a regulatory point of view, at the beginning of 2000. This delay is the result of the many inconclusive efforts that targeted political, juridical, social and economic reforms. The governmental policy that

was expected to liberalize the economy after the anti-communist revolution was still not completed after a decade of quasi-capitalism. At that time, a coherent strategy to extract benefits from national human and technological resources was still not implemented. The Bucharest Stock Exchange (BSE) opened for investors in 1995, while the National Securities Commission still had a long way to go to reach effectiveness; its lack of implication in scrutinizing the quality of financial reports and the impossibility of implementation of modern accounting policies lead to deep market inefficiencies.

On the other hand, the difficulties the banking system had to face were the main cause for a lack of implication in the market mechanism. The lack of trust of banks' stakeholders and minority shareholders prevented banks to be actively involved in providing and intermediating national capital. Consequently, the hypothesis that Romania had a functional market economy before the beginning of our century is unacceptable in our view, even if our European partners seemed to tolerate this difficult passage to capitalism.

This was the context in which, in 2001, the BSE adopted the first code of corporate governance addressed at those companies aiming to be listed at the "Plus Category" (meaning an "additional transparency layer"). This initiative was not successful, since only one company has entered into this layer. In the following years, BSE has created the Institute for Corporate Governance, aiming to educate the executives of listed companies into promoting adequate governance standards, in line with the White Book of Corporate Governance in Eastern Europe, which was partly designed by BSE. However, the implementation of corporate governance in Romania did exhibit some fundamental flaws and inconsistencies (Feleagă, 2008, p. 44):

- The lack of precise analyses concerning the relationships between shareholders and managers;
- The scarce involvement of all stakeholders in the decision-making process;
- The omission of a conceptual framework for an efficient market and its societal implications;
- The dubious implication of financial auditors in promoting corporate governance;
- The failed reforms in implementing an accounting system in accordance with international harmonisation;
- The poor control mechanisms impairing a fair, relevant, understandable and comparable financial disclosure.

In 2008, BSE adopted a new Code of corporate governance, having the OECD principles as basis of reflexion. The Code entered into force in 2009 and is voluntarily applied by companies listed at the BSE. The companies which decide on a partial or total compliance with the Code are required to file a Conformity

declaration, similarly with the "comply or explain" principle from the United Kingdom. This Declaration enumerates the recommendations which have been explicitly implemented by the companies, as well as their implementation manner. The new Code of corporate governance is similar to those adopted by other European Member States and stipulates new rules which are important for managers and Boards of directors from Romanian companies. The BSE considers that the Code can only supplement the laws in vigour in Romania, e.g. the Company Law, the Accounting Law, the Financial Markets Law etc.

4. Methodological aspects: sample selection and results

The aim of the present research is to investigate, based on statistical data, the perceived importance of corporate governance principles in Romania. The source is the information publicly available from the companies listed at the BSE. At the end of 2010, 101 companies were registered at the BSE, of which: in the first tier – 25 companies; in the second tier – 49 companies; in the third tier – 1 company; and unlisted – 26 companies. For the purpose of this study, only the companies in the first tier were selected, because it is more likely that some of these companies have adopted the provisions of the Romanian Code of corporate governance, and have disclosed their conformity level. To obtain a relevant homogenous sample, we decided to eliminate 10 financial companies, and thus the final sample has 15 industrial companies and is presented in Table 1.

Table 1

Sample companies

Number	Company name
1	ALRO SA
2	ANTIBIOTICE S.A
3	AZOMURES S.A.
4	BIOFARM S.A.
5	C.N.T.E.E. TRANSELECTRICA
6	CONCEFA SA SIBIU
7	IMPACT DEVELOPER & CONTRACTOR S.A.
8	OIL TERMINAL S.A.
9	OLTCHIM S.A. RM. VALCEA
10	OMV PETROM S.A.
11	PREFAB SA BUCURESTI
12	ROPHARMA SA BRASOV
13	S.N.T.G.N. TRANSGAZ S.A.
14	SOCEP S.A.
15	TURBOMECANICA S.A.

The indicators used in this study are derived from attributes of the Board of directors: the size and structure of the Board, the independence of directors, the separation between the chairman of the Board and the executive officer, as well as the degree of disclosure in relation to these elements.

4.1. The size of the Board of directors

The number of members in the Board depends, in principle, on the relevant regulations specific to each country and to the sector to which the company belongs. The analysis conducted by Maier (2005, p. 8) reveals a great diversity concerning the size of the Board, with an average number ranging from 7.2 in New Zealand to 22.8 in Germany.

The BSE governance code provides that the Board must have a membership that guarantees the efficiency of its ability to monitor, analyze and evaluate the work of directors, as well as the fair treatment of shareholders. For companies in the sample, the average number of Board members is six. This average number is consistent with the Romanian Company law which provides for a minimum of three and a maximum of 11 members. Romanian average is lower than the European average of 12.5 members (Albert-Roulhac, Breen, 2005, pp. 19-29), a result which can be explained by the size of local companies and their ownership structure.

4.2. The structure of the Board of directors

Three indicators were used to analyze the structure of the Board: internationalization, age and diversity of members. Results showed that, in Romania, the share of foreign members of the Board of directors is 16%. Although the value is identical to the European average (Albert-Roulhac, Breen, 2005, pp. 19-29), it should be noted that only three of the 15 sample companies have foreign citizens as members. Moreover, for two of the three companies, the percentage of foreign members is over 70%, which is explained by the weight that foreign capital plays in these companies. The average age of Board members is 51 years. Board member's average age is 55 in Europe. On average, directors have been 5.6 years on the same Board, which is higher than in Romania (around four years). On European Boards, the number of women increased from 6% to 7% (Albert-Roulhac, Breen, 2005, pp. 19-29), while in Romania the percentage is much higher, around 16%.

4.3. The frequency of Board meetings

BSE governance code sets the minimum frequency of Board meetings. These should meet whenever necessary for the effective discharge of its responsibilities but it is advisable to have at least one meeting per quarter. The frequency of meetings for companies in our sample is six per year. In Europe, the average frequency of meetings for two-tier Boards is 6.7, while for unitary Boards it is 9.3 meetings (Albert-Roulhac, Breen, 2005, pp. 19-29).

4.4. The independence of Board members

The BSE Code of corporate governance states that the Board structure should ensure a balance between executive and non-executive members so that no person or group of people can dominate, in general, the Board's decisions. Moreover, a sufficient number of board members must be independent directors, meaning that they should not have or have recently had, directly or indirectly, any business relationship with the issuer or persons involved, of such importance to influence the objectivity of their opinions.

The analysis carried out on companies listed on BSE showed that 27% of them are reporting a high degree of independence of the Board of directors, while for 53% this attribute is lacking. Twenty percent of companies did not provide information on board independence. Analysis carried out by Maier (2005, pp. 9-10) showed the average percentage of board independence on a scale ranging from 1.5% in Germany to 81.3% in Switzerland.

According to the BSE Code of governance, the Board should establish an audit committee to assist in fulfilling the Board's responsibilities in the matter of financial reporting. This committee should be composed exclusively of non-executive directors and should also contain a sufficient number of independent directors. For our sample, 80% of companies did not ensure independence of the audit committee. The other companies did not provide relevant information to make an objective analysis on the independence of audit committee members. The study by Maier (2005, p. 10) found, on average, a degree of independence of the audit committee of 64.5%, varying from 4% in Japan to 95% in Canada, US, Ireland, UK, Netherlands and Luxembourg.

4.5. The separation between the chairman of the Board and the chief executive officer

According to "best governance practice" recommendations in developed economies, the Board appoints the chairman from among persons who are not part of management. For our sample, in 67% of the companies the positions of chairman and CEO are held by the same person. For the remaining companies, the two positions are held by different people.

4.6. The disclosure of director and executive remuneration

External users are interested, in addition to other information about the company, about the remuneration policy for board members and managers. The remuneration is the most influential factor on the level of participation directors and executive exhibit in relation to running the business. The BSE governance code provides that companies must benefit from the services of directors and executives with a good professional and ethical profile, in conjunction with a reliable remuneration policy, consistent with the strategy and long-term interests of those entities. The study by Maier (2005, p. 11), based on a sample of firms from 24 countries, showed that disclosure of information on remuneration of Board members and directors has an average of 84%.

None of the Romanian companies analyzed has disclosed information on executive or director remuneration. The absence of such information leads to an impossibility to corroborate director remuneration with Board meetings, as to compute an average compensation per meeting. In Europe, the average compensation per board meeting in 2005 was EUR 7301 (Albert-Roulhac, Breen, 2005, pp. 19-29).

4.7. The existence of a code of ethics

If you are considering the "best practices" of governance in developed economies, implementing a code of ethics is necessary. In Europe, on average, 73% of companies have such a code. In Romania, only 47% of companies provide information on the existence of a code of ethics.

5. Conclusions and directions for future research

Corporate governance is recognized as a key element in attracting investment and increasing economic performance and competitiveness in the long term. Globalization of financial markets has contributed to reducing the gap between advanced and emerging economies, in terms of corporate governance implementation. However, due to cultural, economic and social factors, emerging economies cannot yet speak of a comprehensive approach, especially when compared with developed economies.

In Romania, corporate governance has emerged in its regulatory and conceptual form in the early 2000s. The first corporate governance code was adopted in 2001. In 2008, it was replaced by a new corporate governance code, which is based on OECD principles. The new code is applied voluntarily by companies traded on a regulated market operated by the BSE. In this context, our research aimed to analyze a sample of companies listed on BSE, regarding the

perceived importance of corporate governance principles in Romania. The collected indicators are related to attributes of the Board of directors: size, structure, frequency of meetings, independence, separation between the chairman and chief executive officer, and information disclosure.

Results showed that most sample companies do not meet the recommendations of the BSE code of corporate governance regarding the independence of directors and audit committee members. In addition, for most of the Romanian companies in our sample, the degree of transparency is much lower than that of other European companies.

There is much scope for further research in this area. Thus, the sample could be extended to companies in the banking sector, which would serve to verify if the situation is the same with entities from the financial industry. In addition, one could explore the incentives behind the Romanian companies' decision to implement the recommendations of the code of governance. The corporate governance impact on performance could also be established through a quantitative research employing other contextual predictors (economic, political, social, and cultural) of company performance.

Acknowledgements

This work was supported by CNCSIS–UEFISCSU, project number PNII – IDEI code 1859/2008, contract no. 837/2009.

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Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 17-26

Banat-Crişana as Micro-destination – Elements of Tourism Image and Tourism Identity*

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Abstract. *Geographical regions, according to some authors, are defined and delimited by criteria that vary from one geographical school to another. These criteria may be: scenic, functional, political-administrative, mental etc. (processed after Cocean cited in Neguț, 2011, p. 157). They also can be combined according to the objectives/strategies that are elaborated for each branch of the economy: industry, agriculture, tourism, etc. In this regard, from tourism point of view, the region of Banat-Crişana was taken into consideration, that includes the following counties: Caraş-Severin, Timiş, Arad and Bihor. Due to the many land and air border points, it represents the first contact with the tourists coming from the West, with other words "its visiting card… crucial in formulating the first impressions regarding Romania" (Cocean, 2010, p. 201). The presented research aims to highlight the role of the image of the region of Banat-Crişana in building its own brand, by identifying its main tourist attractions and forms of tourism.*

Keywords: tourism destination; destination image; regional tourism brand; form of tourism; destination marketing.

JEL Code: M31.
REL Codes: 14F, 14G.

* The paper is part of a research presented in detail in no. 2/2011

Introduction

With important architectural, religious and folk treasures, the micro-destination of Banat-Crişana is located in western Romania and is bordered on the North by the counties of Sălaj and Satu-Mare, on the West by Serbia and Hungary, on the South by Serbia and the county of Mehedinți and on the East by the following counties: Cluj, Alba, Hunedoara and Mehedinți. Regarding the administrative-territorial division, the two regions (Banat, respectively Crişana) that form together the tourism micro-destination of Banat-Crişana cover the following counties: Caraş-Severin and Timiş (Banat), respectively Arad and Bihor (Crişana). The most important cities of these two regions are: Timişoara, Oradea, Arad and Reşița. The micro-destination of Banat-Crişana (named further as the historical region of Banat-Crişana) boasts many key-attractions, such as: caves (Wind Cave/Vântului Cave, Bears' Cave/Urşilor Cave, Meziad Cave, etc.), medieval fortresses (the fortress of Deva, the fortress of Arad) and medical spa resorts, some of them being famous on the medical spa market (Băile Herculane, Băile Felix, Moneasa, Beiuş, etc.).

The two regions were analyzed, from tourism point of view, as a stand-alone region (as, in fact, it is known throughout our millennial history), in order to ensure its representativeness.

Operational framework

The research conducted in October-December 2010 – January 2011 on a sample of 1,887 young people aged 20-24 years, with ongoing studies, aimed to identify the extent to which the perceptions of the residents coming from different Romanian regions related to the micro-destination of Banat-Crişana helps in the development of the identity within the elaboration process of the destination marketing strategy.

According to the classification of the forms of tourism proposed by the World Tourism Organization (WTO/UNO) in 1979, which takes into account the reasons guiding the choice of tourism destination (business and professional tourism, medical spa tourism, cultural tourism, leisure tourism, visiting friends and relatives and other forms of tourism), the respondents could chose the main form of tourism practiced within the historical region of Banat-Crişana.

According to the results, the distribution of the forms of tourism for the micro-destination of Banat-Crişana is as follows: 48.5% of the respondents considered the *medical spa tourism* as being representative for this region, 28.1% opted for *leisure tourism*, 7.9% chose *cultural tourism*, 6.4% opted for *other forms of tourism*, 5.2% chose *visiting friends and relatives*, while 3.9% of the respondents opted for *business and professional tourism* (Figure 1).

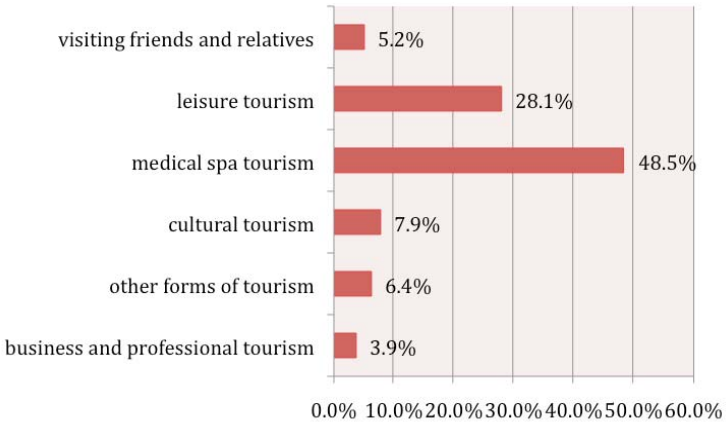

Figure 1. *The distribution of the forms of tourism for the micro-destination of Banat-Crişana*

Taking into consideration the region of origin of the respondents, it can be noticed that the *medical spa tourism* frequently holds the first position as representative form of tourism for this historical region, opinion that it is also shared by the authors, due to the reputation gained over time, especially by the two resorts, Băile Herculane and Băile Felix; the second place is occupied by the *leisure tourism*. The only exception, when the situation is reversed, occurs in the case of the respondents with Dobrogea as region of origin, fact that can be explained by the perception, in their subconscious, of the image of the resorts located along the Black Sea, considered by them as having the same characteristics as those located in the region of Banat-Crişana. The last place belongs, by order of frequency, to the *other forms of tourism*, *visiting friends and relatives*, respectively *business and professional tourism*. Regarding the established regional structure, the situation is as follows (Table 1):

1) Muntenia as region of origin (Figure 2):
- 52.1% of the respondents chose *medical spa tourism* as representative form of tourism for the tourism micro-destination of Banat-Crişana;
- 26.1% opted for *leisure tourism*;
- 8.6% chose cultural tourism;
- 6.2% opted for visiting friends and relatives;
- 4.2% chose other forms of tourism;
- 2.8% of the respondents opted for business and professional tourism.

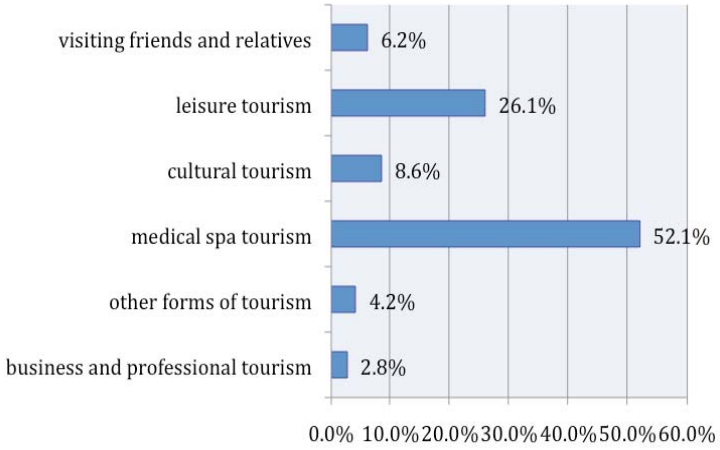

Figure 2. *The distribution of the forms of tourism for the micro-destination of Banat-Crişana. Region of origin of the respondents: Muntenia*

2) Oltenia as region of origin (Figure 3):

- 40.4% of the respondents chose *medical spa tourism* as representative form of tourism for the historical region of Banat-Crişana (fact explained by the proximity of the two regions);
- 30.8% opted for *leisure tourism*;
- 10.6% chose business and professional tourism;
- 8.6% opted for visiting friends and relatives;
- 6.7% chose cultural tourism;
- 2.9% of the respondents opted for other forms of tourism.

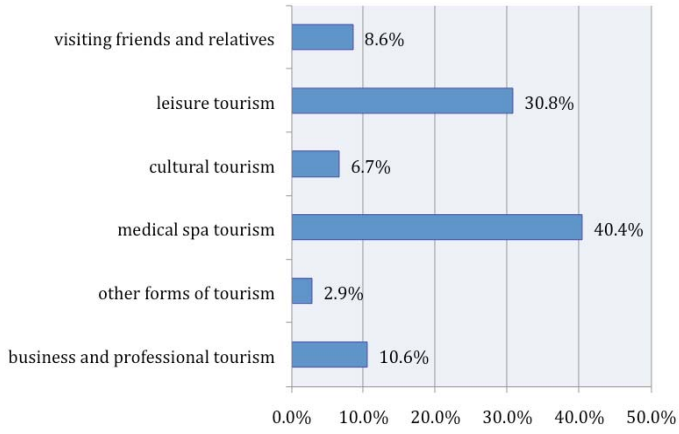

Figure 3. *The distribution of the forms of tourism for the micro-destination of Banat-Crişana. Region of origin of the respondents: Oltenia*

3) Banat-Crişana as region of origin (Figure 4):

- 52.3% of the respondents chose *medical spa tourism* as representative form of tourism for their region;
- 24.4% opted for *leisure tourism*;
- 10.5% chose business and professional tourism;
- 5.8% opted for other forms of tourism;
- 4.7% chose cultural tourism;
- 2.3% of the respondents opted for visiting friends and relatives.

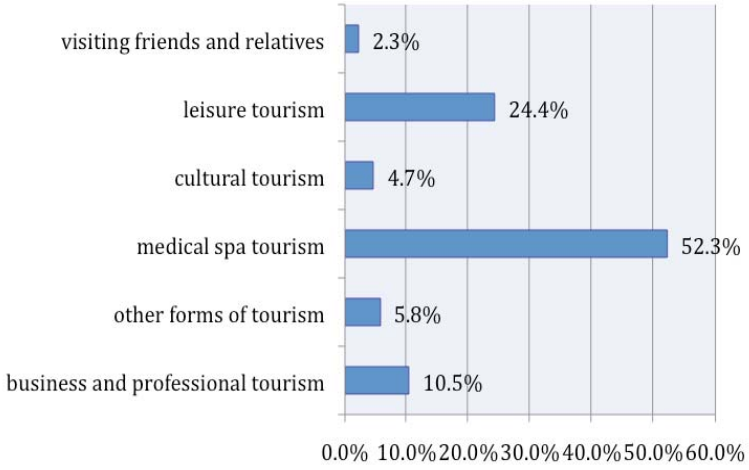

Figure 4. *The distribution of the forms of tourism for the micro-destination of Banat-Crişana. Region of origin of the respondents: Banat-Crişana*

4) Transsylvania as region of origin (Figure 5):

- 38.2% of the respondents chose *medical spa tourism* as representative form of tourism for the historical region of Banat-Crişana;
- 32.7% opted for *leisure tourism*;
- 12.7% chose cultural tourism;
- 8.2% opted for visiting friends and relatives;
- 5.5% opted for business and professional tourism;
- 2.7% of the respondents chose other forms of tourism.

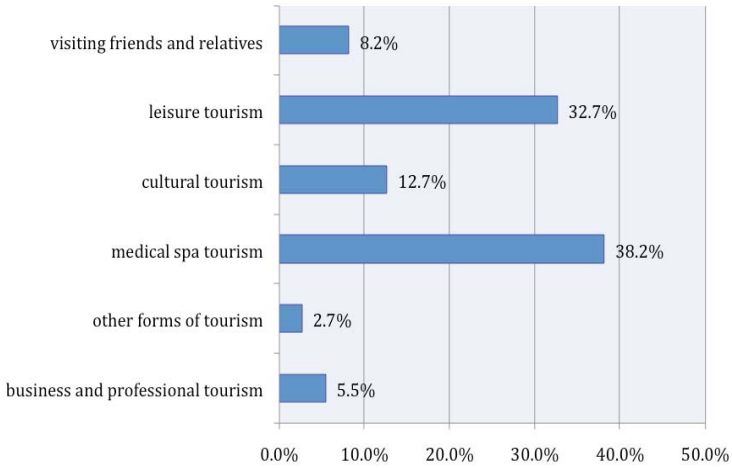

Figure 5. *The distribution of the forms of tourism for the micro-destination of Banat-Crişana. Region of origin of the respondents: Transylvania*

5) Bucovina as region of origin (Figure 6):

- 36.2% of the respondents chose *medical spa tourism* as representative form of tourism for the historical region of Banat-Crişana;
- 22.3% opted for *leisure tourism*;
- 18.1% chose cultural tourism;
- 12.8% opted for business and professional tourism;
- 7.4% chose other forms of tourism;
- 3.2% of the respondents opted for visiting friends and relatives.

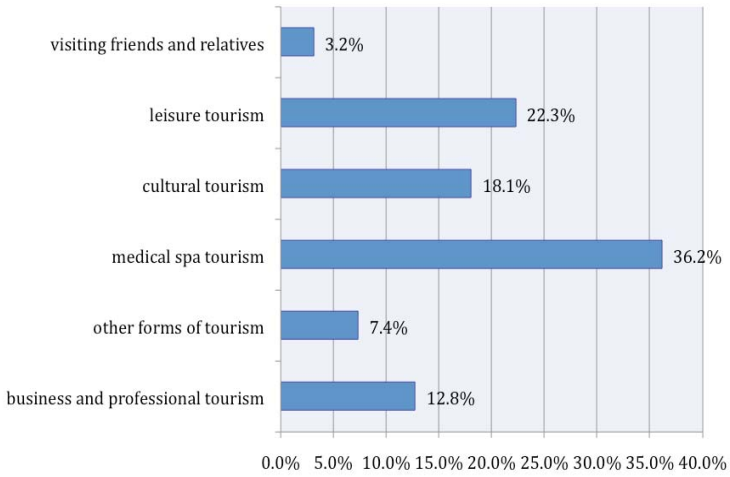

Figure 6. *The distribution of the forms of tourism for the micro-destination of Banat-Crişana. Region of origin of the respondents: Bucovina*

6) Moldavia and Maramureş as regions of origin (Figure 7):
- 51.4% of the respondents chose *medical spa tourism* as representative form of tourism for the historical region of Banat-Crişana;
- 19.4% opted for *leisure tourism*;
- 13.6% chose cultural tourism;
- 7.8% opted for business and professional tourism;
- 4.9% chose other forms of tourism;
- 2.9% of the respondents opted for visiting friends and relatives.

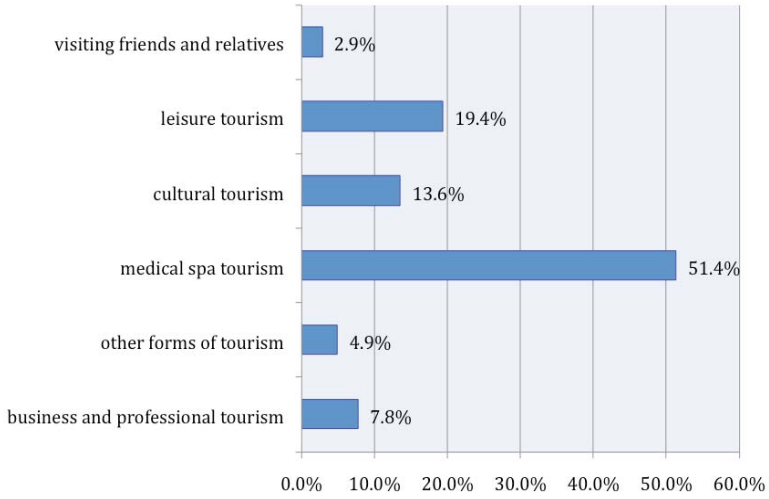

Figure 7. *The distribution of the forms of tourism for the micro-destination of Banat-Crişana. Region of origin of the respondents: Moldavia and Maramureş*

7) Dobrogea as region of origin (Figure 8):
- 42.7% of the respondents chose *leisure tourism* as representative form of tourism for the historical region of Banat-Crişana;
- 25.3% chose *medical spa tourism*;
- 14.7% opted for cultural tourism;
- 9.3% chose business and professional tourism;
- 5.3% of the respondents opted for visiting friends and relatives;
- 2.7% chose other forms of tourism.

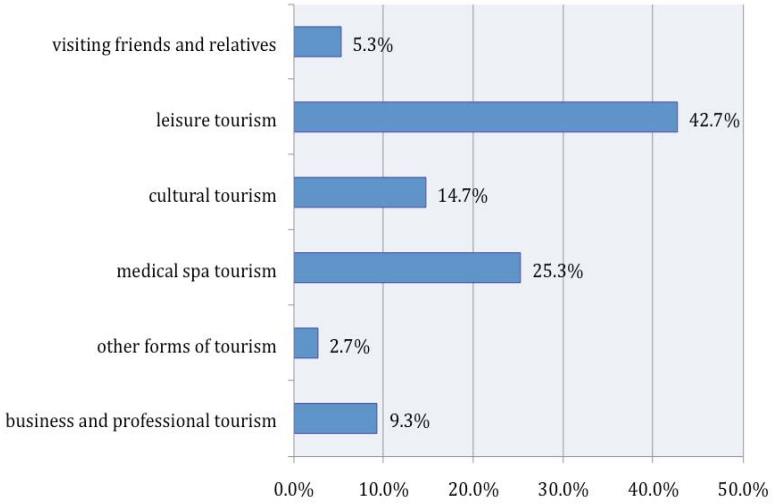

Figure 8. *The distribution of the forms of tourism for the micro-destination of Banat-Crişana. Region of origin of the respondents: Dobrogea*

Table 1

The distribution of the responses by forms of tourism and by region of origin of the respondents

- % -

Forms of tourism / Region of origin of the respondents	Business and professional tourism	Other forms of tourism	Medical spa tourism	Cultural tourism	Leisure tourism	Visiting friends and relatives
Muntenia	2.8	4.2	52.1	8.6	26.1	6.2
Oltenia	10.6	2.9	40.4	6.7	30.8	8.6
Banat – Crişana	10.5	5.8	52.3	4.7	24.4	2.3
Transylvania	5.5	2.7	38.2	12.7	32.7	8.2
Bucovina	12.8	7.4	36.2	18.1	22.3	3.2
Moldavia and Maramureş	7.8	4.9	51.4	13.6	19.4	2.9
Dobrogea	9.3	2.7	25.3	14.7	42.7	5.3

The choice of the respondents for the *medical spa tourism* as representative form of tourism for the micro-destination of Banat-Crişana can be explained in particular by the existence of several springs of thermal water.

The references made by the respondents to the natural and anthropic tourism resources of the tourism micro-destination of Banat-Crişana are illustrated by order of relevance in Figure 9.

A. NATURAL POTENTIAL	% of respondents
Topography: Nerei Gorges, Vântului Cave/Wind Cave, Cetățile Ponorului Cave/Fortress of Ponor Cave, Urşilor Cave/Bears' Cave, Ghețarul de la Focul Viu Cave/the Cave of the Living Fire Iceblock, the Banat Mountains, the Almăj Mountains, the Zarand Mountains, the Semenic Mountains, the Western Plain, the Western Hills, etc.	15.8
Climate/climatic elements: warm summers, mild winters.	1.0
Hidrography: the rivers: Cerna, Bega, Timiş, Crişuri, Danube, etc.	7.2
Flora and fauna: "Domogled – Valea Cernei" National Park, Apuseni Nature Park, "Cheile Nerei-Beuşnița" National Park, Nature Reserve Padiş, etc.	1.2

B. ANTHROPIC POTENTIAL	% of respondents
Historical traces and art monuments: the fortress of Arad, Şoimoş fortress, Ziridava fortress, Banloc Castle, etc.	4.6
Elements of ethnography and folklore: folk music, folk dances, folk costumes, gastronomy (Banatean salami), customs and traditions, etc.	3.8
Cultural–artistic institutions: the Metropolitan Cathedral of Banat, the Episcopal Cathedral of Oradea, churches, monasteries, the Romanian National Opera of Timişoara, Timişoara National Theatre, etc.	1.3
Events: Plai Festival, "Rachia" Festival, International Folk Festival "Hercules", etc.	0.6
Contemporary constructions: Rose Park, the West University of Timişoara, Border Crossing Point Nădlac, etc.	2.5
Human settlements: Timişoara, Oradea, Arad, Reşița, Băile Herculane, Băile Felix, Buziaş, Stâna de Vale, Moneasa, Băile Tinca, etc.	52.1

C. MISCELLANEOUS	% of respondents
Personalities: Horea, Cloşca and Crişan, Avram Iancu, Cristian Chivu, Mircea Malița, Traian Vuia, Daniel – Patriarch of Romania, Iosif Constantin Drăgan, Lavinia Miloşovici, Herta Müller, Sabin Drăgoi.	1.1
Other elements/aspects: the first city in Europe with streets electrically illuminated (Timişoara), revolution, business centers, hospitality, affiliation (relatives), Western influence, students, recreation, etc.	8.8

Source: adapted after Minciu, R. (2001). *Economia turismului*, Editura Uranus, Bucureşti, p. 161.

Figure 9. *Structure of the tourism potential of the region of Banat-Crişana*

Conclusions

From the conducted research it can be concluded that the *medical spa tourism* is the representative form of tourism for the region of Banat-Crişana, although the sector did not "benefit" from a substantial promotion on the part of central and local authorities. The explanation lies in the special qualities and

international reputation of the water of the resorts, in the fresh air, in the other natural medical spa factors and in the way the folk traditions were kept alive within this region. From the other forms of tourism, leisure tourism holds a remarkable percentage (about 28%), being probably determined by the beauty of the places and by the anthropic elements of the region and can be combined with the cultural tourism (situated on the third place) in order to build a complex form of tourism – "edutainment" ("education via entertainment"), form of tourism that is increasingly preferred by the young people.

For an accurate assessment of the tourism micro-destination of Banat-Crişana and in order to elaborate appropriate strategies, similar researches should be constantly conducted for other categories of population, of different ages and with different level of education.

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Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 27-32

News in Competition Regulation in Romania. Institutional Consolidation of the Competition Council

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Abstract. *Upon the coming into force of the Law 149/2011, the recent changes in the Competition Law bestow additional power and authority upon the Competition Council. The competition authority can now expand its sphere of information use obtained during an investigation or inspection, can admit or reject hearing requests at its latitude, delegates new responsibilities to commissions and sanctions unfair competition deeds.*

Keywords: institutional consolidation; investigations/inspections; hearings; unfair competition; commissions; consultative college.

JEL Code: K21.
REL Code: 14 K, 17F.

A press release of Competition Council made on July 13th 2011 stresses that the new regulation is mainly aimed at: the institutional consolidation of Competition Council, increasing its efficiency when market signals warn about possible anti-competition practices, harmonisation of national provisions regarding competition.

As for the Competition Council institutional position, the main novelties introduced by Law No. 149/2011 is:

- Competition Council can also use the information obtained during an investigation or inspection outside the respective investigation;
- Competition Council decides upon the cases in which hearings can be organized during the investigations on possible law violations;
- Competition Council's Plenum delegates to its commissions significant aspects related to competition related sanctions application;
- Competition Council is no longer endorsing the draft regulatory documents;
- The Consultative College is established.

We shall analyze below each of the main novelties introduced by the new regulation, especially as regards the strengthening of Competition Council's position:

Competition Council can also use the information obtained during an investigation or inspection outside the respective investigation (Art. 35 paragraph 5 of Competition Law, amended and completed)

While until now the information the Competition Council obtained during an investigation or inspection could be used only for the purpose they were obtained, according to the law amendments, these data could now be used "to the purpose of applying competition legislation", that is even for those cases identified by the competition authority which exceed the sphere of the initial investigation.

At the same time, the Competition Council can warn other institutions or authorities based on the gathered information during its own investigation or inspection actions.

Although this new approach gives the Competition Council more freedom in the investigations and inspections area, it is worth mentioning that European legislation provides for the information use only for the purpose it

was obtained. That is why we can expect contestations on procedural aspects in the future from the affected economic operators.

Competition Council decides upon the cases in which hearings can be organized during the investigations on possible law violations (Art.43 paragraph 1 of Competition Law, amended and completed)

During the investigations, the Competition Council gives the economic operators participating in the understanding, decision made by companies association, concerted practice, abuse of dominant position or economic clustering making the object of investigation, the chance to express in writing their observations regarding the investigation report. In this context, the addressees of the investigation report can request that Competition Council organizes hearings.

The Competition Council can also organize hearings even if the investigated companies do not request that, when it thinks useful for finding out the truth in the investigated case.

According to the former regulation, any investigation procedure involves the hearing of the participating company in the understanding, decision made by companies association, concerted practice, and abuse of dominant position or economic clustering making the object of investigation.

The new regulation leaves at the latitude of Competition Council the decision regarding the admission or rejection of such requests, but does not provide the conditions in which the competition authority can make such a decision, or what is happening when not all the investigated companies request hearings organization during an investigation. The economic operators whose hearing requests are rejected could accuse a restriction of their right to defence.

Competition Council's Plenum delegates to its commissions significant aspects related to competition related sanctions application (Art. 20 paragraph 4^1 of Competition Law, amended and completed)

According to the new regulation, the Competition Council Plenum will be able to delegate the assignments for investigations and economic clusters to a commission made up of three Plenum members.

At the same time, the sanctions for (i) the breaching of the provisions of Art. 5 and 6 of Competition Law and of the provisions of Art. 101 and 102 of the Treaty regarding European Union functioning, for (ii) the failure to notify

an economic cluster before its putting into practice, as well as for (iii) the achievement of an economic cluster with the breaching of legal provisions, shall be applied by the Competition Council's Plenum or by the commission.

Competition Council becomes competent to sanction unfair competition deeds (Art. 26 paragraph 1 of Competition Law, amended and completed)

When the Competition Office was closed in 2003, The Ministry of Public Finances opened the General Division for State Aid, Unfair Practices and Regulated Prices which applied the legal provisions regarding prices, unfair competition and publicity. By Law No. 149/2011, the Competition Council gains the competence to sanction unfair competition deeds in this field.

Application instructions are expected to detail the way and mechanisms through which the Competition Council will act to meet this new responsibility. Within the same framework, the competition authority has to start, as soon as possible the amendment process of Law No. 11/2001 regarding the fight against unfair competition, especially in the sense of adjusting its provisions to the economic and social realities, and of extending the sphere of unfair competition deeds.

Competition Council is no longer endorsing the draft regulatory documents (Art. 26 paragraph 1 of Competition Law, amended and completed)

According to the former regulation, the Competition Council issued a complying endorsement for the draft regulatory documents which might have an anti-competition impact and proposed the amendment of those regulatory documents having such an effect. According to the current regulation, the authorities and institutions of central and local public administration are still bound to request the Competition Council's endorsement for the draft regulatory documents which might have an anti-competition impact. As for the endorsements, they are now simple and not compliant, which makes that the competition authority has only the possibility to recommend their amendment.

If the authorities and institutions of central and local public administration do not comply within the set up period, with the measures decided by the Competition Council in order to re-establish a competition environment, the Council can introduce an action in administrative litigation at

Bucharest Court of Appeal requesting the court, as the case may be, the total or partial cancellation of the document which lead to the restriction, hindering or distortion of competition, the obligation of the respective authority or institution to issue an administrative document or to perform an administrative operation.

Establishment of Consultative College (Art. 24 paragraph 2-5 of Competition Law, amended and completed)

One novelty of the current regulation is the Consultative College made up of university representatives, businessmen, representatives of consumers' protection associations or of other prestigious persons in legal, economic or competition fields.

This consultative body can issue opinions on the main aspects of competition policy, but without a binding character. Starting July 2012, the Consultative College will be able to make proposals for the member's appointment of the Competition Council Plenum.

To conclude, the new regulation introduces additional elements to strengthen the legal framework which allows the Competition Council to perform on the national territory the inspections requested by European Union or by other partner national competition authorities.

However, there are still a series of aspects requiring a rapid treatment, such as those regarding:

- adjustment and updating of the provisions of Law No. 11/2001 regarding the fight against unfair competition deeds;
- the drafting of guidelines for the application of Law No. 11/2001 regarding the fight against unfair competition deeds;
- the drafting of guidelines for the fines application in case of anti-competition deeds, so that to avoid the provisions discretionary application related to the fine threshold reduction.

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Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 33-40

Education and the Characteristics of Public Goods. Overlaps and Differences

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Abstract. *This paper aims to identify characteristics of the good education, particularly higher education, in terms of pure public goods, mixed goods and merit goods, starting from classical and neoclassical theories on public goods. The experience of several economists showed that the nature of the good education is not seen strictly according to its intrinsic characteristics, but also in relation to the functions and benefits released. So, the conclusion of our study shows that education, particularly higher education, meets limited aspects of pure public goods (non-rivalry and non-exclusion property) in terms of functions performed.*

Keywords: education; public goods; mixed goods; merit goods; private goods; externalities.

JEL Codes: H23, H41, H42, H44, I20.
REL Codes: 4A, 13B.

1. Introduction

This paper aims to reinvent the reasons why the good called *education* is classified – from various theoretical perspectives as well as under the aspect of the possible destinations it really has – as ”public”, ”private” or ”mixed” goods. The discussion proposed by us is appropriate not necessarily through theoretical novelty but through pragmatic actuality, although, in essence, it remains a revisiting of several basic concepts and not an applied study. Current debates in the Romanian education system, for instance being under the empire of some performances appreciated as inappropriate to the requirements of the European modernity – to the desired structural convergence of the entire Romanian economy – requires more than a series of sterile political imputations; we consider that it is necessary an increased care in the problem-solving of fundamental, conceptual, theoretical aspects that can describe and explain the ”alternative” ways – competing, or perhaps complementary – of producing *education.*

The revaluation of the virtues and vices associated with the production of *education* in a public system (often affected by doubtful incentives, endemic to the area of public property as well as by the impossibility to calculate a qualitative and quantitative optimum of the relevant supply), and respectively, in a private system (characterized by institutional incentives and easing calculation tools, but also suspected of a possible social ”failure” in terms of accessibility of education among communities) is not historically ”overcome”. The systemic option for ”public”, ”private” or ”mixed” providing of *education* – as a whole or stage differentiated between the cycles focused on building a general culture (specialization’s infrastructure) and those oriented to specialization’s culture (for the labor market needs) –, is a function depending on the ”historical maturity” of the societies that make this choice. But this can not be disconnected from the invariant understanding of the conceptual framework that describes, anywhere and anytime, the economic quality of the ”alternative” tipes of goods in which paradigm can be classified (and finally provided) ”*education*”.

Subject of research conducted by many disciplines**,** *education* **–** a set of measures applied systematically to the formation and development of intellectual**,** moral and physical characteristics of children and youth**,** or of people, society(1) – as a result of the links between educated population and productivity is also treated in economic terms.

Thus, at the international level, states became aware of the importance of this system in the socio-economic development as a result of the fact that the educational system in a given state is one of the factors of progress of that society, without which sustainable economic growth and human development could not be reached.

Following the legal provisions of the world states, we can find out that *education* is a national priority for both developed countries as well as for developing countries. In this context**,** in May 2001 in Prague and in September 2003 in Berlin**,** ministers responsible for the Bologna process have argued that *higher education* should be considered a public good and a public responsibility (Nyborg**,** 2003, pp. 355-359). This classification of education in the category of national priorities indirectly leads to the assumption of the public nature of the good.

Also, Stiglitz (1995) identified knowledge, the result of the educational process, among the so-called global public goods. However, the opinions of the economists about the nature of good *education***,** particularly higher education, are different**.**

Thus**,** the classical and neoclassical theories on public goods have outlined the necessary framework for identifying the characteristics of good *education*.

2. Classical theory versus neoclassical theory regarding the public good education

Although *education* is generally considered a public good arguments brought by a number of economists contradict**,** more or less this sense**.** Neoclassical theory of public goods is based on several reference works dealing with the nature of a good in the sense of a public or private good**,** according to its intrinsic characteristics**.** However**,** the characteristics of a public good vary from one author (Samuelson, 1954, 1955, 1958, Musgrave, 1959, 1969, Head, 1974) to another**,** both as a number and as substance**.**

Classical theory of public goods reveals through the works of Adam Smith the following perception on public goods and *education***:**" A man without the proper use of the intellectual faculties of a man is, if possible, more contemptible than even a coward, and seems to be mutilated and deformed in a still more essential part of the character of human nature. Though the state was to derive no advantage from the instruction of the inferior ranks of people, it would still deserve its attention that they should not be altogether uninstructed (...). The state, however, derives no inconsiderable advantage from their instruction" (Smith, 1937, pp. 739-740)**.**

In his first paper**,** Samuelson (1954, pp. 387-389) defines "... two categories of goods: *ordinary private consumption goods,* which can be parceled out among different individuals, and *collective consumption goods,* which all enjoy in common in the sense that each individuals consumption of such a good leads to no subtraction from any other individuals consumption of that good".

However, Samuelson admits that certain goods or services such as *education*, courts, national defense, highways, police and fire protection contain

an element of change for the benefit of an individual at the expense of other individuals (Samuelson, 1955, pp. 350-356).

Musgrave's remark on the fact that much of the goods, including *education*, generates both private benefits and externalities, broadens the horizon to define the nature of the good education. Thus, the good *education* is seen as a mixed good with characteristics of both public and private property goods as a result of the benefits released by the educational process (Musgrave, 1969, pp. 138-139).

In economic terms, *education*, especially *higher education*, may be regarded as a mix of *current consumption* – that is a nice way to spend a few years before an individual assumes responsibilities of daily life, of *consumption capital formation* – development of higher standards, of a critical sense in choosing an optimal alternative consumption and also of *production capital formation* – human capital, its ability to provide competitive services, to hope for a higher income than that obtained in the absence of *education* (Johnson, 1974).

The literature distinguishes four functions of *higher education*: development of scientific research, training a highly skilled workforce, contributing to the development of society, acquisition of critical social spirit by the individuals (Cemmell, 2003, pp. 131-136).

Based on these functions, *higher education* can be regarded as a public good, since the amount of knowledge a student acquires during university studies does not diminish the amount of knowledge available to other students. However, *higher education* also presents some characteristics of a private good. For example, whether certain individuals can not access *higher education* because of the practice of quite large tuition fees or because they are partially excluded from the consumption of this good as a consequence of the reduction of the time allotted by the teacher to the second or third student (Creţan, Lacrois, 2008, pp. 127-134).

This confirms that ”however, as well as for pure public goods one can talk about the effect of *congestion*, which determines the transition of pure public goods into another category that implies their exclusion from consumption.” (Moşteanu et al., 2005, p. 32)

As a result of the attempts to place, depending on features, a property certain good within the area of public or private goods, Musgrave introduced the concept of merit good, which he defines as that which satisfies certain needs provided through public funds beyond the possibilities of purchasing it on the market. Thus*, higher education* can be regarded as a merit good (Powell, 2005), justifying state involvement in the education system through the fact that society benefits from it. In this case, the social benefit of *education* consumption is higher than the private benefit felt by the consumer.

Viewed from the perspective of a social investment, *higher education* presents a series of benefits from the research activity, from technological

innovation, accompanied by externalities for *higher education*, namely: a state of improved health, social welfare, community reintegration and social cohesion. As the main effects of investment in *higher education* appear benefits such as positive externalities that are the basis of strengthening social and economic development in light of the transition to knowledge-based economy. It also appears that government intervention in financing higher education is not primarily aimed at achieving positive externalities, but rather to correct the failure on the credit market for *education*, and more.

Regarding the private benefits of individuals, these are accompanied by long-term effects of research, technology development, strengthening political stability, improvements in democracy and the creation, namely the transmission of new knowledge.

3. Characteristics of education as public good

As shown in the theory of public goods, *education* can be defined as a public good if it meets two conditions, namely if both is characterized by non-rivalry in consumption and by non-exclusion from consumption.

Speaking of non-rivalry, the consumption of a good by one person does not lead to reducing the amount or quality of the asset, being available to all persons without creating additional costs. On the one hand, the accumulation of knowledge by one student during university studies does not diminish the amount of knowledge available to other students. On the other hand, to some extent, *education* is a rival good in consumption due to the fact that consumption of this good may generate additional costs.

The non-exclusion feature implies the impossibility of excluding an individual from the consumption of a good as long as the benefits associated with consumption can not be divided. However, in the case of *education*, particularly *higher education*, it appears the possibility of consumer's exclusion through price. Much of the capital resulting from scientific research can be accessed by anyone, but also in this case the access to the other party may be restricted by financial factors, or copyright protection or because of confidentiality clauses assumed through the research contracts financed by the private sector.

Measured by the function of training a highly skilled workforce, *higher education* respects, to some extent, the feature of non-rivalry. Regarding exclusion, this has been practiced since ancient times in societies where slave children had no access to the education system or in societies that considered education as a luxury of the nobility financed from private resources, until now through the emergence of the congestion effect as well as through the nature of the access to this level of education.

So, in terms of access, as opposed to compulsory *education*, even going to high school, where individual's access is equal, in higher education we can discuss about the equal access up to the point from which education providers can exclude a number of individuals who can not afford to pay a fee for the offered services.

In these circumstances the good *higher education* complies only in part the non-exclusion feature in the meaning that it can only be provided to an additional consumer up to limit at which either the consumer benefit registers a reduction or the producers costs register an increase.

Thus, the good *education* may not be included in the category of pure public goods, since it partially fulfills the two characteristics attributed to public goods by literature. Yet *education* may be included in the category of mixed goods, more precisely in the category of "public goods with limited capacity" (Kraan, 2005, p. 32).

4. Characteristics of education as mixed good

From the perspective a mixed good – that good characterized by non-exclusion and non-rivalry or exclusion and rivalry –, *education* may present, in some cases, characteristics of rivalry and exclusion.

According to the classification of goods (Nemec, Wright, 1997, pp. 72-73, Moşteanu et al., 2005, p. 33), mixed goods have characteristics specific to pure public goods and as well as to private goods. Thus, goods characterized by non-exclusion and rivalry, namely those characterized by non-rivalry and exclusion have as beneficiaries both individual consumers and society as a whole; there are distributed through the market or by the national public budget, or by local public budgets; a price can be established for them; there is a link between the payment of a price and use of the property; there may be competition between the bidders; there is an impact of consumption on offer; these are produced by private companies or public sector. Also competing in consumption mixed goods, such as *education*, are goods that are consumed collectively, but they are subject to congestion.

Thus, in certain situations, although the amount of knowledge available to other students does not diminish, an increase in the number of students can lead to a congestion of the system and hence to the appearance of a certain cost, while maintaining the same level of performance. The rivalry of this good can be observed when the demand for tertiary education exceeds the supply existing on the market.

Up to a certain level, beyond the possibility of excluding through price, the good *education* can be considered as a good with non-exclusion features since most of the benefits released by education cannot be individualized, but are felt by society at large.

Thus, a number of positive external benefits of compulsory *education*, like the improvement of population health, reduced crime, reduced fertility, etc., appear also

as a result of graduating higher education. Although completion of a program of higher education brings private benefits to individuals such as obtaining a higher wage, society as a whole benefits from a higher level of resources collected to the state budget which is available to finance public utility goods and services.

The impossibility of certainly placing the good *education* in the category of mixed goods can be noted due to the fact that education can be both a rival and non-rival good, depending on interpretation.

5. Education as a merit good

Another perspective offered both by Musgrave and Adam Smith places *education* in the field of merit goods due to the fact that the benefits of education have an impact, especially on the informed, thus justifying the need for state intervention in the financing of this activity (Musgrave, 1959, Smith, 1937)**.**

This type of good is considered so useful that its funding from private sources is supplemented by public funds.

Thus, *education* can be considered a merit good since an educated population provides other benefits than private benefits felt by individuals, meaning that such a population can increase the future value of a nation's potential. Moreover, referring to the possible negative externalities resulting from the exclusion of people from accessing knowledge resulting from research, limiting the possibilities for exclusion and funding research from public generates the occurrence of positive externalities.

6. Conclusions

In conclusion, *education*, especially *higher education*, meets limited aspects of pure public goods namely non-rivalry and non-exclusion of the good, in terms of functions performed by it: the spread of knowledge, training people, service for society and its responsibility.

Given the fact that at the international level education has been declared a national priority by most states**,** treating the nature of good *education* requires detailed research of the methods and sources of funding for each type of education system**.** Also**,** simultaneously funding of higher education from private and public funds determines the possible classification of the good *education* in the category of public goods**,** mixed goods or in the category of merit goods**.**

The ambiguity surrounding the classification of the good education in one of three categories of goods discussed above determines the necessity to extend the discussion and to focus attention on the benefits – external effects of education process.

Note

(1) See Dicţionarul explicativ al limbii române, Academia Română, Institutul de Lingvistică „Iorgu Iordan", Editura Univers Enciclopedic, 1998.

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Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 41-60

The Remittance-GDP Relationship in the Liberalized Regime of Bangladesh: Cointegration and Innovation Accounting*

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Abstract. *Bangladesh, being one of the top remittance-recipient countries in the world, has drawn attention to the remittance-output relationship in recent years. The results on this aspect are nevertheless inconclusive. Working on a relatively liberalized regime from 1979 to 2009, this study finds a long run positive relationship between remittances and GDP in Bangladesh. The adjustment of this relation, however, goes against traditional belief in that GDP does not respond to the movements in remittances while correcting disequilibrium after a shock in the system, but the reverse is true. There is no evidence on remittance-led growth in the short run. Innovation accounting shows that the impact of output on remittances is remarkably stronger than that of remittances on output. These findings have policy implications for other emerging nations in that GDP growth is capable of attracting further remittances arguably through increasing investment demand and initiating institutional reforms in the economy.*

Keywords: remittances; GDP; Bangladesh economy; cointegration; impulse responses; variance decompositions.

JEL Codes: C32, F24, F43.
REL Codes: 8E, 10G .

* We thank Christopher Hanes and Urbashee Paul for their valuable comments. We are also thankful to Gazi Salah Uddin for his support on resources. This paper has been presented at the 45th Annual Conference of the Canadian Economic Association (CEA) held in June, 2011 at the University of Ottawa.

1. Introduction

Globalization has augmented the flows of remittances to the emerging nations in the recent decades. The pace of remittance growth appears to have exceeded that of globalization. For example, while remittances worldwide were less than 2 billion US dollars in 1970, they reached over 70 billion dollars in 1995 (Taylor, 1999). 150 million migrants worldwide sent more than 300 billion dollars to their families in developing countries in 2006 (IFAD, 2010). Bangladesh, being an emerging economy in South Asia, has become one of the top 10 remittance-recipient countries in the world. Bangladesh's position in 2008 was ninth in that 'top 10' list after India, China, Mexico, Philippines, Poland, Nigeria, Egypt, and Romania (Ratha et al., 2008).

Between 1976 and 2010, a total of 6.8 million people emigrated temporarily from Bangladesh (BMET, 2010). Given restricted labor mobility across countries, Bangladesh's emigration figure is quite significant. Revenues from remittances in the country exceed various types of foreign exchange inflow, particularly official development assistance and net earnings from exports. Remittance inflows to Bangladesh are increasing at an average annual rate of 19 percent in the last 30 years from 1979 to 2008 (Hussain, Naeem, 2009). Income from remittances has recently exceeded the 10-billion dollar mark, which has been 11.8 percent of the country's Gross Domestic Product (GDP) in 2009 (BBS 2010).

Although remittances to Bangladesh remarkably began in the mid 1970s, the country achieved a stable trend of remittances in the late 1970s, when the regime embarked on trade liberalization by abandoning the fixed exchange rate and switching to a managed exchange rate. The country's growth performance has remarkably improved during its last decades of liberalization. For instance, Bangladesh achieved 4.54 percent of average annual growth since the 1980s (WB, 2010). The figure rose to 5.21 percent since the 1990s with the increased momentum of liberalization. This scenario raises a number of questions such as: 1) What is the remittance-output relationship in the liberalized regime of Bangladesh? 2) Is this relationship, if present, a long-run or short-run phenomenon? 3) What is the direction of causality? 4) What are the policy implications of the findings? Despite numerous studies on this aspect, no paper in the past examined the relationship between remittances and GDP in Bangladesh in the liberalized regime. Hence, a gap has been evident. This study fills that gap by addressing the above questions with the background of liberalization in Bangladesh.

The existing literature on the remittance-GDP relationship, which we discuss in the next section, does not point out any conclusive result. Most papers are cross-country studies that suggest no direction of causality. Some studies on

panel data derive confounding results, and finally recommend examining the relationship on country-specific time series. We also agree that given the differences of growth performances and remittance flows across countries, the income-remittance interaction should be tested on a case-by-case basis, and this work reflects that imperative.

A visual inspection of GDP and remittances of Bangladesh, as presented in Figure 1, suggests a possibility of a long-run relationship between the variables. We find unit roots in these variables. Both the series, being integrated of order one, i.e. I(1), are tested in the widely used Johansen method, which shows that the variables are cointegrated. Hence, the vector error correction (VEC) model is estimated to get the estimates on the cointegrating vector and short-run dynamics. We extend the VEC model to derive innovation accounting that includes generalized impulse responses and forecast error variance decompositions of the variables. Thus, we examine the remittance-GDP interaction in both the long run and short run in a comprehensive approach, which is still absent in the existing literature on Bangladesh.

We argue that examining the remittance-GDP relationship in a relatively liberalized regime is likely to give better results. Doing so in a sample that includes restricted regime may produce distorted estimations. Remittances are likely to be linked with the exchange rate regime (Maimbo et al., 2005, p. 12, Lueth, Ruiz-Arranz, 2007). Based on that criterion, we point out that Bangladesh began its liberalization since 1979, when the country moved to a managed and flexible exchange rate regime (Aziz, 2008, Choudhury, 2008). Working on a relatively liberalized regime from 1979 to 2009, this study finds long run cointegration between GDP and remittances in Bangladesh.

Although the long-run relationship is positive, the nature of adjustment is contrary to traditional belief. Remittances respond to the movements in GDP to correct any disequilibria in the long-run steady-state relationship following a shock, but GDP does not do the same in response to the movements in remittances. GDP turns out to be weakly exogenous in the system. Evidence on remittance-led growth in the short run is also absent. Generalized impulse responses and variance decompositions show that the impact of output on remittances is remarkably stronger than that of remittances on output. These findings have policy implications for other emerging economies where income growth can foster further remittance inflows arguably through augmenting investment demand and expediting institutional reforms.

This paper comprises five sections, the first being the introduction. The next section is devoted to literature review with a focus on Bangladesh. Section 3 describes data and methodology. Cointegration, VEC estimations, generalized impulse responses, and variance decompositions are illustrated in Section 4. And Section 5 concludes.

2. Literature on the remittance-GDP relationship

Despite conventional belief that remittances are highly beneficial to output, the existing literature does not produce any conclusive result in this respect. This review includes two steps: presenting the cross-country and panel studies, and finally focusing on South Asia along with Bangladesh in particular.

In a study for 113 countries, Chami et al. (2003) find that remittances have a negative effect on growth. The study concludes that income from remittances allows receiving families to decrease their own work and productivity, which then translates into a reduction in the labor supply for the developing country. The authors attribute this negative effect on the moral hazard problem that remittances create.

Using data from Egypt, Greece, Jordan, Morocco, and Portugal, Glytsos (2005) shows that the impact of remittances on output varies over time and across countries over the 1969-1998 period. The growth-generating capacity of rising remittances characteristic is smaller than the growth-destroying capacity of falling remittances for Egypt, Jordan, and Morocco. Moreover, the large fluctuations in the real value of remittances contribute to large fluctuations of output growth and cause instability in the economies concerned. Hence, due to differences in characteristics across countries, country-specific studies are warranted. An IMF (2005) study with 101 developing countries finds no statistical link between remittances and per capita output growth.

A study by Adams and Page (2005) using 71 developing countries finds that remittances significantly reduce the level, depth, and severity of poverty in the developing world. Jongwanich (2007) examines the impact of workers' remittances on growth and poverty reduction in developing Asia-Pacific countries using panel data over the period 1993-2003. He finds that remittances seem to have a positive but marginal impact on economic growth in Asia and the Pacific countries through the improvement of domestic investment and human capital. Remittances have a significant direct impact on poverty reduction through increasing income, smoothing consumption and easing capital constraints of the poor.

In a work with 39 developing countries over the 1980-2004 period, Pradhan et al. (2008) find that remittances have a positive impact on growth. Using data for about 100 developing countries over the 1975-2002 period, Giuliano and Ruiz-Arranz (2009) find that remittances boost growth in countries with less developed financial systems by providing an alternative way to finance investment and helping overcome liquidity constraints. There could be an investment channel, as they argue, through which remittances can promote growth especially when the financial sector does not meet the credit needs of the

population. While it is undeniable that remittances have poverty-alleviating and consumption-smoothing effects on recipient households, a key empirical question is whether they also serve to promote long-run economic growth. Barajas et al. (2009) tackle this question and find that workers' remittances have no impact on economic growth.

Working with 114 countries, Catrinescu et al. (2009) assert that officially recorded remittances to developing countries have increased over the last decade, but research has not come to a consensus over whether remittances have a positive or negative impact on long-run growth. Catrinescu et al. argue that remittances will be more likely to contribute to longer-term growth in countries with higher quality political and economic policies and institutions. Thus, big panel or cross-country studies often contradict to each other in their findings due to institutional differences.

Using data for more than 20 Asian countries for the 1988-2007 sample, Vargas-Silva et al. (2009) find that a 10 percent increase in remittances as a share of GDP leads to a 0.9-1.2 percent increase in GDP growth. They also show that remittances only have a negligible effect on the overall poverty rate, but they tend to decrease the poverty gap and thereby ameliorate the depth of poverty. The estimates reveal that a 10 percent increase in remittances decreases the poverty gap by about 0.7-1.4 percent.

Using panel data for 33 African countries over the 1990-2005 period, Anyanwu and Erhijakpor (2010) find that international remittances reduce the level, depth, and severity of poverty in Africa. But the size of the poverty reduction depends on how poverty is being measured. As they show, a 10 percent increase in official international remittances as a share of GDP leads to a 2.9 percent decline in the poverty headcount or the share of people living in poverty. Over the period 1970-2005 for 95 countries, Craigwell et al. (2010) assert that remittances can play a key role in mitigating the effect of adverse output shocks but exert no significant influence on consumption and investment volatility. Moreover, important differential impacts exist across the various country groupings. Hence, country-specific studies become necessary.

The use of remittances in investment purposes is supported in various studies (see Brown 1994; Ratha 2003; Zarate-Hoyos 2004). Stark and Lucas (1988), Taylor (1992), and Faini (2002) find a positive impact of remittances on consumption and income. Faini argues that remittances overcome capital market imperfections and allow migrant households to accumulate positive assets. By showing that Mexican migrant families invest a significant part of their remittance income in productive activities, Zarate-Hoyos (2004) claims that expenditures originating from remittances benefit the national economy as the multiplier effect works through labor and goods markets across Mexico.

The studies on South Asia and Bangladesh in particular are few in number. In a study with India over the 1975-2003 period, Gupta (2005) shows that remittances are affected by the economic environment in source countries, and appear to be countercyclical — higher during periods of low economic growth in India. Lueth and Ruiz-Arranz (2007) find that remittance receipts are procyclical in Sri Lanka. A study by Frankel (2009) confirms the smoothing hypothesis in that remittances are countercyclical with respect to income in the worker's country of origin, while procyclical with respect to income in the migrant's host country. Qayyum et al. (2008) analyze the positive impact of remittances inflow on economic growth in Pakistan for the period 1973-2007. The authors claim that the importance of remittance inflows cannot be denied in terms of growth enhancement and poverty reduction that consequently improves the social and economic conditions of the recipient country. Ahmed and Walmsley (2009) find a net increase in welfare and real income due to increasing inflows of remittances to India.

Some of the early studies focused on the macroeconomic impact of overseas remittances in Bangladesh (Ali, 1981, Salim, 1992, Matin, 1994). Ali identifies that remittances help Bangladesh achieve a favorable balance of payments, as well as create a new resource base for the country. Salim discusses how remittances are used to make import payments and for other productive investments by the Bangladesh government. Stahl and Habib (1989) find that remittances in Bangladesh tend to be spent within those sectors which have relatively strong linkages with the rest of the economy. They assert that although a small fraction of remittances is directly spent on investment goods, it cannot be concluded that their potential contribution toward economic development is minimal. Even when utilized for seemingly 'non-productive' uses, remittances may expand the domestic production of consumption goods as well as the intermediate products necessary to support that increased consumption.

Mahmud (2003) claims that remittances contribute to faster growth in Bangladesh. As Mahmud argues, remittances are one of the three major sources of demand stimulus in investment and consumption. Other two sources of demand stimulus are the increase in income from crop production and readymade garment export. Siddiqui (2003) emphasizes that through timely and appropriate intervention, migration can be turned into a major development enhancing process. It can reduce poverty and be an important sustainable livelihood strategy of the poor in Bangladesh. Beaudouin (2006) shows that a loss of rural income due to emigration is compensated by remittances sent home by migrants.

Bruyn (2006) finds that remittances allow families to meet their basic needs, open up opportunities for investing in education and health care, loosen

up constraints in the family budget to invest in business, save as emergency resources, provide a social security for the elderly, and can boost the local economy. Bruyn asserts that the negative impacts of remittances are a possible dependency on this money flow and inflation. However, there is no conclusive evidence of the impact on income distribution. The study of Rahman et al. (2006) concludes that exports, foreign direct investment (FDI) and external remittances enhance both economic growth and employment in Bangladesh in the short run. Working over the 1976-2005 period, Ahmed and Uddin (2009) find that remittances cause GDP growth only in the short run, and this causal effect is unidirectional.

Raihan et al. (2009) show that remittances have positive effects on the economy and they reduce poverty. They reveal the positive impacts of remittances on the household's food and housing-related expenditures. Their results suggest that the probability of the household becoming poor decreases by 5.9 percent if it receives remittances. In a study over the 1979-2008 period, Hussain and Naeem (2009) find that every dollar increase in oil price increases annual remittances by nearly 15 million dollars. They also find that each additional migrant worker brings 816 dollars of remittances in Bangladesh annually, and remittances are higher during periods of low economic growth in Bangladesh.

Rahman (2009) works with the variables of remittances, exports, and FDI for Bangladesh, India, Pakistan, and Sri Lanka over the 1976-2006 period in an autoregressive distributed lag (ARDL) method. The long-term relationship between remittances and output for Bangladesh, however, is still unclear in that study due to two reasons: 1) No joint significance of the *F*-statistic with exclusively remittances and output was tested, and 2) output was always placed in the LHS ruling out the possibility of the reverse causation from output to remittances. Rahman concludes that remittances seem to have some insignificant and ambiguous effects on Bangladesh's GDP.

Using the data from 1976 to 2010, Paul et al. (2011) use the ARDL method, and find a long-run relationship between remittances and GDP in Bangladesh. Any short-run interaction between remittances and GDP is absent in their study. Now the questions as to how our work is different from theirs may arise. While they use the ARDL approach, we use the Johansen method, which is the most widely used approach to cointegration (Maddala, Kim, 1998, p. 191). Moreover, our data choose a relatively liberalized regime to examine the relationship, an aspect that was ignored in all previous studies.

3. Data and methodology

The variables of GDP and remittances have been collected from the World Development Indicators of the World Bank (WB, 2010). GDP is expressed at the 2000 constant US7 dollar prices. The remittance series, originally presented in current US dollars, has also been expressed at the 2000 constant US dollar prices by using the US GDP deflator (BEA, 2011). Both the series commence in 1979, the beginning of a relatively liberalized regime in Bangladesh, as discussed in the introduction, and end in 2009 in our study.

Before testing the long-run or short-run relations of these variables, we need to check them for unit roots. These macroeconomic variables, as we see in Figure 1, are most likely to have unit roots and thereby are nonstationary. The variables must be integrated of order one, i.e. I (1), before they can be tested for cointegration. The Augmented Dickey-Fuller (ADF) test is widely used in this regard (Dickey, Fuller, 1979, 1981). Phillips and Perron (1988) proposed a modification of the Dickey-Fuller (DF) test and have developed a comprehensive theory of unit roots. The Phillips-Perron (PP) test has introduced a *t*-statistic on the unit-root coefficient in a DF regression, corrected for autocorrelation and heteroskedasticity. Formally, the power of a test is equal to the probability of rejecting a false null hypothesis. Monte Carlo simulations show that the power of the various DF tests can be very low (Enders, 2010, p. 234). Maddala and Kim (1998, p. 107) comment that the DF test does not have serious size distortions, but it is less powerful than the PP test. Choi and Chung (1995) assert that for low frequency data like mine the PP test appears to be more powerful than the ADF test. Accordingly, we adopt the PP methodology to test unit roots in the variables.

If the variables are found to be I (1), testing them for cointegration will be followed as per the Johansen approach, due to Johansen (1988), and Johansen and Juselius (1990). In this two-variable case, the number of the cointegrating relation must be less than two if the series are really cointegrated. Then estimating them in a VEC model will be required. There are five options to make an assumption before carrying out the Johansen test. Option 1 assumes no deterministic trend in data, and no intercept or trend in the cointegrating equation or the test vector autoregression (VAR). Option 2 is the same as Option 1 except for intercept in the cointegrating equation. Options 3 and 4 allow for linear deterministic trend in data, and assume intercept in both the cointegrating equation and the test VAR. Option 4 just adds trend in the cointegrating equation. Option 5, being implausible in the present case for allowing quadratic deterministic trend in data, is not considered.

Based on the data, as shown in Figure 1, it appears that either of options 3 or 4 will be appropriate in this study. If both the trace and maximum eigenvalue tests recommend the presence of one cointegrating relationship, the long-term relationship exists in the system. Next, the VEC estimation will embody both the cointegrating equation and the short-run dynamics of the variables in first differences. For the sustainability of the equilibrium system, at least one of the error correction terms must be significant, because they represent the coefficients for the speed of adjustment once the system is shocked.

After the VEC estimation, we will proceed to unveil innovation accounting that includes impulse responses and variance decompositions. Impulse response functions and variance decompositions are used to summarize the dynamic relations between variables in the system (Hamilton, 1994, p. 291). The generalized forecast error variance decomposition shows to what variability in one element can be explained by the innovations from the other element in the VAR system. As Enders (2010, p. 380) asserts, innovation accounting could help determine whether the model is adequate.

The results of the VEC estimation are sensitive to the lag length and the ordering of the variables. For determining the lag length, the most common procedure is to estimate an unrestricted VAR with the variables, and to use the Akaike information criterion (AIC) or Schwartz Bayesian criterion (SBC) to decide on the lag length (Enders, 2010, p. 402). Given our sample size, we decide to use the SBC that chooses the most parsimonious model (Enders, 2010, p. 120). The issue with the ordering of the variables will be inapplicable since both impulse responses and variance decompositions will be generalized. Pesaran and Shin (1998) first proposed the generalized impulse response analysis for unrestricted VAR models. Unlike the traditional impulse response analysis, their approach does not require orthogonalization of shocks and is invariant to the ordering of variables in the VAR. This approach is also used in the construction of order-invariant forecast error variance decompositions.

4. Estimations on cointegration and innovation accounting

As per the methodology, Table 1 presents the results on the PP unit root tests with remittances and GDP. The outcomes are consistent in that both series are I(1) in levels, and I(0) in first differences. We add intercept in the unit root test, and define this specification as Model A, as shown in Table 1. Next, we include trend in addition to intercept and define it as Model B. The variables give robust and consistent results irrespective of models selected. These properties qualify the variables to be examined in the Johansen test whose results are

presented in Table 2. The decision on the lag length is made by running the variables in an unrestricted VAR. The SBC chooses the lag length to be one.

The next decision involves selecting the right option for the Johansen test. As discussed before, only options 3 and 4 are plausible in our case. While both options include unrestricted intercepts, option 4 also includes restricted trend in cointegrating relation. We will choose Option 4 only if the trend term is significant. Table 2 shows the estimations under options 3 and 4. The results are consistent irrespective of the option chosen. Both the trace and maximum eigenvalue tests find one cointegrating vector between these variables. Thus, GDP and remittances are cointegrated in the liberalized regime of Bangladesh.

The trend term in the cointegrating equation is highly significant, confirming the acceptance of option 4 for the subsequent VEC model whose results are presented under VECM(1) in Table 3. The cointegrating equation for VECM(1) has been normalized on GDP, and shows a significant and positive long-run relationship between remittances and GDP. Remittances can explain 14 percent of long-run movement in GDP in Bangladesh. Despite having some convincing results, some problems with the VECM(1) estimation are encountered.

The error correction terms on both output and remittance growth are significant, but the term on output growth has improper sign, i.e. positive. The sign on the error correction term of a variable must be opposite to that on its level variable in the cointegrating equation to ascertain the long-run equilibrium of the system (Pesaran, Pesaran 2009, p. 307). Moreover, the Portmanteau tests shown under VECM(1) exhibit the presence of serial correlation at various lags at the 5 percent level. Any evidence that the errors are not white noise usually means that lag lengths are too short (Enders, 2010, p. 402). Since the SBC selects a parsimonious model, the presence of serial correlation is likely. The way out is sequentially increasing the lag length until serial correlation is corrected (Mills, 1999, p. 249, Pesaran et al., 2001). Hence, we increase the lag length from 1 to 2. The estimation results, as presented under VECM(2) in the same table, do not exhibit any signs of serial correlation, heteroskedasticity, or non-normality at the 5 percent level.

The VECM(2), being more acceptable than before, possesses a significant error correction term on remittance growth with appropriate sign. The same term on GDP growth has proper sign, but is insignificant, suggesting that output is weakly exogenous in the system. Although there is a long-term relationship between these variables, it is only the remittance variable that adjusts any disequilibrium once the system is ever shocked. While remittances maintain a long-run positive relationship with GDP in Bangladesh, the hypothesis of GDP-led remittances should be interpreted with caution. Remittances received through

unofficial channels are likely to be of substantial amount, but they are not captured in the estimations. The estimation results could have been different if we had devised ways to bring unofficial flows into account.

The estimates of unofficial remittances are still judgmental and ad hoc. For instance, a World Bank study estimates that unofficial remittances were even more in amount than their official counterpart over the 1986-1996 period in Bangladesh (Maimbo et al., 2005). One aspect of that study, which we find convincing, is the declining ratio of unofficial remittances over official flows. The ratio has dropped from 1.62 in 1986 to 0.92 in 1996, suggesting that an increasing share of remittances is coming through official channels than before. We argue that the growing economy of Bangladesh is simultaneously engaged in gradual liberalization and institutional reforms, which have been attracting more remittances through normal institutional channels than before. Moreover, GDP growth can augment import and investment demand that may have drawn greater inflows of remittances than before. Hence, the finding that Bangladesh's GDP determines remittances in the long run has become evident, while the reverse causality is still insignificant. Again, this remains an area of further investigation, which goes beyond the scope of this paper.

Remittances appear to be countercyclical in the short run, because, in the equation of remittance growth, the coefficient on GDP growth is -5.78, and it is highly significant. This countercyclicality, however, may be neutralized by the coefficient on the error-correction term, which is 6.58. The net effect of output on remittances may eventually become positive or something near zero in the short run if these two coefficients work simultaneously. The output growth equation under VECM(2) reveal no short-run effect of remittances on GDP, nullifying traditional belief that remittances contribute to GDP growth in Bangladesh every year. These findings are consistent with that in Paul et al. (2011), which adopted different sample and methodology. Thus, the results on the long-run relationship between GDP and remittances along with the weak exogeneity of output, and the short-run non-causality from remittances to GDP appear to be robust in Bangladesh.

Based on the VECM(2), generalized impulse responses and forecast error variance decompositions with remittances and GDP in Bangladesh are presented in Figures 2 and 3, respectively. The 95 percent confidence bands consisting of the ceiling and floor for each response path have been calculated using the bootstrap method (Pesaran, Pesaran, 2009, p. 135). The response of GDP due to one standard deviation innovation in remittances appears to be very weak and insignificant, since the ceiling of the confidence band merges with the zero line. In contrast, the response of remittances due to a similar shock in GDP becomes positive and significant in four years. The response of remittances to GDP keeps

on rising over time. These results are consistent with those in the VECM(2) in that remittances respond to output, but the reverse is not true.

The variance decomposition of remittances due to GDP is shown in Panel A of Figure 3. The share of the forecast error variance of remittances due to GDP is roughly 80 percent, whereas that of GDP due to remittances is 40 percent in 10 years, as shown in Panel B of the same figure. Moreover, the floor of the confidence band for the variance decomposition of GDP is lying close to the zero line, suggesting that the estimates of variance decomposition are almost insignificant. Elyasiani et al. (2007) argue that the variance decomposition analysis provides an important insight into the relative importance of each variable in the system. Panel C of Figure 3 shows a comparative picture between these two variance decompositions, further vindicating the robust role of GDP in the explanation of remittance flows in Bangladesh. Thus, output greatly determines remittances in Bangladesh, while the reverse is not true.

5. Conclusion

With the advent of liberalization programs in developing countries, worldwide remittance growth has been more pronounced than ever before. Bangladesh began liberalizing its economy, although slowly, since the late 1970s. The country has achieved spectacular annual growth of more than 5 percent in the last two decades (WB, 2010). Remittances have also been high and growing in Bangladesh particularly over its liberalization era that began in 1979. In 2008, Bangladesh was the ninth highest remittance-recipient country in the world after India, China, Mexico, Philippines, Poland, Nigeria, Egypt, and Romania. This scenario has raised a number of questions such as: 1) What is the remittance-GDP relationship over the liberalization regime of Bangladesh? 2) Is the relationship, if present, a long-run or short-run phenomenon? 3) What lessons do other developing countries learn from the remittance-output dynamics of Bangladesh? There lies a gap in the existing literature in this respect. Our study fills that gap by addressing the above questions.

We adopt the widely used Johansen approach to cointegration along with VEC models to unveil both long run and short-run relation between the variables. Generalized impulse responses and forecast error variance decomposition, jointly called innovation accounting, are also used to explore the dynamics between them. Working on a liberalized regime from 1979 to 2009, this study finds long-run cointegration between remittances and GDP in Bangladesh. Contrary to traditional belief, GDP is weakly exogenous in the VEC model, suggesting that it is only the remittance variable that responds to correct long-run disequilibrium if the system is ever shocked, but the reverse is not true.

Simply, remittances follow the movements in output in a positive fashion in the long run, and correct short-run disequilibria.

Although this is another area of research that goes beyond the scope of this paper, we hypothesize that an increase in GDP may have caused institutional improvement to bring more remittances through formal channels than before. Moreover, GDP growth that augments import and investment demand necessitates greater inflows of remittances over time. Remittance growth appears to be countercyclical, and it has no significant effect on output growth in the short run. That countercyclicality may often be offset by the procyclical adjustment of remittances towards the correction of disequilibria in the cointegrating relation. These findings have policy implications for other developing nations in that output growth can be addressed first to attract more remittances. Undertaking institutional reforms and exploring investment opportunities can further boost remittance growth in developing nations.

This work raises some additional questions such as: 1) What are the underlying channels that dictate the long-run causality from output to remittances? 2) Why is the short-run effect of remittances on GDP still insignificant? 3) What is the remittance-GDP relationship in other top remittance-recipient economies? These issues are, of course, intriguing, and thus left for future research.

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Table 1

Phillips-Peron unit root tests with Bangladesh's GDP and remittances: 1979-2009

Variables:	In levels		In first difference		
	Model A	Model B	Model A	Model B	Integration
GDP	7.16	-1.12	-3.97	-7.13	I(1)
	(1.00)	(0.91)	(0.01)	(0.00)	
Remittances	-0.13	-1.47	-6.26	-10.63	I(1)
	(0.96)	(0.82)	(0.00)	(0.00)	

Note: Model A includes intercept, and Model B includes both intercept and trend. The null hypothesis states that the variable has a unit root. *p*-values are shown in the parentheses under each adjusted *t*- statistic. The critical values and details of the test are presented in Phillips and Perron (1988).

Source: World Bank (WB 2011).

Table 2

Johansen co integration Tests with Bangladesh's GDP and remittances: 1979-2009

		Option 3			Option 4		
		λ Stat	CV	CE	λ Stat	CV	CE
λ_{trace} tests:							
H_0: r = 0	H_A: r > 0	20.76	15.49	1	35.43	25.87	1
H_0: r ≤ 1	H_A: r > 1	1.10	3.84	0	12.20	12.52	0
λ_{max} tests:							
H_0: r = 0	H_A: r = 1	19.66	14.26	1	23.23	19.39	1
H_0: r = 1	H_A: r = 2	1.10	3.84	0	12.20	12.52	0

Note: The λ_{trace} and λ_{max} are calculated as pr Johansen (1990). *p*-values are calculated as per MacKinnon et al. (1999). CV signifies critical values calculated for the 5 percent significance level. CE stands for co integrating equation. H_0 and H_A denote the null and alternative hypotheses, respectively. Option 3 includes an intercept in the CE and the test VAR, whereas Option 4 includes an intercept and a trend in the CE without any trend in the VAR. The λ_{Trace} and λ_{Max} test statistics under both models are computed by allowing for liner deterministic trends in data. The lag length is determined by the SBC (see Enders 2010:402). *r* stands for the rank of the matrix, which denotes the number of the CE between the variables.

Source: WB (2010).

Table 3

Vector error correction estimates with Bangladesh's GDP and remittances> 1979-201

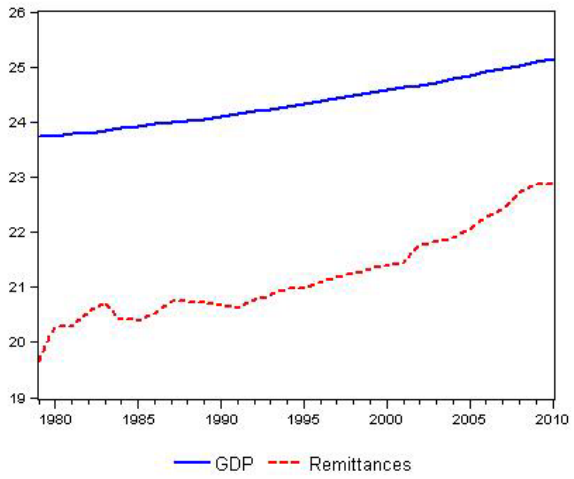
CE for VECM(1): ECT(t) = GDP(t-1) ***-0.14*** *× Rem(t-1)* ***-0.03*** *× Trend* ***-20.86***

CE for VECM(2): ECT(t) = GDP(t-1) ***-0.16*** *× Rem(t-1)* ***-0.03*** *× Trend* ***-20.41***

	VECM(1)		VECM(2)	
LHS variables →	ΔGDP(t)	ΔRem(t)	ΔGDP(t)	ΔRem(t)
Regressors:				
Constant	**0.044 (0.011)**	**0.300 (0.113)**	0.011 (0.012)	**0.317 (0.082)**
ΔGDP(t-1)	0.030 (0.229)	-4.444 (2.333)	0.438 (0.24)	**-5.777 (1.535)**
ΔGDP(t-2)			0.346 (0.200)	0.010 (1.300)
ΔRem(t-1)	0.006 (0.013)	-0.111 (0.136)	0.010 (0.018)	**0.399 (0.120)**
ΔRem(t-2)			-0.010 (0.014)	0.051 (0.093)
ECT(t-1)	**0.148 (0.061)**	**2.352 (0.626)**	-0.118 (0.141)	**6.580 (0.923)**
Adjusted R^2	0.37	0.35	0.28	0.70
Diagnostic tests:				
Portmanteau Serial correlation test:				
Adjusted Q-stat at lag 2	9.95 [0.04]		n/a	
Adjusted Q-stat at lag 4	16.74 [0.16]		8.12 [0.42]	
Adjusted Q-stat at lag 6	36.24 [0.01]		17.43 [0.36]	
Adjusted Q-stat at lag 8	40.82 [0.06]		25.66 [0.37]	
Heteroskedasticity test: χ^2stat:	27.10 [0.08]		28.91 [0.52]	
Normalty test:				
χ^2 stat for skewness	1.20 [0.55]		0.77 [0.68]	
χ^2 stat for kurtosis	0.95 [0.62]		2.17 [0.34]	
Jarque-Bera stat	2.14 [0.71]		2.94 [0.57]	

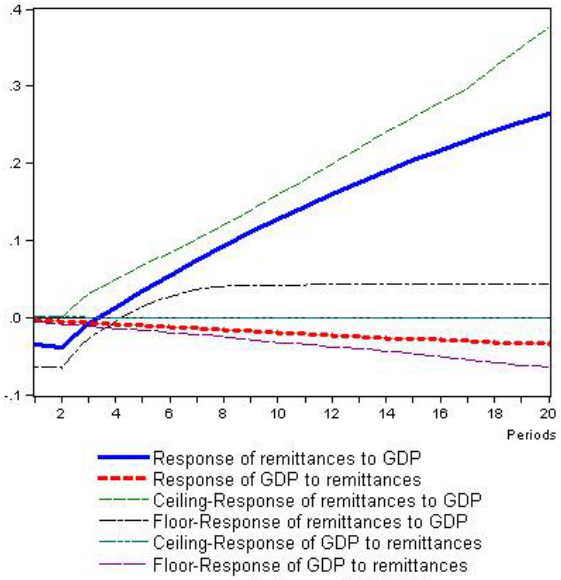
Note: The error correction estimation follows Model B as explained in Table 2. "Rem" denotes remittances. "ECT" is the error correction term. "CE" stands for co integrating equation. "Δ" indicates the first-order difference operator, and "stat" signifies statistic. Coefficients ar bold when significant at the 5 percent level. All values in parentheses against each coefficient are standard errors. The values in brackets are *p*-values of the respective statistic. Null hypotheses are "no serial correlation", "no heteroskedasticity", and "no non-normality" in VEC errors in the respective tests. The serial correlation test for VECM(2) at lag 2 is not available (n/a) by design.

Source: WB (2010).



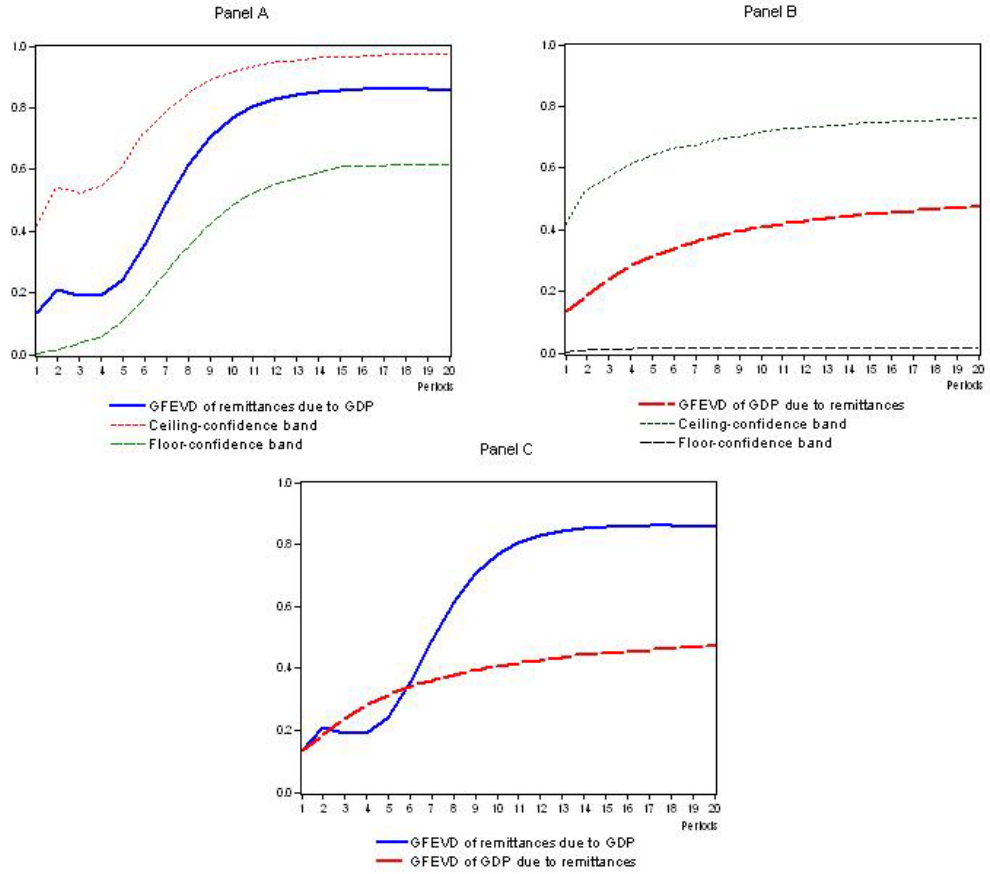
Source: WB (2010).

Figure 1. *GDP and remittances (in logs) in Bangladesh: 1979-2009*



Source: WB (2010).

Figure 2. *Generalized impulse responses with Bangladesh's remittances and GDP: 1979-2009*



Source: WB (2010).

Figure 3. *Generalized forecast error variance decomposition (GFEVD) of remittances and GDP in Bangladesh: 1979-2009*

Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 61-70

Limiting Civil Liability in the Sphere of Business Auditing

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Abstract. *The statutory audit of business entities is represented by the audit of annual financial accounts or consolidated financial accounts, according to the Community legislation transposed in national regulations. Negligence or imprudence in performing the activities related to this type of audit entail special consequences. It is to some of the elements derived from this context that we refer in this paper, especially as there is often the underlying risk for the auditor to be held liable. It is worth noting that one cannot claim several compensations for the same action. Then, the auditor is not jointly liable with the other authors of the illicit actions which have caused damages. On the other hand, limited liability does not apply to the situations when it has been proven that the auditor has breached his professional duties with direct intent.*

Keywords: auditing contract; insurance; negligence/imprudence in the performance of duties; civil liability; faults; offences; damages.

JEL Codes: M14, M41.
REL Codes: 5H, 14I, 14K.

1. Introduction

Romania, as a full member of the European Union, has to transpose in its own legislation the Directive 2006/43/CE of 17 May 2006 of the European Parliament and Council on statutory audits of annual accounts. As a result, the Government issued the Government Decree no. 90/2008 – on the statutory audit of annual accounts and consolidated accounts, published in the Official Journal of Romania, Part I no. 481 of 30/06/2008 *Official Journal no. 481of 30/06/2008* (approved by Law no. 278/7, November 2008).

Besides the rigorous regulation of the field, both this legal document and other specific legal sources provide substantial content to the public oversight system for statutory audits and audit firms, based on European principles, thus modifying and amending substantially the Government Decree no. 75/1999 on statutory auditing activities (Bostan, 2009)**.**

Expressly, Law no. 26 of 2 March 2010, which modified the Government Decree no. 75 of 1 June 1999 on financial audit activities, specifies that financial audits also encompass statutory audits.

2. Statutory audits at the level of business entities

2.1. Generalities. The usefulness of auditing reports for firms

Talking about audit in general – because statutory audit originates in societal norms – we could say that firms whose financial results are audited on a regular basis show more seriousness and security to potential investors. Besides these, the company's providers, financiers, employees, shareholders and managers are also interested in the results of auditing activities (Horomnea, 2010).

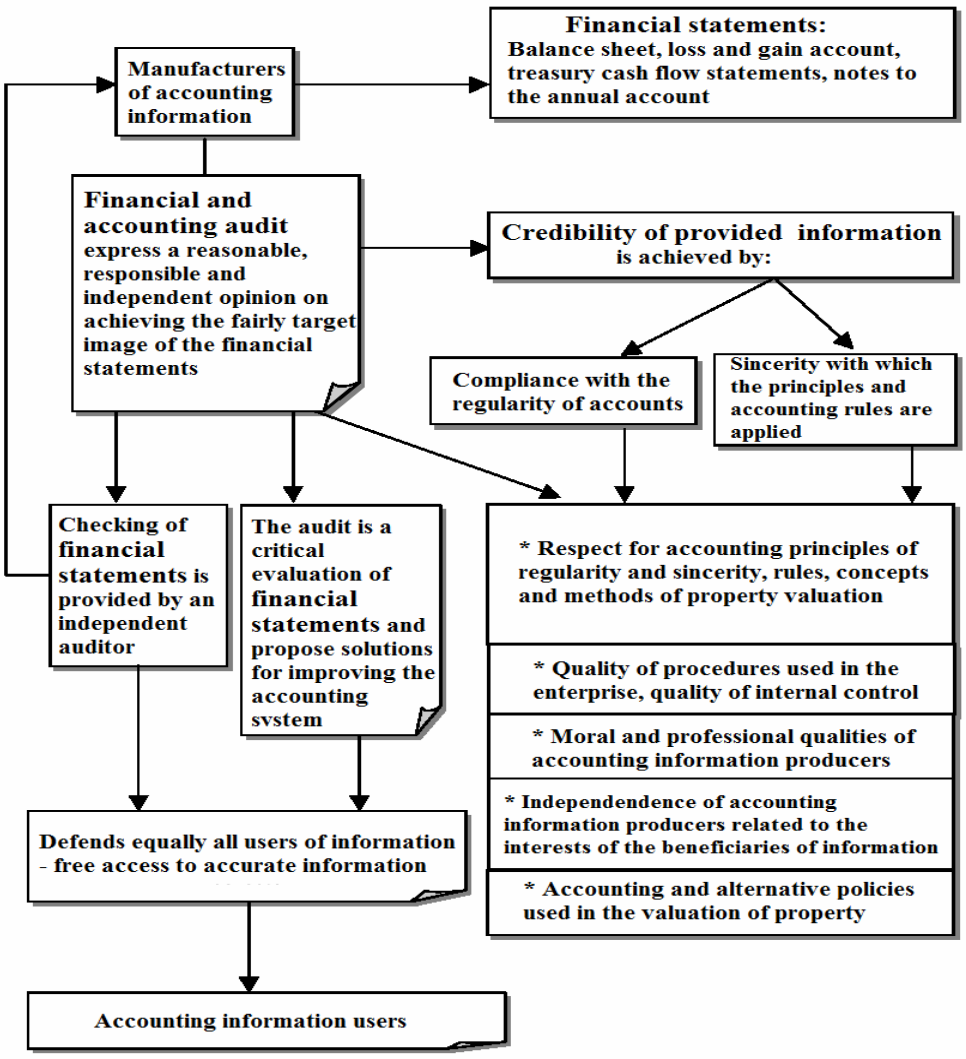
A scheme illustrating the role of these special activities is presented in Figure 1.

Drawn up by independent entities, the audit report is the outcome of a series of strictly specialised investigations concerned with the firm's financial-accounting activities which verify if accounting data were registered according to the generally accepted framework (principles, norms, assessment rules and domestic procedures), how they were collected and prepared, etc.

If they identify registrations of doubtful transactions, auditors are allowed to use crossed inspection techniques, establishing contacts with the clients, the providers, the debtors or the creditors of the audited firm.

The auditor's opinion, expressed in the final part of the report, belongs only to him/her and is based exclusively on the results of his/her investigations. Compulsory for banks, companies listed on the stock market or in other cases

provided by the law for given entities, demanding rather high expenses, auditing has not managed to find a wide scope for itself at the level of domestic firms, although such a business card (a favourable audit report) could open the door to new business opportunities. This is all the more true if the "certificate of good behaviour" comes from one of the greatest specialised international companies in this field.



Source: Ana Stoian, *Audit financiar-contabil,* http://www.biblioteca-digitala.ase.ro/biblioteca/pagina2.asp?id=cap1

Figure 1. The role of financial audit

Nevertheless, after having been practiced for nearly half a century in the Western world, currently, it is believed that it is possible for the audit not to identify some deficiencies and risky situations present in the firm's activity. Besides the cases that are easily understandable (for instance, inadequate ulterior managerial decisions), the audit's lack of infallibility may be linked to the managing staff's lack of total cooperation in making available all the needed documents and data, which would be indiscernible from accounting registers, such as secret agreements with other firms (which have not come into force yet), accepting to guarantee for others, etc.

Thus, the audit report is not an insurance policy or a "blank cheque" for the audited company, but it is, by far, the central axis in the analysis of a given company's financial accounts.

2.2. The auditor and the statutory audit

Statutory audit originates in the law of commercial companies, and its specific missions are permanent in nature, implying the possibility for the auditor to apply the specific procedures at the level of the business entity at any moment during the financial year**.** These specific procedures may be related to the analysis and assessment of internal control, to physical inspection (inventory) or to the revision of financial accounts (Bostan, 2009).

The statutory auditor is the natural person authorised by the competent authority, i.e. the Romanian Chamber of Financial Auditors (CAFR), to perform statutory audits. Statutory auditors and audit firms must perform statutory audits in agreement with the International Standards on Auditing (ISA), the purpose of the examinations being for the auditors to express a motivated opinion regarding the true, fair and complete image of audited entity's financial position (assets), financial accounts and results.

Statutory audits are concerned exclusively with annual accounts or with consolidated annual accounts, as specified by the Community legal framework transposed in national regulations: the balance sheet, the profit and loss account and the other components of financial accounts, depending on the applicable accounting referential; they also suppose the performance of other insurance missions and professional services, according to international auditing standards and to other regulations adopted by the Romanian Chamber of Financial Auditors.

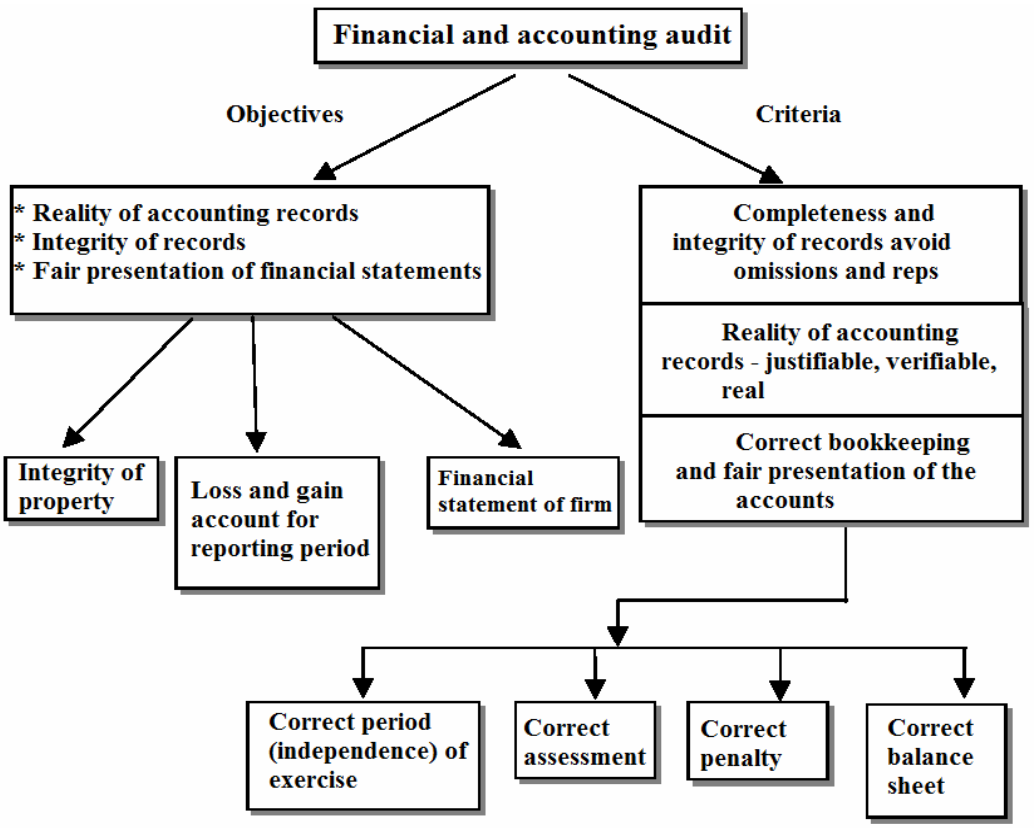
The specificity here seems to be given by the fact that within the auditing of financial accounts the auditor must apply a control methodology able to ensure – unlike other forms of audit – this independent opinion capable of judging or defending equally all the users of accounting information, all the entities

participating in the social-economic life, that is, the shareholders, the state (budget), the employees, the banks, the third-party debtors, the providers, etc.

The statutory auditor or the audit firm is appointed by the general meeting of the audited entity's shareholders or associates, for multiannual periods of usually 5-7 years.

Generally, the professional standards of auditing activities impose that this type of audit be carried out taking into account the International Standards on Auditing, the requirements of relevant professional organisations, the legislation and the regulations in force, the norms of reports, etc. (Horomnea, 2010).

The objectives and the criteria used include, to a great extent, those presented in Figure 2.



Source: Ana Stoian, *Ibid.*

Figure 2. Financial and accounting audit objectives and criteria

It should be noted that when they perform the hereby analysed audit, statutory auditors and audit firms may apply a national standard, adopted by the CAFR, if the European Union has not approved yet an ISA referring to that field, mentioning this element in the audit report. When an audit firm performs a statutory audit, the audit report is to be signed at least by the statutory auditor(s) who performs the audit on the behalf of that firm.

The possibility for the auditor to express an opinion – in the audit report – regarding the financial accounts and all their significant aspects, according to a general framework of financial reporting, supposes a specific process, characterised by a special type of complexity (Bostan, 2009). This is carried out step by step, starting with the auditor's approval for the mission, the orientation/planning of the audit, the assessment of internal control, the verification of accounts and financial accounts, and finishing with the audit conclusions and the report.

We would like to point out that since statutory audit is based to a great extent on random selection, there is no all-encompassing validation of the way the transactions and flows of the financial year have been treated in accounting records.

In what regards the report, it should mention clearly the name of the person who has drawn it up along with the individual number of registration in the public Register.

3. The auditor's legal liability and the applicable system of penalties

Statutory auditors or audit firms may be dismissed only when there are proper grounds. Under all circumstances divergence of opinions on accounting treatments or audit procedures shall not be proper grounds for dismissal or other similar measures (Bostan, 2009, Horomnea, 2010).

In what regards investigations and penalties, the Council for the Public Oversight of Statutory Audit Activities (CSPAAS) establishes efficient systems in order to detect, correct and prevent inadequate execution of statutory audit.

The penalties applied (according to Chapter VII, Government Decree 90/2008) should be effective, proportionate and dissuasive for statutory auditors and audit firms when statutory audits are not performed according to the specific legal framework. At the same time, the penalties applied should not interfere with the system of civil liability and the measures taken or the penalties applied to statutory auditors and audit firms should be appropriately disclosed to the public.

Audit firms are to be held liable, according to Government Decree no. 90/2008 – on the statutory audit of annual accounts (art. 32-37), if one of their associates, administrators or employees who does not have the quality of statutory auditor intervenes in the independent execution of the profession of statutory

auditor. This happens only if the intervention affects the independence of the statutory auditors who carry out this activity on the behalf of the audit firm.

Faults are to be established and penalties are to be applied only by the people who have been mandated in this respect by the CAFR or CSPAAS, the legal framework being supplemented with the provisions of the Government Decree no. 2/2001 on the general legal regime of contraventions.

It is worth noting that performing statutory audits without having been qualified as a statutory auditor is a criminal offence and is punishable according to the criminal law. The penalties applied by CAFR to statutory auditors and audit firms are: admonishment, written admonition, withdrawal of the right to perform statutory audits (for a period of three months up to one year) and withdrawal of approval accompanied by the withdrawal of the quality of statutory auditor.

We point out that the withdrawal of an audit firm's approval entails its lawful dissolution and liquidation. Then, during the period for which their right to perform has been withdrawn, people are not entitled to perform any activity of statutory audit, under any circumstances, they are forbidden to use their quality of statutory auditors and to take part in the CAFR activities. Faults publishable by sanctions and the procedure to detect and sanction them are established by the Regulations of CAFR, with the approval of CSPAAS, and the sanctions applied, made irrevocable after all the legal forms of contestation have been used, are published in the Official Journal.

If a legal court has issued a definitive decision to convict a statutory auditor for criminal offences related to his/her activity as a statutory auditor or if it applies the criminal sanction which is supplemental to the interdiction to perform this activity, the auditor is erased from the Public Register.

Statutory auditors or audit firms are liable for any damages they have caused, intentionally or by negligence, in the performance of their mission. An audit firm is jointly liable with the statutory auditor who has carried out a mission on its behalf for the damages caused by the statutory auditor.

This is why it is recommendable for both the statutory auditor (physical person) and the audit firm to get mandatory insurance in order to cover professional risks.

4. Limiting the auditor's liability for the damages caused

The regulation on limiting the civil liability of statutory auditors and audit firms states that liability is directly bound to the damages caused through the performance of specific missions, with direct or indirect intent or as a result of negligence or imprudence. This type of liability is limited to the amount of three audit fees established in the auditing contract, owed by the client to the auditor,

according to the clauses of the auditing contract referring to the statutory audit of the annual accounts of a commercial company which does not belong to the category of public interest entities.

If the audit targets a public interest entity, the liability cap amounts to five audit fees. We stress here that the category of public interest entities includes credit institutions, insurance companies, the entities regulated and monitored by the National Commission of Assets, companies whose assets have been accepted for transaction on a regulated market, national companies and societies, legal persons belonging to a group of companies and entering the consolidation perimeter of a mother-company that applies IFRS, legal persons that have received non refundable grants or grants guaranteed by the state.

The abovementioned regulation, issued by the Council for the Public Oversight of Statutory Audit Activities (CSPAAS) based on the Government Decree nr. 90/2008 on the statutory audit of accounts, also brings other important specifications in this matter. Thus, the amount of damages represents the maximum cumulated cap corresponding to all the damages caused as a result of having performed statutory audit activities based on the same auditing contract that the statutory auditors or audit firms can be compelled to pay, regardless of the number of people who have suffered damages or of the total amount of the allegedly caused damages.

One cannot claim several damages for the same fault committed as a result of the auditing activity carried out in order to draw up the audit report regarding the individual annual accounts and/or consolidated accounts of the same audit client, for the same financial year and based on the same proven damages.

Then, the statutory auditor or the audit firm is not jointly liable for the damages caused with the other authors of the illicit actions which have caused damages. However, liability is not limited in the cases when it is proven that the auditor has intentionally breached his professional duties, that is, when the perpetrator foresees the results of his/her action/lack of action and seeks to produce them.

Based on the annual accounts that have allegedly caused damages to the client/third-party, the auditor may be sued in court, according to the auditing contract, under the penalty of withdrawal of approval. However, the deadline to sue the auditor, fixed by CSPAAS, cannot be longer than three years since the day on which the audit report was issued.

5. Conclusions

Statutory audits originate in the law of commercial entities and are concerned exclusively with annual accounts or with consolidated annual accounts, as specified by the Community legal framework transposed in national regulations. The procedures established at the level of business entities are

permanent in nature and may be concerned with the analysis and assessment of internal control, with physical inspection (inventory) or the revision of financial accounts.

Statutory auditors or audit firms are liable for any damages they have caused, intentionally or by negligence, in the performance of their mission. An audit firm is jointly liable with the statutory auditor who has carried out a mission on its behalf for the damages caused by the statutory auditor.

The fact that the missions specific to this type of audit are quasi-permanently accompanied by risks made the lawmakers provide and regulate some aspects related to the auditor's civil liability, the applicable system of penalties and the limiting of the auditor's liability related to the damages caused.

The penalties applied should be effective, proportionate and dissuasive for statutory auditors and audit firms when statutory audits are not performed according to the specific legal framework. At the same time, the penalties applied should not interfere with the system of civil liability and the measures taken or the penalties applied to statutory auditors and audit firms should be appropriately disclosed to the public.

The legal norms mentioned in our paper provide that liability is directly bound to the damages caused through the performance of specific missions, with direct or indirect intent or as a result of negligence or imprudence. This type of liability is limited to the amount of three audit fees established in the auditing contract, owed by the client to the auditor, according to the clauses of the auditing contract referring to the statutory audit of the annual accounts of a commercial company which does not belong to the category of public interest entities.

All these justify the fact that both the statutory auditor (physical person) and the audit firm should get mandatory insurance in order to cover professional risks.

Acknowledgements

This article is part of an ampler study entitled „Etică şi responsabilitate în contabilitatea şi auditul companiilor"/"Ethics and liability in company accounting and auditing" (authors: I. Bostan, C. Costuleanu, E. Horomnea, M. Costuleanu, C. Codreanu), which was partially published in *Economie teoretică şi aplicată/Theoretical and Applied Economics*, "Moralitate, etică şi imagine onestă în contabilitatea afacerilor", Review no. 6/2011, and was also the topic of the presentation made during *The International Business Information Management Conference* (16th IBIMA), 29-30 June 2011, Kuala Lumpur.

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Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 71-88

Analysis of the Possibility to Organize the Management Accounting through the Target Costing (TC) Method in the Romanian Entities

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Abstract. *This article presents a way of organizing the management accounting and cost calculation through the Target Costing method. There are treated the development stages of Target Costing method, and the role of the management accountant in the development and implementation of this method. The causes behind the choice to adapt the principles of Target Costing method to the Romanian General Accounting Plan and the operation of accounts used in highlighting economic and financial operations at the entity leve have been analyzedl. There are treated theoretical and applied the methodological steps taken in the management accounting and cost calculation. The article ends with the conclusions of the authors about the possibility of adapting the principles of Target Costing method to the Romanian General Accounting Plan and the advantages offered by this method.*

Keywords: target costing; management accounting; accounting plan; implementation; profit margin.

JEL Codes: M21, M41.
REL Codes: 14I, 14K.

1. Introduction

The article refers to the analysis of the possibility of organizing the management accounting and cost calculation through the Target Costing method in industrial entities in Romania. It was considered the correct understanding of the methodology for applying the principles of Target-Costing method, based on various theoretical approaches of professionals and managerial accounting restatement information to determine the target cost proposed by an entity. The focus is on trying to adapt the Romanian General Accounting Plan to the specific of Target Costing method and to highlight the advantages of its use in industrial entities in Romania.

2. The current stage of knowledge

In the specialty literature, most specialists have approached the Target Costing method from different points of view meant to point out the advantages or disadvantages of its use. Worldwide, this method was studied very carefully, especially by CAM-I[(1)], whose results were published and showed the real usefulness of this method in terms of continuing the reduction of costs, along with Kaizen Costing method. We have chosen the way of organizing managerial accounting, the use of 9 Class "Management Accounts" variant. After consultiations with experts in the field, it was made possible a variant of organizing managerial accounting using certain specific accounts whose content and operation have been carefully analyzed. The results of our research in adapting the General Accounting Plan to the specific of Target Costing method are presented through a case study example, meant to demonstrate the usefulness of this method in the current economic situation of Romania.

3. The stages of Target Costing method (TC)

According to the definition of CAM-I, Target Costing is "*a set of management tools and methods designed to direct the design and planning for new products, which provide a basis for subsequent exploitation phase control, and ensuring that their products achieve their goals of profitability throughout their life cycle.*"[(2)] The goal of Target Costing method is to identify the production cost for the intended product, to sell it, therefore, to generate the desired profit margin. The Target Costing method focuses on reducing the cost of a product through changes in its design, being applied during the design phase of life cycle product.

In the speciality literature, the specialists have identified the following general steps underlying the performing of Target Costing method:

1. *Setting the target price depending on the market and competitive environment context*. The target price is set by the study techniques such as: assessing the market needs, competitive analysis or preliminary plans of the entity to provide a new or modified product with certain features or characteristics. The essence consists in the fact that entities which use the Target-Costing method for setting their target price on the market depending on competitive conditions and long term prices depending on market penetration objectives.

2. *Setting the target profit margin*. The target profit margin results from the strategic and financial long-term objectives of the entity as a result of efforts to plan a profit. General equation is as follows:

Target price – Target profit margin = Traget cost (allowable) (1)

where:

The allowable cost may be composed of: *variable production costs* (raw materials, direct wages), *unit production costs* (development, depreciation, investigation), *other costs* (general manufacturing, administrative), *investment costs* (inventory, equipment, installation).

3. *Determining the estimated cost and the target cost*. If the product proposed is a modification of an existing product, an entity already has the base cost from which can determine which could be the potential costs of the new proposed product, if the new product specifications and method of manufacture are similar. Next, one can determine the costs of a new product or *engineering costs* (*current costs, estimated*) using the avaible product specifications and manufacturing processes. General equation is as follows:

Target price – Target profit margin = Target cost (*current cost, estimated cost*) (2)

Target Price – Target profit margin = Target cost, estimated (Kaizen Costing subject) (3)

The estimated cost is reduced by using the Kaizen Costing technique to achieve the target cost proposed by the entity.

4. *Calculation of the estimated cost of products and estimated activities.* It is determined by adding the direct costs and the indirect costs allocated to the products.

5. *Calculation of target cost, the amount by which costs should be reduced*. If the estimated cost is greater than the target cost proposed by the entity, it shall be reduced by applying the engineering cost. This involves bottom-up adjustment of the componence of the estimated cost that is the indirect costs allocated to the bearer of cost and the direct costs, if there are any.

4. The role of the management accountant. Adaptation of the Romanian general accounting plan to the specifics of the Target Costing method

In the contemporary period which incurs major changes in the global and competitive business environment where prices are set by the market or competitive pressures or aggressive politicies of the entity management for the penetration of certain target market segments, the Target Costing method brings a new life in cost management, encouraging the management accountants to adopt and implement it to solve the above mentioned problems.

The management accountant has a very important role in the preparation and achievement of long-term financial objectives of the entity. Being an educated and experienced person, accustomed to analyzing and reporting financial statements, he is the main observer of the impact that environment has on competitive market, the increase or decrease of price, respectively, of costs. Therefore, the management accountant must pass all these signals to the entity's management. The management accountant should read the speciality literature all the time, to be aware of any changes that the entity might benefit from on long-term. In this sense he must familiarize himself and the management of the entity with the principles and benefits of the Target Costing method.

In the implementation of the Target Costing method, the management accountant must have the support of the entity's management. Having already acquired knowledge, the management must be involved in this process. With a pilot implementation project, well thought out, the entity's management becomes a central pillar of the correct implementation and ensures profitability, which will determine the future position on competitive markets. Also, the management accountant must be credible for the other heads of departments of the entity providing multi-level involvement. It should highlight how Target Costing method affects the entity's functions and how other department leaders must face the changing competitive environment, experiencing the implementation of the method and its advantages.

The appropriateness and the responsibility of writing the pilot implementation of the Target Costing method lies with the management accountant that must ensure proper training of people involved the awareness of application of this implementation process, with all the necessary support from

the management of the entity. Implementation of the Target Costing method in an entity represents a major change that will affect not only the internal organization but also the future thinking of all those involved in its good running.

Another very important task of management accountant is to adapt the General Accounting Plan to the specifics of the Target Costing method. The General Accounting Plan in Romania does not provide the image of a total cost calculation to determine the product costs, but rather a collection of global expenditures. The economic content and the accounting correspondence between the accounts of the 9th Class "Management Accounts" standardized by the Romanian accounting rules only meet the needs of absorbent (total) type cost calculation organization methods and less the partial methods type. The analytical accounts included in the 9th Class "Management Accounts" remain limited in terms of their informational content and their mode of construction reveal the deficiency of a large number of accounts with defined roles and accounting functions. According to the Regulation of enforcement of the accounting law in Romania, according to the needs of each entity and its purpose by them, other accounts may be introduced or the analytical plan of accounts required by their beneficiaries may be expanded.

In our attempt to adapt the principles of Target-Costing method to the specific technological process and manufacturing types existing in the industries in Romania, taking into account the life cycles of the products, we are hereby presenting our arguments in favour of the organization of management accounting by using the accounts of the 9th Class "Management Accounts". In our opinion, the General Accounting Plan will not do anything but simplify the recording technique and determination of the product costs, the unique problem remaining only the correct representation of the economic and financial operations in the entity's circuit. The management accounting organization is subject to accounting normalization and it is based on pluralism information according to which the accounting information is aimed at several types of users: the state, entity management, investors etc. The internal information needs are satisfied through management accounting which aims at analyzing the outcome of the internal organizational structure. The option of choosing the management accounting organization by using accounts allows its comparison with the French system and also manages to capture its specific economic and financial flows, allowing the representation of the entire operational process in an entity. Using accounts allows capture of more specific issues regarding the material and the money flows for each phase of the life cycle of manufactured products, as well as the target prices and the target profit margins aimed at by the entity, thus helping to identify the target costs for those phases.

Regarding the choice of system of accounts for the use and implementation of Target Costing method (TC), the most solid argument is the tradition preserved in Romania to use the dual system of management accounting which focused on two directions: (1) *accounts based on double entry* and (2) *software based on double entry*. Most accountants in Romania are accustomed in using an accounting system based on an accountant plan, and now they continue using it because of the many advantages presented above. Computer programmers have created software based on accounting records thus facilitating the work of the accountants. Due to the increased quantity of data processed by computers, the software created today is becoming more advanced and easy to use by accountants.

To meet the mentioned above and to try to adapt the Romanian General Accouting Plan, we chose to develope the double entry accounting management variant(3). Given the proposed variant to determine the target profit, target profit margins and establishing the target cost according to the specific of TC method, the new accounting plan will present the following structure:

90 Group "Internal offset"

901 "Internal offset for expenses"
902 "Internal offset for manufactured output"
903 "Internal offset for cost differences"
904 "Internal offset for sales"

92 Group "Calculation accounts"

921 "Main activity expenses"
923 "Indirect expenses"
924 "General management expenses"
925 "Marketing and sale expenses"

93 Group "Production cost"

931 "Finite production cost"
935 "Sold output cost"

95 Group "Analytical result accounts"

951 "Analytical result"

Accounts of the 9th Class "Management Accounts" will function as follows:

Group 90 "Internal offset". The adjustment to the specific of the Target-Costing method have required changing the names of some of the accounts, precisely to make them more flexible in pinpointing the recorded expenses and the obtained earnings.

901 "Internal offset for expenses" is a bi-functional account, but it functions as an account payable. In this account, we record the offsets related to direct expenses (main activities) and indirect expenses (production overheads, general management expenses and sale expenses). It is credited during the month, when we offset the running expenses according to their purposes (products or job costs) through the debit of the following accounts: 921 "Main activity expenses", 923 "Indirect expenses", 924 "General management expenses" and 925 "Marketing and sale expenses". It is debited at the end of the month by the actual cost of the sold production, through the credit of account: 935 "Sold production cost". It has no balance.

902 "Internal offset for manufactured output" is a bi-functional account. It is used for recording the internal offset of the manufactured output cost at the end of the month, at actual cost. It is credited during the month by the estimated cost of the finite production through the debit of account 931 "Finite production cost". It is debited, at the end of the month, by the target cost of the production output, through the credit of account 921 "Main activity expenses". Analytically, this account details calculation objects (orders, products, works etc.).

903 "Internal offset for cost differences" is an account receivable and keeps track of cost differences calculated at the end of the month, between the new calculated effective cost due to compliance with the criteria imposed by the customer and the actual cost of production obtained in the entity. It is debited at the end of the month, in determining and recording the cost difference (favorable or unfavorable) through the credit of account 902 "Internal offset for manufactured output" and debit the account 935 "Cost of production sold". It has no balance. Analytically, this account details calculation objects (orders, products, works etc.).

904 "Internal offset for sales" is an account payable. It is used to record:

- Earnings obtained from selling the finite products at sale price;
- The offset of the actual cost and the result obtained after selling the finite production.

It is credited at the end of the month, when we offset the target cost of manufactured and sold output and the target profit margin from the sale of production, through the credit of the account 951 "Analytical result". It is debited at the end of the month, with the value of the sold output, through the credit of the account 951 "Analytical result". It has no balance. Analytically, this account details calculation objects (orders, products, works etc.).

Group 92 "Calculation accounts" is homogeneous from the point of view of the economic contents and accounting function.

921 "Main activity expenses" is an account receivable. It is used for keeping record of the entity's main activity expenses. It is debited:

- During the month, when we collect the direct expenses resulted from the main activity, through the credit of account 901 "Internal offset for expenses";
- At the end of the month, when we allocate the shares of overheads (taking into account the specific cost drivers), through the credit of accounts: 923 "Indirect expenses", 924 "General management expenses" and 925 "Marketing and sale expenses".

It is credited at the end of the month by the target cost of the manufactured output, through the debit of account 902 "Internal offset for manufactured output". It has no balance.

Analytically, this account details calculation objects (orders, products, works, services etc.) calculation items (raw materials and direct salaries, including direct labor accessories).

923 "Indirect expenses" is an account receivable. It is used for keeping record of indirect production expenses. It is debited during the month, when we collect production overheads, through the credit of account 901"Internal offset for expenses". It is credited at the end of the month, when we allocate the shares of expenses resulting from the main activities (production overheads), based on specific cost drivers, through the debit of account 921 "Main activity expenses". It has no balance. Analytically, this account details indirect production activities.

924 "General management expenses" is an account receivable. It is used to record expenses resulting from management activities. It is debited during the month, when general management expenses are collected, through the credit of account 901 "Internal offset for expenses". It is credited at the end of the month, when we allocate the shares of the main activity expenses (general management overheads), based on specific cost drivers, through the debit of account 921 "Main activity expenses". It has no balance. Analytically, it details general management activities.

925 "Marketing and sale expenses" is an account receivable. It is used to record expenses resulting from commercial activities. It is debited during the month, when commercial activity expenses are collected, through the credit of account 901 "Internal offset for expenses". It is credited at the end of the month, when we allocate the shares of expenses resulting from the main activities (indirect marketing and sale expenses), based on specific cost drivers, through the debit of account 921 "Main activity expenses". It has no balance. Analytically, this account details marketing and sale activities.

Group 93 "Production cost" is the group that distinguishes the aspects of production cost from two points of view: the finite production and the sold production. The accounts described below are both receivable accounts.

931 "Finite production cost" is an account receivable. It is used to record finite production, consisting of finished products. It is debited during the month, by the record price of manufactured output, through the credit of account 902 "Internal offset for manufactured output". It is credited at the end of the month, by offsetting the target cost of finite production, through the debit of account 935 "Sold production cost". It has no balance. Analytically, this account details calculation objects (orders, products etc.).

935 "Sold production cost" is an account receivable and it keeps record of the finite production to be sold (orders, products), at sale price. It is debited at the end of the month, by the finite production entry at the estimated (target) cost, through the credit of account 931 "Finite production cost". It is credited at the end of the month, by offsetting the estimated (target) cost of manufactured output on the account 901 "Internal offset for expenses". It has no balance. Analytically, this account details calculation objects (orders, products etc.).

Group 95 "Analytical result accounts" is the group that contains result accounts, obtained as difference between earnings and expenses resulting from the finite production of an entity

951 "Analytical result" is a bi-functional account. It is used to record the analytical result obtained from selling the finite products. It is credited at the end of the month by the target price value of sold production, through the debit of account 904 "Internal offset for sales". It is debited at the end of the month by the target cost of finite manufactured output and target profit margin obtained as difference between earnings recorded at target sale price and target cost of sold production through the credit of the same account 904 "Internal offset for sales". It has no balance. Analytically, this account details calculation objects (orders, products etc.).

5. Methodological steps of management accounting and cost calculation through TC (Target Costing) method

Based on the ongoing stages of Target Costing method, the management accounting has the following steps:

I. Recording the turnover at target selling price. It is made by debit of 904 "Internal offset for sales" and credit of the account 951 "Analytical result".

904 "Internal offset for sales"	=	951 "Analytical result"

II. Establishing and recording the estimated profit margin (target). It is made by debit of 951 "Analytical result" and credit of the account 904 "Internal offset for sales".

951 "Analytical result"	=	904 "Internal offset for sales"

III. Calculation and recording the estimated cost (allowable, target). It is made at standard cost by debiting 931 "Finite production cost" and crediting the account 902 "Internal offset for manufactured output".

931 "Finite production cost"	=	902 "Internal offset for manufactured output"

IV. Establishment of the estimated cost purposes (allowable, target). At this stage there is the distribution of the total cost amounts allowable to purposes, job costs (processes, activities) and carrying costs by using cost drivers or specific weights determined by the implementation team of Target Costing method. It uses the same allocation methodology as for the ABC method (Activity-Based Costing). Total cost allocated is taken into account credit 901 "Internal offset for expenses" and assigned the accounts of group 92 "Calculation Accounts".

921 ”Main activity expenses” 923 ”Indirect expenses” 924 ”General management expenses” 925 ”Marketing and sale expenses”	=	901”Internal offset for expenses”

Analytical accounts can be opened for the following direct costs: raw materials, direct wages and other direct costs. For indirect costs, accounts can be opened for each type of analytical activity individually highlighted in the corresponding process.

V. Allocation of indirect costs related activities on the products and works performed by using specific cost drivers (a list of specific cost drivers of each type of indirect expense shall be drawn or the weights determined by the implementation team shall be used).

921”Main activity expenses”	=	923 ”Indirect expenses” 924 ”General management expenses” 925 ”Marketing and sale expenses”

VI. Calculation and settlement of effective cost. It is achieved by debiting 902 "Internal offset for manufactured output" and account 921”Main activity expenses”. It produces no changes as against the traditional methods of cost calculation.

902 "Internal offset for manufactured output"	=	921”Main activity expenses”

VII. Calculation and recording the cost differences between the new effective costs established as result of the recommendations made based on customer requests and the actual cost established on components inside the entity.

903 “Internal offset for cost differences”	=	902 "Internal offset for manufactured output"

VIII. Settlement of effective costs of sold production. It is made to the debit of account 935 "Sold production cost" and the credit of account 931 "Finite production cost".

935 "Sold production cost"	=	931 "Finite production cost"

IX. Distribution of cost differences on sold production.

935 "Sold production cost"	=	903 “Internal offset for cost differences”

X. Settlement of effective costs on the target result. It is made to the debit of account 951 "Analytical result" and credit of the account 904 "Internal offset for sales".

951 "Analytical result"	=	904 "Internal offset for sales"

XI. Closing the expenditures accounts (cost-production interface). It is made by debit of 901”Internal offset for expenses” and credit of the account 935 "Sold production cost".

901”Internal offset for expenses”	=	935 "Sold production cost"

6. Applied case study

An entity that performs product *A* annually wants to improve the product and to launch this product on the market under the name *Super A*. Estimates made by the experts of the entity show that the life of the new product will be three years and will have three phases: *launch*, *growth* and *maturity*. The entity is considering a functional decomposition based on product analysis, taking into account the repeated needs of the client. The situation of the production capacity, estimated selling prices, covered profit margins is as follows:

Explanations	Phase 1 *Launch*	Phase 2 *Growth*	Phase 3 *Maturity*
Predicted quantity (pieces)	10,000	10,000	12,000
Unit target selling price	800	750	700
Unit target profit margin	64	60	42
Unit target cost	736	690	658
Target turnover	8,000,000	7,500,000	8,400,000
Target profit margin	640,000	600,000	504,000
Target cost	7,360,000	6,900,000	7,896,000
Share of profit margin in turnover	8%	8%	6%
Target cost share in turnover	92%	92%	94%

Situation of unit target costs on components and phases, also the share in the cost of products is as follows:

Cost component	Share in the cost of product (%)	Target cost per unit component and phase (RON/pcs.)		
		Phase 1 *Launch*	Phase 2 *Growth*	Phase 3 *Maturity*
Raw materials	20	147.2	138	131.6
Direct wages	10	73.6	69	65.8
Maintenance	25	184	172.5	164.5
Montage	20	147.2	138	131.6
Management groups	15	110.4	103.5	98.7
Publicity	10	73.6	69	65.8
Total	100	**736**	**690**	**658**

Effective costs recorded during the tree years are: 750 RON, 710 RON, 670 RON. The entity's management wants to present the evolution of the target cost of the *Super Alpha* product during the three phases of engineering performance value for reducing costs in each phase. The management of the entity wants to supply the information necessary to make correct decisions and robust policy that will impact on manufacturing, competition policy and estimates of future benefits.

Based on the above presentation, the situation in the three years is as follows:

Cost component	Share in the cost of product (%)	Target cost on cost's component and phases (RON)		
		Phase 1 *Launch*	Phase 2 *Growth*	Phase 3 *Maturity*
Raw materials	20	1,472,000	1,380,000	1,579,200
Direct wages	10	736,000	690,000	789,600
Maintenance	25	1,840,000	1,725,000	1,974,000
Montage	20	1,472,000	1,380,000	1,579,200
Management groups	15	1,104,000	1,035,000	1,184,400
Publicity	10	736,000	690,000	789,600
Total	100	**7,360,000**	**6,900,000**	**7,896,000**

The phase deviations determined after comparing the effective cost (unit and total) with target cost (unit and total) is as follows:

Cost component	*Phase 1 Launch*					
	Effective cost		Target cost		Deviations	
	unit	total	unit	total	unit	total
Raw materials	150	1,500,000	147.2	1,472,000	2.8	28,000
Direct wages	75	750,000	73.6	736,000	1.4	14,000
Maintenance	187.5	1,875,000	184	1,840,000	3.5	35,000
Montage	150	1,500,000	147.2	1,472,000	2.8	28,000
Management groups	112.5	1,125,000	110.4	1,104,000	2.1	21,000
Publicity	75	750,000	73.6	736,000	1.4	14,000
Total	**750**	**7,500,000**	**736**	**7,360,000**	**14**	**140,000**

Cost component	*Phase 2 Growth*					
	Effective cost		Target cost		Deviations	
	unit	total	unit	total	unit	total
Raw materials	142	1420000	138	1380000	4	40000
Direct wages	71	710000	69	690000	2	20000
Maintenance	177,5	1775000	172,5	1725000	5	50000
Montage	142	1420000	138	1380000	4	40000
Management groups	106,5	1065000	103,5	1035000	3	30000
Publicity	71	710000	69	690000	2	20000
Total	**710**	**7100000**	**690**	**6900000**	**20**	**200000**

Name of cost's component	*Faza 3 Maturity*					
	Effective cost		**Target cost**		**Deviations**	
	unit	**total**	**unit**	**total**	**unit**	**total**
Raw materials	134	1,608,000	131.6	1,579,200	2.4	28,800
Direct wages	67	804,000	65.8	789,600	1.2	14,400
Maintenance	167.5	2,010,000	164.5	1,974,000	3	36,000
Montage	134	1,608,000	131.6	1,579,200	2.4	28,800
Management groups	100.5	1,206,000	98.7	1,184,400	1.8	21,600
Publicity	67	804,000	65.8	789,600	1.2	14,400
Total	**670**	**8,040,000**	**658**	**7,896,000**	**12**	**144,000**

In consultation with customers, the entity decides to reduce the costs components, and the new cost effective resulted is as follows for the three phases:

Name of cost's component	*Phase 1 Launch*					
	New effective cost		**New target cost**		**Deviations**	
	unit	**total**	**unit**	**total**	**unit**	**total**
Raw materials	151.2	1,512,000	138	1,380,000	13.2	132,000
Direct wages	75.6	756,000	69	690,000	6.6	66,000
Maintenance	178.5	1,785,000	172.5	1,725,000	6	60,000
Montage	145.8	1,458,000	138	1,380,000	7.8	78,000
Management groups	102.3	1,023,000	103.5	1,035,000	-1.2	-12,000
Publicity	66.6	666,000	69	690,000	-2.4	-24,000
Total	**720**	**7,200,000**	**690**	**6,900,000**	**30**	**300,000**

Name of cost's component	*Faza 2 Growth*					
	New effective cost		**New target cost**		**Deviations**	
	unit	**total**	**unit**	**total**	**unit**	**total**
Raw materials	138	1,380,000	130.64	1,306,400	7.36	73,600
Direct wages	69	690,000	65.32	653,200	3.68	36,800
Maintenance	170	1,700,000	163.3	1,633,000	6.7	67,000
Montage	136	1,360,000	130.64	1,306,400	5.36	53,600
Management groups	102	1,020,000	97.98	979,800	4.02	40,200
Publicity	64	640,000	65.32	653,200	-1.32	-13,200
Total	**679**	**6,790,000**	**653.2**	**6,532,000**	**25.8**	**258,000**

Name of cost's component	*Faza 3 Maturity*					
	New effective cost		New target cost		Deviations	
	unit	total	unit	total	unit	total
Raw materials	131.6	1,579,200	125.96	1,511,520	5.64	67,680
Direct wages	65.8	789,600	62.98	755,760	2.82	33,840
Maintenance	160	1,920,000	157.45	1,889,400	2.55	30,600
Montage	128	1,536,000	125.96	1,511,520	2.04	24,480
Management groups	94	1,128,000	94.47	1,133,640	-0.47	-5,640
Publicity	62	744,000	62.98	755,760	-0.98	-11,760
Total	**641.4**	**7,696,800**	**629.8**	**7,557,600**	**11.6**	**139,200**

In managerial accounting were made the following accounting registrations:

1. Recording the turnover at target selling price.

7,500,000	904 "Internal offset for sales"	=	951 "Analytical result"	7,500,000

2. Establishing and recording the estimated profit margin (target: 8% x 7500000 lei).

600,000	951 "Analytical result"	=	904 "Internal offset for sales"	600,000

3. Calculation and recording the estimated cost (allowable, target).

6,900,000	931 "Finite production cost"	=	902 "Internal offset for manufactured output"	6,900,000

4. Estabishment of the estimated cost destinations (allowable, target).

2,268,000 4,266,000 666,000	921 "Main activity expenses" 923 "Indirect expenses" 924 "General management expenses"	=	901"Internal offset for expenses"	7,200,000

5. Allocation of indirect costs related activities on the products.

4,266,000	921 "Main activity expenses"	=	923 "Indirect expenses"	4,266,000

666,000	921 ”Main activity expenses”	=	924 ”General management expenses”	666,000

6. Calculation and settlement of effective cost.

7,200,000	902 "Internal offset for manufactured output"	=	921 ”Main activity expenses”	7,200,000

7. Calculation the cost differences (between the new effective costs and the actual costs).

300,000	903 “Internal offset for cost differences”	=	902 "Internal offset for manufactured output"	300,000

8. Settlement of effective costs of sold production

6,900,000	935 "Sold production cost"	=	931 "Finite production cost"	6,900,000

9. Distribution of cost differences on sold production

300,000	935 "Sold production cost"	=	903 “Internal offset for cost differences”	300,000

10. Settlement of effective costs on the target result.

6,900,000	951 "Analytical result"	=	904 "Internal offset for sales"	6,900,000

11. Closing the expenditures accounts (cost-production interface).

7,200,000	901”Internal offset for expenses”	=	935 "Sold production cost"	7,200,000

In the other two phases (*growth* and *maturity*) of the product, the same value engineering procedure will apply to achieve the new target cost, taking into account the recommendations of the customers. In management accounting, the same methodological steps above mentioned will be applied.

7. Conclusions

The Target Costing method requires a major change in the mentality of many industrial entities in Romania, managers and management accountants, used to operating in a business that accepts regular price growth in previous years. These entities are most affected by industrial growth and global pressures; meanwhile, the competitive environment could respond more quickly to the approach and to the benefits of the Target Costing method. These entities that apparently, do not seem affected, can fall or can react as soon as possible by obtaining benefits through the previous costs planning, especially cost management, namely by studying their impact on profitability and market position. The main reason for the adoption of the Target Costing method is its use in the planning and design of products costs before manufacturing the products and ensuring that products whose margins generate insufficient profits in manufacturing are not included. Other benefits identified include:

- to identify problems in the acquisition, focusing on a broader spectrum of supply;
- to improve understanding of product costs by allowing early identification of problems that may occur in the reduction of costs;
- to focuse on end users products;
- In the cost analysis are involved the staff from all departments, thus encouraging the responsibility for cost management;
- impact analysis may be carried out on their new products on the market and competitive environment. By taking into account the full product lifecycle, the total cost of the manufacturer and the customer is significantly reduced;
- to provide satisfactory financial performance by developing specific and real objectives.

We hope that what we presented and argued for in this article will be a starting point for professionals and entities in understanding and correctly applying principles of the Target Costing method. Also, the possibility of adapting the accounting plan and the advantages of this method is a trump for specialists to think about a high-performance management considering the continuosly cost reduction opportunities, especially in the current business and competitive environment which is becoming increasingly fierce.

Notes

(1) Consortium for Advanced Manufacturing International.
(2) Idem.
(3) Ebbeken, K., Possler, L., Ristea, M., (2000). *Calculation and cost management*, Teora Publishing House, Bucharest, pp. 159-162.

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Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 89-102

Enhancement of Cooperation and Communication between Universities and the Business Environment, Requirement for a Good Functioning of the Knowledge Triangle: Education, Research, Innovation

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Abstract. *With regard to the Lisbon objective of transforming the EU into the most competitive knowledge-based economy in the world, the present paper aims to identify the place held by the current academic environment - entrepreneurial environment communication, as well as the deficiencies of this partnership relation. Among the methods of collection and systematization of information they selected the direct, selective research, according to a questionnaire. Data collection was conducted in October-November 2010, the sample of the respondents consisting of 432 company managers in the Argeş County. The main results of the research highlights the need to improve the communication and collaboration between the two areas, the paper offers concrete solutions.*

Keywords: communication; academic and entrepreneurial environments; knowledge triangle; knowledge – based economy; scientific research

JEL Codes: D83, I23.
REL Codes: 4Z, 14D.

Introduction

With reference to the context of our research, namely the European Union's policy of modernization and efficiency in higher education and the most recent Annual Report of the European Commission (2009), which examines the progress made to achieve the Lisbon objectives in education, scientific approach designed to write the present paper has defined the following decision problem: the quality of communication and of collaboration between academia and business have improved. Consequently, we have achieved some research applied at the level of the active companies in the Argeş county, such as the quantitative information generated by the answers regarding the identification of the present place held by the academic environment - entrepreneurial environment communication, with reference to the possible deficiencies in the partnership relation between universities and business, but also about the prospects of cooperation between the two environments. To highlight the current state of research and knowledge in the field, we consider important to mention next to the European Union's efforts in this process and the Romanian specialized institutions and several points of view of various foreign authors.

Thus, Smart (2009, p. 307) has carried out various researches in the field and argues that "it is necessary for universities to collaborate with the regional or local business environment in order to develop new and innovative business". The need for research and innovation in academia is also highlighted by Orsingher (2006, pp. 60, 126, 140), reflecting the modalities of quality implementation and production in different European educational systems, emphasizing the need to boost research.

The role of the relationship between universities and the business environment is emphasized by the results of a research project conducted by the National Alliance of Student Organizations from Romania (2005). The study aimed at improving the connection between universities and the external environment**,** focusing on the role of universities to provide students with training adequate to the labor market requirements**.** An important point of the study is that universities must become open systems able to reach a high level of integration with the economic**,** administrative**,** political and non-profit environment and to respond effectively to the challenges of the knowledge-based society.

In a functioning market economy**,** the relationship between university and the economic environment is essential for the survival of the university and of the employing economic agents**.** Drăgulănescu (2008) proposes a Handbook of best practices for the relationship between university and the economic environment. The author considers it imperative that**,** before designing and

providing services by the universities, the requirements and needs of the economic environment to be fully and correctly known, and then to collect the satisfaction/dissatisfaction reactions of the economic environment.

Elen and Verlburgh (2008, pp. 53, 127), in a reference work that examines the implications of the research process in line with the Bologna system, consider that the universities and their members must contribute to the innovation of society, to the dissemination of civic values, to the promotion of culture, reflecting the need to be actively engaged in university research as the foundation of its work. In the same context, Brennan and McGowan (2006) consider that the university must demonstrate its value-creator role by stimulating innovation as a result of research and acquisition of the entrepreneurial university status. Kearney (2009, p. 11) reiterates the function of academic research as the first source of knowledge and innovation at national, regional or international level, and highlights the key-axis of knowledge: higher education - innovation - research. Virtually, each major innovation in the recent decades is due to research conducted by the university community. Although the 22 best universities of the 25 in the world are American, Brewer and Tierney (2010) consider that there is a paradox: although the university is a major force for innovation, it shows resistance, even hostility, towards innovation.

The implications of good communication and collaboration between universities and the business environment are fairly outlined by Wright and Clarysse (2007) in the paper Academic Entrepreneurship in Europe. The need for cooperation and communication between universities and other beneficiaries, including the entrepreneurial environment for achieving the objectives set by the Bologna system, is reiterated by the European Association of Universities in the regularly report Trends V. Universities shaping the European Higher Education Area (2007). Given that these publications have a relevant standard in this area, we carried out the present scientific research. The main purpose of the study was to analyze the shortcomings derived from the partnership relationship between the academic and the entrepreneurial environment in order to develop improvement proposals to increase performance, so that universities become the engine for regional development, thus succeeding in achieving the Lisbon objective of transforming the European Union into the most competitive knowledge-based economy in the world.

1. The research methodology

The objectives of the research were: how knowledge is appreciated at the level of the communication between universities and the private sector, to know the agreement on fostering partnerships between universities and the private

sector, determining the ability to communicate with the business environment to make education and research in higher education institutions more relevant, to observe the existence of communication barriers between academia and business, to know the agreement on the capacity of universities, through the professional advice provided by scientific research, innovation and applying the results to the companies, to become the engine of regional development, to identify the main means of communication between universities and business environment, to know the extent to which the respondents assess the correlation between the skills and the qualifications offered by the academic and labor market needs, to identify the prospects of the academic and business forms of collaboration that will be developed in the future.

The main assumptions of work meant to be tested were: most respondents see the communication between universities and the business environment at a low level; there are numberless barriers of communication between the two areas; more than half of the respondents believe that universities can become the engine of the regional development by improving the communication and the cooperation with the business environment; most managers consider that attending conferences and round tables is the most important means of communication between businesses and universities; over half of the managers use as a form of collaboration with the academic environment the students' practical training; most managers consider that there is a consistency between the skills and the qualifications of the academic and labor market needs.

Among the methods of collection and systematization of information we chose a method of quantitative positivist-explicative orientation, namely the direct, selective research, based on a questionnaire. The data collection on the investigated collectivity was made between October - November 2010, the sample of respondents consisting of 432 company managers in the Argeş County. The investigated collectivity was represented by the 14,683 active companies in late 2008, according to the most recent data offered by the National Institute of Statistics Argeş. In this study, the research unit was established by the entry level managers, middle level managers or top level managers who answered the questionnaire. To conduct the questionnaire survey, we included 20 questions, out of which two open questions, 12 closed questions and six mixed questions. To determine the size of the sample, we used the following calculation formula (Balaure, 2002):

$$n = \frac{t^2 \times p(1-p)}{\Delta\omega^2}. \qquad (1)$$

The determination of the minimum sample to ensure representativity to the research was carried out by introducing the coefficients in the calculation formula, with the following values:

t = 2 (corresponding to a result guarantee probability of 0.95);
p = 0.5 (corresponding to the maximum value of dispersion);
$\Delta\omega = 0.05$ (error limit).

A resulted as the size of the 400 companies sample, as follows:

$$n = \frac{2^2 \times 0.5(1-0.5)}{0.05^2} = 400 . \quad (2)$$

To prevent various sample losses, we oversized the sample in the collection and processing work. The sample from which the information was collected was composed of 432 companies operating in the Argeş county. The sample structure was set: a) according to type of ownership: public enterprises: 2.9%, private enterprises: 95.9%, public enterprises with mixed capital - private: 1.2%, b) according to the size of the company: micro enterprises: 33.6%, small enterprises: 34.3%, medium enterprises: 14.5%, large enterprises: 17.6%, c) according to the position held by the respondent within the company, depending on the hierarchical stage: first-line managers (team leader, head of department, etc..): 54.6%, middle managers (department head, executive director, etc..): 30.8%, top managers (CEO, President etc.): 14.6 %

2. The research results

- Analyzing the respondents' answers to the question "How do you assess the level of communication between universities and the business environment?", we noted that only a small percentage of the respondents had a favorable or very favorable feedback in this regard and more than three-quarters of them appreciate the respective level like a medium, low or very low level of communication between universities and the business environment (Figure 1).

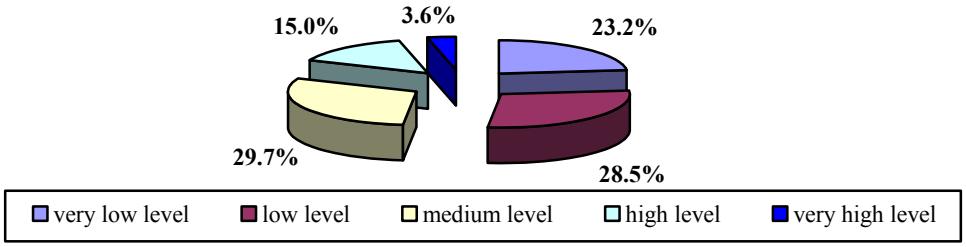

Figure 1. *Assessing the level of communication between universities and the business environment*

- When asked "Do you consider that encouraging partnerships between universities and the private sector is a necessity in a competitive economy?", most company managers where the study was completed have a total agreement (43.9%) on this issue, a situation that we consider very positive. The respondents who agree with this point have a high percentage (30%), which leads to the conclusion that about three quarters of those surveyed realize the importance of boosting partnerships between academia and business, to increase the competitiveness in the Romanian economy and society (Figure 2).

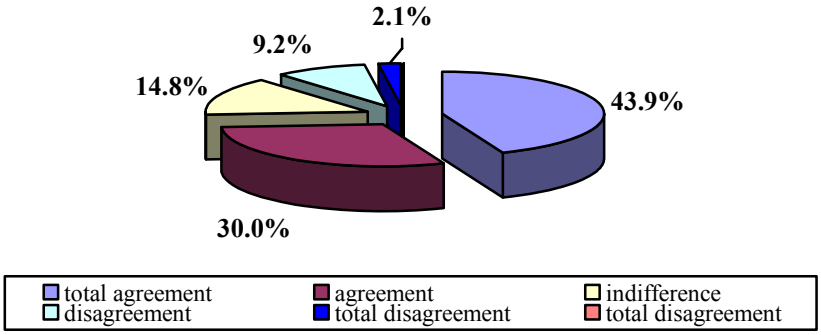

Figure 2. *The agreement on encouraging partnerships between universities and the private sector for a competitive economy*

- When asking the question "Do you consider that a better communication with the business environment may be more relevant in the education, research and innovation activities of higher education institutions?" we found out a favorable aspect, as most of the respondent

managers (44.8%) had a complete agreement with this respect, closely followed by the managers who agree to improve the efficiency of education, research and innovation in higher education institutions on the basis of the communication valences with the business environment, 27.3% of the respondents appreciating in this manner (Figure 3).

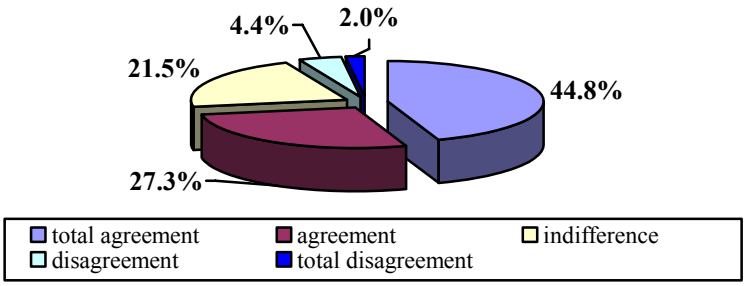

Figure 3. *The capacity of communication with the entrepreneurial environment to make a more relevant educational, research and innovation activity in higher education institutions*

- At the question "Are there many barriers of communication between academia and the business environment?" we have equality, i.e. a rate of 29.7%; most respondents held either to a medium or large extent the existence of such barriers in communication. The percentage of those who feel that there are barriers to a large extent is seriously high, namely 23.2% (Figure 4).

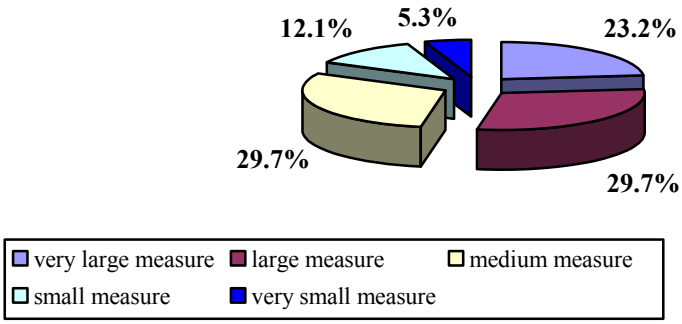

Figure 4. *The existence of communication barriers between the academic and the entrepreneurial environment*

- The results processed after the responses to the question "Do universities become the engine of regional development through their scientific research, innovation, expert advice and application of their results at corporate level help?" also denote a favorable situation, as follows: strongly agree - 15.9 % of respondents, 27.8% agree. So, in total, 43.7% of respondents felt the positive or very positive role of higher education institutions as a factor stimulating regional development. However, 35.7% of managers have indifferent opinions to this issue (Figure 5).

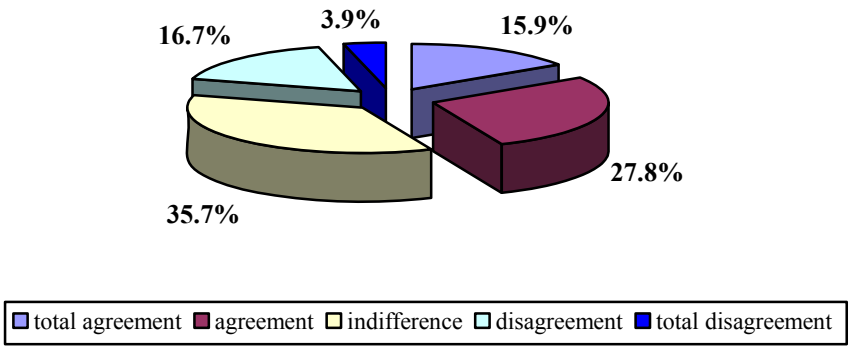

Figure 5. *The universities are the engine of regional development*

- The responses to the question "Which of the following methods of communication between universities and the business environment are used in the company where you work? Give 100 points, by dividing, in accordance with the degree of interest held by you" revealed the following aspects: the first place in the hierarchy of communication methods is taken by the participation at conferences, workshops, scientific symposia, with a share of 32% , on the second place it is the dialogue with the graduates - 25%, and ranked third with a percentage of 22% is attending events like open days; on the last place with 21%, it is the mutual consultation in debate forums (Figure 6).

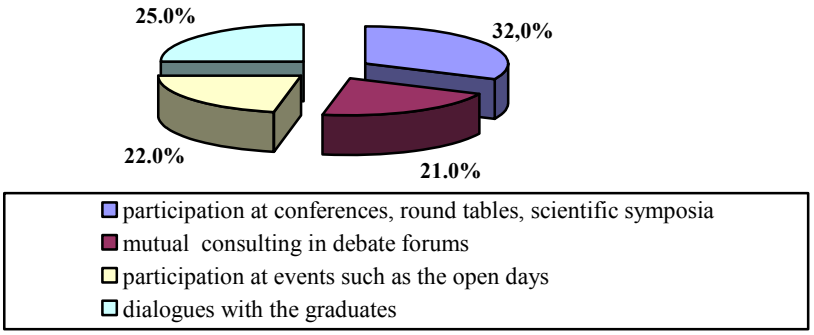

Figure 6. *Communication modalities between universities and the business environment*

- The following question "Are the competences and the qualifications provided by academia consistent with the labor market needs, with good communication in this regard?" reflected a very bad situation, meaning that only 4.3% of the respondents felt largely and only 6.9% in a large measure this correlation that should exist between the competences and qualifications of the university graduates and the practical needs of the labor market. Almost entirely, the respondents held either a very small proportion - 22.6%, or a small proportion - 28.7%, or average - 37.5% this (Figure 7), which reflects a major deficiency, which must be urgently addressed in order to obtain not only competitiveness but also to promote sustainable economic growth and social cohesion.

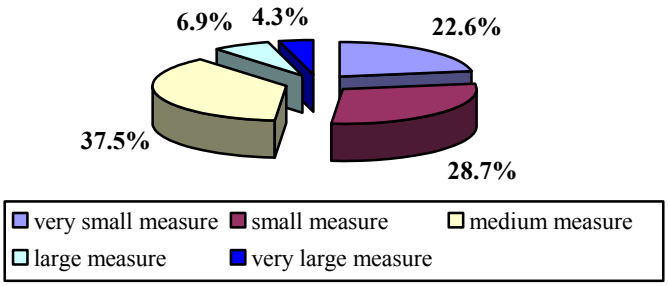

Figure 7. *The concordance between the competences and qualifications offered by the academia and the needs of the labor market*

- From the answers to the question "How do you think that the prospects for cooperation of the company that you manage will materialize with academia?" we found a very favorable situation in the sense that, almost entirely, and 98% of the respondents are willing either to expand collaboration (58%) or to initiate collaboration with academia (40%) (Figure 8). This is particularly beneficial both for the development and integration prospects with great application of some innovative practices with applicability in education, and for application of the scientific research results at company level so that they become the engine of regional development, as required by the European Commission in the modernization and reform of higher education.

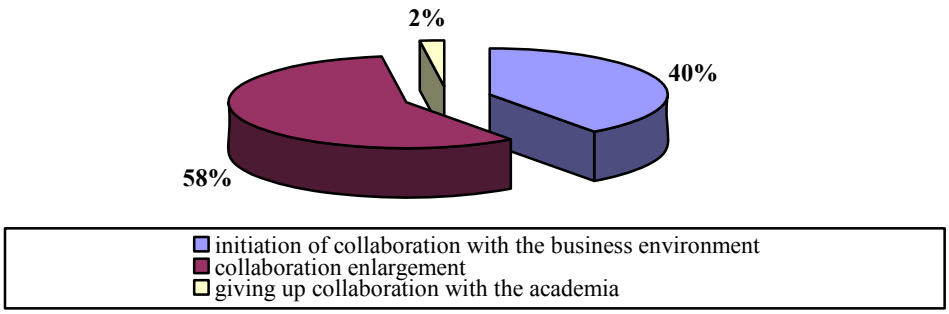

Figure 8. *Perspectives of collaboration with academia*

- The next question has aimed to find out the opinion on the possibility of lowering the impact of economic crisis on the provenance companies of the respondents, by specialty consulting offered by the university environment. After processing the results, the research revealed a rather balanced situation, in the sense that although most of respondents, respectively 31.5% felt that the impact of economic crisis on the company they work could be moderately decreased by professional advice offered by the university environment, a large proportion, i.e. 20.4% of managers surveyed considered reducing this impact, with a "lot", and 13.6% with "very much" (Figure 9). This aspect shows the quite high credibility of the academic environment as an active factor generating the value of research and innovation to promote economic progress, so there are prerequisites to strengthen cooperation between higher education institutions and enterprises.

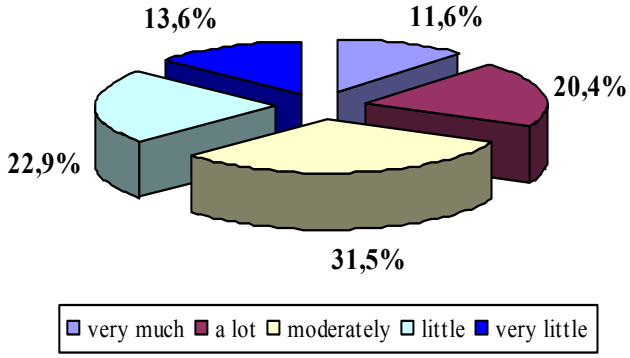

Figure 9. *Degree of perception on the possibility to reduce the impact of economic crisis by consulting offered by university environment*

- The answers to the question "Who must initiate the dialogue university – private environment?" reflected a rather balanced situation; most interviewed managers, respectively 53.1%, consider that the universities must initiate this dialogue, and 39.9% appreciate that this initiative must belong to the private environment, the remaining 7% believing that other institutions must assume this role. We note, therefore, that the academic environment should be more involved in promoting educational, research and innovation offer, so that to further boost partnerships between universities and industry/private sector. According to the Report the European Commission to the Council, regarding the Council Resolution from 23rd November 2007 on the modernization of universities for a competitive Europe in a global economy based on knowledge, it is mentioned the need to encourage partnerships between universities and industry / private sector (Figure 10).

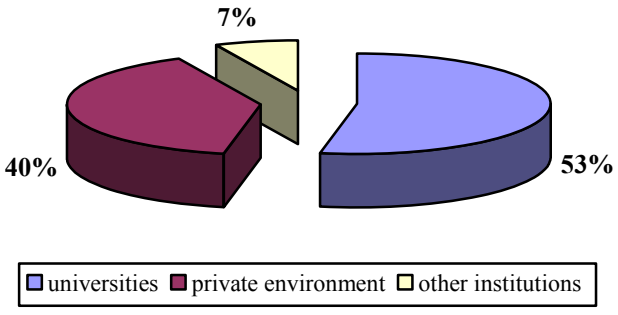

Figure 10. *Initiative of the dialogue university – private environment*

- With regard to the question ”To what extent will the following forms of collaboration with the academia be developed in the future?”, we note the following: on a value scale from 1 to 5, where 1 was very low and 5 a very high level, the interviewed managers appreciated that: many of his managers declared they would use these forms almost entirely as follows: the first preferences will be reflected in future trainings - 48.7%, followed by advice offered by academia - 28.3 %, practical training of students - 27.8% and research partnerships - 25.2% (Figure 11).

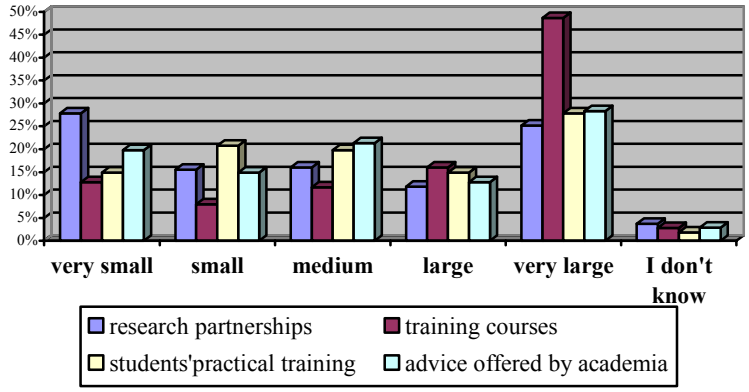

Figure 11. *Level of collaboration forms that will be developed in future with academia*

Conclusions and recommendations

After the processing and interpretation of results, we conclude the following:

- the level of communication between universities and the business environment is favorably assessed only by 18.6% of managers;
- managers, at a rate of 23.2%, identified communication barriers between academia and entrepreneurship;
- 43.7% of the respondents considered that higher education institutions have a positive or a very positive role as a factor stimulating regional development;
- they suggest as various means of communication between universities and business environment, the participation at conferences, round tables, mutual consultation, dialogues with the graduates;
- another issue highlighted by managers is the mismatch between the competences and the qualifications of the academia and the labor market needs;
- most managers considered that the prospect of investigating the company’s collaboration with the academia is a widening of cooperation, the collaboration forms that will be developed in the future should be some trainings, consultancy and, not in the end, research partnerships.

According to the results of the survey and the identification of communication gaps and cooperation relationship between academia and the business environment, we suggest the following measures for improvement:

- cooperation between universities and the business environment should be enhanced as part of the universities' strategies for education, research and innovation**;**
- increasing the involvement of local businesses in the development of teaching practice and enhancing students' request for advice from academia;
- creating a favorable environment for the students to develop entrepreneurial skills so that their graduation and dissertation papers could be based on finding solutions to the real problems of local firms;
- gaining employers' confidence in the research practice offered by the academic environment, through information and media campaigns conducted particularly in specialized organizations and associations: Chambers of Commerce and Industry, Business Associations, Business Clubs etc.;
- since the relationship with the private sector is primarily the responsibility of academic environment, this must show a proactive and open attitude toward the private sector. Management structures of universities and academics have to meet companies looking for partnerships, providing facilities, and being opened to the needs of companies;
- joint efforts and initiatives in as many university centers in order to maintain long-term collaboration with the business environment because sporadic, not organized uniformly actions may produce only casual and short-term positive effects in this direction. Consequently, we find useful the creation of intermediate structures between academic and business environments;
- student organizations should act for the empowerment of the actors involved and participate with educational institution's management in achieving and implementing the strategy of relating with the external environment. Student organizations may participate in organizing events such as job fairs, company presentations or providing practice places;
- creating conditions for stimulating private scholarships from a companies a source of student and higher education graduates' performance.

On the other hand, we consider that a better promotion of the university research supply in the entrepreneurial environment is absolutely necessary in order to emphasize the research partnerships between the two environments, which is an aspect with both beneficial valences on growth competitiveness and sustainable growth with regard to the Lisbon objective of making the EU the most competitive knowledge-based economy in the world.

This research is only the first step in the direction to achieving future demarches to identify the relationship between the academic studies and the activity performed after graduation by initiating a dialogue with higher education or master graduates. In this sense, the future research directions aim at obtaining development, both extensive, by expanding the data collection and analysis area at national level, but also intensive, by using the results of the research to substantiate systemic communication model, between universities and the business environment.

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Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 103-128

Predicting Bankruptcy in Pakistan

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Abstract. *This paper aims to identify the financial ratios that are most significant in bankruptcy prediction for the non-financial sector of Pakistan based on a sample of companies which became bankrupt over the time period 1996-2006. Twenty four financial ratios covering four important financial attributes, namely profitability, liquidity, leverage, and turnover ratios, were examined for a five-year period prior bankruptcy. The discriminant analysis produced a parsimonious model of three variables viz. sales to total assets, EBIT to current liabilities, and cash flow ratio. Our estimates provide evidence that the firms having Z-value below zero fall into the "bankrupt" whereas the firms with Z-value above zero fall into the "non-bankrupt" category. The model achieved 76.9% prediction accuracy when it is applied to forecast bankruptcies on the underlying sample.*

Keywords: bankruptcy prediction; financial ratios; Z-value; multivariate discriminate analysis; non-financial firms.

JEL Code: G33.
REL Code: 11E.

1. Introduction

Prediction of bankruptcy is one of issues which have been extensively studied in the finance and accounting literature. Despite the lacking of generalized deification of bankruptcy and a significant diversity in the use of statistical methods, financial economists have generally been successful in developing bankruptcy models to categorize firms as bankrupt or non-bankrupt. In most empirical studies, three statistical methods namely multivariate discriminate analysis, probit and logit models have been commonly applied to classify firms.

No doubt, bankruptcy prediction models are of great significance to regulators, practitioners, and academics alike. This is because of that regulators apply frequently forecasting models to examine the financial wellbeing of the firms. Practitioners utilize the bankruptcy prediction model to charge company debt. Moreover, academics are likely to use bankruptcy forecasts to experiment different hypothesis.

Looking at empirical literature we find that, since 1960s, researchers have been devoted much effort to examine the bankruptcy prediction for different countries of the world. For example, Canada (Altman, Lavelle, 1981), Australia (Izan, 1984), UK (Charitou et al., 2004), France (Micha, 1984), Korea (Altman et al., 1995), Japan (Xu, Zhang, 2008), Malaysia (Bidin, 1988), Sudan (Eljelly et al., 2001), India (Bandyopadhyay, 2006), Turkey (Ugurlu, Aksoy, 2006), and Iran (Etemadi et al., 2008), among many others.

Indeed, bankruptcy which is a worldwide problem can happen both in developed and developing economies. However, it occurs overly in developing economic environments. Some of the major causes behind corporate failures that vary across countries are the differences in capital structures, accounting standards and social, political, economic environment (Newton, 1985, Argenti, 1976, Her, Choe, 1999).

The aim of this paper is to identify the financial ratios that are most significant in predicting bankruptcy in Pakistan. The analysis is based on a sample of non-financial firms which became bankrupt over the time 1996-2006. Specifically, we examine twenty four financial covering four different aspects, namely profitability, liquidity, leverage and turnover ratios, of a firm for a five-year period prior bankruptcy. By using a multivariate discriminant analysis (MDA), we developed a parsimonious model of three variables viz. sales to total assets ratio, EBIT to current liabilities ratio and cash flow ratio. Our model achieved about 77% prediction accuracy when we applied the model to forecast bankruptcies on the sample under investigation.

Pakistan is a developing country with emerging different industries. Since the last two decades, a large number of bankruptcy incidences have been occurred in Pakistan. Hence, this study recognized a need to develop a bankruptcy prediction model unique to the corporate environment of Pakistan in order to protect additional failure of the companies. Moreover, there has been no investigation of bankruptcy conducted in Pakistan so far, and none of the world wide studies have focused specifically on Pakistan. So, this study is considered as an initial step to fill up the gap in the bankruptcy prediction area from Pakistan. The findings would provide help to corporate sector of Pakistan in timely monitoring and enhancing the financial position of the companies.

The main objectives of the study are as follows:

1. To identify the financial variables that distinguishes "healthy" from "financially troubled" companies.
2. To develop a model that could have the predictive ability of financial health and discrimination between bankrupt and non-bankrupt.

In general, bankruptcy is defined as the inability of a company to continue its current operations due to having high debt obligations (Pongsatat et al., 2004). Specifically, bankruptcy occurs " *when either the firm's operating cash flow is insufficient to meet current obligations – that is, the inability to service its debts – or when the firm's net worth is negative – that is, the value of the assets is less than the value of its liabilities*" (Knox et al., 2008). However, like the case of statistical methods, the definition of bankruptcy varies from country to country. For example, in the United States, there are two legal chapters through which a firm is considered as bankrupt i.e., liquidation under Chapter 7 and reorganization under Chapter 11(Altman, 1968). Similarly, in Japan, there are three basic laws that files large companies as bankrupt: the Civil Rehabilitation Law, the Corporate Reorganization Law and the Liquidation Law (Xu, Zhang, 2008).

Therefore, several studies such as Beaver (1966) and Tavlin et al. (1989) have defined bankruptcy according to the rationale and scope of their study, rather than following any general definition. In this study, we keeping in view a concept described in various studies consider a firm bankrupt in Pakistan for which any of the following actions have occurred.

1. Company delisted by Karachi Stock Exchange (KSE) due to liquidation/winding up under court order i.e. violation of listing regulation no. 32 (1) (d).
2. Winding up of company by Securities and Exchange Commission of Pakistan (SECP).

The rest of the paper is organized as follows. Section 2 presents literature review. Section 3 discusses the methodology we implement in modeling bankruptcy and the data. Section 4 presents data analysis and the empirical findings. Section 5 concludes the paper.

2. Literature review

Although the literature presents a number of causes of business failure, but the most critically examined factor to a firm collapse is inadequate experience. It has been examined that experienced entrepreneurs possess enough potential for the survival of the business and vice versa (Chandler, Hanks, 1998). Similarly, adequate access to financial and human resources plays an essential role in new venture performance. Indeed, inadequate financial resources frequently are cited as a major reason of emerging businesses failure (see, Cooper, 1994).

The Quantitative approach has been applied by a large number of studies utilizing various statistical techniques based on financial information obtained from published data of the companies. The key objective of these studies is to reveal the distinctive financial indicators among the bankrupt and survived companies.

Amit (2003) analyzes the data of 339 failed Canadian firms to identify the causes of failure among the younger and older firms. He finds that lack of managerial understanding and financial management aptitude were the main reasons behind the failure of younger firms, whereas lack of ability to adapt environmental change was the main cause of failure among older Canadian firms. Similarly, Hall (1992) examines the factors of UK corporate failures and argues that inefficient marketing is explicitly the basic cause of business failure. According to Bongini et al. (1998), Asian firms lead to bankruptcy due to their high leverage and investments in property and plant.

Argenti (1976) carry outs a comprehensive study on “corporate collapse”, which reveals several causes and symptoms of business failure. Among various causes recognized by the author includes- poor management, deficient accounting information, overtrading, high debentures, social-political-technological and economic change. Moreover, the author provides symptoms of business failure that comprise employees low morale, a decline in quality and service, tight credit policy, declining market share, growing volume of customer complaints, consistent failure to achieve targets, and over drafting.

Through a comprehensive review of prior both theoretical and empirical studies, we conclude that that the evolution of business failure research can be categorized into following three broad statistical techniques(1).

1. Accounting-based bankruptcy prediction models
2. Market-based bankruptcy prediction models
3. Artificial Intelligence-based bankruptcy prediction models

The above three techniques have been frequently applied by numerous studies for predicting bankruptcy. A review of these studies is presented in details as follows.

2.1. Accounting-based bankruptcy prediction models

Accounting-based bankruptcy prediction models take into consideration firm's past performance as a base for predicting the firm's future likelihood of survival (Xu, Zhang, 2008). Several studies that include accounting variables for predicting corporate bankruptcy are Beaver (1966), Altman (1968), Ohlson (1980), Dichev (1998), Shumway (2001), etc.

The most fundamental and crucial works in the bankruptcy prediction field is Beaver's empirical study (1966). The author analyzes thirty financial ratios among failed and survived firms. Employing univariate analysis, three financial ratios i.e., total debt/total assets, net income/total assets and cash flow/total debt were found significant in determining financial distress of a company. Altman (1968) study extended the work of Beaver by employing multivariate discriminant analysis on twenty two financial variables with a sample of 66 (33 bankrupt and 33 non-bankrupt) manufacturing companies. The discriminant analysis selected five variables suggesting a cutting point of z-score greater than 2.99 falls into "non-bankrupt" category while firms having a z-score below 1.81 are all bankrupt.

In 1980, study of Ohlson introduced logit models to predict bankruptcy. The author successfully developed O-score by using 9 accounting variables representing four factors (current liquidity, size of the company, performance and capital structure) with a sample of 2163 companies (105 bankrupt and 2058 non-bankrupt) over a 1970-1976 period. Ohlson suggests the O-score for discriminating between bankrupt and non-bankrupt firms. Thus, firm with O-score greater than 0.038 was classified to be bankrupt, ceteris paribus.

The Z-score and O-score developed by Altman (1968) and Ohlson (1980), respectively, prompted later researchers to find out the bankruptcy prediction model with the best predictive ability. Pongsatat et al. (2004) examine the predictive capability of Ohlson's and Altman's model for bankruptcy of small and large firms in Thailand. They conclude that for bankrupt firms Altman's model exhibits a higher predictive accuracy than Ohlson's model. Similarly, Bandyopadhyay (2006), using logistic and Z-score approaches, develop a model with high classification power of 91% to predict default for Indian firms. Furthermore, Ugurlu and Aksoy (2006) study following Altman's (1968) and

Ohlson's (1980) statistical techniques developed a model for predicting the bankruptcy of Turkish firms.

Another study by Eljelly et al. (2001) develops a three-variable (cash flow/total debt, current asset/current liabilities, operating profit/total assets) model for predicting private company's failure in Sudan. In the same spirit, Gu (2002) develops MDA model for estimating the failure of USA restaurant firms by declaring that firms with high total liabilities and low EBIT (earnings before interests and taxes) have less chances of survival and vice versa. Consequently, the main premise of accounting based bankruptcy studies is to extract those financial variables that discriminate between the healthy and failing companies for forecasting the business failure.

2.2. Market-based bankruptcy prediction models

Market-based bankruptcy prediction models use information derived from the market i.e., market prices. Since such information is inherently forward looking, market based approach depicts a firm's future performance considering market variables (Xu, Zhang, 2008). In the literature, this new methodology that uses market based variables for bankruptcy prediction follows Black and Sholes (1973) and Merton (1974) option pricing theories that express probability of bankruptcy occurring depends on the volatility between the market value of the assets and the strike price (value of debt obligations). The critical level where firm will default is that when the worth of firm's assets moves down below a certain level (i.e., debt obligations). However, these theories provide no incremental information when the market is semi-strong form efficient (see, for details, Hillegeist et al., 2004). Several recent studies that have used market based variables for predicting default probability of a firm include Crosbie and Bohn (2002), Brockman and Turtle (2003), Vassalou and Xing (2004), and Reisz and Perlich (2007).

Hillegeist et al. (2004) compare the market based approach (i.e., Black Sholes and Merton) with some accounting based approaches (i.e., MDA and logit) and conclude that the market-based approach provides significantly more information about the default probability of a firm comparatively accounting-based approach. On the flip side, a study of Reisz and Perlich (2007) examines default probability of 5784 industrial firms by employing both market and accounting based approaches. This study concludes that the accounting-based measure outperforms Black-Sholes-Merton measure and recommends to upcoming studies for achieving an optimal default prediction.

2.3. Artificial intelligence- based bankruptcy prediction models

The technological advancement in informatics has evolved artificial intelligence techniques/methods that provided researchers to employ computer databases to estimate failure prediction models (Charitou et al., 2004). Artificial intelligence (AI) methods include decision tree, fuzzy set theory, genetic algorithm, support vector machine, data envelopment analysis, case-based reasoning, rough sets theory, and various types of neural networks such as PNN (Probabilistic Neural Networks), BPNN (Back Propagation Trained Neural Network), SOM (Self-Organizing Map), Cascor (Cascade Correlation Neural Network) and many others (see, for more on this, Min and Jeong, 2008).

Artificial intelligence technique has also been applied in various empirical studies. For instance, Etemadi et al. (2008) employ both genetic programming (GP) and MDA technique for forecasting the default probability in Iranian firms. The results of his study declare GP with a high accuracy of default prediction for Iranian firms. Moreover, Zanakis and Zopounidis (1997) employ a case study technique to distinguish between the financial variables of acquired and non-acquired Greek firms. The estimation results were found mixed because of using similar financial ratio profiles between acquired and non-acquired firms. Furthermore, researchers have used different artificial intelligence techniques and propose alternative bankruptcy prediction model. Jo and Han (1996) employ both the discriminant technique and two artificial intelligence models (i.e., case-based forecasting and neural network) and suggest integrated approach for attaining high classification accuracy in predicting default characteristics of firms. Min and Jeong (2008) suggest a new binary classification technique for forecasting default probability of firm by validating its prediction power through empirical analysis.

All the above three broadly categorized approaches proposed by different researches have essential merits and limitations. Therefore, lacking standardized bankruptcy theory has leaded studies to employ different techniques according to their unique structure of corporate environment and country (Etemadi et al., 2008).

3. Methodology and data

As mentioned above, the following four econometric/statistical techniques have been intensively used to estimate the bankruptcy prediction model: (i) Logit, (ii) Probit (iii) linear probability, and (iv) Multivariate discriminant analysis (MDA). However, Altman and Saunders (1998) study regards MDA as leading/dominant technique among all the four statistical methods. Therefore, in this study, we employ MDA as it has relatively high predictive ability in bankruptcy prediction.

3.1. Multiple/Multivariate discriminant analysis (MDA) approach

MDA technique determines a set of discriminant coefficient and transforms individual variable values to a single discriminant score or Z-value which is then used to classify the object. In our study the two groups of object are bankrupt and non-bankrupt companies. The model that is developed through MDA take the form as follows.

$$Z = \beta_1 x_1 + \beta_2 x_2 + ... \beta_n x_n$$

where

Z is the overall index, $\beta_1, \beta_2, \cdots, \beta_n$ are discriminant coefficients, $x_1, x_2 .... x_n$ are independent variables The discriminant score (Z) is taken to estimate the bankruptcy character of the company. Lower the value of Z, greater is the firm's bankruptcy probability and vice versa.

3.1. The sample and variable definition

The population for this study is all the joint stock companies delisted by Karachi Stock Exchange (KSE) due to liquidation/winding up under court order, i.e. violation of listing regulation no. 32 (1) (d) and/or wind up by Securities and Exchange Commission of Pakistan (SECP) during the period 1996-2006.

The criteria followed by this study for the selection of the sample are as under:

1. The shares of company have been traded at Karachi Stock Exchange (KSE) in the listing period.
2. The firm must belong to non-financial sector. It is because financial sector has different bankruptcy environment.
3. The company must have at least five years of financial information.
4. The bankrupt company must have a matched non-bankrupt company with same industry and closest total assets 1 year prior to bankruptcy.

The total number of companies meeting the aforementioned sample selection criteria was about 43. However, some firms were excluded due to having incomplete data. Further, the companies with complete five years of published data were only included in the sample. Thus, the total sample of both bankrupt and non-bankrupt companies used in this study is 52 that consist of 26 bankrupt and 26 non-bankrupt companies (see Annex 1).

The data has been extracted from various issues of "Balance Sheet Analysis of Joint Stock Companies Listed on Karachi Stock Exchange"

published by the State Bank of Pakistan for both bankrupt and non-bankrupt companies with five years data during the period of 1996-2006.

The dependent variable (Z) is the discriminant score that forecast the bankruptcy probability of the company in year t. This variable takes the value "1" or "2" for any firm observation. In this study, value "1" has been assigned to bankrupt firms and value "2" for non-bankrupt firms while estimating the model.

Following the existing literature, we employ 24 financial ratios as independent variables. These 24 financial ratios have been classified into four broad categories (see Annex 2). Leverage ratios measure the capability of a firm in paying its debt obligations. Argenti (1976) argues high debentures as one of the main cause that leads a company to bankruptcy. We use 9 different ratios as a proxy for measuring leverage capability of a company (i.e., bankrupt and non-bankrupt). Liquidity ratios measure the performance of a firm in availability of cash to pay its debt obligations.

Beaver (1966) argues that the firms with lower liquid assets are more prone to bankruptcy and vice versa. This study uses six ratios as a proxy for measuring liquidity of a company. Profitability ratios measure the performance of firm in efficient and effective utilization of its assets and management of its expenditure to produce adequate earnings for its shareholders.

Gu (2002) argues that unprofitable firms having continuous losses are likely to lead bankruptcy. Five profitability ratios are used as a proxy for measuring profitability of a company. Turn over ratios measure the effectiveness/efficiency of the firm in utilizing its resources. According to Eljelly et al. (2001) higher efficiency/effectiveness while utilizing resources may lead a company profitable and thus to lower bankruptcy risk. This study uses four ratios as a proxy for measuring the turnover/activity of a company. Specifically, we intend to test the following four hypotheses:

Hypothesis 1: Larger the amount of debt held, greater the probability of bankruptcy.
Hypothesis 2: Higher the liquidity ratio, lower the probability of bankruptcy.
Hypothesis 3: Higher the profitability ratio, lower the probability of bankruptcy.
Hypothesis 4: Lower the activity ratio, higher the probability of bankruptcy.

4. Data analysis and findings

In this section, all the twenty four financial variables grouped under the leverage, liquidity, profitability and turnover ratios were examined separately for bankrupt and non-bankrupt companies by calculating their means and standard deviations for five years prior bankruptcy. In addition, T-tests and F tests were employed to get about the similarity and difference of financial variables each year prior to bankruptcy. Furthermore, MDA model was estimated (through

SPSS soft ware version 15) by employing stepwise discriminant analysis to derive the discriminant variables with their coefficients and, finally, the model developed through this study was tested on the sample to understand the accuracy and significance of the discriminant model.

4.1. Means and standard deviations of bankrupt companies

The means and standard deviations of the 24 financial ratios for the bankrupt firms are shown in Tables 4.1a-4.1d. It is evident that the bankrupt companies have higher indebtness, lower liquidity, poor profitability and turnover ratios that are in support of our predictions. In addition, most of ratios grouped under liquidity, profitability and turn over ratios have shown negative signs and declining trend with the movement of the company towards bankruptcy.

Table 4.1a

Mean and standard deviation of leverage ratios for bankrupt companies

Financial Ratios	Years prior to bankruptcy					Average
	1	2	3	4	5	
Cash flow ratio	-0.66	-1.56	-0.71	-0.45	-5.23	-1.48
	(1.31)	(4.18)	(0.78)	(0.50)	(24.64)	(5.29)
Cash flow to total debt	-0.07	-0.04	0.04	0.07	0.08	0.05
	(0.13)	(0.23)	(0.51)	(0.48)	(0.45)	(0.39)
Current liabilities to total assets	-0.01	0.1	0.21	0.19	0.35	0.24
	(0.49)	(0.46)	(0.52)	(0.76)	(0.41)	(0.56)
EBIT to fixed assets at cost	-0.28	-0.27	-0.28	-0.29	-0.25	-0.06
	(0.23)	(0.17)	(0.25)	(0.40)	(0.24)	(1.18)
EBIT to total liabilities	-3.85	-3.92	-2.08	-1.52	0.14	-1.63
	(11.52)	(10.5)	(8.54)	(7.34)	(11.25)	(8.63)
Equity to long term debt	0.85	0.79	1.07	1.08	1.07	1.44
	(0.89)	(0.90)	(1.33)	(1.07)	(0.88)	(2.61)
MVE to BVD	-0.32	-0.22	-0.12	-0.05	-0.04	-0.11
	(0.70)	(0.19)	(0.41)	(0.42)	(0.45)	(0.42)
Net income to fixed assets at cost	-0.31	-0.33	-0.47	-0.18	-0.2	-0.41
	(0.37)	(0.25)	(0.81)	(0.72)	(0.35)	(0.45)
Net income to total debt	1.1	0.85	0.72	0.62	0.53	0.63
	(0.99)	(0.71)	(0.52)	(0.44)	(0.37)	(0.70)
Total debt to total asset	2.03	2.52	6.3	7.96	4.46	3.79
	(2.55)	(3.22)	(17.98)	(28.03)	(10.32)	(10.58)

Table 4.1b

Means and standard deviations of liquidity ratios for bankrupt companies

Financial Ratios	Years prior bankruptcy					Average
	1	2	3	4	5	
Current assets to current liabilities	-0.20	-0.16	-0.06	-0.02	-0.01	-0.32
	(0.26)	(0.17)	(0.23)	(0.21)	(0.19	(1.06)
Liquid assets to current liabilities	-0.56	-0.9	-0.35	-0.17	-2.73	-0.84
	(0.80)	(2.57)	(0.59)	(0.42)	(13.32	(3.12)
Net liquid assets to current liabilities	-0.96	-1.02	-0.92	-0.95	-0.9	-0.95
	(0.11)	(0.33)	(0.39)	(0.06)	(0.20)	(0.22)
Working capital to total asset	-0.71	-0.4	0.54	-0.17	-0.1	-0.17
	(1.07)	(0.78)	(0.89)	(0.52)	(0.41)	(0.73)

Table 4.1c

Means and standard deviations of profitability ratios for bankrupt companies

Financial Ratios	Years prior bankruptcy					Average
	1	2	3	4	5	
EBIT to current liabilities	-0.9	-0.55	-0.42	-0.25	-0.14	-0.52
	(1.85)	1	0.92	0.73	0.6	1.37
EBIT to sales	78.27)	74.98	39.85	8.25	6.87	37.05
	408.58	410.34	204.26	22.55	18.29	191.2
EBIT to total assets	-0.05)	-0.04	-0.03	-0.03	-0.01	0.09
	0.27	0.27	0.3	0.29	0.3	0.34
Net income to sales	1.95)	1.17	1.06	0.86	0.87	14.07
	3.3	0.67	0.52	0.37	0.37	83.18
Net income to total asset	0.43)	0.69	0.34	0.25	2.46	0.42
	0.4	1.62	0.33	0.21	11.33	3.75
Retained earnings to total assets	0.70)	0.88	0.76	0.91	0.92	0.67
	0.88)	0.83	0.44	0.49	0.37	0.62

Table 4.1d

Means and standard deviations of turn over ratios bankrupt companies

Financial Ratios	Years prior bankruptcy					Average
	1	2	3	4	5	
Expenses to sales	-0.18	-0.14	0.01	0.25	0.11	1.03
	(0.20)	(0.15)	(0.35)	(1.41)	(0.51)	(5.78)
Sales to fixed assets	52.06	-25.98	144.4	139.25	160.88	78.5
	(511.7)	(434.72)	(846.94)	(594.79)	(571.34)	(493.87)
Sales to total assets	-0.39	-0.32	-0.27	-0.22	-0.21	-0.25
	(0.47)	(0.30)	(0.22)	(0.20)	(0.19)	(0.30)
Working capital to sales	-0.13	-0.12	-0.04	-0.01	0.00	6.12
	(0.12)	(0.09)	(0.29)	(0.30)	(0.24)	(32.04)

4.2. Means and standard deviations of non-bankrupt companies

The means and standard deviation of non-bankrupt companies with 24 financial variables five years prior bankruptcy were calculated separately in order to determine the financial variables behavior of the non-bankrupt firms during the critical period in which they survived. It was expected that the companies might have been survived by their strong financial variables. Unexpectedly, it was observed that some of the profitability, liquidity and turn over ratios have declining trend that fails to accept our null hypothesis. Consequently, for further investigation T-test and F-test was conducted. However, it is evident from Tables 4.2a-4.2d that the average values of liquidity, profitability, leverage and turn over ratios of non-bankrupt companies were stable as compared to bankrupt companies and in some cases they were improving with the approach of the critical time period (i.e., bankruptcy).

Table 4.2a

Means and standard deviations of leverage ratios for non-bankrupt companies

Leverage Ratios	**Years prior to bankruptcy**					**Average**
	1	**2**	**3**	**4**	**5**	
Cash flow ratio	-0.71	-0.23	-0.24	-0.19	-0.14	-0.31
	(2.72)	(0.35	(0.33)	(0.22)	(0.17)	(0.78)
Cash flow to total debt	-0.08	-2.96	1.63	0.24	0.26	-0.3
	(1.17)	(15.53	(3.16)	(1.05)	(0.66)	(5.11)
Current liabilities to total assets	1.19	-8.69	0.51	0.48	0.66	-0.87
	(3.30)	(46.11	(0.86)	(0.80)	(0.93)	(9.07)
EBIT to fixed assets at cost	-0.81	-4.69	-0.29	-0.33	-0.31	-1.06
	(3.47)	(22.6	(0.47)	(0.51)	(0.40)	(5.10)
EBIT to total liabilities	-1.94	-0.28	-0.25	-0.11	-0.24	-0.02
	(8.27)	(0.82	(0.64)	(0.60)	(0.87)	(2.44)
Equity to long term debt	1.62	1.84	2.44	1.62	1.82	2.68
	(0.77)	(1.04	(3.32)	(1.09)	(1.62)	(3.40)
MVE to BVD	0.19	0.12	0.2	0.19	0.26	0.18
	(0.44)	(0.40)	(0.59)	(0.87)	(0.61)	(0.57)
Net income to fixed assets at cost	-0.8	-0.96	-0.81	-0.61	-0.42	-0.89
	(2.54)	(2.56	(2.18)	(1.49)	(0.89)	(2.72)
Net income to total debt	0.74	1.23	1.19	0.79	0.73	0.6
	(2.81)	(2.64	(1.94)	(1.25)	(0.97)	(2.41)
Total debt to total asset	5.11	8.8	9.53	8.64	8.92	6.75
	(6.32)	(14.81	(17.54)	(16.55)	(18.32)	(12.59)

Table 4.2b

Means and standard deviations of liquidity ratios for non-bankrupt companies

Liquidity Ratios	Years prior bankruptcy					Average
	1	2	3	4	5	
Current assets to current liabilities	-0.2	-0.18	-0.07	-0.01	0.03	-0.12
	(0.92)	(0.75)	(0.74)	(0.49)	(0.33)	(0.67)
Liquid assets to current liabilities	-0.28	-0.04	(0.01)	0.04	0.06	-0.06
	(1.39)	(0.28)	(0.32)	(0.28)	(0.19)	(0.52)
Net liquid assets to current liabilities	-0.99	-0.52	-7.04	-0.89	-0.84	-1.76
	(0.79)	(2.19)	(31.19)	(0.42)	(0.31)	(6.67)
Working capital to total asset	-1.41	-0.71	-0.52	-0.31	-0.24	-0.64
	(5.06)	(2.54)	(1.67)	(1.01)	(0.87)	(2.23)

Table 4.2c

Means and standard deviations of profitability ratios for non-bankrupt companies

Profitability ratios	Years prior bankruptcy					Average
	1	2	3	4	5	
EBIT to current liabilities	-1.32	-0.71	-0.48	-0.25	-0.2	-0.5
	(5.15)	(2.58)	(1.73)	(0.98)	(0.97)	(1.99)
EBIT to sales	7.63	-10.2	12.39	9.44	18.1	10.06
	(22.24)	(107.95)	(38.81)	(20.75)	(35.35)	(54.88)
EBIT to total assets	0.14	0.11	0.16	0.13	0.16	0.23
	(0.41)	(0.28)	(0.45)	(0.33)	(0.31)	(0.53)
Net income to sales	2.04	1.17	1.5	0.99	0.93	22.97
	(5.13)	(2.31)	(2.03)	(0.94)	(0.91)	(104.18)
Net income to total asset	0.46	0.2	0.21	0.19	0.17	0.20
	(1.34)	(0.21)	(0.21)	(0.20)	(0.18)	(0.76)
Retained earnings to total assets	0.96	0.45	1.01	1.03	1.19	0.67
	(0.84)	(2.78)	(0.79)	(0.80)	(1.05)	(1.42)

Table 4.2d

Means and standard deviations of turnover ratios for non-bankrupt companies

Turnover ratios	Years prior bankruptcy					Average
	1	2	3	4	5	
Expenses to sales	-0.26	-0.35	-0.2	-0.08	0.09	0.07
	(1.52)	(1.76)	(1.63	(1.07)	(0.71)	(3.15)
Sales to fixed assets	31.62	70.44	196.47	187.97	300.73	131.24
	(592.45)	(143.09)	(853.4)	(948.96)	(1143.88)	(613.76)
Sales to total assets	-0.58	-0.49	-0.52	-0.35	-0.29	-0.34
	(1.71)	(1.16)	(0.96)	(0.58)	(0.47)	(0.91)
Working capital to sales	-0.15	-2.95	0.18	0.12	0.16	1.24
	(1.49)	(15.44)	(0.55)	(0.56)	(0.44)	(12.23)

4.3. T-test for equality of means

T-test was applied in order to determine whether 24 financial ratios of two groups (bankrupt and non-bankrupt) are likely to have the same mean underlying five years. The statistical results presented in Tables 4.3a-4.3d indicate that there is a statistically significant difference for six financial ratios out of the 24 financial ratios in the first year, seven financial ratios for the second year, 11 financial ratios for both third and fourth year and seven financial ratios are significantly different in the fifth year prior to bankruptcy. Since the most significant ratios in all five years prior bankruptcy and six financial ratios were found significant in all three years prior bankruptcy. Thus, in this case, our null hypothesis is accepted, and it is concluded that there is a significant difference between the two populations means with three financial variables namely EBIT to total assets, the market value of equity to the book value of debt and equity to long term debt. Further, the results presented in Table 4.3a-4.3d reveal that the significance of most of the financial variables increases with the movement of the company towards bankruptcy.

Table 4.3a

Testing equality of means of leverage ratios for bankrupt *versus* non-bankrupt

Leverage Ratios	Years prior bankruptcy				
	1	2	3	4	5
Cash flow ratio	0.09	-1.61	-2.9	-2.68	-1.05
	(0.47)	(0.06)	(0.00)	(0.01)	(0.15)
Cash flow to total debt	0.05	0.96	-2.49	-1.46	-2.88
	(0.48)	(0.17)	(0.01)	(0.08)	(0.00)
Current liabilities to total assets	-1.89	0.97	-1.84	-1.62	-1.73
	(0.04)	(0.17)	(0.04)	(0.06)	(0.05)
EBIT to fixed assets at cost	0.78	0.38	0.27	0.4	0.87
	(0.22)	(0.16)	(0.40)	(0.35)	(0.20)
EBIT to total liabilities	-0.67	-1.77	-1.08	-0.97	0.17
	(0.26)	(0.04)	(0.14)	(0.17)	(0.44)
Equity to long term debt	-3.17	-4.03	-1.92	-1.95	-2.75
	(0.00)	(0.00)	(0.03)	(0.03)	(0.01)
Market value of equity to book value of debt	-2.57	-2.54	-3.89	-2.09	-3.39
	(0.01)	(0.01)	(0.00)	(0.02)	(0.00)
Net income to fixed assets at cost	1.04	1.30	0.72	1.38	1.27
	(0.15)	(0.10)	(0.24)	(0.09)	(0.11)
Net income to total debt	0.63	-0.69	-1.15	-0.78	-0.94
	(0.27)	(0.25)	(0.13)	(0.22)	(0.18)
Total debt to total asset	-2.55	-2.29	-0.70	-0.11	-1.14
	(0.01)	(0.02)	(0.25)	(0.46)	(0.13)

Table 4.3b

Testing equality of means of liquidity ratios for bankrupt *versus* non-bankrupt

Liquidity Ratios	**Years prior bankruptcy**				
	1	**2**	**3**	**4**	**5**
Current assets to current liabilities	-0.02	0.15	0.09	-0.17	-0.88
	(0.49)	(0.44)	(0.46)	(0.43)	(0.19)
Liquid assets to current liabilities	-0.85	-1.68	-3.22	-2.41	-1.07
	(0.20)	(0.05)	(0.00)	(0.01)	(0.15)
Net liquid assets to current liabilities	-1.02	-1.16	1.00	-0.74	-1.01
	(0.16)	(0.13)	(0.16)	(0.23)	(0.16)
Working capital to total asset	0.68	0.58	2.8	0.63	0.69
	(0.24)	(0.28)	(0.00)	(0.27)	(0.25)

Table 4.3b

Testing equality of means of profitability ratios for bankrupt *versus* non-bankrupt

Profitability Ratios	Years prior bankruptcy				
	1	2	3	4	5
EBIT to current liabilities	0.39	0.3	0.17	-0.01	0.27
	(0.35)	(0.38)	(0.43)	(0.49)	(0.39)
EBIT to sales	0.88	1.03	0.71	-0.21	-1.43
	(0.19)	(0.16)	(0.24)	(0.42)	(0.08)
EBIT to total assets	-1.59	-1.48	-1.45	-1.4	-1.71
	(0.06)	(0.08)	(0.08)	(0.09)	(0.05)
Net income to sales	-0.08	0.01	-1.05	-0.68	-0.24
	(0.47)	(0.50)	(0.15)	(0.25)	(0.40)
Net income to total asset	-0.08	1.55	2.06	1.64	1.03
	(0.47)	(0.07)	(0.02)	(0.06)	(0.16)
Retained earnings to total assets	-2.35	0.77	-1.43	5.95	-1.18
	(0.01)	(0.22)	(0.08)	(0.00)	(0.02)

Table 4.3d

Testing equality of means of turnover ratios for bankrupt *versus* non-bankrupt

Turnover Ratios	Years prior bankruptcy				
	1	2	3	4	5
Expenses to sales	0.30	0.63	0.67	1.04	0.14
	(0.38)	(0.27)	(0.25)	(0.15)	(0.44)
Sales to fixed assets	0.13	-1.1	-0.41	-0.53	-1.03
	(0.45)	(0.14)	(0.34)	(0.30)	(0.16)
Sales to total assets	0.60	0.75	1.27	1.26	0.97
	(0.28)	(0.23)	(0.11)	(0.11)	(0.17)
Working capital to sales	0.04	0.94	-2.88	-1.92	-2.32
	(0.48)	(0.18)	(0.00)	(0.03)	(0.01)

4.4. F-Test for equality of variances

F-test was performed in order to determine whether 24 financial ratios of bankrupt and non-bankrupt group have different variances underlying five years. It is evident from the Table 4.4 that 15 financial variables show the high significant variance (p-value) in all five years whereas five financial variables show significant variance for four years between the two groups. Therefore, it is concluded that 90% of the financial variables have shown significant variance between the bankrupt and non-bankrupt groups with the approach of the critical time period (i.e., bankruptcy).

Table 4.4a

Testing equality of variance of leverage ratios for bankrupt *versus* non-bankrupt

Leverage Ratios	Years prior bankruptcy				
	1	2	3	4	5
Cash flow ratio	0.23	140.33	5.77	5.13	201.45
	0.00	0.00	0.00	0.00	0.00
Cash flow to total debt	0.01	0.00	0.03	0.21	0.47
	0.00	0.00	0.00	0.00	0.03
Current liabilities to total assets	0.02	0.00	0.36	0.92	0.19
	0.00	0.00	0.01	0.42	0.00
EBIT to fixed assets at cost	0.00	0.00	0.28	0.61	0.35
	0.00	0.00	0.00	0.11	0.01
EBIT to total liabilities	1.94	165.61	175.23	149.15	165.84
	0.05	0.00	0.00	0.00	0.00
Equity to long term debt	1.34	0.75	0.16	0.96	0.30
	0.24	0.24	0.00	0.46	0.00
Market value of equity to book value of debt	2.49	0.23	0.49	0.23	0.54
	0.01	0.00	0.04	0.00	0.06
Net income to fixed assets at cost	0.02	0.01	0.14	0.24	0.15
	0.00	0.00	0.00	0.00	0.00
Net income to total debt	0.12	0.07	0.07	0.19	0.14
	0.00	0.00	0.00	0.00	0.00
Total debt to total asset	0.16	0.05	1.05	2.87	0.32
	0.00	0.00	0.45	0.01	0.00

Table 4.4b

Testing equality of variance of liquidity ratios for bankrupt *versus* non-bankrupt

Liquidity Ratios	Years prior bankruptcy				
	1	2	3	4	5
Current assets to current liabilities	0.08	0.05	0.10	0.18	0.34
	0.00	0.00	0.00	0.00	0.00
Liquid assets to current liabilities	0.33	81.84	3.48	2.14	77.13
	0.00	0.00	0.00	0.03	0.00
Net liquid assets to current liabilities	0.02	0.02	0.00	0.02	0.41
	0.00	0.00	0.00	0.00	0.02
Working capital to total asset	0.04	0.10	0.29	0.26	0.22
	0.00	0.00	0.00	0.00	0.00

Table 4.4c

Testing equality of variance of profitability ratios for bankrupt *versus* non-bankrupt

Profitability Ratios	Years prior bankruptcy				
	1	2	3	4	5
EBIT to current liabilities	0.13	0.15	0.28	0.55	0.38
	0.00	0.00	0.00	0.07	0.01
EBIT to sales	37.63	14.45	26.28	1.18	0.27
	0.00	0.00	0.00	0.34	0.00
EBIT to total assets	0.44	0.98	0.44	0.79	0.97
	0.02	0.48	0.02	0.28	0.47
Net income to sales	0.41	0.08	0.07	0.16	0.17
	0.02	0.00	0.00	0.00	0.00
Net income to total asset	0.09	58.62	2.48	1.12	22.28
	0.00	0.00	0.01	0.39	0.00
Retained earnings to total assets	1.09	0.09	0.31	0.38	0.12
	0.42	0.00	0.00	0.01	0.00

Table 4.4d

Testing equality of variance of turnover ratios for bankrupt *versus* non-bankrupt

Turnover Ratios	Years prior bankruptcy				
	1	2	3	4	5
Expenses to sales	0.02	0.01	0.05	1.72	0.52
	0.00	0.00	0.00	0.09	0.05
Sales to fixed assets	0.75	8.86	0.98	0.39	0.25
	0.23	0.00	0.48	0.01	0.00
Sales to total assets	0.08	0.07	0.05	0.12	0.17
	0.00	0.00	0.00	0.00	0.00
Working capital to sales	0.01	0.00	0.27	0.29	0.30
	0.00	0.00	0.00	0.00	0.00

4.5. Statistical results of multivariate discriminant analysis (MDA)

The total sample of 52 companies with five years data resulted in 260 firm-year observations. However, the data has been analyzed with an average of five years which becomes 52 observations for both bankrupt and non-bankrupt companies.

Table 4.5.1

Variables entered/removed (a, b, c, d)

Step	Entered	Wilks' Lambda		df1	df2	F-Statistic	df1	df2	Sig.
1	Sales to total assets ratio	0.838		1	50	9.65	1	50	0.003
2	EBIT to current liabilities ratio	0.713		1	50	9.841	2	49	0.000
3	cash flow ratio	0.647		1	50	8.714	3	48	0.000

At each step, the variable that minimizes the overall Wilks' Lambda is entered.

a Maximum number of steps is 48.

b Maximum significance of F to enter is 0.05.

c Minimum significance of F to remove is 0.10.

d F level, tolerance, or VIN insufficient for further computation.

The discriminant analysis procedure concluded significant variables and excluded insignificant variables for further analysis as shown in Table 4.5.1. Consequently from twenty four variables, only three variables viz. EBIT to current liabilities ratio, sales to total assets ratio and cash flow ratio were found highly significant at 5% significance level.

Standardized canonical discriminant function coefficients were determined and ranked accordingly is shown in Table 4.5.2. EBIT to current liabilities ratio discriminated the most with the highest discriminant magnitude 1.147 followed by sales to total asset ratio with 0.701 and cash flow ratio with -0.732 that discriminating the least.

Table 4.5.2

Standardized canonical discriminant function coefficients

Ratios	Coefficients
EBIT to current liabilities ratio	1.147
Sales to total assets ratio	0.701
Cash flow ratio	- 0.732

Group centroids function determines optimum Z value based on which a firm is classified as bankrupt and non-bankrupt. Table 4.5.3 reveals that if a firm having Z score equals to -0.724 is classified as "Bankrupt" whereas firm having Z score equal to 0.724 is classified as "Non-bankrupt".

Table 4.5.3

Functions at group centroids

Group	**Z-Score**
Bankrupt	-0.724
Non-Bankrupt	0.724

4.6. Z score/ MDA model

The final Z score/ discriminant score derived from table 4.5.2 and 4.5.3 respectively, takes the form as follows:

$Z = 1.147 \times X1 + 0.701 \times X2 - 0.732 \times X3$

Where:

Z = discriminant score;

X1 = sales to total assets ratio[(2)];

X2 = EBIT[(3)] to current liabilities ratio;

X3 = Cash flow ratio[(4)].

The midpoint or the cut off value of bankrupt and non-bankrupt group centroid is zero, which suggests that the movement of a firm with the Z-value above zero is approaching toward "non-bankruptcy" whereas the movement of firm with the Z-value below zero is approaching towards "bankruptcy" at each year prior the event. At last, the firm having a Z value = -0.724 classified as "bankrupt" and the firm having a Z value = 0.724 classified as "non-bankrupt". The classification reported in Table 4.5.4 compares the actual and predicted results. It is evident that the model classification accuracy is 76.9 percent, which suggests the high classification power of the significant three financial variables on the underlying sample. The outstanding model's accuracy rate achieved implies that it has the potential for practical application in predicting the corporate failure of Pakistan.

Table 4.5.4

Classification results

	Z-Score	Predicted Group Membership		Total
		Bankrupt	Non-Bankrupt	
Original Count	Bankrupt	20	6	26
	Non-Bankrupt	6	20	26
Percentage	Bankrupt	76.9	23.1	100.0
	Non-Bankrupt	23.1	76.9	100.0

The accuracy of the discriminant model was analyzed by applying it on the total sample of 52 companies. From the total sample of 52 companies, only 12 cases were misclassified. It is evident from Table 4.5.5 that the model developed through our study has 76.9% accuracy/predictive ability in forecasting the default character of a firm.

Table 4.5.5

In sample model classification results

No.	Company	Actual group	Predicted group	Z-Score	Prob. of group 1	Prob. of group2
1	Lafayette Industries Synthetics	1	1	-0.037	0.513	0.487
2	Sunshine Cotton Mills Ltd	1	1	-0.659	0.722	0.278
3	Pearl Fabrics Ltd	1	1	-1.501	0.898	0.102
4	Sunrise Textiles Ltd	1	1	-0.516	0.678	0.322
5	Nusrat Textile Mills Ltd.	1	1	-1.240	0.858	0.142
6	Crown Textile Mills Ltd	1	1	-1.534	0.902	0.098
7	Marr Fabrics Ltd	1	1	-2.228	0.962	0.038
8	Amazai Textile Mills Ltd	1	1	-1.723	0.924	0.076
9	Alif textile industries Ltd	1	1	-1.027	0.815	0.185
10	Apex Fabrics Ltd	1	1	-1.489	0.896	0.104
11	Tawakl Garments industries	1	2**	0.656	0.279	0.721
12	Schon textiles Ltd	1	1	-0.417	0.646	0.354
13	Adil Polypropylene Ltd	1	1	-0.495	0.672	0.328
14	Pak Fibre industries Ltd	1	1	-1.095	0.830	0.170
15	Modern Textile Mills Ltd	1	2**	0.058	0.479	0.521
16	Tawakl Ltd	1	2**	0.078	0.472	0.528
17	Pakistan dairies Ltd	1	2**	0.474	0.335	0.665
18	Regal ceramics Ltd	1	1	-0.071	0.526	0.474
19	Uqab Breeding Farms Ltd	1	1	-0.962	0.801	0.199
20	Mediglass Ltd	1	1	-3.693	0.995	0.005
21	Ghulam M dadabhoy Ltd	1	1	-0.144	0.552	0.448
22	Sarhad Ghee Mills Ltd	1	2**	1.084	0.172	0.828
23	Muslim Ghee mills Ltd	1	1	-0.637	0.715	0.285
24	Fazl Vegetable Ghee Mills Ltd	1	1	-0.902	0.787	0.213
25	Kausr paints Ltd	1	1	-0.922	0.791	0.209
26	Sind Alkalis Ltd	1	2**	0.126	0.454	0.546
27	Premium Textile Mills Ltd	2	2	1.424	0.887	0.113
28	Ahmad Hassan Textile Mills	2	2	0.959	0.800	0.200
29	J.K Spinning Mills Ltd	2	2	0.470	0.664	0.336
30	Ishaq Textile Mills Ltd	2	2	0.298	0.606	0.394
31	Fawad Textile Mills Ltd	2	1**	-0.897	0.214	0.786
32	Data Textiles Ltd	2	2	0.102	0.537	0.463
33	Salman Noman Enterprise Ltd	2	2	0.514	0.678	0.322
34	Babri Cotton Mills Ltd	2	2	2.757	0.982	0.018
35	The National Silk and Ryon	2	2	1.046	0.820	0.180
36	Crescot Mills Ltd	2	2	0.964	0.801	0.199
37	Olympia Textile Mills Ltd	2	1**	-0.536	0.315	0.685

38	Zaman Textile Mills Ltd	2	2	0.513	0.677	0.323
39	Sana industries Ltd	2	2	1.193	0.849	0.151
40	Ideal Spinning Mills Ltd	2	2	0.723	0.740	0.260
41	Globe Textile Mill Ltd	2	2	0.919	0.791	0.209
42	Universal leather and	2	1**	-0.042	0.485	0.515
43	Pak German Prefabs Ltd	2	1**	-1.232	0.144	0.856
44	Michells Fruit Farms Ltd	2	2	2.534	0.975	0.025
45	Pakistan House international	2	2	0.865	0.778	0.222
46	Grays of Cambridge Pak Ltd	2	2	3.007	0.987	0.013
47	Good luck industries Ltd	2	1**	-0.268	0.404	0.596
48	Kohinoor Oil Mills Ltd	2	2	1.257	0.860	0.140
49	Punjab Oil Mills Ltd	2	2	1.167	0.844	0.156
50	Burma Oil Mills Ltd	2	2	0.960	0.800	0.200
51	RRP Ltd	2	1**	-0.136	0.451	0.549
52	Dyno Pakistan Ltd	2	2	0.254	0.591	0.409

4.7. Wilks' Lambda of the estimated MDA model

Wilks Lambda (reported in Table 4.5.6) evaluates the overall discriminant function fitness. We obtain (0.647) Wilks Lambda, significant at 99% level of confidence that provide the evidence that our model has the potential to be applied practically.

Table 4.5.6

Wilks' Lambda

Test of function (s)	Wilks' Lambda	Chi-square	df	Sig.
1	0.647	21.086	3	0.000

5. Conclusions

In this paper, we identify the financial ratios that are most significant in bankruptcy prediction for the non-financial sector of Pakistan using a sample of companies which became bankrupt during the period between 1996 and 2006. In doing so, twenty four financial ratios that measures important financial attributes of a company (i.e., profitability, liquidity, leverage, and turnover ratios) were examined for a five-year period prior bankruptcy. The discriminant analysis produced a parsimonious model of three variables viz. sales to total assets, EBIT to current liabilities, and cash flow ratio. Our estimates provide evidence that the firms having Z value below zero fall into the “bankrupt” whereas the firms with Z value above zero fall into the “non-bankrupt” category. The model achieved 76.9% prediction accuracy when it is applied to forecast bankruptcies on the underlying sample.

In addition to estimating bankruptcy prediction model for Pakistan, the study shows that most of the companies that went bankrupt during the period from 1996 to 2006 have shown signs of financial distress i.e., poor financial performance. Further, our study contributed in the existing literature by exploring three significant financial variables namely sales to total assets, EBIT to current liabilities, cash flow ratio that can be used to explore the bankruptcy risk in Pakistan. These three financial variables are among popular financial ratios contributing business failure in bankruptcy literature (Eljelly et al., 2001).

In aggregate, we suggest that the regulatory authorities in Pakistan should keep these three significant financial variables in monitoring/assessing the financial health of the firm. Finally, it can be argued that our model provides insight into assessing the complex financial situation of a firm and could suggest avenues for future research among academia and practitioner for developing better bankruptcy prediction model for Pakistan.

Notes

(1) See, for details, Etemadi et al. (2008), Min and Jeong (2008), Xu and Zhang (2008).
(2) It is the only ratio that was found significant from Altman (1968) five variables in zeta model.
(3) It is the profit earned by the company during a year and has been denoted as net profit before taxation in the Balance Sheet analysis of joint stock companies listed on Karachi Stock Exchange (KSE).
(4) Cash flow ratio has been calculated as: Net profit after tax plus depreciation for the year divided by depreciation for the year plus changes in capital employed (see, balance sheet analysis of joint stock companies by SBP).

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Annex 1

List of bankrupt and non-bankrupt companies[1] (Assets in Rs. millions)

Bankrupt company[2]	Year[3]	Total assets	Non-bankrupt company	Total assets
Adil Polypropylene Products Ltd	1998	208.7	Sana industries Ltd	248.4
Alif Textile industries Ltd	1996	30.1	The National Silk and Ryon Ltd	52.9
Amazai Textile Mills Ltd	1998	119.9	Babri Cotton Mills Ltd	176.2
Apex Fabrics Ltd	1996	101.4	Crescot Mills Ltd	108.4
Crown Textile Mills Ltd	1997	114.1	Data Textiles Ltd	138.2
Fazl vegetable Ghee Mills Ltd	1998	83.7	Burma Oil Mills Ltd	70.7
Ghulam M dadabhoy Ltd	1997	7.4	Good Luck industries Ltd	2.4
Kausr paints Ltd	1998	35.6	RRP Ltd	34.5
Lafayette Industries Synthetics Ltd	2006	457.7	Premium Textile Mills Ltd	467.4
Marr Fabrics Ltd	1998	116.5	Salman Noman Enterprises Ltd	125.1
Mediglass Ltd	1998	126.5	Grays of Cambridge Pak Ltd	166.2
Modern Textile Mills Ltd	1998	103	Globe Textile Mills Ltd	142.4
Muslim Ghee Mills Ltd	1996	53.1	Punjab Oil Mills Ltd	81.8
Nusrat Textile Mills Ltd.	1997	378.7	Fawad Textile Mills Ltd	376
Pakistan Dairies Ltd	1996	26.7	Pak German Prefabs Ltd	33.3
Pak Fibre industries Ltd	1998	250.5	Ideal Spinning Mills Ltd	270.8
Pearl Fabrics Ltd	1996	461.8	J.K Spinning Mills Ltd	479.9
Regal Ceramics Ltd	1998	197.5	Michells Fruit Farms Ltd	207
Sarhad Ghee Mills Ltd	1997	58.6	Kohinoor Oil Mills Ltd	51.3
Schon Textiles Ltd	1996	260.5	Zaman Textile Mills Ltd	286.3
Sind Alkalis Ltd	1998	322.9	Dyno Pakistan Ltd	330.6
Sunrise Textiles Ltd	1996	716.5	Ishaq Textile Mills Ltd	716.3
Sunshine Cotton Mills Ltd	1998	233.1	Ahmad Hassan Textile Mills Ltd	238.4
Tawakl Garments industries Ltd	1996	461.8	Olympia Textile Mills Ltd	465.1
Tawakl Ltd	1996	797.7	Universal Leather and Footwear industries Ltd	720.8
Uqab Breeding Farms Ltd	1998	46.5	Pakistan House International Ltd	64.6

Notes: [1] 15 companies are from textile, six from vanaspati and allied, four from chemical and 12 from miscellaneous sector. As the companies consist of mixed industry, therefore following Beaver (1968) paired sampling technique was used in which bankrupt companies were paired/matched with the non-bankrupt companies having same industry and closest total assets one year prior to bankruptcy.

[2] Bankrupt companies consist of (1) liquidation/winding up of a company under court order i.e. violation of KSE listing regulation no. 32 (1) (d). Or (2) winding up of a company by SECP.

[3] This is the year which has been taken as "year of bankrupt" for a company based on the data availability of five years prior bankruptcy.

Annex 2

List of financial variables

Financial ratios	#	Calculation
1. Leverage ratios		
	i.	Cash flow ratio = Net profit after tax plus depreciation for the year divided by depreciation for the year plus changes in capital employed
	ii.	Cash flow to total debt [3]
	iii.	Current liabilities to total assets [3]
	iv.	EBIT to fixed assets at cost [3]
	v.	EBIT to total liabilities [2]
	vi.	Equity to long term debt [2]
	vii.	Market value of equity to book value of debt [1]
	viii.	Net income to fixed assets at cost [3]
	ix.	Net income to total debt [3]
	x.	Total debt to total asset [2]
2. Liquidity ratios		
	xi.	Current assets to current liabilities [2]
	xii.	Liquid assets to current liabilities [2]
	xiii.	Net liquid assets to current liabilities [3]
	xiv.	Working capital to total assets [1]
3. Profitability ratios		
	xv.	EBIT to current liabilities [2]
	xvi.	EBIT to sales [3]
	xvii.	EBIT to total assets [1]
	xviii.	Net income to sales [3]
	xix.	Net income to total assets [1]
	xx.	Retained earnings to total assets [1]
4. Turn over ratios		
	xxi.	Expenses to sales [3]
	xxii.	Sales to fixed assets [2]
	xxiii.	Sales to total assets [1]
	xxiv.	Working capital to sales [3]

[1] Variables from Altman (1968).
[2] Variables from Gu (2002).
[3] Variables from Eljelly et al. (2001).

Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 129-138

Analysis of the Correlation between GDP and the Final Consumption

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Abstract. *This paper presents the results of the researches performed by the author regarding the evolution of Gross Domestic Product. One of the main aspects of GDP analysis is the correlation with the final consumption, an important macroeconomic indicator. The evolution of the Gross Domestic Product is highly influenced by the evolution of the final consumption. To analyze the correlation, the paper proposes the use of the linear regression model, as one of the most appropriate instruments for such scientific approach. The regression model described in the article uses the GDP as resultant variable and the final consumption as factorial variable.*

Keywords: consumption; model; evolution; variable; economy.

JEL Code: E21.
REL Codes: 8B, 10B, 10C.

The Gross Domestic Product, seen as one of the main macro-economical aggregates, specific to the National Accounts System, represents the synthetic expression of the results of economic activity produced within the economic territory during a time interval, regardless the contribution of the internal or foreign subjects.

In the analysis made on the factors that determine the variation of the GDP, we have started from the methodological elements specific to the method of final production use (expenses method), considering that it is a significant source of information on the main correlations that influence the evolution of the main macro-economic aggregate.

So, according to the previously mentioned calculation method, the Gross Domestic Product can be determined by summarizing the elements that express the use of goods and services that form the final production, respectively: private (personal) consumption - CP, public consumption – CPL, gross investments – IB or the gross capital formation – FBCF and the net export – EXN, determined as difference between the value of exports and the value of imports.

$$PIB_{pp} = CP + CPL + IB + EXN$$

or

$$PIB = CF + FBCF + VS + (E - I)$$

where:

CF = final consumption;
FBCF = gross formation of fixed capital;
VS = variation of inventories;
E = value of exports;
I = values of imports.

Starting from the previously mentioned elements, we wished to identify the relationship existing in our country between the evolution of the final consumption (regarded as a sum of the two fundamental components – the private consumption and the public consumption) and the variation of GDP. We have used, for analysis, the linear uni-factorial regression method.

To build a linear regression model, we have defined the final consumption as independent variable, while the value of GDP was considered a dependant (resultant) variable. Thus, the regression model can be written under the following mathematical expression:

$$GDP = a + b \cdot CF$$

From the econometric point of view, the considered model must include the residual component too, seen as a representation of the differences that occur between the theoretically determined values and those measured in the real economy.

$GDP = a + b \cdot CF + u$

where:

GDP = Gross Domestic Product → dependant variable;

CF = Final Consumption → independent variable;

a, b → parameters of the regression model;

u → the residual variable.

To determine the parameters of this model we have considered a dataset regarding the evolution of the two macroeconomic result indicators during the period 1990 – 2009. This information is synthesized in table 1:

Table 1

Evolution of GDP and final consumption in Romania between 1990 and 2009

Year	GDP (million lei)	Final consumption (million lei)
1990	85,70	67,90
1991	220,40	167,20
1992	602,90	464,30
1993	2.003,60	1.523,60
1994	4.977,30	3.845,20
1995	7.213,50	5.866,20
1996	10.891,90	8.993,90
1997	25.292,60	21.861,90
1998	37.379,80	33.746,90
1999	54.573,00	48.436,20
2000	80.377,30	69.253,30
2001	116.768,70	99.473,70
2002	152.017,00	127.118,80
2003	197.427,60	168.818,70
2004	247.368,00	211.057,60
2005	288.954,60	251.038,10
2006	344.650,60	294.867,60
2007	416.006,80	344.937,00
2008	514.654,00	420.872,20
2009	491.273,70	397.273,50

To make a pertinent analysis of the correlation between the two macroeconomic indicators from Table 1, it is necessary to establish in the first step to identify a series of particular characteristics related to the evolution of

each measure, during the analyzed interval. Therefore, we have studied, with the help of Eviews 5.1., the individual evolution of each of the two indicators.

So, the study of the evolution of Romanian GDP between 1990 and 2009, has allowed the achievement of the following significant information and graphical representations:

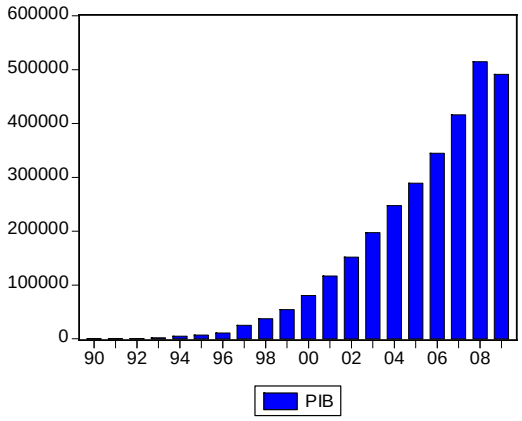

Figure 1. *Evolution of Romania's GDP (PIB) between 1990 and 2009*

As it can be seen both from the analysis of the research data and from the figure 1, during the considered interval, our country's GDP has recorded a constant year-to-year increase, the exception being the very last year of the interval. So, it can be observed that, on the background of the economic-financial crisis that has affected the entire world starting with the second half of 2008, the value of Romania's GDP for 2009 presents a decrease if approximately 4% against the immediately previous time interval.

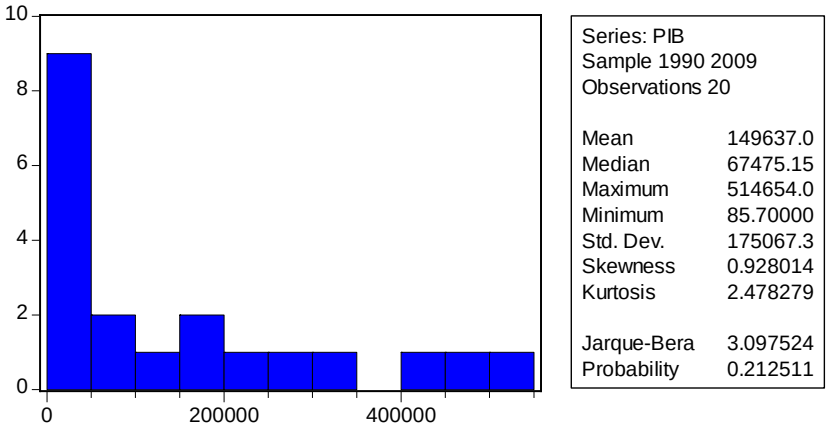

Figure 2. *The main statistical tests made on the value of Romania's GDP between 1990 and 2009*

With the help of Eviews 5.1. we have performed a series of statistical tests meant to ensure a more accurate image on the evolution of the GDP of our country during the considered interval. So, we can observe that the average value of this indicator for the interval between 1990 and 2009 is 149.637 millions lei, with a variation between a minimum value of 85,7 millions lei (at the end of 1990) and a maximum value of 514.654 millions lei (at the end of 2009).

The values of the statistical tests allow us to state that the distribution of the values of GDP for the considered interval is not perfectly symmetrical (the value of the skewness is not zero), the distribution being more likely flat (kurtosis < 3). Also, it can be ascertained that, inside the considered data series, the values between the minimum and the average of the series are far more numerous than those included in the second half of the variation interval for the researched indicator.

A similar analysis can be made regarding the evolution of the final consumption (public and private) during the time interval between 1990 and 2009. The main elements achieved following the analysis with Eviews 5.1. are presented in Figure 3:

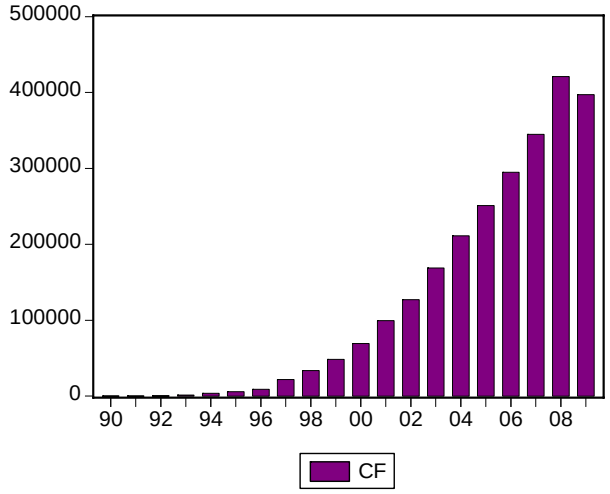

Figure 3. *Evolution of the final consumption in Romania between 1990 and 2009*

The graphic in Figure 3 allows us to conclude that, during the research interval, the consumption had an accentuate evolution, with significant increases, from one period to another. Similar to those ascertained for the evolution of GDP, it can be seen that the year 2009 presents an anomaly versus the general rule of evolution for the final consumption in our country. So, we observe that it is the single interval in which the value of the indicator decreases comparatively to the previous time period.

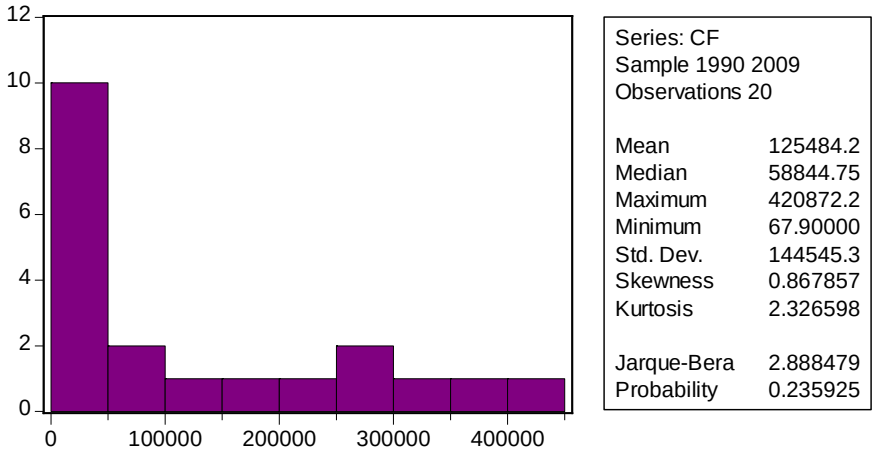

Figura 4. *Statistical tests made on the Romanian final consumption between 1990 and 2009*

In Eviews, we have determined the variation interval of the research interval, establishing that the value of the final consumption is enclosed between 67.9 millions lei, in 1990 and 420,872 millions lei, at the end of 2008. Also, we were able to state that the average value of this indicator for the period between 1990 and 2009 is 58,844.75 millions lei.

As it can be seen, the values for the Skewness and Kurtosis tests allow us to affirm that the distribution is not symmetrical, being predominant the values between the minimum and the average of the data series.

From the previous analyses, we extracted a very important conclusion regarding the modality of analysis for the correlation between the two indicators. It is observed that the evolution of the indicators is very similar; with accelerate increases for the interval between 1990 and 2008 and a decrease of approximately 4- 5% in the final year of the research interval. Also, it can be observed that the statistical tests performed upon the data series for the indicators are almost identical. Based on these ascertainments, we can state that between the value of the GDP and the value of the final consumption there is a strong interdependence.

To confirm this statement, and to identify the typology of the regression function, we have represented the pairs of points that reflect the correspondent values of GDP and final consumption (Figure 5).

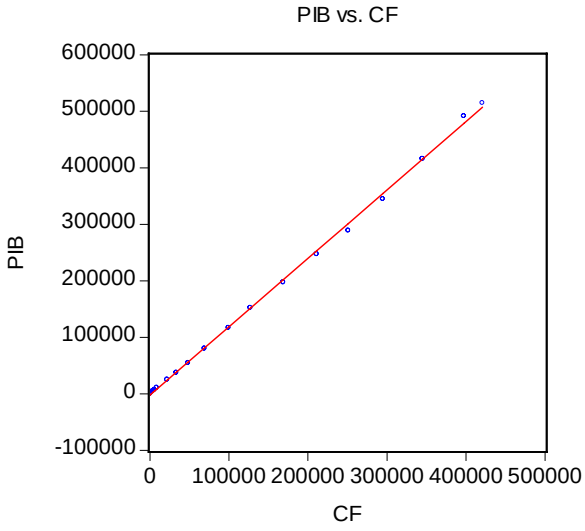

Figura 5. *Correlation GDP – final consumption*

As it can be seen from Figure 5, the pairs of pints GDP –final consumption describe almost perfectly the trajectory of a line, allowing us to state that the uni-factorial linear regression model can describe with good results the relation between the two indicators.

The main model of each regression model is the determination of the parameters, operation that can be made by using the least squares method. In this approach, we start from the equation of the simple linear regression model

$$y = a + bx + u$$
$$t = 1,n$$

where:

$\hat{y}_t$ = the theoretical values of the y variable obtained only depending on the values of the essential factor x and the values of the estimators for the parameters a and b, respectively $\hat{a}$ and $\hat{b}$;

$u_t = y_t - \hat{y}_t = (a - \hat{a}) + (b - \hat{b})x_t \rightarrow$ estimations of the values of the residual variable.

The least squares method assumes the minimization of the following function:

$$F(\hat{a},\hat{b}) = \min \sum_{t=1}^{10} (y_t - \hat{y}_t)^2 = \min \sum_{t=1}^{10} (y_t - \hat{a} - \hat{b}x_t)^2$$

The minimum condition of the function results from:

$$F'(\hat{a}) = 0 \Rightarrow n\hat{a} + \hat{b}\sum x_t = \sum y_t$$

$$F'(\hat{b}) = 0 \Rightarrow \hat{a}\sum x_t + \hat{b}\sum x_t^2 = \sum x_t y_t$$

To estimate the parameters of this regression model, we have used Eviews 5.1., defining the equation that has as resultant variable the Gross Domestic Product, and as factorial variable the value of the final consumption. Also, we have considered that this model will include a free term, c. The estimation method set in the program is the least squares.

The Eviews 5.1 processing provided the following results:

Dependent Variable: PIB
Method: Least Squares
Date: 10/11/10 Time: 04:56
Sample: 1990 2009
Included observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2268.559	1701.196	-1.333509	0.1990
CF	1.210555	0.009017	134.2531	0.0000
R-squared	0.999002	Mean dependent var		149637.0
Adjusted R-squared	0.998947	S.D. dependent var		175067.3
S.E. of regression	5681.209	Akaike info criterion		20.22236
Sum squared resid	5.81E+08	Schwarz criterion		20.32193
Log likelihood	-200.2236	F-statistic		18023.91
Durbin-Watson stat	0.479777	Prob(F-statistic)		0.000000

To interpret the results obtained from the linear regression model, it is necessary to establish, since the beginning, if this can be considered as correct, and if the results it offers can be used in real macroeconomic analyses.

The probability that the model is correct is very high – approximately 99.9%, this conclusion being drawn from the results provided by Eviews for the tests: R – squared (0.9990) and Adjusted R – squared (0.9989).

Also, the viability of this regression model is confirmed by the values of the F – statistic test (18023.91 – far above the table level considered to be a mark in viability analysis for econometric models), and also by the null degree of risk (given by the value of the Prob F – statistic test).

Based on the previous elements, we can consider that the regression model that describes the correlation between the value of GDP and the final consumption is correct, accurately reflecting the real evolution of the two macroeconomic indicators. So, it is possible to write the linear regression models as:

PIB = - 2268,5 + 1,21 CF

The regression model allows us to establish a set of aspects regarding the relationship existing between the two considered variables. It can be seen that a significant relationship exists between the evolution of the GDP value and the value of final consumption, in Romania, between 1990 and 2009. So, an increase by one monetary unit of the final consumption will lead to an increase by 1.21 monetary units of the GDP value.

The above presented situation can be considered as normal when knowing that, in our country, the economic growth in the last years was based exclusively on a policy of consumption stimulation, especially for its private component.

Also, we can conclude that, to surpass the present economical – social crisis moment, in Romania shall be limited the measures that directly and negatively affect consumption (i.e. the major salary decreases in the late period or the firings of personnel from public administration).

The analysis of the regression model cannot be complete without mentioning that the free term indicates the fact that the factors not included in the model have a high influence on the value of GDP. The negative value of the free term reveals that the variables not included in the model have, as a whole, a negative effect on the GDP evolution.

Based on the elements presented, we can draw the conclusion that Romania's GDP is influenced, mainly, by the evolution of the public and private consumption.

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Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 139-148

German SMEs Affected by the World Crisis

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Abstract. *2009 was one of the hardest years in the last decades for SMEs. The areas that had faced difficulties before the crisis felt sharply the negative effects, but those which had registered continuous progress until the crisis broke out have also been affected. 2010 was a year of reconsolidation, while the current year could mark off a progress for most SMEs, due to a very special evolution of the German economy as a whole (an economic growth of 3.6% in 2010, much more over analyst expectations, and a forecast of 2.8% for 2011). Regarding the establishment of SMEs in the crisis period, an unexpected development has paradoxically been noticed in Germany: the interest of individuals in establishing a business, declining in the last years, began to grow.*

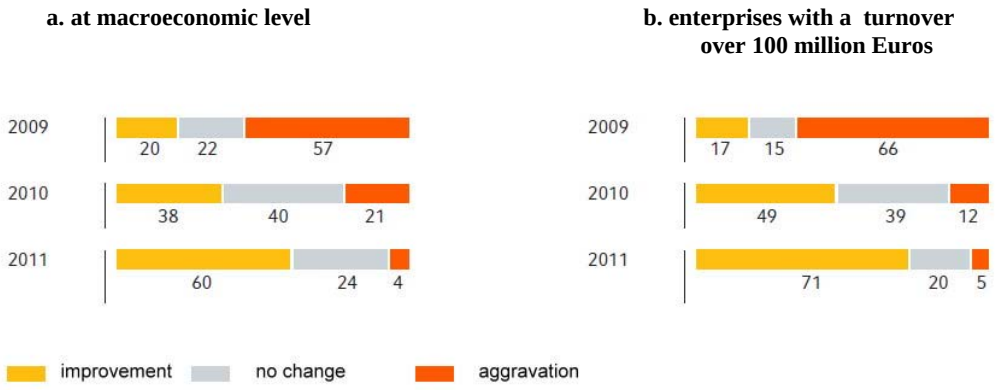
Keywords: economic crisis; economic evolution; Germany; Romania; SMEs; SMEs establishment, SMEs liquidation.

JEL Code: G01, M21.
REL Codes: 14K.

1. 2011, a promising year for small and medium-sized enterprises' prosperity

As in the other states of the world, in Germany, SMEs were as well affected by the economic crisis. According to a study conducted by Commerzbank, in 2009, 57% of enterprises registered a decrease in business, but meanwhile that the situation in Germany may be said to have stabilized. In 2010 only 21% continued to encounter difficulties, while for 38% the situation got better. But the real progress is expected during this year, 60% of the SMEs considering the year 2011 economically fruitful. Only 4% expect the situation to deteriorate again. That optimism, however, does not mean that SMEs will reach the level they had before the economic crisis.

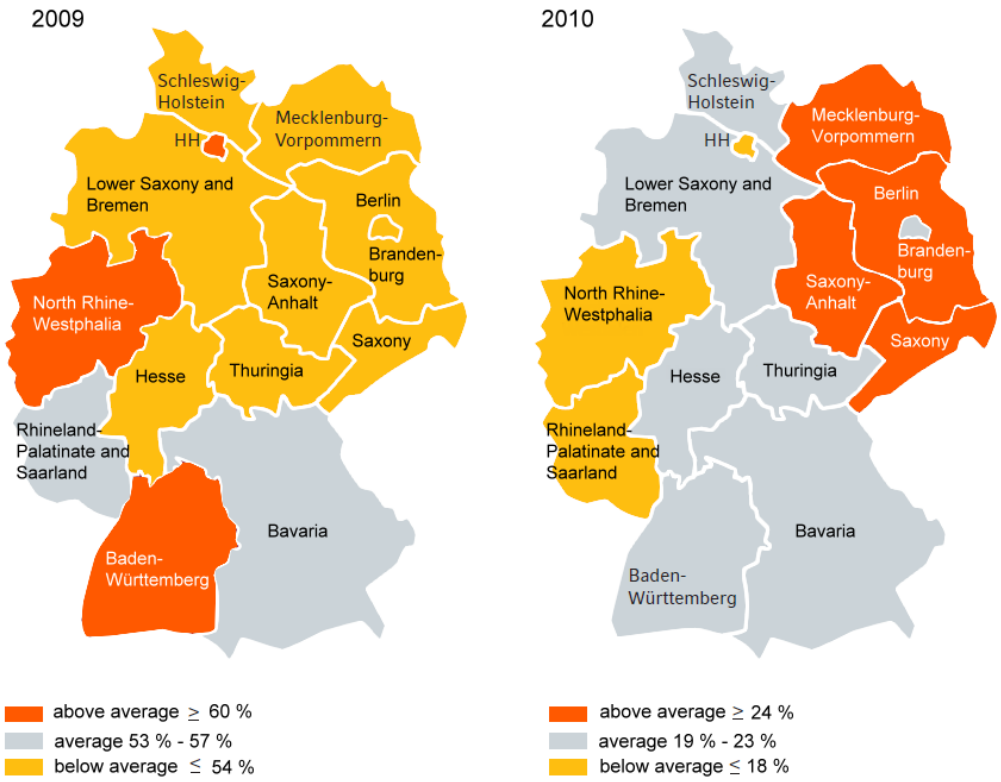
Regarding the enterprises with a turnover exceeding 100 million Euros a year, these have been strongly affected by the 2009 crisis (Figure 1). 66% of them had reported a degradation of the business situation.



Source: Study SMEs in crisis. Changes toward progress, conducted by Commerzbank, 2011

Figure 1. *SMEs economic situation between 2009 and 2011*
(in percentage points, compared with values from previous year)

The crisis did not affect all the enterprises in the German territory and those affected did not feel the difficulties at the same time. Thus the next chart shows which Länder have been more or less affected by crisis (average). Industrial zones like North Rhine Westphalia, Baden-Württemberg, and Hamburg had registered in 2009 a more acute deterioration of the economic situation than other Länder. In these three regions, over 60% of the SMEs reported a poor economic situation. In 2009, small and medium-sized enterprises from Bavaria, Rhineland-Palatinate and Saarland were also more affected than the Länder from central and eastern Germany.



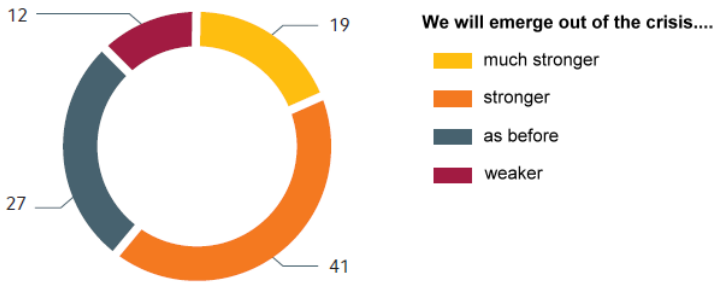
Source: Study SMEs in crisis. Changes toward progress, achieved by Commerzbank, 2011.

Figure 2. *Länder economic situation*

The negative effects of the crisis reached eastern Germany Länder later, in 2010. Therefore, about a quarter of the SMEs based in the East registered a deterioration of their economic situation in 2010 compared to 2009. In Brandenburg Land, the decrease was more pronounced, 29%.

Every fifth enterprise believes that it will emerge stronger from the crisis

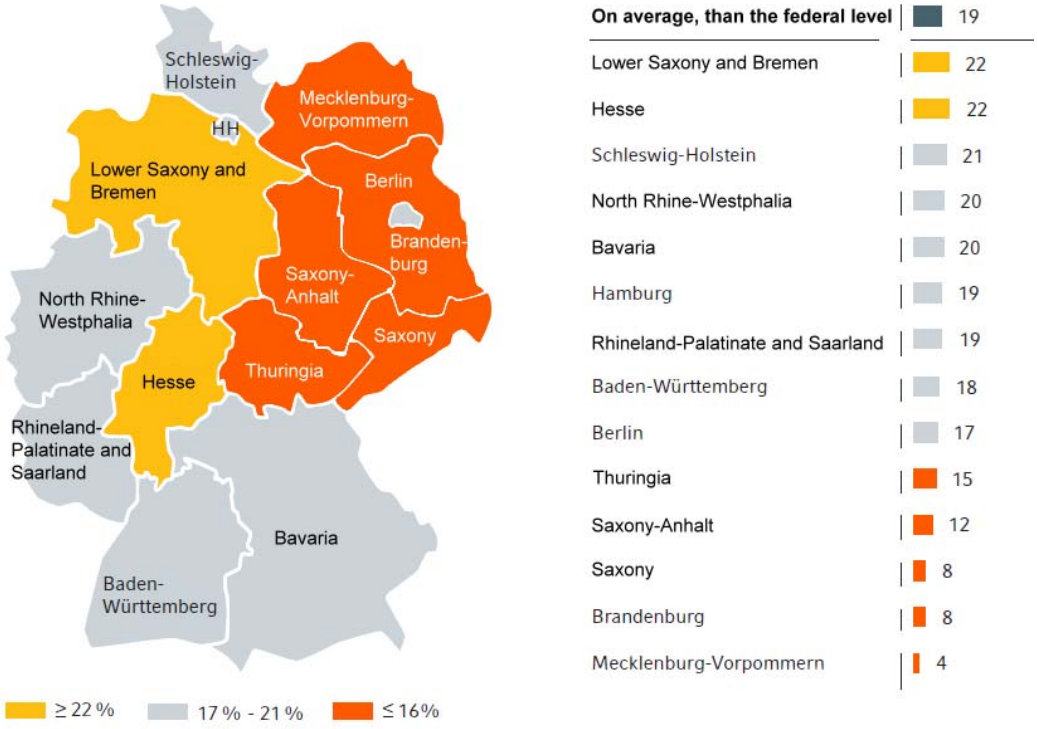
19% of the SMEs consider that they will emerge stronger from the crisis (Figure 3). It is here for those companies which had a consolidated position at the start of the recession. At the opposite side are those companies which consider that at the end of the crisis their situation will be worse than before crisis (12%). The optimism of small and medium-sized enterprises is remarkable: overall, 68% of the SMEs believe that they would emerge at least as strong, if not stronger, from crisis.



Source: Study SMEs in crisis. Changes toward progress, achieved by Commerzbank, 2011.

Figure 3. *Situation expected by small and medium-sized enterprises after the crisis*

Regarding the future chances, major differences are observed depending on the Länder where the business ventures operate. In the East, the companies are less optimistic than in the West, the business situation being considered more stable (Figure 4).



Source: Study SMEs in crisis. Changes toward progress, achieved by Commerzbank, 2011.

Figure 4. *We will emerge from the crisis stronger than we entered (percentage)*

2. Establishment and liquidation of enterprises in Germany

In Germany, the financial and economic crisis, paradoxically, led to an unexpected development: the interest of individuals in establishing a business, declining in the last years, began to grow. According to the annual report regarding the SMEs[1], once the crisis was felt in all economic sectors, more and more people turned to counselling services in order to open a business. Last year, in the crafts as well as industry and trade areas, there were about 110 thousands counselling sessions on how to establish the foundations of an enterprise and how to run it. The Institute for SMEs Research in Bonn announced for 2009 a 3% increase in business start-ups compared to 2008 (a total of 410,000 new businesses).

Many of these companies are not the result of a possible calling for business but rather a lack of alternative solutions. According to a report developed in 2009 by the German Ministry of Industry and Trade, 6 of 9 companies established in this area arose as an alternative to the bleak prospect of job loss or after entry into unemployment.

In Germany only 3.8% of active persons aged 18 to 64 are establishing or are owners of businesses, the German State occupying the second to last place in the group of the 18 most industrialized countries (the US ranks first, with 10.8%).

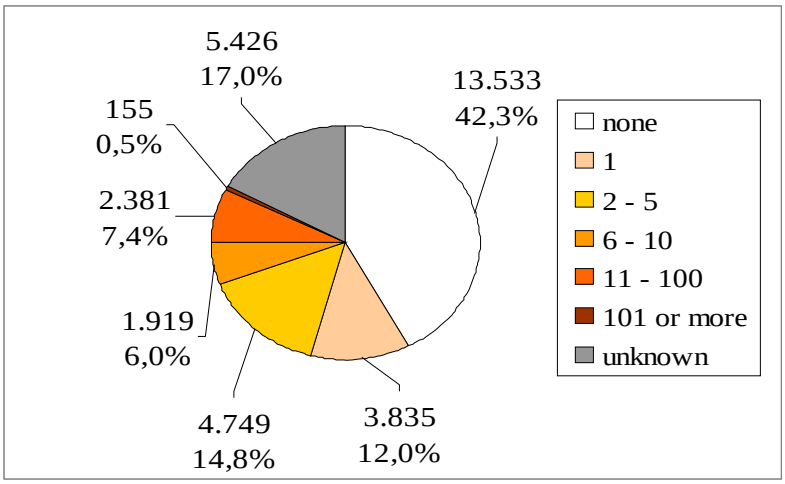
With regard to outsourcing, only 44% of businesses are left in the "hands of the family", but most are given to employees, external managers or are sold.

According to a statistic made by the Institute for SMEs Research in Bonn, the number of newly created SMEs increased in 2010 compared to 2009 by 3%, that is to say about 410 thousand businesses. Meanwhile, the number of market exits decreased by 3.6%, or about 397 thousand business.

The end result of the statistics reveals for 2009 a positive trend of business start-ups, but this positive trend should not divert attention from the fact that the recession in 2009 left traces in the economy of these small and medium-sized enterprises.

This fact is demonstrated also by the increased rate of enterprises that entered into default, SMEs accounting for a rather large share among them.

The number of businesses that defaulted in 2009 increased by 16% compared to the previous year, amounting to 34,000. According to statistics, three quarters of these companies which became insolvent had no more than 5 employees (Figure 5).



Source: The Institute for SMEs Research Bonn.(2)

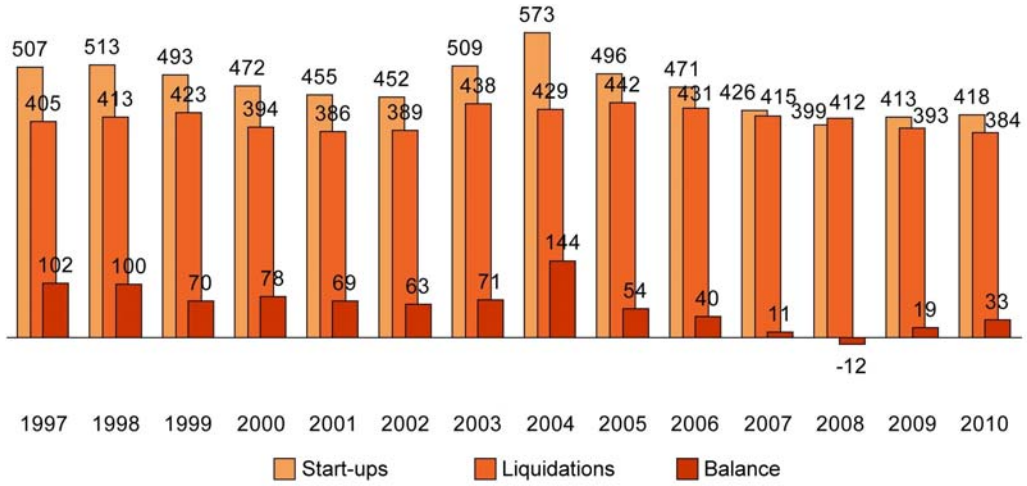
Figure 5. *Companies that defaulted, according to the number of employees*

Despite this crisis situation, small and medium-sized enterprises are those that contributed in 2009 and 2010 to support and develop the labour market. Another analysis realised by the Institute for SMEs Research in Germany shows that these firms, compared to large enterprises, have contributed greatly to the creation of new jobs.

This rate of establishing start-ups, typical for the period of crisis – "better on their own than unemployed" – was recorded also in 2009 but in smaller proportions, the number of enterprises increasing by only 0.2% or 10,000 enterprises.

To what extent SMEs affected the stabilization of the labour market in 2009 is attested by the number of employees, which remained relatively stable, the 90,000 cases of job loss representing only a modest percentage of -0.3%.

In 2010, the positive trend on the establishment of new SMEs continued. If in 2009 their number rose to 412,600, in 2010 it reached 417,600, an increase of 1.2% in comparison with the previous year. To note that, in the new Länder of Germany, the number of newly established companies is higher than the old ones. With regard to the liquidation of commercial companies, their number decreased by 2.3%, rising to 384,200 in 2010. Thus, the balance between set-ups and liquidation amounts to 33,400, representing an increase of 14,200 compared to 2009 (Figure 6).



Source: The Institute for SMEs Research Bonn.(2)

Figure 6. *Set-ups, liquidations, balance between 1997-2010, in thousands*

The percentage of foreigners who decide to set up an SME is becoming larger, while the number of women entrepreneurs in 2010 was decreasing.

Services areas were preferred by those who decided to set up an SME, and the legal form they preferred was in 80% of cases, the company with one employee.

Table 1

Set-ups, liquidations, default, 2010

	Total	Changes from 2009 - absolute -	Changes from 2009 - percentage -
Start-ups established in 2010	471,644	+ 5,045	+1.2
Liquidations 2010	384,220	-9,205	-2.3
Balance	33,425	+ 14,249	
Bankruptcy 2010 Insolvency rate	31,998 10,4%	-689	-2.1

Table 2

Evolution of the number of companies that have entered into default during the period 1991-2010

Year	Number of insolvencies Germany	Changes over the same period previous year - absolute -	Changes over same period previous year - percentage -
1991	8,837		
1992	10,920	2,083	16.1
1993	15,148	4,228	30.4
1994	18,837	3,689	15.9
1995	22,344	3,507	10.2
1996	25,530	3,186	9.7
1997	27,474	1,944	5.8
1998	27,828	354	-0.8
1999	26,476	-1,352	-6.7
2000	28,235	1,759	7.7
2001	32,278	4,043	19.9
2002	37,579	5,301	23.00
2003	39,320	1,741	11.1
2004	39,213	-107	1.5
2005	36,843	-2,370	-6.7
2006	34,137	-2,706	-3.6
2007	29,160	-4,977	-13.9
2008	29,291	133	1.2
2009	32,687	3,396	12.1
2010	31,998	-689	-0.8

Source: The Institute for SMEs Research Bonn.

3. Conclusions

Thus, one can see that, despite the fact that 2009 was a difficult year for most German businessmen, they are optimistic about 2011. There are several cases in which the crisis was actually a springboard for businessmen.

Although in early 2009 the demand decreased, entrepreneurs estimate that it will revive and the economic situation will become favourable.

The set-up of companies transmits pulses for: state's economic growth, raising the employment, technological development and structural foresees the tendency of businesses set-ups will consolidate.

Given the changes at the macroeconomic level, we can but note that SME owners' optimism is justified. Germany's economic situation as a whole has recovered from the crisis, proving that the country remains "the engine of the European economy".

Notes

(1) SME Annual Report is drafted by nine private sector organizations, from among craftsmen, commerce, gastronomy, freelancers and banking industry. The report contains information on the situation of the private sector and provides recommendation on fiscal policy, financial, social, educational and labour employment. The report addresses first of all policy makers, in order to convince them to promote an appropriate SMEs policy.

(2) Research Institute for SMEs in Bonn (IfM Bonn) was founded in 1957. The founders are the Federal Ministry of the Economy and Technology and Ministry for Economy, Energy, Housing and Transport of North Rhine Westphalia Länder. The Research Institute is dealing with SMEs development and with the problems they face. Also, among the themes addressed is the life cycle of small and medium-sized enterprises and their management.

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„SMEs in crisis. Changes to progress" (*Mittelstand in der Kriese. Umsteruern für den Aufschwung*) – study conducted by Commerzbank between 11.11.2009 - 15.01.2010 on a sample of 4,000 SMEs

*** Federal Ministry for Economics and Technology (www.bmwi.de)

*** Crisis Response Plan adopted by the Federal Republic of Germany (2008, 2009)

*** German Economy, 2011, Federal Office for Statistics, Germany

*** Research Institute for SMEs in Bonn (http://www.ifm-bonn.org)

*** Study developed by Commerzbank, *SMEs in crisis. Changes to progress* (https://www.unternehmerperspektiven.de/media/up/studien/8studie/studie_8_mittelstand_in_der_krise.pdf)

Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 149-154

Contributions to the Legislative Provisions Governing the Management of Waste Containing Asbestos in Romania and EU

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Abstract. *One of the most stringent worldwide environmental problems is represented, in this moment, of the waste management. Generate increasing amounts of waste creates problems, ultimately, to the state authorities, their management and recovery technologies becoming an important area of research. Recovery and recycling, whatever their nature, are one of the priority activities for the global economy.*

Keywords: waste; asbestos; polybest; polymers waste; management of waste containing asbestos.

JEL Code: Q57.
REL Codes: 15C, 15D.

Introduction

Identifying alternatives to landfill must be a priority of waste management systems in European countries, in the context of the new waste directive in which waste recycling operations are the main focus. In terms of waste containing asbestos, at the moment recycling is not permitted by law, the Government Decision no. 124/2003, updated, states that "in order to protect human health and the environment, starting from the 1st of January 2007, all commercial and use activities of asbestos and products containing asbestos are prohibited".

The purpose of the research was to scientifically study the issue of asbestos and products containing asbestos, namely to investigate whether the final product resulting from the encapsulation of asbestos waste polymer mass is neutral and stable and whether could be sold without bans. Given favourable results, obtaining polymer matrix composites and the reinforcement of cement grinding elements will also aim to reduce the disadvantages associated with toxic waste disposal and to obtain products with broad industrial application in maximum safety.

Management of waste containing asbestos in Romania

Romania has a significant amount of products and waste containing asbestos, due to the lack of applying any recycling technology (applicable rate of each is actually very low at a global scale, as well, many of the technologies remained an experimental phase).

On the other hand, most often treatment and recycling costs for this category of waste storage exceed those of a reason for reducing the application of those technologies. In the category of the waste that usually is eliminated through landfilling is WEEE polymers waste, the degree of recycling of which is extremely low.

Technologies of recycling and inertization waste containing asbestos

Starting from these premises, namely the need to align Romanian legislation and European regulations regarding the prevention, reduction and control of environmental pollution by asbestos, the author suggests learning to develop a technology of recycling of inert and cement form of polymer matrix composites, useful from a technical standpoint, a stable chemical composition and economically efficient (to withstand commercial competition with other products in the same category or with the same utility); the objectives are:

- reducing the toxic effect of asbestos waste by encapsulation in polymer mass;
- recovering waste from WEEE polymers and other plastic waste as a continuous phase of these composites;
- developing an economic component by replacing the asbestos waste and plastics in the economic cycle;

- contributing to the achievement of fundamental objectives of national waste management strategy that promotes the recovery, recycling and reuse, thereby respecting the basic principles of environmental ethics (reducing pollution by waste, preserving natural resources).

Proposals to modify the legislative provisions governing the management of waste containing asbestos

Following these investigations developed within a doctoral research, the author found that the Romanian legislation, which translates practically the European law, is subject to change.

The study of asbestos waste and polymer was carried out taking into account the current provisions of the law governing the management of asbestos containing waste, Directive no. 87/217/CCE respectively, on preventing and reducing environmental pollution caused by asbestos, transposed into Romanian legislation through Government Decision no. 124/2003, updated, which stipulates that "in order to protect human health and the environment, starting from 1st of January 2007, all commercial and use activities of asbestos and products containing asbestos are prohibited".

The main amendment that should be brought to this legislative document takes into account, according to the author, two operational issues.

The first operational aspect relates to the possible handling, breaking, grinding and shredding the historical products containing asbestos which, when operated, handled and processed without human presence (with robots and mechanized processing line) can be exempted from the provisions of current European Parliament legislation.

The manner in which the operating schemes related to the polybest production and asbestos inertization were conceived precisely in this way, thus eliminating the risk of exposure during the development process.

The second operational aspect relates to the inertization of the raw asbestos, potentially toxic, by its encapsulation in the polymer mass, aspect in which the onset of the process obtaining the composite material – asbestiform fraction is included in the category of hazardous substances, and the final product is inert and safe for human health, as demonstrated in this research tests, certified by the National Institute of Public Health determinations. In this case, asbestos waste must be handled in complete isolation.

Therefore, starting from these experimental results, European legislation could be improved for the purpose of allowing that, in isolation, chrysolite and ambifols could be neutralized by encapsulation in a polymer, and the resulting finished product could be considered:

- neutral;
- stable;
- commercialized without bans.

As a direct consequence of these amendments, encapsulated asbestos within a polymer mass can be economically reused, different products having, finally, the quality of final waste.

Accepting the idea that an economic project, valid in terms of cost-benefit analysis, may be inferior to alternative options, the author argues that in this case outweigh the environmental benefits and technology.

In project analysis the author has considered at least three alternatives:

- initial scenario or alternative of no action;
- alternative of doing the minimum;
- alternative of acting, alternative mostly considered by the author, the draft version of which is to follow a reasonable alternative, a project based on an innovative technological concept.

Finding alternatives to landfill of asbestos, which is currently the only sustainable option in terms of economic aspects, disposal must be a priority for European countries, especially since the central element of the new directive on waste management the recycling operation.

Thus, the author believes that the experimental results reported level regarding the harmlessness of the product obtained after the thermal inertization of asbocement or its embedment into polymer mass could be the starting point for discussions on European legislation that creates the flexibility of general management of waste containing asbestos.

Regarding the Romanian legislation in the field, one can say that the Government Decision no. 124/2003, updated, exceeds the provisions of European directive, introducing elements that ban completely the commercialization or use of asbestos or products containing asbestos, this legislative document being adopted during the transition periods, often described as exaggerated.

Therefore, since this paper has shown that asbestos can be successfully *inertized* by encapsulating it into a polymer mass or thermal treatment, the strict provisions of Government Decision no. 124/2003, updated, cannot be entirely valid.

The author is preparing a set of legislative proposals to determine, at last, the development of a new legislation document text, more flexible, that in conditions of maximum safety, will allow the use of asbestos-based products, if they are certified as inert.

The polybest production paves the way into reusing the products containing asbestos in domestic or industrial applications more complex than those hitherto thought. If the author of this paper considers for the moment recycling products such as snow breaks, exterior fencing blades and road poles, in the future the range of uses will be extended.

Therefore, a new regulation in the area is necessary, research results in this paper constituting, in the author’s opinion, an important base for the final legislative act.

Another legal area that needs to be changed is that of the incentives which the state could give to promote treatment and reuse of its dangerous products on the environment and human health. Taking the example of the successful Rabla program, it is safe to say that the economic benefits are a significant stimulus for the population in adopting some form of recycling.

The applicability of such a program for recycling waste containing asbestos should cover, in author's opinion, two aspects:

- economically stimulating the replacement of asbocement in the existing buildings;
- economically stimulating the companies specialized in recycling asbocement towards the adoption of inertization by encapsulation in a polymer mass or thermal treatment.

All of these, on the other hand, should be complemented by initiating a public awareness campaign on the dangers posed by asbestos containing material kept in buildings, homes and farms.

Another measure that would contribute to a more effective management of asbestos would be launching a line of funding under the Environment Fund Administration to stimulate the expansion of industrial scale recycling processes of waste containing asbestos, as the centralized data provided by authorized institutions (National Environmental Protection Agency) show that hazardous waste deposits in Romania do not have the capacity to receive all the asbocement reported to be on the market.

Even if the capacity to store the waste would be created, disposal sites could become future outbreaks of pollution/disease, while depriving large areas of land for any other use.

It is therefore necessary, as the author considers, a national study that certifies the estimated amount of asbocement in existing buildings, eliminating the time required to estimate this quantity in the market to assess the storage capacity that would be needed, as well as the ways of stimulating the waste collectors to speed up this process or at least maintain a steady and controllable set.

In addition, due to the fact that asbestos encapsulation generates, by using two types of waste, new material, potentially important participant in the supply chain component of the manufacturing industry, given the existence of significant amounts of domestic raw materials, the author considers necessary developing a national capacity building program for processing asbestos waste.

The removal of materials containing asbestos from buildings, housing and households needs the development of a national strategy that should include a set of measures to be met in order to ensure these objectives.

The program associated to the strategy must identify and reflect the measures and actions to be implemented in a certain period, and their supports mechanisms. The program must be developed in conjunction with the main acts mentioned above, so that the state provides support.

The long-term overall objective of the program is to identify the most appropriate measures and actions to ensure the removal of asbestos from the environment, its reintroduction into use and development of industrial-scale technologies to inertize asbestos, the environmental and human health protection being the main corollary.

The specific objectives on short and mid-term, which will contribute to the goal of this program, are considering the increasing of share of asbestos waste and polymer processing industry, the growth of the industry's total production, product and "ecologic pure" technology promotion, energy saving, increased use of local resources, strengthening market mechanisms for resource allocation, reducing the share of materials and raw materials used (plastic and metal), the creation of attractive conditions for foreign and domestic investment in production facilities that process asbestos development of an effective base of local raw materials, etc.

Conclusions

Starting from the fact that Council Directive no. 87/217/EEC (on preventing and reducing environmental pollution with asbestos) was issued on 19th of March 1987, taking into account the elements relating to trends in leading to this regulators framework, the author considers that the timeframe (the maximum number for which predictions are made) is easily exceeded.

The Council Directive no. 87/217/EEC exceptions (e.g. Article 4, paragraph 2) show that each Member State may require application for particular provisions of those involving their conditions of manifestation with compliance framework.

Taking into account Article 9 of the Directive (in order to protect the human health and the environment, a member state may introduce more stringent dispositions than those of this Directive in accordance with the terms of the Treaty), as a consequence, a member state may introduce dispositions that take account of both European legislation and national interest.

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Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 155-172

Tourism Competitiveness Index – An Empirical Analysis Romania vs. Bulgaria

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Abstract. *In the conditions of the current economic downturn, many specialists consider tourism as one of the sectors with the greatest potential to provide worldwide economic growth and development. A growing tourism sector can contribute effectively to employment, increase national income, and can also make a decisive mark on the balance of payments. Thus, tourism can be an important driving force for growth and prosperity, especially in emerging economies, being a key element in reducing poverty and regional disparities. Despite its contribution to economic growth, tourism sector development can be undermined by a series of economic and legislative barriers that can affect the competitiveness of this sector. In this context, the World Economic Forum proposes, via the Tourism Competitiveness Index (TCI), in addition to a methodology to identify key factors that contribute to increasing tourism competitiveness, tools for analysis and evaluation of these factors.*

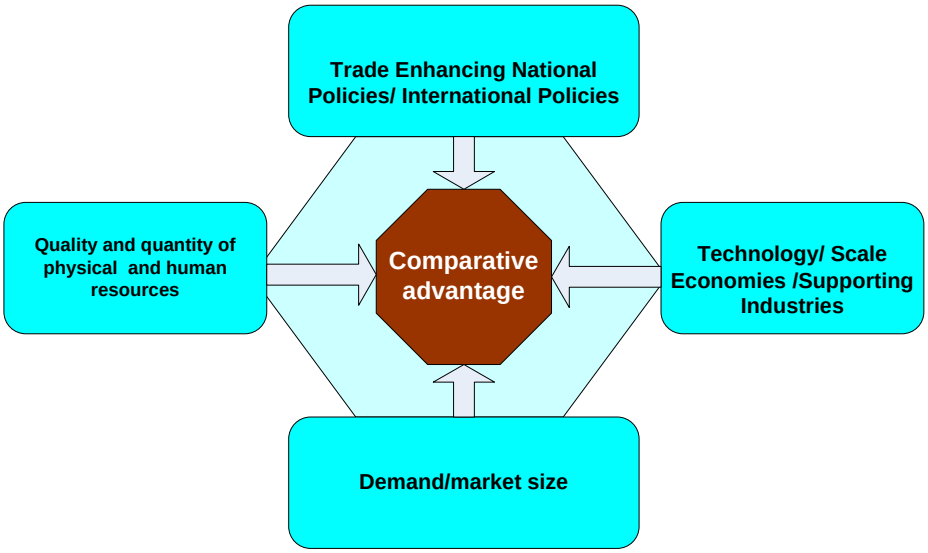
In this context, this paper aims to analyze the underlying determinants of TCI from the perspective of two directly competing states, Romania and Bulgaria in order to highlight the effects of communication on the competitiveness of the tourism sector. The purpose of this analysis is to provide some answers, especially in terms of communication strategies, which may explain the completely different performances of the two national economies in the tourism sector.

Keywords: tourism; competitiveness; empirical analysis; communication strategies.

JEL Code: M21.
REL Codes: 14F, 14K.

1. Some considerations on the significance of the concept of competitiveness

In the context that global economy means fierce competition at international market level, obtaining economic benefits is a prerequisite for economic development. Under these conditions, any social, cultural, economic, institutional, legal differences can become crucial elements in gaining an economic advantage over competing states. Given the complexity of how the economic advantage manifests itself, theories formulated over the whole history of economic thinking have paid particular attention to the notion of economic advantage. In fact, the term economic advantage has mainly developed in theories dedicated to international trade. A brief retrospective in economics shows that the identification of elements that generate economic benefit was one of the major concerns of economists and the theories they elaborated. Thus, the one considered by many as the father of economics as a science, Adam Smith, showed how specialization and division of labor contributes to increased productivity and to achieving economic advantage in international relations. In Adam Smith's (1962) vision, superiority in terms of technology and absolute quality, measured as production costs, represents a primary generator of economic advantage. Adam Smith's vision was adopted and refined by David Ricardo (2002) who, in his famous theory of international trade, shows how a country can gain comparative economic advantages through lower relative production costs than those of its competitors. Both economic theories, although with different implications for international trade, emphasize the same idea: technical superiority is the main factor in generating economic advantage, and this superiority can be achieved through effective investment in capital and infrastructure. Perhaps, the country that learned this lesson best was nineteenth-century England, which demonstrated in that period its economic supremacy among European countries. The factors determining the gain of relative economic advantages are mainly located at four different levels: 1) input of material and human resources, 2) their effective combination through technology, 3) economic policy and legal framework, 4) existent market conditions.



Source: The author's adaptation of S.D Gupta's Comparative Advantage and Competitve Advantage: An Economics Perspective and Synthesis.

Figure 1. *Determinants of national competitive advantages*

On the other hand, starting with the twentieth century, the failure of some countries to achieve significant growth, despite large investments in capital infrastructure, ultimately led to a paradigm shift in the perception of how to obtain economic advantages. By referring strictly to goods production and sale conditions and to services, one is no longer able to accurately describe the complexity of economic advantages. In this context, economic theories have focused on additional factors that are able to provide an economic advantage in the new market conditions. Among these factors, the following can be mentioned:

- human capital;
- technical progress;
- macroeconomic stability;
- corporate governance;
- legislation;
- transparent and efficient functioning of institutions;
- lack of corruption;
- market orientation;
- modernization of firms;
- demand conditions;
- market size, etc.

Beginning with this moment, the absolute or relative economic advantage has turned into a competitive advantage resulting from the combination of a series of effective factors listed above. From this perspective, economic theory has proposed at least two distinct approaches to competitive advantage (Kirsty, 1993, p. 5).

- an approach rooted in the traditionalist view which sustains that competitive economic advantage is generated by the relative, static or dynamic efficiency of a national economy. Simply put, this type of competitive advantage can be evaluated based on performance levels reflected by economic indexes (level of productivity, increase of competitiveness, etc.);
- a second approach, more specific to globalization, describes competitiveness as the reflection of performance in international trade (performance measured as market shares in export markets, or as a degree of import penetration).

Furthermore, since the second half of the last century the economic advantage was embedded within a broader term, competitiveness, which is able to define with greater accuracy phenomena specific to globalization. This new vision offered a boost of significance for this term. Due to its complexity, the term competitiveness can not be defined in only one way, because a unique definition is not able to sum up all the meanings of the concept. With the transformation of economics into an interdisciplinary science, the German sociologist Max Weber (2003) analyzed the relationship between culture and economic development and demonstrated that a factor with significant impact on the competitiveness of countries is the value system of a community. The factors contained within the value system that can influence competitiveness are:

- Inclination towards arduous (hard) work – individuals tend to commit fully to basic national objectives and are able to work hard to meet those objectives (Japanese or Korean type Asian cultures).
- Tendency to live in abundance – although individuals work more than before, they pay increasing attention to boosting their incomes (cultures from Southeast Asia).
- The desire for social participation – individuals may be less interested in hard work and can be particularly involved in shaping the society they belong to.
- Ability of self-satisfaction – individuals pay greater interest and importance to the evolution of their private life, rather than to changes in their society or community (Western cultures).

Appealing to Weberian analysis, in terms of a value system, three different types of behaviors can be defined, which summarize the basic values and the

institutions that serve them: the South-European, North European and the Anglo-Saxon model.

The social and economic analysis proposed by Max Weber has acquired a special significance because of its ability to be put into practice. Thus, using the analysis of cultural-competitive relations a decalogue has been established, containing rules for obtaining and maintaining a country's competitiveness(1):

- Creating a stable and predictable regulatory environment;
- Construction of a flexible and adaptable economic structure;
- Massive investments in both traditional infrastructure and IT infrastructure;
- Stimulation of private accumulation and domestic investment;
- The development of aggression in international markets and ensuring domestic attractiveness for foreign direct investment;
- Directing attention to quality, speed and transparency of government and administrative policies
- Maintaining (healthy) economic correlations between wages, work productivity and taxation;
- Preservation of a modern social structure, by reducing pay gap and consolidating the middle class;
- Massive investments in education, especially undergraduate and postgraduate education, as well as continuous training of the workforce and of the population, in general;
- Striking a balance between the economy of proximity and globalization to ensure the creation of a substantial level of wealth and accumulation, while preserving an appropriate value system agreed by the citizens (Garelli, 2008, p. 34).

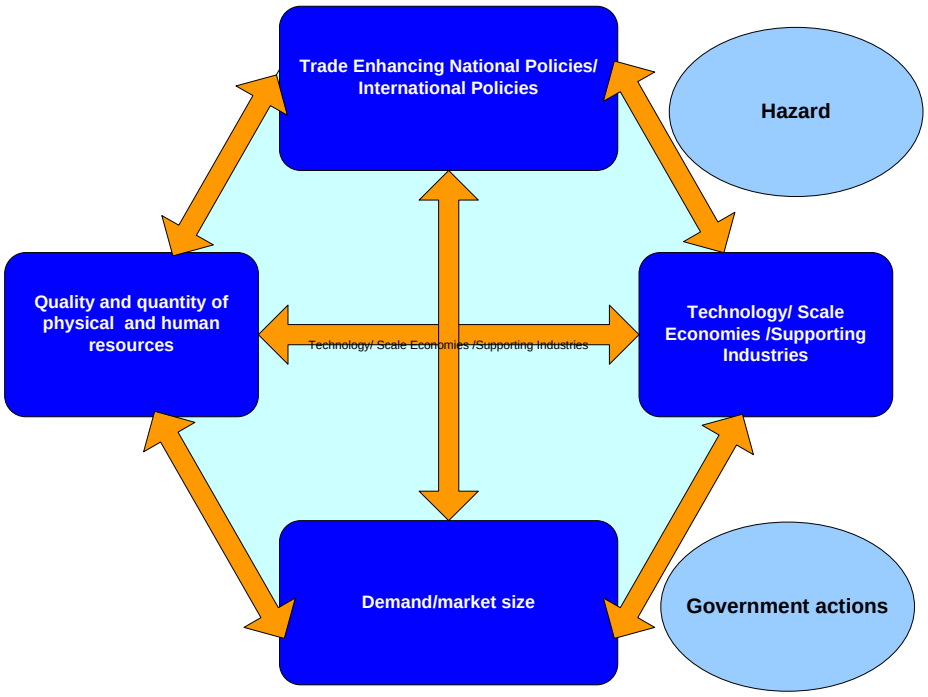
Paul Krugman, the American economist, Nobel laureate for economics, warned that the term competitiveness needs to be treated differently depending on the scope: micro level – the company or macro level – the economy of a country. He states that, in essence, competition between countries is not similar to competition between companies (Myant, 1999, p. 5), and competitiveness is by far no zero-sum game, as traditional economic theory views it. World countries can benefit from the economic growth of other nations by means of a chain reaction: a growth in one part of the world causes the emergence of new markets and the formation of supply sources for the latter. Thus, unlike the traditional mercantile vision, to be competitive does not mean to cause disadvantages to trading partners, but to grow and fully utilize own advantages. In addition, it must be pointed out that no nation can be competitive in all types of economic activities, thus emphasizing the dynamic character of competitiveness. A variety of strategies in different areas can influence competitiveness and there are lots of opinions regarding the relative importance of each factor for economic competitiveness.

A vision similar to that of Krugman belongs to Mark McCord who defines competitiveness as "creation of wealth". Analyzing the factors determining the competitiveness of different countries around the globe, he goes to say that "creation of wealth and therefore competitiveness focus on the use of human, financial and educational resources to ensure and maintain a strong foundation on which economy can flourish"[(2)]. In other words, a resource-rich country can not be automatically considered competitive. A competitive country creates its wealth through work, talent and organization and thus comes to have a productive and creative potential which makes it independent of material resources. This assertion is supported by the example of the most competitive countries in the world. All these countries are constantly creating wealth, not only in terms of financial gains for their citizens, but also in terms of social, educational and political infrastructure. When this occurs, it sets off a cycle of wealth that leads to an upward spiral of competitiveness. Without the generation of wealth and its decentralization to the whole society, a downward spiral emerges, and the consequences are that uncompetitive countries become even less capable to compete in the global market. So, behind competitiveness lies a simple truth: competitiveness is more than just being rich, it is a systematic process of creating wealth.

On the other hand, the author neglects external influence, cultural and technological heritage as well as the competitive environment and the evolving competition in that state. Under these conditions, for political reasons, a series of scenarios opposite the theoretical model such as artificial lowering of competitiveness and alignment to a certain standard system (e.g.: former CMEA countries) or the development of industries in some countries without a tradition in that respective industry cannot be ignored.

In one of his fundamental works, “Competitive Advantage of Nations”, Michael Porter (1982) summarizes a model able to explain how national economies affect the ability of companies to identify and maintain competitive advantage in international markets. In this context, Porter's model identifies determinants of competitiveness, based on the existence of four categories of items, which form the already famous “Porter’s diamond”:

1) *Factor conditions*: human resources, natural resources, technical, market, capital and infrastructure know-how.
2) *Demand conditions*, respectively the level and structure of the demand, its degree of complexity, the ability to formulate needs anticipatively.
3) *Related and supporting industries,* through their level of development and competitiveness
4) *Firm strategy, structure and rivalry*.



Source: Porter M., *The Competitive Advantage of Nations,* The Free Press, A Division of MacMillan Inc., New York, 1990, p. 72.

Figure 2. *Determinants of national competitive advantages*

M. Porter stated that firms succeed "where the national diamonds is most favourable" (1990, p. 72) because global competitiveness factors define the context in which firms emerge and compete both separately, but especially in a synergistic manner. In the previous figure it can be observed that the diamond pattern is a composite matrix. At the four corners of the system are added, in specific circumstances, hazard and government actions.

The situation of the national economy is revealed by analyzing the determinants that indicate the position of countries in terms of production factors needed to compete in a particular industry. Unlike traditional theories of classical and neoclassical origin, which gave the most importance to the endowment with natural production factors, modern economic theory shows that the main determinant of competitive advantage for a country to be competitive is the creation and innovation of new factors or the improving of existing ones. The international competitiveness of a national economy depends crucially on the strategy, the structure of firms and the promotion of competition, the way these firms are organized and managed, the objectives and the strategies applied.

Competitive advantages may arise from differences between present countries at training, objective, working style and manager approach level and from the manner of how these differences are capitalized by coordinating business objectives with stakeholders (owners, shareholders, employees, managers, etc.). An important role in this regard is played by the legal framework which, through its regulations, may encourage the existence of a competitive market at home. Competition between companies proves, most of the times, to be more beneficial than cooperation strategies.

In Porter's view, the achievement of competitive advantages is influenced by the natural and existing international climate. Within these, there are elements such as natural endowment with production factors and the geographical position that a country possesses, but also elements pertaining to the evolution of the international climate which can not be influenced by the respective state (changes in international prices, international market developments, political and social events, technological changes, etc.). On the other hand, there are a number of factors which can be influenced by government action. Public investment, government procurement, subsidies, the legal framework of a domestic market, rules and standards of consumption are all ways to generate competitive advantages. Given the nature of political decision, the global approach to the system of competitive conditions through a coherent government action to improve the country's competitive advantages is very important.

2. Tourism competitiveness index – meaning and method of calculation

From a methodological point of view, TCI aims to evaluate the elements that ensure the development of the tourism sector in different countries through three categories of variables that affect global tourism competitiveness. These categories are assessed through three sub-indexes subordinate to TCI:

1) policy rules and regulations affecting the tourism sector. Elements evaluated in this sub-index refer to those aspects that depend directly or indirectly on the political climate and the country-specific institutional environment;
2) business environment and infrastructure;
3) natural, cultural and human resources involved in tourism activities.

Each of these sub-indexes consists of a number of pillars that define the essential elements in the analysis of tourism competitiveness. These elements are: policy rules and regulations, environmental sustainability, safety and security, health and hygiene, prioritization of travel and tourism, air transport infrastructure, ground transport infrastructure, tourism infrastructure, ICT infrastructure; price competitiveness in the T&T industry, human resources,

affinity for travel and tourism, natural and cultural resources. To these a final component, which became increasingly important in recent years, is added - climate change. Each of these pillars is in turn composed of a number of individual variables. The data set used to estimate these pillars include the data from annual surveys conducted by the World Economic Forum, quantitative data obtained from publicly available sources, from international organizations and institutions and experts in tourism. Also, a statistical survey is conducted among senior executives and business leaders who make decisions in this area. In addition, the TCI methodology is not limited to awarding scores and points to the tourism sector in various countries, but its aim is to create a common framework to allow comparison between performances in this field.

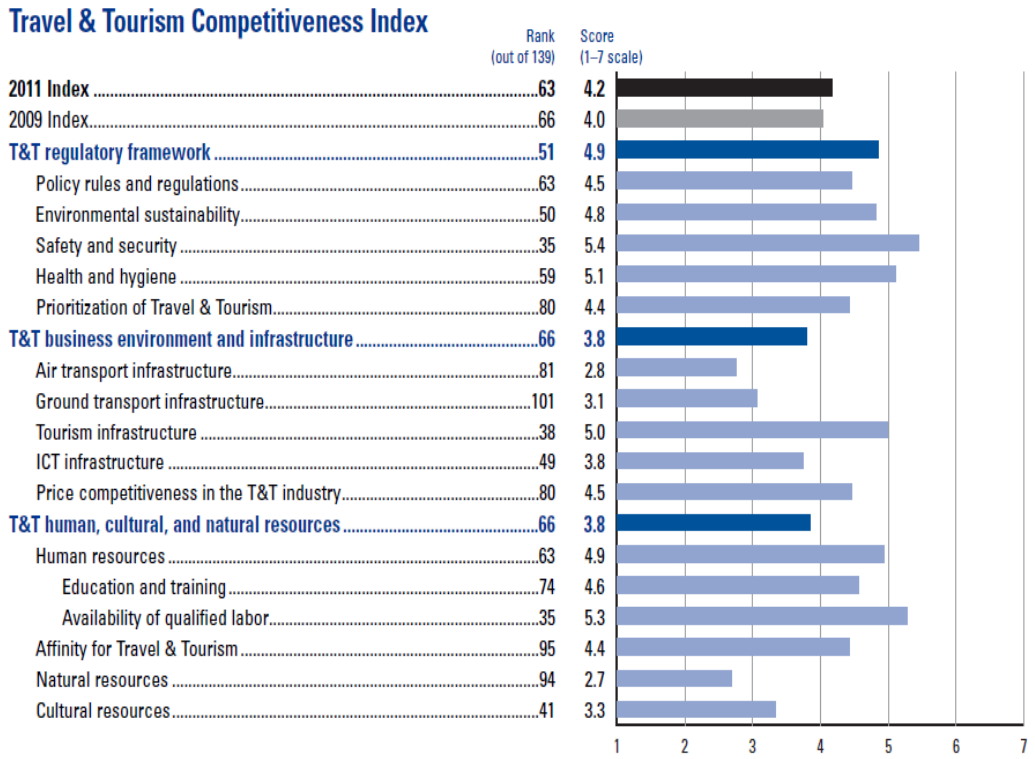
Source: Blanke, J., Chiesa, Th. (eds.), *The travel and tourism competitiveness report 2011,* World Economic Forum, 2010, p. 5.

Figure 3. *TCI components*

Taking into account TCI components, one can note that at least a great part of them can not be measured directly by means of standardized statistical indicators, instead they are determined based on surveys carried out either among specialists or among customers. Thus, TCI is largely the result of perceptions formed regarding the performance of tourist regions or countries, and these perceptions are influenced by the messages transmitted through communication. In this context, TCI not only shows the competitiveness of tourism in the strict sense, but also the effects of communication processes and message transmission techniques on specific tourism activities.

First, it should be noted that it is sufficient only a brief look at TCI 2011 to observe the rule of advanced economies in higher ranking positions. This is, in fact, as natural as can be since most of the elements that make up TCI depend directly and immediately on the degree of development of the national economy, and developed economies benefit from a considerable advantage in terms of investments in economy in general and in tourism in particular. On the other hand, emerging economies began to recover ground compared with the years prior to the economic crisis and to perform increasingly more in the TCI ranking. An analysis of TCI structure shows that while countries with advanced economies are more efficient in terms of legal, business and human resources they clearly lagging behind emerging countries in terms of competitive prices. So, one of the safest ways to enhance the competitiveness of the international tourism market consists of obtaining a better value for money than the competition. Furthermore, the quality-price ratio must be reported on the market through promotion and communication strategies to ensure transmission of cues and signals to a wider and more diversified audience.

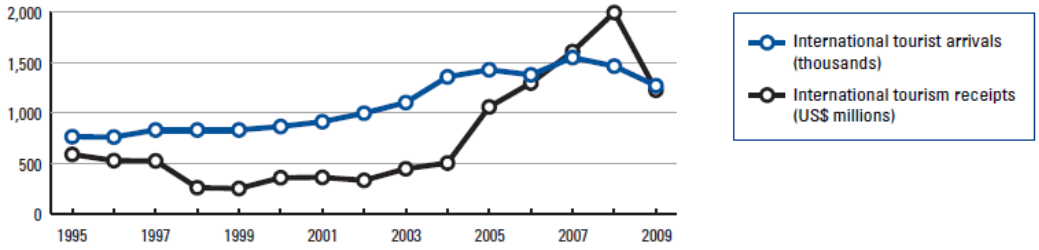
In the ranking based on TCI, Romania occupies, in 2011, the 63rd position out of 139 countries, a step forward from the previous ranking, made in 2009, when Romania occupied the 66th spot. Switzerland ranks first and the last is Chad. Romania obtained the best score on the safety and security pillar, 5.1 out of 7 possible points, the score was slightly higher than that of the top country.



Source: Author's adaptations of Blanke, J., Chiesa, Th. (eds.), *The travel and tourism competitiviness report 2011,* World Economic Forum, 2010, p. 318.

Figure 4. *Romania's tourism competitiveness index*

At EU level, tourism plays an important role especially among SMEs, and its contribution to the economy varies strongly between different parts of Europe. In rural areas at a considerable distance from urban areas, tourism is often the main source of income for the area and the main employment sector that can ensure adequate labor. This phenomenon is visible especially in island countries of Europe, coastal regions (especially in southern Europe) and alpine regions. The dynamic of the tourism sector confirms that Central and Eastern European states are a viable source for the revival of European tourism. Statistics show that Europe has the most popular tourist destinations, being the most visited region in the world. Cultural resources and natural wealth, the quality of the infrastructure, and the variety of geographical areas represent probably some of the reasons why Europe holds this position. Meanwhile, EU enlargement has significantly improved the region's tourist potential by increasing cultural variety and by introducing new tourist destinations.



Source: Author's adaptations of Blanke, J., Chiesa, Th. (eds.), *The travel and tourism competitiviness report 2011,* World Economic Forum, 2010, p. 318.

Figure 5 *Foreign turists in Romania*

The economic crisis has significantly affected the tourism sector, this being reflected both as a decrease in the number of foreign tourists and revenues obtained from them by a country and the transformation of international tourism into a national form of tourism. The second phenomenon directly and significantly affected Romanian tourism, when the number of holidays spent by residents in 2010 decreased by 11.1%(3) compared to 2010, especially given that the percentage of foreign tourists from the total number of tourists stood, in the year 2010, at only 15.4%.(4) After two consecutive years of contraction, the European tourism sector began to show signs of recovery beginning with 2010 when, the percentage of nights spent in hotels has increased by 2.8% compared to 2009(5). However, this was not valid for Romania, which continued the negative trend, recording in 2010 a decrease of 8.7% of nights spent in hotels compared to 2009.

In the context of European tourism, Romania ranks 34 out of 42 positions, one of its direct competitors, Bulgaria ranking seven positions above, on the 27th spot. Moreover, European countries occupy good positions in the world's TCI, although the majority of them were seriously affected by the economic crisis, and both investment and tourism revenue in the sector experienced a significant decline (Ringbeck, Pietsch, 2009, pp. 32-42).

Also, an analysis of the impact of the economic crisis in 2007-2009 shows that the most important tourist destinations in Europe such as Spain, France, Italy, Germany, Greece and Ireland were at the epicenter of the crisis, one of the few beneficiaries from the crisis, from the European area, being Bulgaria. In 2009-2011, Romania was able to climb three positions in TCI, which may, among other things, represent proof of increased communication effectiveness in tourism.

Table 1

Romania's ranking compared with regional competitors

Ranking	Country	TCI			Policy rules and regulations		Business environment and infrastructure		Natural, cultural and human resources	
		Ranking in Europe	Global ranking	Score obtained	Global ranking	Score obtained	Global ranking	Score obtained	Global ranking	Score obtained
1	Czech Republic	22	31	4.77	26	5.26	37	4.56	31	4.48
2	Slovenia	22	33	4.64	29	5.19	33	4.7	53	4.03
3	Croatia	24	34	4.61	42	5.02	36	4.58	43	4.23
4	Montenegro	25	36	4.56	32	5.15	49	4.15	36	4.38
5	Hungary	26	38	4.54	24	4.29	45	4.28	48	4.06
6	Bulgaria	27	48	4.39	54	4.79	44	4.32	51	4.05
7	Poland	28	49	4.38	49	4.86	65	3.81	30	4.48
8	Slovakia	31	54	4.35	39	5.05	57	3.96	52	4.04
9	Romania	34	63	4.17	51	4.85	66	3.8	66	3.84
10	Serbia	38	82	3.85	67	4.57	84	3.39	94	3.6
11	Ukraine	39	85	3.83	64	4.63	76	3.53	118	3.33
12	Moldova	42	99	3.6	68	4.57	98	3.11	129	3.12

Source: Author's adaptations of Blanke, J., Chiesa, Th. (eds.), *The travel and tourism competitiviness report 2011,* World Economic Forum, 2010, p. 12.

In terms of its direct competitors, neighboring countries or countries belonging to the same region, we can see that Romania is in a relatively unfavorable position as it is clearly surpassed by its western neighbor, Hungary, as well as by its direct competitor in all tourism markets, Bulgaria. The result is especially interesting as it can be noted that some countries ahead of Romania (the Czech Republic, Hungary, Poland, Slovakia) can not benefit, for example, from the opportunities offered by a coastline that can be used for tourism**.**

3. Empirical analysis of key factors influencing TCI from an institutional climate and sustainable development perspective – Romania vs. Bulgaria

The political climate and the existing institutional environment have a decisive effect on the attractiveness of a particular region or country as a tourist destination. In general, tourists are very sensitive to the messages sent in connection with the existing safety and security framework and any related negative information, which can be more or less true, can create a negative halo effect as well as a ripple effect among the audience. Egypt's case is a good example that shows the role played by the perception of policy rules and regulations on the perception of tourists. Since the 2000s, taking advantage of the natural and cultural resources it possesses, Egypt's economy focused on tourism, becoming one of the most attractive tourist destinations with a total of

12.5 million foreign visitors and a revenue of 10.8 billion dollars, about 11% of GDP derived from tourism activities. This favorable situation has changed almost overnight with the outbreak in the winter of 2011 of the Cairo protests which required not only the repatriation of foreign tourists who were visiting Egypt at the time, but also the significant reduction of the number of potential tourists who wanted to travel to Egypt(6).

In terms of the overall image from a legal framework perspective, Romania is generally perceived as a country that, although faced with high levels of bureaucracy and legislative instability, provides sufficient conditions to be considered as a destination which does not involve major security risks. In addition, at least in declarations, Romania, as EU member, is determined to align its legislation, including the field of tourism to European rules, directives and regulations**.**

1. *Policy rules and regulations*

Within this pillar, the goal for research is to capture the extent the political environment contributes or is willing to help develop the tourism sector of each country. Governments, by creating and implementing their own policies can have an impact on the attractiveness of this emerging sector, either by providing support to the sector or by hindering its development. Sometimes even well-meant government policies can produce an effect opposite to that intended. Within this pillar, the following must be taken into account: the extent to which local government allows the protection and transfer of property rights to foreigners and the way foreign direct investments are handled (FDI); the time and costs necessary to start a business, the extent to which the free movement of visitors is allowed; the openness to bilateral air services; the assumed commitments regarding the opening of tourism and travel services within international trade.

Table 2

Policy rules and regulations - Comparative analysis Romania-Bulgaria

No.	Policy rules and regulations index	TCI ranking	
		Romania	Bulgaria
1	Prevalence of foreign owners	68	102
2	Property rights	79	121
3	The impact of legislation on FDI	90	126
4	Visa conditions	42	42
5	Bilateral air service agreements	85	102
6	Transparency of government decision	137	130
7	Time required to start a business	40	71
8	Costs required to start a business	30	19
9	GATS type agreements	51	85

Source: Author's adaptations of Blanke, J., Chiesa, Th. (eds.), *The travel and tourism competitiviness report 2011,* World Economic Forum, 2010, p. 145, 319.

As mentioned above, Romania and Bulgaria have a relatively good image in terms of legal framework due, especially, to their position as members of the European Union. According to WEF, Romania is above Bulgaria in six of the chapters specific to the "specific laws and rules" pillar, being surpassed only in two of the nine chapters. It should be noted that Romania has managed to gain a better image than its direct competitor as regards the legal framework of business, and is, apparently, a more attractive destination for FDI, including in the tourism sector. On the other hand, the opacity of government decisions as well as transaction costs necessary to start a business affect the image of Romania compared to that of Bulgaria.

The image a country manages to create regarding its legislative framework in the field of business is reflected in the "Doing Business" annual report published by the World Bank, which has reached the 2011 edition. According to this paper, Romania is ranked 56 (down two places from 2010), while Bulgaria is situated five positions above on the 51st place (similar to previous year) (7). In terms of legislation regarding property, the report notes that both Romania and Bulgaria have introduced simplified procedures for registering property rights, the term is less than six days in both countries(8). Romania has made some efforts to facilitate access to credit and thus to encourage private investment in the tourism sector by accepting credit guarantees of various forms, managing a common database regarding the frequency of bank loan default situations and reduction of fees and costs of accessing credit(9). Romania has also aligned to the international legal framework ensuring greater security of financial transactions in order to protect property rights more effectively. Unfortunately, these measures, although favourable for investments in tourism, have not been promoted enough to be known by the general audience. Meanwhile, Bulgaria has encouraged the emergence of new business by reducing the minimum capital limit from 5,000 leva (3,250 euro) to 2 leva (1.30 euro) (10) and the World Bank analysis shows that this country ranks among the first (ie 7th) as a means to facilitate access to credit(11). Concerning the legal system, Bulgaria also stands out thanks to the speed with which a business can be started, there are four procedures to be completed, and the average number of days necessary to meet legal requirements for starting a business is 18 days(12).

Aside from the time required to start a business, Romania, especially as a result of the crisis, was forced, along with sixteen other states, to significantly review the legal status of insolvency, in order to allow quicker exit from business of firms facing a delicate economic situation(13). Rethinking the status of insolvency not only permitted a faster statement, from a legal point of view, of bankruptcy but also the issuance of more flexible procedures to allow reorganization of firms in crisis in order to continue their business activity.

2. *Environmental sustainability*

Today no one denies that the relationship between tourism and environment has special significance, the protection and conservation of the environment representing, probably, the essential condition for the progress and development of

tourism. This relationship is complex and ambivalent: on the one hand, the natural environment through its components provides the basic resource of the tourism sector, and, on the other hand, tourism exerts both a positive and negative influence on the ecological environment, by altering its components. Research in tourism focuses ever more on issues of sustainable development and the concept of sustainable tourism became part of the current research vocabulary. In this context, "sustainable tourism develops the idea of satisfying the needs of present tourists and of the tourism industry, while protecting the environment and future opportunities". It is envisaged to meet all economic, social, aesthetic needs of tourism "actors" while maintaining cultural integrity, environmental, biological diversity and all the systems that support life."[(14)]

Although there is an almost general opinion, according to which the natural environment, through the attractive tourism destinations it offers, represents an essential element of tourism development and it is becoming increasingly clear that policies and factors regarding the improvement of environmental sustainability are crucial as to how a country can ensure that it will continue to be an attractive destination in the future. Thus, relating to the pillar of environmental sustainability the harshness of government regulations regarding the environment of each country as well as the extent to which they are actually implemented and respected must be evaluated. Given the impact that tourism can have on the environment, it should take into account the extent to which governments establish a high priority for the sustainable development of tourism. In addition to political issues, this pillar refers to items about how carbon emissions affect the environment and the state of the country's plants and wildlife**.**

Table 3

Environmental sustainability - Comparative analysis Romania-Bulgaria

No.	Environmental sustainability index	TCI ranking	
		Romania	Bulgaria
1	Strictness of environmental regulations	71	125
2	Application of environmental protection regulations	88	118
3	Sustainability of developing the tourism sector	118	123
4	CO2 emissions	74	92
5	Concentration of harmful particles	7	99
6	Threatened species	61	58
7	Ratification of environmental protection treaties	30	13

Source: Author's adaptations of Blanke, J., Chiesa, Th. (eds.), *The travel and tourism competitiviness report 2011,* World Economic Forum, 2010, pp. 145, 319.

According to the WEF report, Romania has managed to create a better image than Bulgaria within the environmental sustainability pillar, achieving better scores in five of the seven indexes calculated by the WEF in this chapter. It seems that Romania has managed to ensure greater sustainability of tourism development and, at the same time, to benefit from better environmental conditions, which are

more strictly protected than in Bulgaria. At the same time, Romania has ground to make up compared to Bulgaria in terms of protecting endangered species and the involvement in international treaties on the environment.

In Romania, the strategies proposed and promoted through various communication campaigns want to place sustainable tourism on the path of the following fundamental principles:

- The environment itself has intrinsic and irreproducible value, which is particularly important for tourism activities. This value should not be altered because it should benefit future generations;
- Sustainable development of tourism requires a balance between the demands of tourists and the type of destination;
- Tourist activities must bring benefits not only to tourists and to the local community, but also to the environment;
- The tourism – environment union must be maintained in two directions so that, firstly, tourism activity receives long-term support from environmental opportunities and in turn tourism must not cause environmental degradation;
- The development of the tourism sector should be carried out in accordance with specific environmental, social, cultural and economic planning of the territory where it takes place.

Specifically, these strategies can be implemented through tourism activities that avoid or, at worst, limit the damage to the geographical region caused by the tourist attraction site, the logistics and building architecture. All tourism activities are carried out in compliance with environmental regulations and the impact of tourism on the environment is assessed objectively.

4. Conclusions

The analysis carried out in the previously presented case study, although short, is able to provide some answers about the reasons for low competitiveness between Romania and Bulgaria. First of all, it is observed that, while making serious efforts to improve the institutional environment to encourage investment in tourism, Romania did not have a well put together strategy for reporting these opportunities. In this context, Romania could not effectively take advantage of the favorable geographical position, of the natural and cultural resources and of the high quality human capital. Secondly, although tourism development strategies take into account, at least at declaratory level, the fundamental principles of sustainable growth, these principles are not only implemented, but they are not even transmitted to the target audience by diverse communication methods and techniques. For this reason, the Romanian audience, both as provider and beneficiary of tourism services is not educated in terms of environmental protection and sustainable development. Thirdly, the economic crisis has given a new impetus to Bulgaria which proved, once again, to be more determined to

capitalize on its competitive advantages available to the international tourism market. In this context, Bulgaria, unlike Romania, is an example of good practice in the adoption of sustainable strategies and their efficient communication.

Notes

(1) Cf. IMD, World Competitiveness Yearbook, 2003.
(2) See McCord, M., *Creaţi bogăţie, creaţi competitivitate(Create wealth, create competitiveness),*www.ciperomania.org/old_archive/articles/articol9.html.
(3) EUROSTAT, Slow recovery of the tourist accommodation sector in 2010, p. 9.
(4) EUROSTAT, Summer season tourism trends in 2010, p. 2.
(5) EUROSTAT, Slow recovery of the tourist accommodation sector in 2010, p. 1.
(15) Ringbeck, J., Pietsch, T., *Crisis Aftermath: Pathways to a More Resilient Travel and Tourism Sector* in WEF, pp. 35-42, pg. 39
(6) Two of the biggest European tour operators, Thomas Cook and TUI Travel have estimated losses of 20 million pounds and 25 million pounds respectively as a result of the political crises from Egypt and Tunisia. (see Stevenson, A., Egyptian tourism: the cost of crisis, FT.com, February 8th 2011).
(7) Doing Business in 2011, p. 12.
(8) Doing Business in 2011, p. 36.
(9) Doing Business in 2011, p. 44.
(10) Doing Business in 2011, p. 19, 135.
(11) Doing Business in 2011, p. 39.
(12) Doing Business in 2011, p. 152.
(13) Doing Business in 2011, p. 10.
(14) World Tourism in 2010, p. 24.

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Theoretical and Applied Economics
Volume XVIII (2011), No. 9(562), pp. 173-180

Socio-economic Models During the Period of Crisis

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Abstract. *The article analyses the state involving importance in finding the solutions for getting over the present economic crisis through responsibility, the labor relations and the affairs environment regulation and the income redistribution. Into this work, are analyzed the 4 socio-economic European models: the Anglo-Saxon liberal model, the Scandinavian universalistic model, the continental corporatist model, the Mediterranean model and the European Union countries position into these models. Also, are pointed out the EU countries economic performances by analyzing the rankings of these countries on base of Global Competitiveness Index 2010-2011 and the evolution of this index during 2009-2011.*

The article follows to underline the necessity of the state action for durable, healthy, sustainable economic growth, capable for getting over the economic crisis and for ensuring the social welfare and economic competitiveness.

Keywords: socio-economic models; european economic models; the states' involving in the economics; the incomes redistribution; social welfare; economic competitiveness.

JEL Codes: G01, P51.
REL Codes: 8C, 20F, 8N.

Knowing the past mistakes and learning from them, we have the chance for taking the right decisions for the present and the future.

Taking into consideration all the challenges raised by the present world economic crisis, becomes natural the concern for finding the crisis get over solutions and for warranting the premises of a healthy and durable economic growth, able to ensure social welfare and a competitive affairs environment.

There is a vast literature in the domain which offers different visions about the European social model. Although the European states are different from point of view institutional and social, the existence of an European social model (Kleinman, 2002), has been questioned. Most authors agree on the particularity of the European social model. "The European Social Model […] is understood as a specific combination of comprehensive welfare systems and strongly institutionalized and politicized forms of industrial relations" (Ghral-Teague, 1997). This definition draws the attention on the importance of the state as mediator between the individual and the market, and between worker and employer. However, opinions differ regarding the characteristics diversity of the European models, the number of the economic models, and which countries can be subsumed under which model. According to Aiginger-Guger (2005) definition of the European model starts from the following terms: responsibility, regulation and redistribution.

Responsibility. The society takes the responsibility of ensuring individual welfare and reduces the individual risks, such as: poverty prevent, providing support in case of illness, disability, unemployment, old age. Also, the society has to take care and encourage the education, health and family.

Regulation. This term refers to the fact that the labor relations are institutionalized, are based on the social dialog and are negotiated on the labor laws and collective agreements. Also, the business environments are shaped by social partners and the legal regulation for this domain (on the branch or firm level).

The income *redistribution* between the social classes during the life cycle: taxes and the income tax are social financial support and social services.

These three characteristics reflect the fact that the European model is much more than a social model in the restrictive sense. This model influences on one hand, production, employment, productivity and, on the other hand, the economic growth, competitiveness, all the objectives of economic policy. Hence, it is more appropriate to name it the European socio-economic model (Guger et al., 2007). This perception is not new and it coincides with the traditional notion whereby the economic and social spheres are closely interlinked, and the interests which rule them are the same. In the 19th century, Bismark settled up the bases of the first alliance between state and enterprises, between social protection and production. This synergy has mainly aimed the growth of the

social side importance, but also to demonstrate, in the same time, that the effect of this is the growth of efficiency and competitiveness of the economies. Today, when the objective of the developed post-industrialist countries is to become much dynamic and competitive, their attention is focused on learning, creation and diffusion of knowledge ways. According all these, the European socio-economic model contains the economic reality, the social security, the culture institutions and the innovation system.

Trying to answer to the question: Which economic model could the best get over these challenges?, it is essential to speak about the four EU welfare states economic models defined by the Dutch sociologist Esping-Andersen (1990), which are: the Anglo-Saxon liberal model, the Scandinavian universalistic model, the Continental corporatist model and the Mediterranean model(1).

1. The Scandinavian model is the most comprehensive one, with a high degree of emphasis on redistribution, social integration and universality. These goals are pursued through a generous infrastructure of social services, which are designed to be affordable and of high quality as well. The dependence of the individual on the labor market is lowest. Unemployment benefits, which are characterized by high replacement rates, and the health system are financed through the tax system. Taxation is very progressive and includes elements of property taxation, while business taxes are rather low. The countries that can be subsumed under this model (Denmark, Finland, Sweden and, outside the EU, Norway) are characterized by a strong social dialogue and close cooperation of the social partners with the government. Trade unions are strongly involved in the administration of unemployment insurance and training, and the model is characterized by an active labor market policy and high employment rates. The Scandinavian countries have been successful at obtaining high employment rates and at reducing inequalities on the labor market.

2. The Continental model emphasizes employment as the basis of social transfers, benefits are at a more moderate level and they are linked to income. Accordingly, social transfers are financed through the contributions of employers and employees. The redistributive efforts of the fiscal system are less pronounced than in the Scandinavian countries as the tax system contains some regressive elements (i.e. low wealth and high income and consumption taxation). Social partners play an important role in industrial relations, and wage bargaining is centralized. The institutions of social dialogue as well as parts of the economic regulatory framework bear the imprint of a corporatist system. Countries which, undisputed, could be situated to this model are: France and Germany, which are the two biggest continental countries, Belgium, Netherlands, Austria and Switzerland, four countries with top positions in per capita GDP.

3. The liberal Anglo-Saxon model put the accent on the responsibility of individuals for themselves, and the labor market is not regulated. Social transfers are smaller than in the other models, more targeted. Accordingly, social policies usually satisfy to a clientele consisting of low-income groups. The state encourages market actors to co-provide services, and leaves recipients (low-income groups) the possibility to opt between public and private providers. Private insurance and savings schemes are supported by complementary state policies (e.g., tax credits, tax shelters). Labor relations are decentralized, and bargaining takes place primarily at the firm level. The Anglo-Saxon model is represented in Europe by the United Kingdom. Having a low degree of regulation and the social system, Ireland exhibits a certain degree of similarity to the United Kingdom, despite the fact that here there are more intense policy interventions. This can be ascribed to the particular position of Ireland, which has rapidly moved from a low-income country position to one of the most expansive European economies by economic growth rate(2).

4. The Mediterranean family-oriented model. In the Mediterranean countries, social transfers are smaller than in the rest of other European countries. The low level of social transfers is partly counterbalanced by the strong supportive role of family networks. Families still play a significant role in the provision of security and shelter. At the same time, a paternalistic society and pronounced gender inequalities characterize these countries. Employer representatives and trade unions are important to the rather centralized bargaining process for wages and work conditions. Employment rates, specifically those of women, are low. The Mediterranean group of countries comprises Spain, Italy, Portugal and Greece.

Table 1

The EU-15 Member States in framing the 4 socio-economic models

Scandinavian model	Continental model	Liberal Anglo-Saxon model	Mediterranean model
Denmark	Germany	Ireland	Greece
Finland	France	United Kingdom	Italy
Sweden	Belgium		Spain
Norway	Holland		Portugal
	Austria		

Source: Processed by author according to Alois Guger, Thomas Leoni, Ewald Walterskirchen; European Socio-Economic Models: Experiences and Reform Perspectives; Annex 3 – EUROFRAME-EFN Autumn 2007 Report.

Taking into consideration the socio-economic diversity of the EU member states the questions are rising up: how efficient is The European Union and what capacity has it for getting over the provokes of this time economic crisis?

In the past few years, the EU economic performances represented the subject of much political unease. There are big concerns that Europe is not sufficiently prepared to face new global challenges such as rise of world economies competitiveness, the need of energetic efficiency and security or the fast rhythm of the technological innovation. These worries seem exaggerated because European economies are generally faring well in relative terms(3). But many will agree that Europe is not reaching to its full potential and that the unprecedented current crisis magnitude is imposing seriously problems to it get over. The European Union has proposed a new strategy – Europe 2020 – for smart and sustainable growth. The strategy consists of consolidating public finances while promoting economic integration, investing in energy and transport infrastructure, and developing further information and communication technologies. A strong emphasis is also put on upgrading skills and promoting innovation.

Even as the Europe 2020 strategy was being adopted, the severe financial difficulties of the Greek government triggered a confidence crisis regarding the financial and monetary stability of the entire euro zone. The public perception was that a few southern countries – Greece, Italy, Portugal, and Spain – were facing unsustainable public deficits that reduced their growth prospects to the point of potential insolvency.

These appreciations were not so accurate, taking into account that the Greece situation was a particular one. It did, however, remind us of the fact that the European Union is not a homogeneous area and that Member States vary in the degree of their competitiveness. The Global Competitiveness Index(4) detects these differences and helps us to better understand the strengths and weaknesses of individual EU members and of Europe as a whole. The table shows the global competitiveness ranking of EU Member States. Is observed leading position of the Scandinavian countries, Germany, the United Kingdom, France, and the Benelux (Belgium, Netherlands, and Luxembourg), all in the top 20 most competitive economies in the world. But the source of their strength varies somewhat. The Benelux and the Scandinavian countries compensate for the small size of the market with excellent skill sets, sound institutions, and, particularly in the case of the Scandinavian countries, a strong capacity for innovation.

Most of the other EU Members States are among the top 50 performers globally, but there are five Member States well below this mark. Greece shows a dismal performance in 2010 due to the severe deterioration of its macroeconomic environment, to a particularly poor institutional setup and low efficiency of markets. It is notable that the group of countries in the middle ground distinguish themselves from the leading positions countries particularly in that they have substantially less innovation and a much poorer institutional environment. On the other hand, their performance with respect to macroeconomic stability and their population's basic skills are similar. But Member States within this middle group also have different strengths. Member States from Eastern Europe have bet especially on open and flexible markets for both goods and labor, while Italy and

Spain have relied instead on the economies of scale their markets can provide. Spain has also made a notable effort of investment in infrastructure.

Although the Member States are facing with different situations which need different strategy for tackling them, Europe as a whole faces common challenges. There is still possibility for increasing structural reforms to increase market flexibility. More importantly, European Union can enlarge the market area easily accessible to businesses through integration process. Also, except for a small subset of countries, European Union does not provide an environment that is sufficiently conducive to innovation. Market size, flexible labor markets, and strong innovation are at the core of the US competitive advantage; Europe as whole meets all three. China shares with mid-range European countries the relative handicap of rigid institutions and very low innovation. But the country is quickly catching up on infrastructure and market efficiency and will increasingly benefit from its expanding market size.

Table 2

Rankings of the EU-27 in the Global Competitiveness Index 2010–2011

Economy	Rank	Score
Sweden	2	5.56
Germany	5	5.39
Finland	7	5.37
Netherlands	8	5.33
Denmark	9	5.32
United Kingdom	12	5.25
France	15	5.13
Austria	18	5.09
Belgium	19	5.07
Luxemburg	20	5.05
Ireland	29	4.74
Estonia	33	4.61
Czech Republic	36	4.57
Poland	39	4.51
Cyprus	40	4.50
Spain	42	4.49
Slovenia	45	4.42
Portugal	46	4.38
Lithuania	47	4.38
Italy	48	4.37
Malta	50	4.34
Hungary	52	4.33
Slovak Republic	60	4.25
Romania	67	4.16
Latvia	70	4,14
Bulgaria	71	4,13
Greece	83	3.99

Source: The Global Competitiveness Report 2010-2011 © 2010 World Economic Forum.

As infrastructure and market efficiency levels converge among the main global players, Europe cannot afford to lose out on the potential of scale economies and innovation. The priorities of the Europe 2020 strategy should contribute to increase European competitiveness by eliminating further barriers to the European Single Market, encouraging investment in better skills, and supporting innovation. The data highlight the fact that many countries still need to take measures to improve basic competitive requirements, such as their institutional setting and infrastructure levels; they must also improve their market efficiency, technological readiness, and level of skills. It will take the combined effort of all European and national authorities to improve the economic potential of the European Union so that it remains a prominent player in the 21st century.

Analyzing the top 10 countries from the Global Competitiveness Index side for 2010-2011 and 2009-2010 we observe Sweden has risen from 4th position in 2009 on 2nd position in 2010, while USA have dropped two positions from 2nd place in 2009 to 4th place in 2010.

Conclusion

As a conclusion, we might say that social market economy with highest accent on the social protection represented by Sweden can provide solution for taking over provokes of the present global crisis, while liberal USA socio-economic model doesn't prove its efficiency. In this order, The EU authorities should maintain the position for its specific social-economic model approach and even continue and focus on uniforming the institutional regulation system.

Notes

(1) Which Esping-Andersen proposed later than the firsts three ones.
(2) Assessment was done according to economic indicators at the year 2007.
(3) According to Joaquin Almunia, Vice-President and Commissioner for Competition Policy, European Comition; The Global Competitiveness Report 2010-2011 © 2010 World Economic Forum.
(4) Where competitiveness is defined as being the institutions set, policies and factors which determine a country productivity level. All these components are grouped in 12 pillars of economic competitiveness: 1. institutions; 2. infrastructure; 3. macroeconomic environment; 4. health and primary education; 5. higher education and training; 6. goods market efficiency; 7. labor market efficiency; 8. financial market development; 9. technological readiness; 10. market size; 11. business sophistication; 12. innovation.

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