

# **Annals of *SPIRU HARET* University**

## **Economic Series**

**Volume 3(12), issue 1, 2012**

**EDITURA FUNDAȚIEI ROMÂNIA DE MÂINE  
BUCUREȘTI, 2012**

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ISSN: 2068-6900

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Section I

**EFFICIENCY AND SUSTAINABILITY  
IN USING THE SOCIAL FUNDS**



# SUSTAINABLE FINANCING OF THE ENVIRONMENT PROTECTION INVESTMENT PROJECTS IN ROMANIA

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## **Abstract**

*Sustainable financing of the environment protection can be defined as the capacity of providing the long-term, stable and sufficient financial resources and granting them, in an adequate and rhythmic manner, in order to cover the necessary costs for protecting the environment protected areas and ensuring their efficient management.*

*Achieving sustainable financing calls for major changes in conceptualizing and utilizing the funds and, to that end, a series of national innovative sources will play a more and more important role in satisfying the financing needs.*

**Keywords:** *sustainable financing, financing sources, environment investments objectives, feasibility study, cost-benefit analysis, environment fund*

**JEL Classification:** O<sub>44</sub>

## **Introduction**

*Sustainable financing* does not mean only finding the income source, but also its approach, which starts by strategic planning and allows for the possibilities of diversifying the income flows spectrum, making sure of the necessary income flow at the right time.

In financing a project, the future cash flow is the element that justifies the procurement of the resources invested into the project, the task of those dealing with the project's financing being to organize this cash flow so that, on one hand, to satisfy the requirements of financing the project and, on the other hand, to be of interest for the investors willing to invest funds to carry out the project.

The organization of an environment project's financing may suggest the use of a variety of financial instruments, out of which the following stand out: instruments of indebtedness, aids and donations.

Financing the environment projects is realized in the context of some *diverse ensembles of institutions, instruments, areas, geographical and territorial structures, policies and regulations, groups of interest and participants, financing entities and forms, financing mechanisms* etc.

The main priority is identifying the potential financing resources. The efficiency of the potential financing methods varies according to type of project and its objectives.

The network of alternative environment protection financing resources contains public resources, private non-profit sources, private profit sources, special payments for environment products, special payments for environment services, and special deductions for the supplementary financing.

➤ The sources, particularly the public ones, include sources as such: budgetary financing for the environment protection; taking over one or more general taxes collected at national or local level, in order to protect the environment.

➤ The non-profit sources, especially private, include sources such as financial self-supporting communitarian groups and others forms of share capital; charity institutions; the sale of merchandizes and goods; social and environmental NGOs; foundations.

➤ The profit sources, particularly private, include sources such as formal or informal communitarian enterprises; private investments of local businesses; trade bank loans; direct investments of the nonlocal investors (ecotourism, for example); public-private partnerships.

➤ The special payments for environment products include payments for organic product; payments for sustainably harvested forestry products, including timber; payments for certified forest products; payments for certified fishery products; payments for extracting the resources.

➤ The special payments for environment services include payments for preserving the biodiversity and bio-prospecting; payments for water protection.

### **Literature review**

In time, the notion of environmental investment has been used together with many other similar notions such as “ethic-moral (restrictive) investment” and “positive-ecological (challenging) investment” (Manolescu, 2010).

In this context, at the beginning the notion of ethic-moral investment took shape in the 19<sup>th</sup> century, been articulated in 1970-1980. Essentially, this was based on the so called *negative selection* process, which was proposing the elimination of those investments that seemed to be harmful and inconsistent with the individual and social values (for example, smoking, drinking, arming, abuses, crime and pollution).

The second notion, positive-ecological investment, was based on identifying those activities that are benefic for the environment on the long, durable term, along with the progressive approach of the aspects stated in the Brundtland Report named *Our Commune Future*, 1987.

At the same time, the report stated that sustainability embraces the following eight problems: resource capital, embodied energy, global community, new economy (embedding the ecological responsibility), renewability, traditional wisdom, institutional change, technology.

Presently, more often, through the *positive stimulation* process, an accent is being put on socio-economic notions such as clean technology, non-pollutant energy, precisely for illustrating specific categories of investments benefic for the environment.

In the end, but not ultimately, the environmental investment appeared as a notion in 1990-2000, being know under the collocation “*best of breed*”, identifying within the economy those industrial branches that satisfy certain strategic sustainable development criteria associated with the field of activity. The sustainable investments illustrate the impact of the economic, social, ecologic factors and social responsibility.

*Starting form Simon’s studies (1997), who pointed out the necessity of distinguishing the general notion of rationality from different other models or theories that this notion makes in the analysis of the rational base of the environmental investment, the general notion of rationality distinguishes – as adjustment of available means to purposes – and its different ways of manifestation of which we mention optimizational rationality and exploratory rationality.*

*Thus, the rational decision is unique when the decision-maker disposes of the perfect information, being able to calculate an infinity of possibilities for clearly establishing his objectives.*

*As researchers Brandon and Lombardi (2005) also mention, through the analysis of the connection established between the natural environment and the social environment, multiple faces of the environment, the importance given to them and the specific problems posed to social actors are presented.*

*Having at the bases the theoretical principle of sustainable development and ecological sustainability – the economic-social-ecologic trio, **the polluter pays** – the beneficiary receives principles and **active subsidiarity principle** – the environmental investments policy aims at reaching the objective of maximising the technical-economic and institutional-regulatory efficiency of the ecological investment objectives – water, air, soil, maintaining the biodiversity of the ecosystems and of the natural habitat, managing the wastes, transports and energy by means of the legislative (directives), technical (ISO standards, permits, licences or other authorisations) and financial (contributions, exploitation taxes, product duties, administrative taxes, cleavage taxes, loans, investment funds, creating specific markets, subsidies, guaranty-collection systems or non-coercive third party economical mechanisms of changing the behaviour of the economic agents – such as the **Environmental Fund** in our country) instruments.*

*Nationally, the legislative framework is made of the **communitarian Aquis** and must be applied keeping in mind the perspective of reaching the standards demanded by the European Union.*

*The demands and exigencies in the environment protection field, existing in the European Union’s country, impose a new approach of the global environment problems and the sustainable management of the resources correlated with a social-economic development.*

*EU’s intervention into the environment field is financed from three main funds that can be used for some or all the objectives of the regional policy:*

*European Regional Development Fund, European Social Fund and Cohesion Fund.*

**The European Commission** approved the *Environment Operational Programme for 2007-2013*, co-financed by the *European Regional Development Fund (ERSF)* and the *Cohesion Fund (CF)*, called **Operational Programme Environment (OP Environment)**.

In the process of the European integration, environmental investment, as ecological investment costs, represents a very important instrument; by taking into account the general and specific aspects, the ecological investment policy illustrates not only the quantitative-value problems circumscribed to the investment objectives, but also those qualitative-relational ones, related to the place and the role of the social agent involved in this process – the authorities manage and the agents adapt

### **Assessing the objectives and goals of environment protection investments**

The objectives of the environment protection oriented investments are differentially set out, on countries and development regions, and, within the same country, depending on the chosen areas to implement some environment protection projects, according to the problems identified as being major, urgent and primary.

The focus will be on assessing and reaching the primary objectives of major public interest.

The objectives of the environment protection investments are correlated to the objectives that underlay the European Union environment policy, stipulated in article 174 of the EC Treaty.

In Romania, financing the environment investment projects is a relatively new approached direction, compared to other European states, a major importance being given to it after our country's EU integration.

Development of environment protection projects is necessary in order to solve the natural environment protection problem.

These environment protection programs must respect the general principles of the environment protection strategy: *preserving, protecting and improving the quality of the environment; protecting the human health; protection against natural disasters and accidents; prudent and rational utilization of the natural resources; maximum cost-benefit ratio; promoting measures at an international level in order to address regional environmental problems.*

After the environment priorities have been set out, we can concentrate, on the one hand, the financial and human resources on the serious environment problems, and on the other hand, we can observe the improvements of the public health and the environment.

### **Prioritizing the environment protection oriented programs**

The experience proves that environment protection programs can be efficiently organized and developed only based on a coherent overall plan, which includes the priorities resulting from integrating the scientific, technical,

economical and social information, projecting and measuring, at the same time, the influences upon all resources.

Each country must organize its own environment protection priorities, priorities that are different from one country to another.

A principle that can be used in determining the priorities is that prevention is always cheaper than reduction or cancellation of the effects, once they have occurred.

Prioritization becomes necessary when the environment problems overlap the social, economical, re-structural ones, those related to the reform etc., the key of successful environment policies and strategies.

For environment plans, programs and projects feasibility, evaluation of the environmental impact studies and cost-benefit analysis are necessary. As a result of these studies, we can determine an order of priorities for a project or between projects at national level.

1. The feasibility study is necessary in order to determine clearly that the result of the proposed objective is efficient and that it comes under the general sectorial and/or territorial development strategy (industrial, agrarian, social etc.). Also, the feasibility study will help finalizing the program through costs, benefits and also opportunities analyses.

The feasibility study must present the promoters (investors) and their interest in reaching the objective as well as the main credit officer. As well, the investment funding sources are presented: proper sources; banking credits; state budget fund or local budget; special funds established by law outside the budget; foreign loans guaranteed or directly contracted by the state.

2. Cost-benefit analysis in case of the environment protection investment projects.

In the current context, protecting the environment represents an essential side of any investment program, so that in the investments program undertaken by a company, environment investments hold a very important place. When it comes to environment investments a cost-benefit analysis is important, allowing the prioritization of the actions so that, on one hand, those with maximum effect be applied first, and on the other hand, those less expensive, but with immediate positive effect, be adopted urgently.

After estimating the partial and total costs of different actions/programs, we can calculate the ratio of the efferent costs of each environmental investment and the estimated evolution of the relevant pollution markers and retain only those investments that have maximum effect per invested monetary unit.

The positive results of an action must be higher than the damages that can be brought to the environment if that action would not have been taken. Some benefits are so important that they cannot be evaluated, such as improving human health, maintaining biodiversity in the ecosystems etc.

## **Identifying the financial objectives of the environment protection oriented projects**

Currently, assuring the quality of the environmental factors regarded as the support of the future economic development, as well as manifesting the preoccupation for protecting them represents a necessity for survival and progress as it presents a major interest problem for the economic and social evolution.

In order to clarify the aspects concerning the financial objectives of the environment protection oriented investments, it is important to determine who identifies the financial objectives, in what context and for what purpose.

Certainly, the financial objectives of the environmental projects must pursue the provision of a more consistent budget for the environmental projects, the equal distribution of the resources depending on necessities and, especially, on efficient environmental protection oriented investments. All these will be reached if the objectives regarding the investment priorities underlined by environmental projects are realistic, based on actual (on the field) analyses, on data and information gathered and correctly processed, so that it reflects the reality.

At national level, the financial objectives of the projects oriented towards the environmental investments are determined and formulated according to the reality of the Romanian environment, starting from the necessity to promote the following European principles “The polluter pays” and “Producer’s responsibility”.

Thus, these objectives are a strategic priority of functioning for those institutions that coordinate the environmental investment projects.

In the context of the stringent needs to protect the environment from the social-economic activities that present a potential major risk for the environmental factors, the reconsideration of the environment protection oriented investments is necessary, a thing that takes place in the official framework of some specific priority programs, which aim at achieving some priority objectives regarding:

- the protection against natural disasters and avoiding as minimum as possible their occurrence;
- the harnessing of the hydrographical basins in order to rehabilitate the existing water resources;
- the eco-efficient management of the standing crop;
- the ecological reconstruction through restocking the damaged areas;
- the creation of shelter-belts;
- the ecological reconstruction and preservation of the environmental factors biodiversity;
- the development of the environmental institution capacity.

The most adequate instrument for assuring the objectives regarding the protection of the environment and the balanced management of the natural resources is establishing the environmental funds to be allocated in accordance to the investment priorities.

Thus, the environmental funds are meant to support the implementation of some cost effective investment projects and respect the priorities for obtaining some environmental benefits.



In Romania, the environmental fund is used for sustaining and implementing the priority objectives of major public interest, which regard:

- supporting and encouraging the measures meant to reduce and eliminate the pollutant wastes and sources from our country;
- implementing the projects regarding the ecological reconstruction of the damaged areas;
- creating the framework for implementing the measures for preserving the ecological diversity and salvaging some endangered species;
- other activities that contribute to improving environment and life quality in the inhabited areas.

In order to achieve these objectives a special attention is given to:

- granting some interests on bank loans;
- guaranteeing some loans for public works, works the Government is committed;
- guaranteeing some loans contracted by national companies and clean technologies transfer loans;
- incentive rewards for some companies for their special accomplishments.

The most frequent form of using the environmental funds is offering some grants oriented towards research, education, the public sector, etc.

In Romania, the functional financing mechanisms are valorising the interests and guaranteeing the trade bank loans. These mechanisms are no longer used in any other country that has environmental funds, because these stipulations led to the bankruptcy of some environmental funds in Central Europe. In addition, in an unstable and bumpy economy, it is difficult to estimate the total value of the necessary funds for the environmental protection actions.

In our country, because of the advanced environmental degradation, the necessities for financing the environmental protection actions are high, reaching 3-4% of the GDP.

To demonstrate the finality of the financial objectives of the environment protection oriented investments, we think that a statistical review of the projects developed in Romania can determine a (re)orientation of the financial objectives for the future projects, projects that should be more numerous.

### **Finality of the investment objectives for environmental protection**

Generally, environment investments enjoy, or not, a special attention depending on the orientation of the investment finality and on the source of financing.

This is why, in Romania, for the most part, the investment objectives in the field of environmental protection have not represented a priority, especially until 2007. The main causes are: *the lack of grantable funds, mainly directing the efforts towards the economical growth objectives*, without being aware of the fact that we cannot have economical growth and development without a well preserved and protected environment.

Following the Romania's adhesion to the European Union, the Sectorial Operational Programme Environment (SOP Environment) was initiated, its global objective being the protection and improvement of the environment quality and life standards in Romania.

The investments to be financed within SOP Environment contribute to the economic development by:

– assuring long-term sustainability of the economic growth; *to that end, SOP Environment will monitor the improvement of the access to public utilities, having an impact upon increasing the attractiveness for business development, but also protecting the current economical activities, through risks preventing measures;*

– SOP Environment is oriented towards the significant needs of investing in the environment infrastructure in order to achieve the acquis demands in the water (priority axis 1), waste (priority axis 2), air (priority axis 3), protecting the nature, species and biodiversity (priority axis 4) sectors.

SOP Environment is correlated to the objectives of the Lisbon Strategy (Lisbon Agenda) regarding the economic growth and creation of new working places.

SOP Environment will contribute to Lisbon priorities by highlighting the following aspects:

- investments in urban and rural areas with an increased development potential; a future development of businesses is forecasted as a result of developing the water infrastructure, the sanitation and heating services, as well as preserving the value of the natural patrimony in the regions that have the potential to rapidly reach the level of some other UE countries, but where the national funds are not sufficient in order to offer such opportunities;

- supporting the implementations of some coherent medium and long-term strategies in the environment field, by using the opportunities to implement a 7 years stable investment program, as a basis for the sustainable development, on the long-term;

- mobilizing additional resources; the activities sustained by the SOP Environment act as a lever between the additional national resources, both public and private, with a view to use them in national and regional coherent development strategies;

- improving the governance and innovative management systems.

As a conclusion for our country, financing the environment protection projects represents a new sector.

*The main factors that stimulate the need to invest in the environment project are:*

- the status of our country as an EU member;
- the privatisation of the industry and the key sectors of the Romanian economy;
- the need to apply and respect the environment legislation;
- limiting the access to budgetary subsidies;
- implementing, within companies, the environmental management systems.

National level investments in the field of environmental protection develop within some priority investment programs, which aim at reaching some essential objectives regarding the following aspects:

- protection and defence against natural and anthropic phenomena with destructive effects (floods, drought, hail, desertification, excessive pollution etc.);
- harnessing the hydrographical basins for rehabilitating the existing water resources and creating new sources to satisfy the industry and population water demand;
- management of the standing crop, its preservation and development as a main environmental factor;
- ecological reconstruction of the damaged areas, the creation of shelter-belts, and also of a forest road system that will facilitate the access to the stock of wood;
- investments for the ecological reconstruction and preservation of the environmental factors biodiversity;
- development of the environmental institution capacity.

*The general objectives* of the environmental protection investments refer to:

- formulating, supporting and encouraging the measures for the reduction or disposal of wastes and major pollutant sources;
- formulating and implementing some measures destined for preserving the biodiversity, salvaging the endangered species and the efficient management of natural protected areas or with a special landscape value;
- accomplishing viable projects to ecologically reconstruct the damaged areas;
- other activities with direct effects in improving the environment and life quality.

*The specific objectives* of the environmental project investments from Romania target problems such as:

- a) waste management (considering the stages of resources sampling, production, consumption and recycling);
- b) environmental factors' pollution (water, air, soil) and phonic pollution;
- c) protection and preservation of natural resources;
- d) improvement and preservation of the sylvian resources;
- e) making people be aware of the environmental problems;
- f) investments in non-pollutant technologies.

Consequently, the finality of the objectives associated with the environmental protection investments is oriented towards:

- assuring the necessary resources for the economic production and development processes;
- sustainable preservation of the resources;
- balanced management of the natural resources;
- reducing the production of large amounts of wastes that can no longer be correctly managed;

- reducing the useless consumption of resources, a thing that leads to the unjustified increase of wastes;
- preserving the geographical areas with a exploitable landscape potential.

Achieving the objectives and the finalities of the specific investments in protecting the environment takes place in an organized circumstance, based on planning the activities depending on the priority investment fields.

Thus, the projects proposals for environmental protection to be financed in Romania are grouped by specific environmental fields (education – 8%, soil – 4%, biodiversity – 14%, waste management – 7%, air quality – 11%, water quality – 45%).

The Romanian Ministry of Environment, the main coordinator of the environmental investment projects, has also prepared an ample portfolio of environmental projects, which aims at reaching Structural Funds. This portfolio contains over 80 major investment projects in the water/waste water infrastructure, wastes, heating and flooding, with a value over 4 billion Euros, representing almost 70% of the available European funds for the environment sector in 2007-2013. The major projects are of a wide scope and for their implementation our country applies the specific communitarian regulations which imply the elaboration of some complex financing applications (including the following documents: Master Plan, Feasibility Study, Cost-Benefit Analysis, Institutional Analysis, Environmental Impact Study etc.).

To prepare the projects, the Ministry of Environment has attracted funding of approximately 60 million Euros, funds that came from ISPA and PHARE programs or foreign loans. The value of the major investment projects is estimated to be of 30 to 100 million Euros.

An essential criterion for allocating the proposed financing projects is also that of the funding source (own sources – 4%, local and national budget – 19%, environmental fund – 25%, foreign funds – 44%, other sources – 8%).

The classification of the environmental investment projects and objectives depending on the enclosing category, mainly reference to new investments, modernization or enlargement and development it is also important. The submitted investment projects for environment protection in Romania have the following distribution if we consider the above-mentioned criterion (development/enlargement – 18%, modernization – 23%, new investments – 59%).

Another essential criterion for the distribution of investment projects depends on type of institutions proposing the project (NGOs – 2.5%, public local authorities – 23%, economic operators – 21.5%, other public institutions – 14%).

Regarding the responsibility of assuming the finalities of the environmental investments objectives, it is important to say that this is in fact a key-element of financing and implementing the environmental projects.

Practically, if the responsibility of establishing the objectives of the investments is assumed by specialists from commune fields of interest (researchers, economists, engineers, biologists etc.), then the finality of the environmental projects has the anticipated real effects.

Also, the more the public authorities are involved in these types of projects and in the correct elaboration of the environmental institutional objectives, the more the other actors from the international space will be motivated to support our proposals and the intercessions for this action.

### **Defining the financial instruments and correlating them to the finalities and objectives of the environmental investments**

#### *Environmental Fund*

To implement the environmental investments projects, in order to achieve the aimed objectives, the creation and usage of specific instruments for applying the financing of the environmental projects is suggested.

In our country, the most well known economic-financial instrument for protecting the environment is the Environment Fund intended for sustaining and accomplishing the objectives of major public interest for the environment protection.

The Environment Fund is a public one, inferential, and its incomes are public incomes, part of the consolidated general budget. The Administration of the Environment Fund endorses the financing of 22 categories of environmental investment projects for protecting and preserving the environment.

#### *SOP Environment*

Another important financing source is the Sectorial Operational Programme Environment. SOP Environment regards six priority axes.

Moreover, there are other operational programmes, Regional Operational Programme, Fishery Operational Programme, Sectorial Operational Programme Competitiveness, etc.

#### *Ministry of Development, Public Works and Territory (MDPWT)*

MDPWT took over many of the environmental financing functions from the Ministry of European Integration (MEI).

Currently, there is the Regional Operational Programme 2007-2013 (REGIO) which has an important component of protecting the environment (priority axis 5: Sustainable development and touristic promotion, 15% of the ROP allocated budget), having the priority axis 6 as lever to transparently and efficiently implement the Regional Operational Programme (2.65% of the ROP allocated budget).

*It is one of the Romanian operational programmes the European Union agrees with and a very important instrument for implementing the national strategy and the regional development policies. It can be applied to all eight-development regions from Romania. The Regional Operational Programme from Romania is financed by one of the structural funds of the European Union – European Regional Development Fund (ERDF).*

## **Determining the financing sources**

If we compare the situation of the environment funds from our country with those from other countries, we can notice that the majority of the environmental fund sources are represented by loans, incomes resulted from privatisation, taxes and excises, taxes for the motor vehicles registration, profits from own financial transactions and loans reimbursement.

International benefactors or financial institutions can also finance some funds for varied projects.

Practically, the financing sources for the environmental investment projects can be grouped into two categories: internal and foreign sources.

For Romania, the main internal sources are represented by the state budget and own resources.

Foreign financing sources for the environmental investments in Romania, identified by the Ministry of Environment as the most adequate partners to grant loans with European Union co-financing, are the international financial institutions that credit national environment project under the form of foreign loans:

- a) Social Development Fund of the European Council;
- b) European Bank for Reconstruction and Development (EBRD);
- c) European Investment Bank (EIB);
- d) World Bank through the Global Environment Facility (GEF);
- e) United Nations Development Programme (UNDP);
- f) Bilateral Benefactors.

The most notable bilateral benefactors for the environmental projects from Romania are:

- Denmark is an important bilateral benefactor for the environmental protection in Romania. The projects Denmark finances aim at elaborating some sectorial strategies for the harmonization with the European Union regarding “the air quality and climatical changes” and “the control of the industrial pollution and risk management” and for the continuous assistance in the transposition and implementation of the European Union legislation regarding the air pollution;

- Holland offers its assistance by means of the MATRA programme which has as a purpose the technical assistance for promoting a modern and efficient environment legislation, implementing the legal stipulations regarding the environmental fund, the financing strategies of the environment oriented investment projects, the creation and monitoring of systems specific to the extra-budgetary incomes at Environment Protection Offices level, the implementation of environment instruments;

- Other external benefactors: Japan, Switzerland, Sweden.

After the adhesion to the European Union, Romania has benefited, until 2013, of European funding totalizing almost 30 million Euros, allocated through the following funds:

- 1) European Regional Development Fund;
- 2) European Social Fund;

- 3) Cohesion Fund;
- 4) European Agricultural Fund for Rural Development.

The interested institutions from Romania have the possibility to attract non-refundable funds with the precise purpose of financing the environmental investment projects.

Because we noticed that the financing sources are insufficient, the creation of an auto-financing mechanism was seen as a possibility to ensure the necessary supplementary funding resources. Thus, the main auto-financing sources are fees for elaborating environmental agreements and licences; fees for performing technical evaluations on laboratory analyses; technical examinations.

By the end of August 2011, 190 environmental protection investment projects were finalized (in accordance with the advanced institutional and financial objectives), the total value of the financed contracts being of 893,310,736 lei. At the same time, the working projects were distributed to a number of 469 contracts, having a total value of 1,975,935,623.18 lei. 596 projects were completed in 2011, with a total value of 1,752,704,168.87 lei.

### **Conclusions**

We can conclude that the sustainable environmental financing integrates environmental, economic, social and governing factors into the process of decisions analysis and adoption. This financing supports sectors such as environmental infrastructure, ecosystems, renewable energy, clean technologies, biodiversity, lack of water, sustainable cities, transports etc.

Realizing the environment protection supposes financial sources capable of assuring the *financing of the environmental policies* required by these costs and, to that end, *five financing sources* can be typologically delineated: environmental funds; supranational, national and local administration budgets; voluntary contributions; the financial input of the pollution and polluted companies; philanthropic participation (sponsorships, donations etc.).

Financing the projects represents a decisive component of their enforcement, the financial resource often being expensive, rare and risky. This is why one must promote competent and efficient financial management by using a variety of financial instruments, specific to the stages and characteristics of the projects.

Until now, the financial approach of the environment protection oriented investments has been partly realized, the environment protection regulations not reflecting their financial needs. Thus, the conjunction between the ecological circuits and the pollutant mechanism on one hand, and the financial flows and structures on the other hand has been realized in a distorted and accidental manner. In the following years, Romania needs a precise, distributive and correlative financing of the environment protection, with a prospective vision.

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# FINANCING RESOURCES AVAILABLE FOR LOCAL ECONOMIC DEVELOPMENT

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## **Abstract**

*This paper reveals that domestic credit is becoming more involved in local economic development, even if it is considered an expensive resource. The loans are presented as a resource available for various “actors” of the local community – individuals, business agents and local authorities.*

**Keywords:** *development funds, municipal bonds, public-private partnership, bank loans, economic development, resources, local authorities*

**JEL Classification:** O<sub>18</sub>

## **Introduction**

In conditions where, EU funds are limited as value, and also in terms of destination; the foreign direct investments, although effective, are experiencing a continued reduction in economic crisis and unpredictable Romanian business environment conditions; the bond market is in decline, due to the crisis and to the lack of investor confidence in the public domain, especially on long term; the public-private partnership may bring delays in decision making due to diversity of interests, the domestic credit is becoming more involved in local economic development, even if it is considered as an expensive resource.

The domestic credit is more involved in the local economic development, it can be accessed by all local stakeholders, businesses, local authorities and individuals. A variety of loan products available is able to cover the market requirements.

Using all financial local resources available, considering each one's efficiency, can generate spectacular results in local economic development.

## **Literature review**

For local development, the literature highlights in multiple approaches, the realities at local community level. Relevant papers from this perspective are presented by renowned authors, such as:

– Lucica Matei, Stoica Anghelescu, in *The Local Development. Concepts and Mechanisms* (2009), started the analysis from established international models of local development, highlighting the role of public services in local development. Also, the authors analyze the legal and institutional support related to local

development. The paper also highlights management issues, and related local development partnership.

– According to author Valeriu Iuhas, expressed in the paper *The Economic Regional Development – Economic and Social Implications* (2004), the transition from centralized command economy system to the market economy, has caused profound structural changes in the entire Romanian society, both politically and socially, especially economically. Economic, political, social and cultural changes in Romania led to the aggravation of existing imbalances in the development of spatial (regional) and the appearance of new gaps in the development of different regions.

– Roxana Mosteanu in *The Financing Regional Development in Romania* (2003) shows how the promotion and implementation of regional development policy in European Union countries is at the primary, is essential for the harmonious development of the entire territory.

– Other special approaches for local development, I met in the authors: Altar Moisa, *Models for grounding growth strategies for accession to the European Union* (2002) and Aurel Iancu, *Romania's economic development. Competitiveness and integration into the European Union* (2003).

Given the complexity of the processes and phenomena in local development, the authors focused on social aspects within local and general economic context.

### **Theoretical foundations**

Currently, the Romanian economy is characterized by significant demand shortfalls, generating high levels of unemployment and underemployment and a low level of activity in various economic sectors.

Obviously, more extensive areas of the country are getting away from the growth process. This reality is the result of a combined action of several factors, such as aging population, lack of jobs, unskilled labour force, and total lack of attractiveness for investors.

The phenomenon of poverty, characteristic of such areas, is amplified by the growing process of social exclusion, which includes access to education and basic services. This phenomenon is present not only in rural but also in mono-industrial urban areas, especially those ones exposed to industrial restructuring.

#### **• Local economic development in Romania**

*The regional development policy* represents the *ensemble of actions* that ensure *the economic growth and social development* of geographical areas organized in development regions, *the improvement of the international competitiveness* of Romania and *the decrease of economic and social gaps* between Romania and EU states.

The strategy of the National Development Plan 2007-2013 is structured in **six national development priorities** including: *the increase of economic competitiveness and development of a knowledge-based economy, the development and*

modernization of transport infrastructure, environment protection and its quality enhancement, human resources development, development of a rural economy and the increase of agriculture productivity, the decrease of development gaps between the country's regions. This strategy is based on three ways of action:

– **Encouragement of domains with potential for increase and having a high added value** by ensuring competitiveness, attracting foreign direct investments, supporting SME within these domains, developing rural economy and increasing the productivity of the primary sector.

– **Alleviation of deficiencies in infrastructure and human resources qualification**, which burden the development of economic fields that generate high added value: transport, energy, environment and labour.

– **Promoting a balanced regional development and decreasing social discrepancies** by supporting and implementing local and regional initiatives, with local authority's involvement.

The main *objectives* of the regional development policy in Romania are the following:

a. *Decreasing regional imbalances* by recovering social and economic delays and preventing new imbalances.

b. *Correlating governmental sectorial policies within regions* by stimulating initiatives and by capitalizing local resources in the purpose of a durable development.

c. *Stimulating interregional cooperation*, both internal and external, including euro-regions, involving development regions within European organizations that promote social-economic and institutional development.

The following *principles* fundaments regional development policies:

– *Decentralization* of decisional process from the central government to the local authorities.

– *Partnership* between all the shareholders who are involved in regional development.

– *Planning* of resources' usage in order to achieve objectives.

– *Co-financing*, through financial contributions, of various parties involved in regional development projects.

Starting from principles, we will analyze in the following section the financial resources availability for local development.

### • **Financial resources available for local development**

#### *Development funds*

Romania's access to European grant funds became possible by entering the EU. The purpose of these funds is to reduce both the development gaps between Romania and the other member states and between Romanian regions.

The total amount of Structural and Cohesion Funds, allocated to Romania, was 19.668 billion Euros, of which:

• 12.661 billion Euros represent *Structural Funds* for the "Convergence" objective;

- 6.552 billion Euros are allocated through the *Cohesion Fund*;
- 0.445 billion Euros represent *Structural Funds* for the “*European territorial cooperation*” objective;

The following table shows the resources allocation by year:

Table no.1

**European grant funds for Romania between 2007-2013**

Billion Euros

Year	2007	2008	2009	2010	2011	2012	2013	Total
Convergence	0.830	1.215	1.654	1.997	2.154	2.319	2.489	<b>12.661</b>
Cohesion Fund	0.445	0.638	0.858	1.030	1.109	1.192	1.278	<b>6.552</b>
European territorial cooperation	0.060	0.061	0.062	0.064	0.066	0.068	0.070	<b>0.455</b>
<b>Total</b>	<b>1.335</b>	<b>1.915</b>	<b>2.576</b>	<b>3.092</b>	<b>3.330</b>	<b>3.580</b>	<b>3.837</b>	<b>19.668</b>

From the amount of 12.661 billion Euros, the European Regional Development Fund receives 8.997 billion and the European Social Fund receives 3.684 billion.

In addition, there are two complementary funds: the European Agriculture Fund for Rural Development, which consists of 8.022 billion Euros and the European Fishing Fund, which consists of 0.231 billion Euros.

By adding 6.552 billion Euros from the Cohesion Fund, we get the total amount of 27.466 billion Euros, which represents the European contribution to Romania’s development in 2007-2013.

The Structural and Cohesion Funds contribute to the achievement of the EU cohesion policy objectives, by implementing the Operational Programs at the national level.

From the total cost of each project, the beneficiary must pay the ineligible expenditures and the co-financing. The share of the co-financing varies between 0% and 75% of the eligible expenditures and they are set for each program.

At national scale, having a direct regional impact, is the Regional Operational Program, developed within “Convergence” objective. The total budget of the program is 4.4 billion Euros. The EU finances 3.7 billion, while the rest of the amount is ensured by national funds, 14% from public co-financing and 2% from private co-financing.

*Municipal bonds*

**Bonds** represent a form of loan, with multiple creditors, given for a fixed period, with a fixed or variable interest rate, which can be transferred to a third party through the stock market. The fixed or variable interest rate is presented from the moment of bond issue. The investors who buy these securities become multiple creditors of the issuing entity.

Within the context of this presentation, *bonds* represent medium/long term securities, issued by a local public authority, whose reimbursement is guaranteed through the revenues of the administrative entity.

The main bond issuers are the public administrations (both central and local). The purpose of issuing bonds is to cover budgetary deficit and to finance important investments for the community.

The contraction of local public debt by issuing bonds respects the legislation regarding securities. The issue can be made directly by public authorities or by agents and specialized institutions.

Currently, on the market, there are bonds with variable interest rate, usually correlated with the ROBID and the ROBOR. The change of the reference rate influences the coupon's rate.

***The current situation of municipal bond issuing*** is far from showing the public authorities' interest for attracting additional resources in this way.

Table no. 2

**Resources attracted by issuing municipal bonds**

Million lei

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	TOTAL
Value	1.50	12.65	46.51	31.79	38.75	84.65	155.00	236.00	258.50	865.35
Number of issues	2	8	13	10	6	9	6	7	10	71

From the total amount of 865.35 million lei gathered from municipal bond issues, more than half are located in two regions: the West (33%) and the Nord-East (25%). The third region is the Centre, with 22%. At the county level, Timis is on the first place, with 21%, followed by Bacau and Alba, with 13% each.

Some regions and counties show prominent issuers of municipal bonds, such as Alba, with 10 issues, Timis, with 9 issues, Brasov, with 7 issues, Bacau and Hunedoara, with 6 issues each.

*Foreign direct investments*

*The foreign direct investment* (FDI) represents a long term investment relationship between a resident entity and a foreign one. This type of relationship involves a significant managerial influence from the investor in the company in which he invested.

There are considered as foreign direct investments the following:

- a) *share capital* and the reserves assigned to a foreign investor who holds at least 10% of the subscribed capital of a resident enterprise;
- b) *loans* between the investor and the enterprise;
- c) *reinvested profit* by the foreign investor;

FDI components are:

- *equity capital*, respectively subscribed and paid up capital owned by non-residents in resident companies, and the share of the reserves;

- *net credit*; the loans received by foreign direct investment enterprise from foreign direct investor or the group of non-resident companies to which the investor belongs, less the credits granted by direct foreign investment enterprise to foreign direct investor or to other companies within the group of companies.

Between 2005 and 2009, the annual average of net input of foreign direct investments was 6900 million Euros.

The following table presents the annual inputs of foreign direct investments, split on net participations (including reinvested profit) and the received net credit.

Table no. 3

### Net inputs of foreign direct investments

Million Euros

Year	Total, of which	Net participations		Received net credit	
		Value	%	Value	%
<b>2005</b>	<b>5,213.0</b>	3,852.0	73.9	1,361.0	26.1
<b>2006</b>	<b>9,059.0</b>	6,832.0	76.0	2,227.0	24.0
<b>2007</b>	<b>7,250.0</b>	3,547.0	49.0	3,703.0	51.0
<b>2008</b>	<b>9,496.0</b>	4,873.0	51.3	4,623.0	48.7
<b>2009</b>	<b>3,488.0</b>	1,729.0	49.6	1,759.0	50.4

The amount of foreign direct investment increased from 2005 to 2009 reaching 49.984 million Euros at the end of this period. Compared to 2005, the increase was more than 220%. This amount includes differences in value arising from revaluation due to changes in exchange rates and prices, as well as accounting restatements.

The following table presents the territorial distribution of foreign direct investments.

Table no. 4

### The distribution of foreign direct investments on development regions

Million Euros

Year	2005		2006		2007		2008		2009	
Region	Value	%*	Value	%	Value	%	Value	%	Value	%
<b>TOTAL, of which:</b>	<b>21,885</b>	<b>100</b>	<b>34,512</b>	<b>100</b>	<b>42,770</b>	<b>100</b>	<b>48,798</b>	<b>100</b>	<b>49,984</b>	<b>100</b>
Bucharest	13,264	60.6	22,205	64.3	27,516	64.3	30,594	62.7	31,699	63.4
Centre	1,838	8.4	2,653	7.7	3,541	8.3	4,146	8.5	3,703	7.4
Southeast	1,610	7.4	2,559	7.4	2,942	6.9	3,551	7.3	2,938	5.9
South	1,491	6.8	2,228	6.5	2,448	5.7	3,411	7.0	3,576	7.2
West	1,388	6.3	1,948	5.6	2,365	5.5	2,626	5.4	3,095	6.2
Northwest	1,257	5.8	1,570	4.6	1,907	4.5	2,108	4.3	1,940	3.9
Southwest	745	3.4	938	2.7	1,379	3.2	1,226	2.5	2,058	4.1
Northeast	292	1.3	411	1.2	672	1.6	1,136	2.3	975	1.9

Until 2008, excepting the Southwest Region, the general and regional trends were ascending. At the national level, the increase was more than 220%, from 21.885 million Euros in 2005 to 49.984 million Euros in 2009. This trend maintained in the regions. In 2009, the amount of foreign direct investment decreased in 4 development regions. In the Centre, Southeast, Northwest and Northeast the amount decreased with 10-18% compared to 2008.

Regarding the structure of foreign direct investments, 50% of the annual amount of FDI represents tangible and intangible assets. This aspect shows a significant durability of the foreign direct investment.

The analyzed data indicates the orientation of foreign capital towards industry and the decrease of tangible and intangible assets in this economic field from 34.9% in 2005 to 24.3% in 2009.

#### *Public-private partnership*

The public-private partnership is an economic mechanism consisting in the association of two partners – a public authority and a private investor – in the purpose of creating a public commodity or a public service, as they are defined in the Romanian legislation.

*The public-private partnership project*, realized entirely or partially with own financial resources or resources attracted by the investor, according to a public-private partnership model, refers to the following:

- a) cooperation between the public partner and the private partner;
- b) private financing of the public-private partnership;
- c) the purpose of the partners is to finance and to apply the public interest objectives and to respect the stipulations of the public-private partnership contract;
- d) the risks are assigned proportionally and fairly between the two partners.

The following table shows the situation of public-private partnerships on a regional scale:

Table no. 5

#### **Public-private partnerships on development regions**

<b>Region</b>	<b>Number of PPP, of which:</b>	<b>Local halls</b>	<b>County Councils</b>	<b>Other authorities</b>
Northeast	5	3	2	-
Southeast	4	2	2	-
South	5	-	4	1
Southwest	3	-	3	-
Northwest	8	4	-	4
West	4	1	3	-
Centre	3	2	1	-
Bucharest	8	2	5	1
<b>TOTAL</b>	<b>40</b>	<b>14</b>	<b>20</b>	<b>6</b>

By analyzing the regional distribution of public-private partnerships and the sectors where they were used, it is noticed that:

– In the whole country, there are approximately 40 projects in different stages.

– The involvement of central authority in local development using this method of financing is very low (only 15%).

– Regarding the regions, the first place is occupied by Bucharest and Northwest, with 8 projects each, followed by South and Northeast, with 5 projects each.

– The fields where this type of projects was implemented are the infrastructure (parking, roads, motorways and airports), collecting waste, residual water treatment etc.

– Compared to the needs for development, the public-private partnership is poorly used.

*Bank loan*

The role of bank loan in financing local economic development must be analyzed according to all factors involved in local development: local public authority, private economic agents and individuals.

One of the consequences of local public finance decentralization is the increase of the need for financial resources for financing the expenditure caused by taking over some attributions of the central authority. This situation, together with the international trend, led to the right of local public authorities to access bank loans. Because of this, all the local economic actors have access, in one way or another, to the bank loan.

Conditions for offering a loan to different customers vary from one bank to another through some features such as cost, timing, volume etc. Although they are an expensive resource, bank loans have some advantages that include them among the available resources for local economic development: immediate access to the resource, flexible terms for acquiring them, variety of types, negotiable cost etc.

- *SWOT analysis of non-budgetary resources for financing local economic development*

FINANCING SOURCE	STRENGTHS	WEAKNESSES
<b>BONDS</b>	<ul style="list-style-type: none"> <li>• Ensuring a high degree of autonomy for defining the terms and conditions of the loan. The local public authority decides aspects regarding the value of the loan, interest rates, loan deadline etc.;</li> <li>• The direct access of population to the municipality's investment process, lacking some imposed measures (taxes or supplementary fees). The local population can buy bonds, thus becoming involved in completing local interest projects;</li> </ul>	<ol style="list-style-type: none"> <li>1) Limit imposed by the possibility of guaranteeing such a loan: part of the public authorities' claims, which represent current revenues and split quotations from the income tax;</li> <li>2) They are dependent on the investor's behaviour;</li> <li>3) They are sensitive to the economic context (ex. economic crisis);</li> </ol>



	<ul style="list-style-type: none"> <li>• The increase of local citizens' standard of living, through the increase of revenues due to the coupons, for those who invest in bonds, and the benefit of the objective realized on this way;</li> <li>• Lower total costs;</li> <li>• Ensuring the liquidity needed for paying the principal through a new issue;</li> </ul>	
<b>CREDITS</b>	<ol style="list-style-type: none"> <li>1) Regarding the local public authority, the loan represents a resource attracted in favourable conditions. Its purchase takes place through an auction, in which the most advantageous offer is accepted;</li> <li>2) The resource is independent of investors' behaviour;</li> <li>3) The contract timing is flexible;</li> <li>4) The distribution of this resource on investment objectives is on the public authority's decision;</li> <li>5) It is available to the entire local community;</li> </ol>	<ol style="list-style-type: none"> <li>1) There is a limit imposed by the law to the local public authority;</li> <li>2) Local policymakers' reluctance;</li> <li>3) Local policymakers' economic culture;</li> <li>4) Economic instability in both private and public sector, with consequences on the labour market;</li> </ol>
<b>EUROPEAN FUNDS</b>	<ol style="list-style-type: none"> <li>1) They do not require costs;</li> <li>2) The access to one domain or another, according to the way they are structured, is not limited;</li> </ol>	<ol style="list-style-type: none"> <li>1) Structural funds operate on the principle of reimbursement of expenditure by the eligible beneficiaries;</li> <li>2) They have a high level of bureaucracy during the approval stage;</li> <li>3) Both the total value and the annual value are limited;</li> <li>4) They are assigned to well specified fields;</li> </ol>
<b>PUBLIC PRIVATE PARTNERSHIP</b>	<ol style="list-style-type: none"> <li>1) Higher acceptance of measures by including private enterprises in development activity;</li> <li>2) Enlargement of the work frame by attracting a convenient resource;</li> <li>3) The separation of the accomplished objective from the administrative mechanism offers a better image through the high degree of flexibility;</li> <li>4) The economic flow is simplified;</li> <li>5) The ongoing of projects at a rapid pace;</li> </ol>	<ol style="list-style-type: none"> <li>1) Less information because of reducing contact with the public administration;</li> <li>2) Costs transferred to beneficiaries;</li> <li>3) Financial dependence on private;</li> <li>4) Diversifying interests may cause delays in taking decisions;</li> <li>5) Lack of decision competence;</li> </ol>
<b>FOREIGN DIRECT INVESTMENTS</b>	<ol style="list-style-type: none"> <li>1) They help the decrease of the current account deficit;</li> <li>2) They have a significant contribution to the development of economic productive sectors;</li> </ol>	<ol style="list-style-type: none"> <li>1) The investment decision belongs to the investor;</li> </ol>

<b>FINANCING SOURCE</b>	<b>RISKS</b>	<b>OPPORTUNITIES</b>
<b>BONDS</b>	1) The emotional impact of the economic crisis on the investors; 2) The risk of not paying the principal because of the decrease of revenues from taxes and fees; 3) The risk of not paying the interest;	1) The fact that there were no delays of payment and all the issuers complied with the schedule of payment provided in the issuing prospect demonstrates the accessibility of this type of financing; 2) The positive image helps attracting citizens towards public investments and opens the way for a direct communication between the community and the local administration; 3) The insurance for the local public authorities of resources needed for local development, not having the possibility of increasing their capital by issuing shares; 4) They can be used in hedging contracts for decreasing the risk of changing the interest rate; 5) Financial risk can be insured;
<b>CREDITS</b>	1) Evolution of the exchange rate; 2) Evolution of the interest rate;	1) They are banking products with negotiable components; 2) They are offered to the entire community; 3) They represent the main method of restarting the economy;
<b>EUROPEAN FUNDS</b>	1) A weak concern for attracting European funds; 2) The loss of the right of receiving such funds;	1) For their attraction and use it can be used special assistance; 2) They represent a source of development on multiple areas and they are organized in various domains;
<b>PUBLIC PRIVATE PARTNERSHIP</b>	1) The failure to accomplish the project's tasks; 2) Inexact designing and developing; 3) Incorrect estimation of the demand; 4) Environment impediments; 5) Financing; 6) Performance level; 7) Legislative dynamics; 8) High level of bureaucracy;	1) It represents a solution for achieving some objectives; 2) It joins public and private interest; 3) It helps the increase of the labour market; 4) It may contribute to the improvement of salaries;
<b>FOREIGN DIRECT INVESTMENTS</b>	1) Lack of predictability of the Romanian business environment; 2) The risk of adopting managerial decisions which are independent of the local interest, because of the investor's significant managerial influence in the investee company;	1) The performance indicators of those companies which received foreign direct investments are deteriorating harder because of the investments' structure; 2) Contribution of managerial knowledge due to the investor's significant managerial influence in the investee company;

## Conclusions

The wide offer of financing resources can satisfy the local economic development's needs. It is important to know these resources, their strengths, weaknesses and their limits.

One example consists in European funds vs. other available financing sources, regarding the fact that Structural and Cohesion funds are grant resources, without costs. However, Structural Funds operate on the principle of expenditure reimbursement by the eligible beneficiaries. Those who are not accepted in the program must finance the projects in advance from state funds or private funds. The settlement is made after the assessment of the projects. The amount supported by the European funds varies between 30% and 85% from eligible expenditure. In this case, the rest of the financing can be ensured from other financing resources.

On the other hand, European funds have destinations settled in advance. Individuals cannot access these funds for their personal needs.

On the local scale, the following chain of causes illustrates the connections between the components of the local economic structure: financing source – jobs – consumption – taxes and fees – local budget income – local development.

The proper choice of a financing resource involves the analysis of development priorities, of free resources and of those that include costs and the possibility of involving the private sector by attracting foreign direct investments or by handing some objectives to private partners.

Regarding the concrete situations that took place over the time, the question that arises is whether the main problem in Romania is the optimal usage of resources rather than a wider usage of them.

The optimal usage of the available financial resources for local economic development involves a good knowledge of alternatives and of the complementarity of these resources.

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# THE ROLE OF INTERNAL CONTROL AND FINANCIAL AUDIT IN IMPLEMENTING EUROPEAN FINANCED PROJECTS FROM EUROPEAN SOCIAL FUND CATEGORY

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## Abstract

*In the beginning we have discussed the role of internal control in implementing European financed projects by the European Social Fund, type POSDRU and PODCA. The paper continues by emphasizing the main requirements presented in ISRS 4400 entitled “Missions based on agreed-upon procedures regarding financial data” for the auditing of ESF financed programs.*

*Later on, we have focused on some defining criteria incorporated in CAFR guides and resolutions for POSDRU type European projects according to the European Directives standards. Furthermore we have analyzed some requirements mentioned in the Beneficiary Manual elaborated by AMPOSDRU and AMPODCA in relation to the audit for POSDRU and PODCA type projects. In the end, we have presented the conclusions and suggestions we have come along as a result of our research.*

**Keywords:** *internal control, types of internal control, internal control system, ISRS 4400 objective, audit procedures, actual facts report elements, finalizing an audit mission, audit beneficiary, independent financial auditor, objective of a mission based on agreed-upon procedures, actual facts report*

**JEL Classification:** F<sub>21</sub>, F<sub>34</sub>, F<sub>36</sub>

## Introduction

The discussions on the role and importance of the internal control and financial audit in implementing of European financed projects from Community funds (POSDRU and PODCA) are very important and current, especially now after almost 4 year and a half of implementing such projects, Romania being able to access very few non-refundable European funds, including the above mentioned ones. In our research we have started from the idea that in the general view of the implementation mechanisms of some Community funded projects, the internal control and financial audit of these projects represents two important and vital activities for validating the expenses and reimbursing them from such funds. The

whole effort made to accomplish this paper was based on international, European and national regulations, also on the relevant experience found at various applicants of such projects and also on significant experience gained by the authors in implementing POSDRU and PODCA projects. We have organized the paper by 4 major topics, emphasized also in the abstract of the text, topics that we have considered to be absolutely necessary, and placed in a logical order of the discussed subjects, which we consider that will bring a added value of knowledge to this domain.

### **Literature review**

In accomplishing this research we have investigated, referenced and looked to the most up to date documents and papers regarding the internal control and financial audit in implementing Community funded projects. We have taken into consideration international standards, European Directives and national regulations issued by various organisms related to internal control and financial audit (such as the ones issued by International Accountants Federation – international audit standards – ISA or ISRS, decision taking organisms of the EU – European Directives or the ones issued by the national counterparts, such as Romanian Parliament – laws, Romanian government – regulations, Public Finance Ministry – minister order regarding internal control and eligible expenses, Labour Family and Social Security Ministry and Administration and Internal Affairs Ministry – minister orders regarding eligible expenses, the Management Authorities as organisms responsible for implementing POSDRU and PODCA within the above mentioned ministries – manuals, instructions and decisions, Chamber of Financial Auditors from Romania – chamber decisions, and other professional organisms having affairs in management, internal control and financial audit and control domains. We have approached a series of well known authors from the internal control and financial audit domain, in order to be able to state our own opinions, taking into consideration what has been already regulated and written regarding these domains.

### **Theoretical approach**

In accomplishing this scientific report we wanted to present the key concepts and base components of the main activities and standards which operate in the internal control and financial audit domain. We have in mind: internal control, types of internal control, internal control system, ISRS 4400 objective, audit procedures, actual facts report elements, finalizing an audit mission, audit beneficiary, independent financial auditor, objective of a mission based on agreed-upon procedures, actual facts report.

## **1. The role of internal control in implementing projects having non-refundable external financial support from European Social Fund**

In the process of financial auditing of the entities being required to have such a mission, the financial auditor needs to pay attention to the requirements of internal control (carried on in each entity under the administrator's supervision) and the ISA requirements regarding various deficiencies which might appear during this type of control.

According to OMFP no. 946 from 2005 (Official Monitor of Romania, no. 675/2005) for the approval of internal control code (which includes management and internal control standards of public entities and for the development of managerial control systems), the internal control represents all the policies and procedures issued and implemented for: a) reaching the public entity's goals in an economic, efficient and effective way; b) respecting the external rules, policies and management rules; c) protecting goods and information; d) preventing and tracking down fraud and mistakes; e) assuring the quality of accounting documents and generating in a timely manner trustful information, regarding the financial and managerial segment.

In other words, the internal control represents the sum of all the control activities underwent within the entity, organized in a managerial system and under coordination of the general management being accomplished by vertical management (directors, department managers, office managers) and all the personnel in the organization [Ghiță Marcel, 2009, p. 66].

In a more definite way, the vertical management draws for each group of activities, functions, programs, forms of internal control, meant to limit and to maintain the risk associated within the organization's accepted level. These forms of internal control are the following: a) activity auto-control, by respecting the operational working procedures by each individual employee; b) mutual control, accomplished in between the phases of a procedural chain, performed by each work position on the effectiveness of applying the procedures within the previous work position, to be able to add own set of workings and to prepare for the control to be done at the next work position; c) hierarchical control, performed on each level of responsibility, according to the job descriptions; d) partner control, carried on by commissioning competences in between different levels of responsibility.

Beside these forms of internal control, the management may introduce other forms of internal control, to be included in the operations chain, such as: 1) quality control, in different key points of the operations chain; 2) pre-emptive financial control; 3) managerial accounting financial control, stated by the law; 4) accountancy financial control; 5) administrative control; 6) inspections; 7) other control activities proposed by the management.

As a conclusion, for public institutions (not being limited to them), the internal control is not a department, a structure, a position, it is a process performed by all the employees and coordinated by the vertical management, through operational work procedures and it is under responsibility of the general

management, which monitors it through the work group created for this aim within the organization [Ghiță Marcel, 2009, p. 68-69].

In the law no 234 from 7 December 2010 [Official Monitor of Romania, no. 836/13.12.2010] for modifying and adding to Government Regulation no 119 from 1999 regarding internal control and pre-emptive financial control, there are some legislative changes, having the aim to improve the internal control activity, such as:

1. The director of the public entity issues an annual report on the managerial/internal control, which will be presented as an addendum to the financial statement for the ended financial year.

2. Internal control is performed based on instructions for creating, approving and presenting the public entity director's report on the managerial/internal control (these instructions are approved by order of the ministry of public finances).

3. Public Finances Minister presents annually to the Government (until the end of 1<sup>st</sup> semester of the current year for the previous year) a report on the status of the implementation of the managerial/internal control system within the public institutions where the function of authorizing officer is present.

4. The above mentioned Minister has the responsibility of developing and implementing the policy in the area of management/internal control systems, as well as managerial accounting.

5. The competences of this Minister are performed by the Central harmonization unit for control and financial management systems.

According to OMFP no 3055 from 2009 [Official Monitor of Romania, no. 766/10.11.2009], the internal control of the entity (about businesses) governs the assurance of: conformity with current legislation; applying the decisions taken by the entity's management; good functioning of the entity's internal activity; efficiency of the financial data; effectiveness of the entity's operations; efficient use of resources; pre-emption and control of the risk of not reaching the goals set, etc. As a result, the internal control procedures have the following objectives:

- on one side, supervising the entity's activities and personnel behaviour to respect the legislation, values, norms and entity's internal regulations;
- on the other side, verifying that the accounting, financial and managerial data reported are correctly reflecting the entity's status and activity.

In the context of consolidated financial annual report, the area of financial and accounting internal control refers to the companies within the consolidation.

The financial and accounting internal control of the company, as part of internal control, is applied in order to assure a management accounting and a financial situation of its activities, to point to aimed objectives.

Accounting and financial internal control is a major element of the internal control. It aims all the processes to gather and communicating accountancy and financial data and contributes to the issuing of viable data according to legal exigencies.

Exactly like the internal control as a general term, it is based on a system comprised of elaborating and applying policies and procedures in this domain, including the control and supervising system.



The accountancy and financial internal control assures:

- conformity of reported accountancy and financial data with the regulations applicable to them;
- applying the instructions developed by the management regarding this data;
- assets protection;
- pre-empting and detecting accounting and financial frauds and disorders;
- reliability of data reported and used for internal control purpose, in the extent of this data contributes to the drafting of reported accounting and financial data;
- reliability of reported annual financial statement and other information disseminated to the market.

According to the rules of accountancy, the following should be taken into consideration: a) the existence of a manual of accounting policies; b) the existence of a procedure of applying this manual; c) existence of controls to assure the compliance of the manual; d) the knowledge of the evolution of the fiscal and accounting legislation.

At the end of each fiscal year, the annual financial statements will have the administrator's report, which is drawn according to the exigencies that follow the internal control activity.

Also, the internal audit (where it exists, such as the case of public institutions and large companies, which are obliged by law to have an internal audit department) has the duty to help the entity to perform the internal control. In this way, the process of control is defined in the norms for internal audit [[www.cafr.ro](http://www.cafr.ro)] as all the policies, procedures and activities which are part of a general framework for performing control, conceived to assure that the risks are within tolerable limits established by the process of risk management.

Regarding the responsibility of internal audit of helping the internal control, the same norms mentioned above emphasize the fact that the internal audit must help the entity to keep the efficiency of the controls, by evaluating the efficiency and effectiveness, and promoting the continuous improvement of the above mentioned. Based on the results of risks evaluations, the internal audit activity needs to ascertain how adequate and efficient are the controls regarding entity's governance, operations and information systems of the organization. This evaluation needs to take into account the following: a) reliability and integrity of operational and financial information; b) efficiency and effectiveness of the operations; c) assets protection; d) comply with the laws, regulations and contracts.

The external financial audit evaluates the internal control performed within the audited entities.

Regarding the financial audit there is a standard called ISA 265 "Communicating deficiencies in internal control to those charged with governance and management", which refers to the responsibility of external financial auditors in the evaluation for the internal control.

In the mission of financial audit the identification of deficiencies in the internal control is an absolutely necessary process.

The meaning of a deficiency or a combination of deficiencies in the internal control does not depend only of the extent of the actual misrepresentation, but also of the possibility that a misrepresentation to occur and its potential dimension. This being said, there can be significant deficiencies, even though the auditor couldn't find any misrepresentations during the audit mission.

The internal control system of a beneficiary of ESF financed projects POSDRU and PODCA type has, among others, of internal control procedures, which incorporates the following elements: 1) the governance/management has developed and implemented a system of internal working procedures through which the management can verify the work done within the project; 2) the management can prove that it told the employees about the work procedures/internal controls; 3) there are specific procedures/internal controls regarding the setting up of public auctions in order to select the suppliers; 4) there are specific procedures/internal controls regarding the adequate authorization of contracts with the suppliers; 5) there are specific procedures/internal controls regarding the verification and authorization of execution stages of works/services within the project; 6) there are specific procedures/internal controls regarding the signing and adequate authorization of invoices received from the suppliers; 7) there are specific procedures/internal controls regarding the authorization of payments to suppliers; 8) there are specific procedures/internal control regarding the technical specification of the project.

As far as controls in the financial sector at a beneficiary implementing such projects, the following aspects need to be taken into consideration: 1) whether the beneficiary keeps analytical accountancy evidence for the project, using analytical accounts for reflecting all the operations regarding the implementation of the project; 2) whether the reality of the accountancy data presented by the beneficiary is confirmed (the values recorded in the accounts are according to the annexed justifying documents); 3) whether the justifying documents recorded in the accounts are presented in original; 4) whether all the justifying documents regarding the expenses are recorded in accounts; 5) whether the justifying documents are in original and have the stamp with "Requested reimbursement from ESF POSDRU/PODCA..."; 6) whether the justifying documents are prepared according to the law; 7) whether the reality of the justifying documents is confirmed (the copies sent to Intermediary Organism/Management Authority are according to the original); 8) whether the general eligibility conditions are met for the expenses within the project; 9) whether the expenses are correctly included in the budgeted chapters; 10) whether the expenses within the projects are within the approved budget limit; 11) whether the expenses made are within the percentage limits/ceiling established by the financing contract or future documents that modified the budget; 12) whether the expenses within the project are eligible according to the Order issued by the Minister of Work, Family and Social Security and by Finance Public Minister no 1117/2170 [Official Monitor of Romania, no. 569/23.08.2010] from 17 August 2010 for establishing the rules of eligibility and

the list of eligible expenses within the operations financed through the Sectorial Operational Program “Human Resources Development 2007-2013” and according to the Order jointly issued by the Minister of Administration and Internal Affairs and the Public Finance Ministry no 712/634 from 24 April 2009 for established the rules of eligibility and the list of eligible expenses within the operations financed through Sectorial Operational Program “Development of the Administrative Capacity” and Solicitants’ guides [www.fseromania.ro] related to the projects proposed; 13) whether there is a declaration of own responsibility regarding the existence/inexistence of income generated by the project.

## **2. Main requirements resulted from ISRS 4400 entitled “Missions based on the agreed-upon procedures regarding financial data” for auditing the POSDRU and PODCA type projects**

According to ISRS 4400 entitled “Missions based on the agreed-upon procedures regarding financial data” [International Audit Regulations. Assurance and Ethics, 2008, p. 1033-1042], the objective of a mission based on these procedures is to perform by the auditor the procedures that resemble an audit on which the financial auditor, the entity and any other third person have agreed upon, as well as reporting of the actual facts by the auditor.

The financial auditor should respect the professional accountants’ ethical code issued by IFAC in which we can find the following principles of ethics that need to be respected during these missions: a) integrity; b) impartiality; c) professional competence and attention to details; d) confidentiality; e) professional conduct; f) technical standards.

In such missions the auditor needs be assured along with the entity’s representatives and other third parties, which will receive copies of the report on actual facts (such as the case of POSDRU or PODCA type projects, by the coordination organisms named AMPOSDRU or AMPODCA), that there is clear understanding on the agreed-upon procedures and the conditions of the mission. The issues which should be taken into consideration in such missions include the following: 1) nature of the mission, including the fact that the procedures will not constitute and audit or a revision and, thus, there will be no assurance expressed; 2) the declared objective of the mission; 3) identification of the financial data on which the agreed-upon procedures will be applied; 4) nature, coordination and the extent of the specific procedures that need to be applied; 5) anticipative form of the actual facts report; 6) the limitation in distributing the actual facts report (whether such limitations exist and are in contradiction with the law, the auditor should not accept the mission).

It is in the best interest of the customer as well as the auditor that the last one to send a mission letter to clearly define the main terms of the appointment.

Within this kind of mission, the auditor has to apply the procedures that were agreed upon and to use evidence gathered as the foundation for the report on actual facts. The procedures applied in executing a mission based on ISRS 4400 may be of the following types: 1) interviewing and analyses; 2) recalculations, comparisons and

other verifications of the validity of calculations; 3) observation; 4) inspection; 5) confirmation.

Such a report must mandatory comprise of the following elements: a) title; b) addressee (usually the client which hires the auditor to perform the agreed-upon procedures); c) identifying the financial or nonfinancial data on which the agreed-upon procedures where applied; d) a declaration of the fact that the performed agreed-upon procedures where the ones agreed with the customer; e) a declaration of the fact that the mission was executed in conformity with International Standard of Related Services applicable to the missions based on agreed-upon procedures or to the relevant national standards and practices; f) a declaration of the fact that the auditor is not independent from the entity (when it is relevant); g) identifying the objective for which the agreed-upon procedures where applied; h) a list of performed specific procedures; i) a description of the actual facts observed by the auditor, including sufficient details related to the errors and exceptions found; j) a declaration about the fact that the performed procedures do not constitute an audit, nor revision and thus no assurance is to be expressed; k) a declaration that, if the auditor would have performed additional procedures, an audit or a revision, other issues might have been discovered and would have been reported; l) a declaration of the fact that the report is strictly addressed to those parties which have convened to the procedures that will be performed; m) a declaration (if required) of the fact that the report is referring only to the elements, accounts, positions and financial and nonfinancial data mentioned and that these are not extending to the financial statements of the entity in general; n) the date of the report, address and signature of the auditor.

### **3. Defining requirements incorporated in the CAFR and CECCAR guides and decisions for auditing the POSDRU and PODCA type European funded projects through ESF, according to the requirements of the European Directives in this field**

A recent regulation issued by the professional organism in the field regarding the audit mission according to agreed upon procedure is represented by **Government regulation no 274 from 15 December 2011 referring to the changing and supplementing CAFR counsel decision no182/2010 for approval of the procedures related to the quality revision of the financial audit activity and other activities performed by the financial auditor** [Official Monitor of Romania, no. 86/2012].

In addendum no 2 of the above mentioned decision, entitled **List of objectives for quality revision of the missions based on performing the agreed upon procedures related to the financial data (ISRS 4400)**, there are a series of elements necessary to complete such audit missions, such as: 1) general objectives; 2) mission terms; 3) audit planning; 4) finalizing the commitment.

We will emphasize only some aspects from the part referring to audit planning, which we considered defining in such a mission (procedures specific to

mission contracting, verification of the data from the reimbursement forms, finalizing the commitment).

Regarding the specific procedures of contracting missions of this type for Community funds financed projects (like the ones financed through ESF) by participating to auctions, it will be checked whether the paper presented for auditing (which is the intermediary or final reimbursement form) is in the first place in conformity of the form. To this effect, the financial auditor will check to see whether the following requirements are met: a) information from the header, including title and symbol of the project, need to be correctly spelled and written, without abbreviations; b) the paper should present all the signs that need to accompany the reporting documents, according to the Visual Identity Manual; c) the referenced period should be correctly stated; d) the person signing the forms (intermediary or final financial report or intermediary or final reimbursement form) should be the legal representative of the beneficiary; e) the sums mentioned in the technical and financial report and in the intermediary and final reimbursement form should be calculated according to the percentages established by the financing contract (the percentage from EU, the percentage from the state budget, percentage of co-financing).

A very urgent issue would be the verification whether the information included in the reimbursement form is reconciling with the accounting system and the recordings of the beneficiary (e.g. balance sheet, recordings in the analytic and synthetic accounts). The analytic balance sheets of the beneficiary and the partners (where necessary) need to have distinct recordings of all the transactions and expenses made within the financing program and to allow an efficient and effective check of the expenses recorded in the expenses evidence and in the reimbursement form.

Following this idea, it will be shown whether the financial auditor has mentioned in the audit report all the differences that were observed as a result of verification of the expenses made, if they: a) are reflected in the accountancy; b) are supported by justifying documents; c) are recorded in the balance sheets by using distinct analytic accounts; d) are from the mentioned period and they reconcile with the eligible expenses stated in the expenses' reimbursement form.

It is very important for the financial auditor to check the conformity of the expenses with the budget and with the analytic revision of the classification of the expenses in each line of financing, having in mind all the amendments on the financing contract budget, and to present the non-eligible expenses, whether they were declared in the financing request form of the project.

Regarding the end of commitment of the audit, at least three aspects will be taken into consideration: 1) whether the auditor has documented the section A "Finalizing the audit" from the Guide referring to quality audit and its components (sections A3 – A14); 2) whether the auditor has documented the revision of the conclusions drawn from the gathered audit evidences, as a base for elaborating the Actual Facts Report (Section A14 "Audit report", adapted); 3) whether the auditor has elaborated the "List of verification related to the completion of the dossier" (sections A5/4 and A5/5).

In the process of auditing of each expenses' reimbursement form, the **professional accountant** should evaluate the internal control performed by the project manager on the entire beneficiary's team and on the ones involved from the partners, in order to appreciate in which extent he can trust this activities and whether the audit control risk is high or low, on which the variety of the documents verified by the auditor is based.

In another paper issued by CAFR [CAFR, Quality audit guide, 2010] there are presented, regardless of the type of audit mission (agreed upon procedures type of missions is included in here), all the sections mandatory and necessary for an audit mission and the elements comprised. Thus: **section A** is comprised of documents that aims two aspects, which are: **I) Signing**, which has in its components: 1) copy of signed financial statements; 2) signed letter of representation; 3) the list for verifying the aspects which need to be taken into consideration in the future; 4) revision by the independent partner/hot revision of the file; and **II) Finalizing of the audit**, that unifies all these elements: 5) finalizing the audit; 6) significant aspects; 7) revision of the letter toward governance; 8) revision of the letter of representation; 9) errors summary; 10) revision of the financial statements and list for verifying the presentations; 11) final analytic revision; 12) events following the end of financial year; 13) activity continuity; 14) audit report; 15) other adequate programs for the specific mission.

**Section B** aims the audit activity and is comprised of the following documents: 1) planning objectives, conclusions, approval and list for verifications; 2) acceptance of appointment and re-appointment; 3) acquainting with the client and evaluating risk; 4) risk evaluation; 5) materiality; 6) preliminary analytic revision; 7) risk evaluation summary and sampling plan; 8) initial closing balance; 9) planning agreement of the audit; 10) permanent list for information verification; 11) calendar for meeting planning; 12) previous year's accounts.

**Section C** is referring to the revision of the internal control and is comprised only of accounting systems and internal controls.

The elements of the financial statements are spread within **sections from D to U** and they refer to: intangible assets, tangible assets, investments; stocks and work in progress; debtors; bank accounts and petty cash account; creditors, taxes, debts, contingent liabilities and commitments, statutory aspects, capital and reserves; sales and revenues; purchases and expenses; salaries; profit and loss account; affiliated entities; cash flow status; conformity with the law and regulations; balance sheet.

Based on the type of audit missions according to the agreed-upon procedures, only the sections that are relevant to such mission will be used. For the audit missions of POSDRU type projects we will use only the documents from the sections mentioned in the Decision no 274 from 15 December 2011, which we previously referred to.

#### **4. Requirements stated in the implementation Manuals issued by AMPOSDRU and AMPODCA for performing the audit to the ESF financed projects**

The mission regarding the agreed-upon procedures represents a type of service by which a financial auditor, authorized by the law, is contracted to perform audit type procedures, on which the auditor has convened together with the entity and any other third party interested, and report on actual facts, without stating an opinion.

Each intermediary/final reimbursement form registered by the beneficiary to AMPOSDRU/responsible IO, will be accompanied by the Actual Facts Report issued by and independent financial auditor authorized by the law.

The independent financial auditor will be selected with respect to the conditions of the current legislative regulations related to public acquisitions. The finance auditor will be selected from the active members of the Financial Auditors Chamber from Romania, having had an adequate professional conduct, and without being sanctioned for disciplinary misbehaviour in the last 3 years [www.fseromania.ro].

Regarding the **responsibilities of the parties related to the commitment, “the beneficiary”** is referred to the organization that received the non-refundable financing and has signed the financing contract with the Management Authority/delegated Intermediary Organism.

The beneficiary is responsible for producing the Reimbursement form for the financed action by the financing contract and for assuring the fact that this reimbursement form can be adequately reconciled with the accounting and recording system of the Beneficiary, with the basic recordings and the financial accounts.

**“The independent financial auditor”**, the other party in the contract, is a person or a firm (audit firm) authorized by the current law by the competent authority, which is the Financial Auditors’ Chamber from Romania, to perform an audit in conformity with the regulations adopted by this institution.

The auditor is responsible for executing the agreed-upon procedures as they are mentioned in the Technical Standards and for transmitting to the Beneficiary a Report on Actual Facts.

The subject of such a commitment is the Reimbursement Form (intermediary or final), referring to the financing contract for the implementation period of the project covered by the form. The information, both financial and non financial, which are subject to verifications by the auditor, represent all the information which makes the verification of the expenses requested for reimbursement by the Beneficiary in each Form possible, whether they have been done, are legal, exact and eligible.

The reason of such a commitment is that the Beneficiary needs to send to the Management Authority/Delegated Intermediary organism an Actual Facts Report issued by an independent financial auditor in supporting the requested payment for the Beneficiary according to Article 7 of the General and Special Conditions of the

financing contract. The one responsible for ordering the payments of expenses from the Management Authority is requesting this report, because he is responsible for reimbursing all the expenses made by the Beneficiary, based on this actual facts report.

The term eligibility means that the provided funding from the non refundable financing have been expensed according to the terms and conditions of the financing contract and the Order for expense eligibility applicable at the time of each expense.

The report on Actual Facts needs to describe the objective and agreed-upon procedures of this commitment in sufficient details, in order to allow the Beneficiary and the Management Authority/Intermediary Organism to understand the nature and the measure of the performed procedures of the auditor. Using the exact form of the report which is annexed to the Technical Standards is mandatory.

The Actual Facts report needs to refer to the following major aspects: 1) objective; 2) aim of the paper; 3) information sources; 4) actual facts; 5) use of the report; 6) details of the report (chapter 1: information on the grant contract and the action; (chapter 2: performed procedures and actual facts) [[www.fseromania.ro](http://www.fseromania.ro)].

In the final section of our paper we will deal with some difficulties that might occur during the internal control and during the auditing of POSDRU and PODCA type European projects.

From the documenting that we have done so far, we have ascertained that the financial auditor might encounter a series of difficulties while verifying the expenses related to each of the project's reimbursement form, such as: 1) there are no management procedures nor internal control within the projects, or if there exist, they are general and cannot be applied in particular to the specific of the entity or the project that needs to be implemented; 2) the effectiveness of the control of the management team is very often formal and does not cover all the areas of the project that needs to be implemented, taking into account what is requested for control from the intermediary organisms that govern; 3) the graphic of activities is not precisely followed, graphic presented as an annex to the financing contract, in its initial or modified form, agreed by the delegated Intermediary Organisms; 4) there are some deficiencies in some activities where the target group is involved; 5) some errors occur in correctly and timely elaborating of the necessary documents for the public acquisitions stated in the financing request of the project; 6) some documents and financial procedures are elaborated with errors; 7) there are some notifications and addendums to the contract with are not correctly or timely elaborated, which are related to different financial aspects such as: budgets modifications, reimbursement forms graphic modifications, VAT reimbursements requests (for the beneficiaries that are entitled to this right according to OUG no. 64/2009); 8) there are some deficiencies regarding the distinct accountancy of the operations within the projects.



## 5. Conclusions

Of all the information presented in our paper, we can draw some conclusions which are more important such as: 1) the management team of each project needs to establish its own management procedures and internal control, starting from the requirements of the general orders presented in this paper and following with the particular aspects of the control for implementing this kind of projects (POSDRU and PODCA type); 2) the firms and independent financial auditors have managed to involve in this type of audit putting some value to the good practices and the accumulated experience from the pre-adhesion funds (such as: PHARE, ISPA and SAPARD) and then adapting their activities to the new requirements imposed by the Community funded projects after-adhesion (including the ones have non-refundable external financing through ESF); 3) marketing this type of audit was very difficult for this Community funded projects, by new firms and independent auditors, some of them transmitting unacceptable low price offers for such missions, only to enlarge the portfolio, participating at auctions where the price was the only criteria; 4) not all the firms and independent auditors implied in auditing POSDRU and PODCA type projects have performed high quality missions to be in conformity with ISRS 4400 and the model report indicated by the MA, taking into account also of the internal control evaluation of the audited entities, which generated the fact, that in some projects, the intermediary organisms which performed the control on implementation of these project have discovered deficiencies and considered some expenses as being non eligible, which should have been previously stated by the financial auditors as non eligible and should have disposed not to include them in the Expenses Evidence, annex of the Reimbursement Form; 5) the unequal collaboration in such missions between the financial auditors and the expert accountants, which generated the fact that some irregularities in the activities and expenses were not discovered by neither party, regarding the form, content and correctness; 6) insufficient knowledge of the legislation related to the public acquisitions done from non-refundable external funds and the superficial verification of the awarding documentation, which can determine applying some financial corrections on the expenses reimbursed to the Beneficiaries; 7) presence of some superficial reports on Actual facts without the complete presentation of the required information by the instructions of the Management Authority of POSDRU and PODCA, and based on them there will be some sampling of justifying documents from the total of the ones declared in the reimbursement forms; 8) the certification of the expenses declared by the transnational partners without verifying the existence of some management operational procedures according to the community and national legislation.

For the activity of financial audit within the POSDRU and PODCA type projects according to ISRS 4400 to be performed in the best possible conditions, in our opinion, the following should be enforced: 1) the continuing of systematic and profound training of the independent financial auditors by CAFR using the current training system (centralized or on-line), on the way of performing this type of audit

according to ISRS 4400 for ESF funded projects and other Community funded projects; 2) elaborating some specific worksheets (besides those used for statutory audit) for this type of missions by CAFR, according to the exigencies of the standard, the requirements of HG no. 274 from 15 December 2011, the exigencies of the management authorities as well as similar organisms for the other community funds, regarding auditing the expenses made and solicited through reimbursement forms, intermediary or final; 3) the continuing of systematic and profound training of the expert accountants within a visibly improved training system, on the way of performing the missions of recording or verifying the accountancy for non refundable financed projects and for other Community funded projects; 4) permanent collaboration between the financing authorities with the CAFR and CECCAR in the effort to respecting the provisions of the collaboration protocols signed and implementing the best practices in the activity of the financial auditors and expert accountants.

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# THE INFRASTRUCTURE OF THE ROMANIAN FINANCIAL SYSTEM IN THE CURRENT CRISIS

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## **Abstract**

*International macroeconomic and financial environment is subjected to tension but remains relatively strong, even if there is a visible slowdown in economic growth in some countries, it materializes the asset price correlation due to perceptions adjustment regarding risk, and financial market characteristics change significantly.*

*Systemically important components in the financial system architecture are represented by the payment and settlement system for financial instruments. These systems, from their implementation until now, did not face particular problems because of high standards observance in terms of safety and operational efficiency and the measures taken by the central bank.*

**Keywords:** *ReGIS payment system, European System of Financial Supervision (ESFS), European Systemic Risk Board (ESRB)*

**JEL Classification:** G<sub>01</sub>, G<sub>21</sub>, G<sub>32</sub>

## **Introduction**

The new European architecture of the financial system includes the modifications of the European financial settlements which sights out the transitions to a more resistant financial system in front of the future possible crises, as well as the achievement of an equilibrium between the economic development and assuring the stability of the financial system.

Along with the apparition of the global economic crisis, significant shortcomings in the settlement and supervision of the international financial system were highlighted.

The main causes that led to a growing vulnerability of the international financial system were the development of the financial institutions with an intense cross-border activity, the recession of the financial market by using complex tools and the growth of the financial institutions' interconnectivity degree.

## **Literature review**

The economical crisis can be seen in all fields of activity, but most of all in the banking one. It is maybe one of the most affected fields of activity, if we take into consideration the annual banking indicators published by the National Bank of Romania and other trading banks [Moroşan Gheorghe, 2011].

The main indicator that keeps a bank unit on the market is profitability. To line up the Romanian banking system to the European banking system, the National Bank of Romania must adopt a series of decisive measures in order to demonstrate the fact that the banking system under its supervision is built on a solid ground, being a healthy banking system, with a fit stock [Bratu Silviu Marius, Bratu Alina Ramon, 2010]. One of the main measures to be taken is monitoring the good functioning of the payment systems on the Romanian territory. The banks are still facing serious difficulties, as the crisis is far from being over, and day by day the clients lose their trust in the banking system.

The electronic payments system has been introduced in 2005 to realize some in-line payment systems at international level. During 2010 and the first semester of 2011, the ReGIS payments system has not faced major risks, being capable to absorb the liquidity shock due to the sufficient financial resources of the participants, the state bonds available in the portfolio of the credit institutions, but also due to crediting facilities offered by the NBR [Eduard Ionescu, Cristian Oprea, 2010].

### **1. The reform of the European institutional framework**

The recent financial crisis justified the idea of creating a new supervision architecture for the financial system. The financial crisis highlighted the imperfections of the old supervision system, as well as the impossibility of identifying precisely *ex ante* the systemic risks and the interconnection between the institutions and the markets that threatens its stability. The necessity of approaching the financial supervision from the two perspectives – micro-prudential and macro-prudential – has also determined the reconsideration of the institutional framework of supervising the financial system.

At the beginning of 2011 a new European System of Financial Supervision (ESFS) came into operation and was formed of the following two pillars:

- Micro-prudential pillar – The European Supervisory Authorities (ESA);
- Macro-prudential pillar – The European Systemic Risk Board (ESRB).

Those pillars are represented by the three European Supervisory Authorities – the European Banking Authority (EBA), European Securities and Markets Authority (ESMA), the European Insurance and Occupational Pensions Authority (EIOPA) – and the Joint Committee of the European Supervisory Authorities.

The European Systemic Risk Board is responsible for the macro-prudential oversight of the financial system, while the European Supervisory Authority is responsible for the micro-prudential oversight of the financial system. By

exchanging information between the two structures (ESRB and ESA), a more efficient supervision of the financial services at the level of the European Union will be possible.

In the Regulation (EU) No 1092/2010 of the European Parliament and of the Council of 24 November 2010 on European Union macro-prudential oversight of the financial system and establishing a European Systemic Risk Board (ESRB Regulation), becoming effective on 16 December 2010, the mission of the ESRB is stated: *The ESRB shall be responsible for the macro-prudential oversight of the financial system within the Union in order to contribute to the prevention or mitigation of systemic risks to financial stability in the Union that arise from developments within the financial system and taking into account macroeconomic developments, so as to avoid periods of widespread financial distress. It shall contribute to the smooth functioning of the internal market and thereby ensure a sustainable contribution of the financial sector to economic growth.*

The mission of the European Systemic Risk Board, according to the Regulation No 1092/2010 of the European Union, sights out also the prevention and reduction of the systemic risk, and the ESRB's field of activity covers the Union financial market, but it must not exclude both the risks from non-EU countries and the vulnerabilities specific to certain countries or region, vulnerabilities that can spread all over Europe.

Amongst the most important tasks of the European Systemic Risk Board, one can cite determining and/or collecting and analysing all the relevant and necessary information, but also identifying and prioritising systemic risks depending on priority. As important tools, the European Systemic Risk Board holds the possibility of issuing warnings where such systemic risks are deemed to be significant and issuing recommendations for remedial action in response to the identified risks.

The European Systemic Risk Board has the obligation of coordinating its actions in the field of the macro-prudential supervision with those of international financial organisations, particularly the International Monetary Fund and the Financial Stability Board as well as the relevant bodies in third countries.

## **2. Measures taken by the Central Bank in order to limit the risks associated to the functioning of the payment and settlement systems**

One of the fundamental conditions for maintaining the financial stability in a modern economy is the optimal functioning of the financial institutions and markets, together with a secure and efficient functioning of the payment and settlement systems.

One of the statutory responsibilities of the National Bank of Romania is promoting and supervising the good functioning of the payment and settlement systems, in order to evaluate, identify and implement the right measures that lead to reducing the associated risks, on the account of the most relevant standards and recommendations at international level.

The authorised financial systems on the territory of our country are:

- ReGIS – the national real-time gross settlement system of payments in domestic currency;
- SENT – payment system that insures the compensation of low value payment funds;
- SaFIR – ensures the depositing of government securities and certificates of deposit issued by the NBR, as well as the settlement of operations in such financial instruments;
- RoClear – clearing-settlement, custody, depository and registration system within the Bucharest Stock Exchange;
- DSClear – clearing-settlement, custody, depository and registration system within the Sibiu Stock Exchange.

One of the most important components of the Romanian financial infrastructure is the ReGIS payment system, which fulfils the necessary criteria in order to be considered of systemic importance, being the only large-value payment system from our country. It is used for settling closed transactions within other payment and settlement systems, mostly processing large-value payments, and being, at the same time, a transmission channel for the monetary policy.

The value of the ReGIS processed payments per gross domestic income in 2010 was 11 times higher. By comparison, SENT payments represented only 44% of the gross domestic income for the same years.

ReGIS system settlement degree calculated in 2010 as a proportion of the volume, respectively the value of the settled transfer instructions and those accepted in the system was 99.96%, and, respectively, 99.97%, while for the settlement systems was 100%.

The most important measures adopted in order to reduce the specific risks of the payment and settlement systems are:

- the settlement system of payments, within the ReGIS system, is realized on a gross basis, in real-time, with a intraday finality, thus reducing the credit risk;
- the settlement of the payments initiated in the ReGIS system is made using money from the central bank, thus eliminating the risk of not being able to finalize the settlement, the participants in ReGIs, obligatorily, have a current account at the central bank;
- the NBR grants the intraday credit facility (intraday repo), as well as the existence of same liquidity management instruments in ReGIS, such as: the prioritisation of payments, the active management of the payment queue, the active (on-line) control of information on its own liquidity, and the set up of reserves on its own account;
- all these payment and settlement systems are authorized on the Romanian territory and fall under the provisions of the Law no. 253/2004 on settlement finality in payment and securities settlement systems, which means that, in case the insolvency procedure for a certain client starts, the securities established in connection with participation in such systems may not be the subject of the claims

raised by creditors, and the settlement, once processed, is final. The rules of those systems have defined the moments these processed instructions become irrevocable.

All the payment and settlement systems authorised on the territory of Romania must have a high level of operational safety and must implement specific procedures in order to ensure its own business continuity in contingency cases.

As the operational security is concerned, during 2010, for example, the ReGIS system registered an overall availability of 99.99%, calculated as a ratio of the real operating duration of the system to the scheduled operating duration, a superior level in comparison with the one stipulated in the contract signed by the NBR and the technical operator of the system.

A first set of measures adopted by the central bank during 2010 within the framework of supervision policy of the system in order to reduce the risks associated to the payment and settlement systems functioning regarded the adequacy of the legal framework so that would correspondently answer the international financial context. For that purpose, the flexibility of the regulations specific to the payment and settlement systems, on the one hand, and the updating of the existent legal framework, considering the current international developments, on the other hand, have been followed.

The National Bank of Romania improved the regulations regarding the settlement risk assessment procedure and the facilities granted by the central bank to liquefy the settlements in this system, in order to reduce the liquidity risk in the ReGIS payment system, as well as to increase the efficiency of using the eligible assets for guarantee. The bank pursued, through those measures, the adjustment of the conditions in which a credit institution, participant in ReGIS, can beneficiate of the intraday credit facility in case that credit institution does not meet the eligibility criteria for the monetary policy operations or the access of that institution to this kind of operations is limited or suspended. Also, those measures helped create the general framework in order for these credit institutions to request The National Bank of Romania the conversion of the repo intraday facility into the lending facility (credit lombard), a measure that allows the prolongation of reimbursing the funds received by intraday credit facilities, as well as using the same eligible assets for guaranteeing both financial operations.

Up to the present, none of the participants in ReGIS have not requested the central bank to convert their repo intraday facility into the lending facility, and also the request for intraday credit facilities (intraday repo) was relatively low in 2010, representing only 0.18% of the total value of the settled transactions in ReGIS, a think that indicates a sufficient level of liquidity in the system.

Another measure the central bank has promoted was eliminating the obligation imposed on payment system participants to establish a technical unilateral guarantee ceiling. This measure was initially meant to minimise the settlement risk of net positions calculated by the paper-based clearing house and currently represents an inefficient blocking of funds in ReGIS or of large-value securities in SaFIR without ensuring mitigation of the settlement risk.

The National Bank of Romania has initiated the steps for the implementation of some direct connections between the SaFIR system and the central depositories

where there are recorded the Euro denominated stat bonds issued by the Ministry of Public Finances and the Lei denominated bonds issued by the international financial institutions on the intern market in order to facilitate the access of credit institutions to liquidity through expanding the range of eligible assets for guarantee in monetary policy operations and, at the same time, in guarantee and credit operations from the payment systems.

Another category of measures adopted by the central bank regarded increasing safety and efficiency of the adjustment-settlement systems of financial instrument operations carried out on the autochthon capital market, whose development is a necessary condition for strengthening its role of viable alternative for financing and capitalizing the Romanian companies.

At the request of the those administrating the RoClear and DSClear adjustment-settlement system, in order to increase the liquidity and reduce the settlement risk, the National Bank of Romania has analyzed and approved some modifications in the functioning of those systems, thus creating the premises for expanding the range of services offered to the participants in the above-mentioned systems, meaning the use of the global account system, of the financial instruments loan and the selling in their absence.

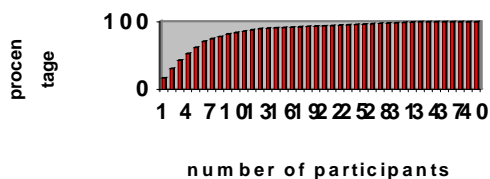
### 3. Stability of the ReGIS payment system

During 2010 and the first semester of 2011, ReGIS payment system has not faced significant risks, being able to absorb the liquidity shock because of the sufficient financial resources held by the participants and of the stat bonds available in the portfolio of the credit institutions, but also because of the credit facilities offered by the National Bank of Romania.

The analysis of the participants in ReGIS payment system has not indicated a significant concentration risk in 2010 and in the first semester of 2011, knowing that the first four participants (ranked in order of the interbank transfers they have initiated) totalized approximately 55% of the interbank transfers' value (graphic no. 1).

**Graphic no. 1**

**The cumulated mass of the participants  
in ReGIS payment system during  
January 2010 and June 2011**

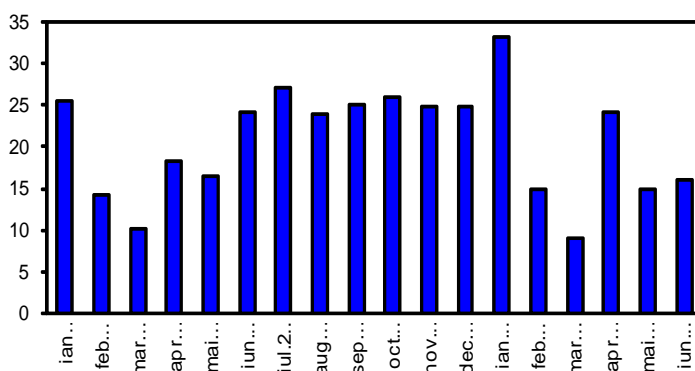




The credit institutions have used in a small measure the available liquidities in order to carry out both interbank transfers and payment in their relations with the State Treasury and the National Bank of Romania, within the ReGIS payment system existing sufficient resources to compensate an eventual liquidity deficit of some participants. In the first part of 2010, the liquidity usage degree followed an increasing tendency reaching almost 25%, and the volatility coefficient grew in the first semester of 2011, as we can notice in graphic no. 2.

**Graphic no. 2**

**The usage degree of the liquidities available degree in ReGIS system payments during January 2010 and June 2011**



*Source:* BNR

The excess liquidity of credit institutions creates the favourable premises to strengthen the stability of the ReGIS payment system, but maintaining some increased liquidity reserves could generate additional costs for them.

ReGIS payment system presents a high resistance to liquidity shocks. Using a methodology which involves running scenarios under stress (plausible scenarios, but with a low probability of occurrence) it was noted that resources available at participants' level are sufficient, so that an event with severe impact on liquidity does not generate the occurrence of the contagion risk in ReGIS payment system.

The available resources are both liquidities in lei and stat bonds held by the credit institutions, bonds that may be used as collateral when asking for intraday credit facilities, offered by the National Bank of Romania.

The stability of the world financial system depends on the good functioning of the payment and settlement systems, this, in its turn, depending on the liquidity of the financial market. Nowadays, the international financial system goes through

a period of major structural changes<sup>1</sup>, partly due to the increment of the credit risk, a fact that influences both the payment systems and the financial stability<sup>2</sup>.

The impact of globalization upon the financial infrastructure in restless times manifests itself through the rapid extension of the negative phenomena as a natural consequence of the multiple interconnections established between the participants, the markets and the infrastructures.

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<sup>1</sup> Gertrude Tumpel-Gugerell, *Payments and Monetary and Financial Stability*.

<sup>2</sup> Banca Națională a României, *Raport asupra stabilității financiare*, p. 92.

# PENSION REFORMS IN CENTRAL AND EASTERN EUROPEAN COUNTRIES AND THEIR OUTCOMES

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## Abstract

*All Central and Eastern European countries have achieved reforms of their pension systems varying in orientation and depth. We have presented the most important moments in the history of reforms of six countries (Romania, Hungary, Poland, Czech Republic, Slovakia and Bulgaria) and we have tried to explain the reforms' motivation. The paper reviews the performance of the pension systems in the selected countries regarding the issues of pension adequacy and financial sustainability.*

**Keywords:** *pension system, financial sustainability, pension adequacy, pension reforms, public pensions, private pensions*

**JEL Classification:** J<sub>11</sub>, H<sub>55</sub>, G<sub>23</sub>

## Introduction

In recent years, the pension reform was an extensively discussed topic in most European countries. All states have been deeply affected by aging (as a combined result of falling fertility rates and increasing life expectancy), by the effects of globalization (which determines the increase in competition at international level) and also by changes in family structure, increased international mobility, etc. The pension systems must respond to all of these changes, and also to significant changes occurred in the labour market as the rising share of the services sector and the emergence of inequality and insecurity as a result of spreading of atypical forms of employment.

## Literature review

Pension systems have as primary objectives *consumption smoothing* over the individual's lifecycle and *insurance* against uncertainties of longevity (Blake, 2006). In addition, public policy has another two objectives: *poverty relief* and *redistribution* to poor elderly (Barr and Diamond, 2008). A well functioning pension system should achieve its objectives in ways that are compatible with economic growth, labour market efficiency and capital market development. The Central and Eastern European countries have taken important steps toward increasing the financial sustainability of their pension systems and reducing labour

market distortions caused by high contribution rates through the reform of their existing PAYG systems and introducing fully-funded components based on individual accounts. Nevertheless, the level of expenditures on pensions in many economies remains quite high, and the fiscal balance precarious (Snelbecker, 2005).

### **The pension reform in Central and Eastern European countries**

The Central and Eastern European countries have inherited from the communist regime redistributive pension systems (PAYG). These pension schemes experienced a series of problems in the early years of transition because of contraction of the economic activity as a consequence of restructuring the public-owned enterprises, the reduction in number of taxpayers, the increase of the employment in the informal economy sector and high tax evasion, proving to be unsustainable in market economy conditions. In the early 90's, employment rates fell by over 20% in Central and Eastern European countries, and the governments have chosen to meet this challenge by encouraging early retirement. In only a few years, the number of pensioners increased on average by about 20%, and in countries like Poland and Romania even by 40-60% (Palacios, Rutkovsky and Yu, 1999). This policy proved to be costly and many countries were forced to take further measures to reduce pension costs by reducing the pension according to the adjustment relative to inflation level, by rising the statutory retirement age or by measures of improving the collection of contributions.

Towards the late 90s, together with overcoming the shock of transition, most countries in Central and Eastern Europe began a process of profound reform that had both parametric and structural components.

**Parametric reforms** are the ones introducing small changes in legislation in order to improve the actuarial balance of the system, without changing its institutional framework. These reforms have focused mainly on improving the financial sustainability of the public system and less on ensuring an adequate pension for its beneficiaries. These reforms, along with rising the statutory retirement age for both men and women, involved increasing the minimum contribution period, changing of the method of calculation of pension and correlation of the pension level with the earnings across the whole active period, tightening eligibility for disability pensions, changing of the pension indexation formula (the shift from indexing based on wage growth (100%) to inflation-indexing (100%) or to a mixed system of indexing, meaning the transition to a less generous indexation mechanisms) etc.

**Structural reforms** are the ones that alter the structure of the pension system by introducing pension schemes which are based on capitalization, replacing or complementing the pure redistributive system.

The mixed system introduced in most Central and Eastern European countries was inspired by the multi pillar system suggested by the World Bank, this including: pillar I – public social insurance, pillar II – privately managed

mandatory contribution funds and pillar III – voluntary contribution pension funds privately managed.

In Central and Eastern European region, the structural reform of pension systems began with the introduction of voluntary private pension pillar III in 1994 in Hungary, the Czech Republic and Bulgaria (see table no. 1) and then was introduced the pillar II (the one of the mandatory private pensions). Romania was the last country in the region that had implemented multi-pillar system.

Table no. 1

**Introduction of private pensions in the analyzed countries**

<b>Country</b>	<b>Pillar II Mandatory private pension</b>	<b>Pillar III Voluntary private pension</b>
Hungary	1998	1994
Romania	2007	2007
Poland	1999	1999
Czech Republic	-	1994
Slovakia	2005	1997
Bulgaria	2002	1994

*Source: APAPR*

The structure of pension systems in Central and Eastern European countries, as a result of the gradually developed extensive process of the reform, is shown in table no. 2.

All six analyzed countries have reformed public pension system by strengthening the link between received pension rights and the contributions paid to the system.

Hungary, the Czech Republic and Bulgaria have a redistributive public system with defined benefit, while in Romania and Slovakia operates a public system based on points. The points-based system is similar to a reformed defined benefit system, in which, the entire active life income is revaluated in connection to the average salary. Poland has replaced the public defined benefit pension scheme with a scheme based on notional accounts which functionally mimics a defined-contribution pension scheme funded by capitalization, but still remaining a pay-as-you-go scheme. Current pension payment is made on behalf of all current contributions to the system, but the pensions are determined by scriptic gathering of contributions in notional accounts and are remunerated with notional interest (set exogenously and based on long-term average growth of GDP / capita or the salary earnings). In this way, the system has an automatic mechanism for adjusting the level of pensions calculated according to life expectancy or to other factors that threaten the financial sustainability of the system.

The analysed countries, except the Czech Republic, have introduced a second pillar with mandatory contributions for certain age categories, privately managed, being a defined contribution type by taking over in this scheme, a part of the contribution owed to the public pension system.

By the introduction of mandatory private pension schemes, the long term financial sustainability of the public system is improving, but on the short and even medium term, redirecting a portion of social security contributions to pillar II is a challenge for the public system. In this context, naturally raises the question about who will bear the costs of transition to the mixed system.

Table no. 2

### Structure of the pension systems in the analyzed countries

<b>Statul</b>	<b>Pillar I</b>	<b>Pillar II</b>	<b>Pillar III</b>
<b>Hungary*</b>	Public, mandatory, PAYG, DB	Privat, mandatory, DC	Privat, voluntary, DC
<b>Romania</b>	Public, mandatory, PAYG, Points	Privat, mandatory, DC	Privat, voluntary, DC
<b>Poland</b>	Public, mandatory, PAYG, NDC	Privat, mandatory, DC	Privat, voluntary, DC
<b>Czech Republic</b>	Public, mandatory, PAYG, DB	-	Privat, voluntary, DC
<b>Slovakia</b>	Public, mandatory, PAYG, Points	Privat, mandatory, DC	Privat, voluntary, DC
<b>Bulgaria</b>	Public, mandatory, PAYG, DB	Privat, mandatory, DC	Privat, voluntary, DC

DB – defined-benefit; DC – defined-contribution, NDC – notional defined-contribution

\* starting with 1 Jan. 2011 Hungary has renounced at the pillar II and created a system with two pillars

All six analyzed countries have introduced the voluntary contribution pension schemes (pillar III) to supplement pension rights paid from pension schemes with mandatory participation (pillar I and II).

Defined contribution pension schemes automatically adjust pension rights based on the rise of life expectancy. The capital accumulated in the accounts will be converted into an annuity after retirement. Annuities are even smaller when life expectancy is higher.

### The analysis of the pension reforms outcomes in Central and Eastern European Countries

The analysis of the pension systems in analysed countries will be accomplished according to the degree of achievement of the following common objectives set at EU level regarding the pension systems:

- *adequate* retirement incomes for all and access to pensions which allow people to maintain, to a reasonable degree, their living standard after retirement, in the spirit of solidarity and fairness between and within generations;
- the financial *sustainability* of public and private pension schemes, bearing in mind pressures on public finances and the ageing of populations, and in the context of the three-pronged strategy for tackling the budgetary implications of

ageing, notably by: supporting longer working lives and active ageing; by balancing contributions and benefits in an appropriate and socially fair manner; and by promoting the affordability and the security of funded and private schemes;

- that pension systems are *transparent, well adapted* to the needs and aspirations of women and men and the requirements of modern societies, demographic ageing and structural change; that people receive the information they need to plan their retirement and that reforms are conducted on the basis of the broadest possible consensus.

In order to characterize a pension scheme in terms of its ability to provide adequate pensions, it can be followed the evolution of several key indicators that capture the situation of today's retirees as well as the one of the future pensioners.

ISG has defined a set of indicators based on data on income by a household survey, as follows:

- at-risk-of-poverty rate for people of 65+;
- aggregate replacement ratio;
- median relative income of elderly people.

*At-Risk-of-poverty rate* for the elderly people is an indicator that shows the share of persons with equivalised disposable income below the risk of poverty threshold that is set at 60% of the national equivalised disposable income (after social transfers). This indicator shows how a pension system acts against poverty.

In 2009, at-risk-of-poverty rate for elderly people in the EU27 was 17.8% (see table no. 3), exceeding the one for people under 65 (16%). With values above average, therefore with a high poverty risk are Bulgaria (39.3%) and Romania (21%). At the opposite end is Hungary (4.6%) and Czech Republic (7.2%).

However, the large differences between countries should be viewed with caution because in assessing the relative position of elderly people is taken into account only monetary income. There are some states where the elderly benefit from certain free or subsidized social services (health services, transportation, etc.). Also, it is not taken into account the property acquired by them (private savings, real estate) that influence the distribution of the income of the pensioners.

An important role of pension systems, along with the fight against poverty, is the preservation of the standard of living after retirement. *Aggregate replacement ratio* is an indicator of the adequacy of pensions, this will point out the maintaining of the standard of living after retirement at the level acquired during the active life. The indicator is defined as the ratio of the median gross individual pension of persons in the 65-74 years group and the median gross individual earnings of persons of 50-59 years group, excluding other social benefits.

In the EU27, in 2009, aggregate replacement ratio was 0.51, which means that the median pension reached about 51% of median earnings (table no. 3). This level can mean a reduced replacement income or a reduced coverage of pension schemes, but can also mean career with frequent interruptions and reduced contributions to the system due to undeclared work. We have to keep in mind that, the aggregate replacement ratio is an indicator that is based on data regarding gross income and that factors such as the differences in household composition, structure

of tax systems, structure of the social protection etc. may have a strong influence on the living standards of individuals.

In Romania, the aggregate replacement ratio is 55%, so above average. Values above the average register also Slovakia, Poland and Hungary. The lowest aggregate replacement ratio is observed in Bulgaria.

Table no. 3

**Indicators of current adequacy of pensions (2009)**

Indicators	EU27	Romania	Hungary	Poland	Czech Republic	Slovakia	Bulgaria
At-risk-of-poverty rate of 0-64 year olds (%)	16,0	22,7	13,8	17,6	8,8	11,0	18,1
At-risk-of-poverty rate for people aged 65+ (%)	17,8	21,0	4,6	14,4	7,2	10,8	39,3
Aggregate replacement ratio (%)	0,51	0,55	0,62	0,56	0,51	0,55	0,34
Median relative income of elderly people	0,86	0,93	1,02	0,92	0,78	0,81	0,63

Source: EU-SILC

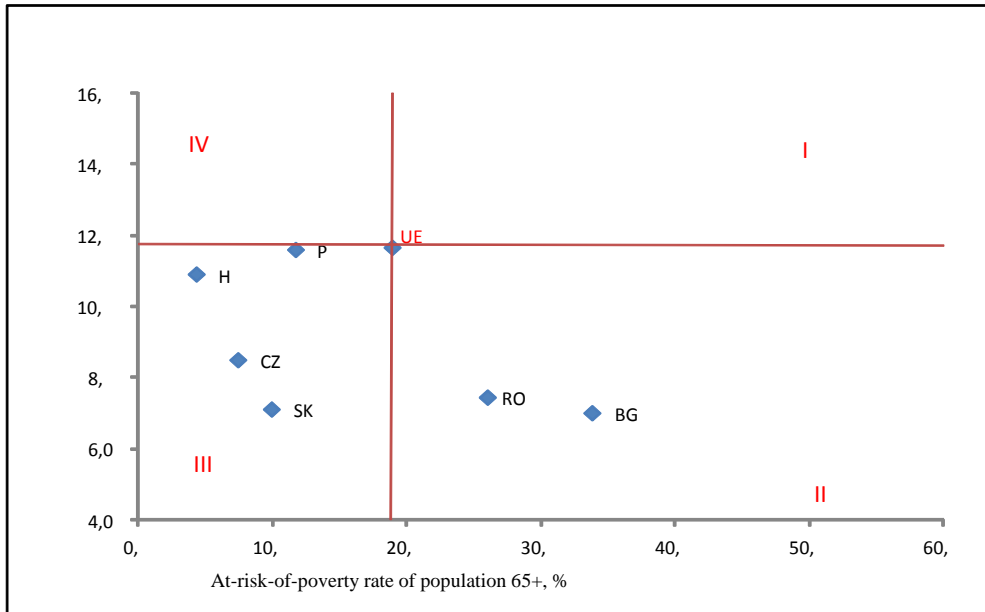
*Median relative income of elderly people* is another indicator that can be considered to characterize the adequacy of pension systems (table no. 3). This is expressed as the ratio of median equivalent disposable income of people over 65 years old and of median equivalent disposable income of people in the 0-64 year age group. Thus calculated indicator is relevant for assessing the overall situation of the income of elderly people relative to the situation of the active population because it takes into account also the household composition (reflecting the equivalent income of the household).

In 2009, the relative median income ranged from 63% in Bulgaria to 102% in Hungary. Thus, Hungary has one of the most generous pension systems. Romania ranks second with a relative median income of 93%, increasing as a result of the rising of the value of the pension point in election year 2008.

Analyzing the public pension expenditure and at-risk-of-poverty rate for persons 65 years and over (figure 1) we can see that countries fall into two categories. Hungary, Poland, Czech Republic and Slovakia achieved relatively low at-risk-of-poverty rates for the elderly (compared to the EU27 average) in parallel with reduced public spending. This could be due to a strong redistributive character of the pension systems and a favourable demographic situation today. By contrast, Romania and Bulgaria have reduced public spending on pensions and high at-risk-of-poverty rates by demonstrating a significant expansion of poverty among the elderly in recent years. This may be due to demographic aging (fertility decline in parallel with increasing in life expectancy), a relatively high disposable income of



the working age population as a result of reduced taxes and reduced pension rights, pension indexation with inflation only or rapid economic growth that benefited only the active population, not retirees.



Source: EUROSTAT/ESSPROS and EU-SILC

Figure no. 1. At-risk-of-poverty rate of people aged 65+ and pension expenditures in analysed countries (2008)

Analyzing the pension systems in terms of gender differences, it appears that women are more at risk of poverty than men, the difference between the two rates ranging from more than 20 percentage points to 1.7 percentage points in Romania in Hungary.

These differences are due to several factors such as:

- lower participation of women in the labour market;
- lower pay for women, there are specific occupations for women which are less valued than those in which men are better represented;
- more frequent career interruptions for women because they assume more family responsibilities (raising and educating children, etc.);
- the predominance of women among those with atypical employment contracts, etc.

In the EU27, the average aggregate replacement rate is lower for women than for men by 4 percentage points (50% vs. 54%). In Romania, the gap is slightly higher (6 points). In the Czech Republic the situation is reversed, aggregate replacement rate is higher for women.

Significant gender differences appear in terms of relative income for persons aged 65 and over. In Poland and Romania differences exceed 20% for men, while in the Czech Republic the situation for women is more favourable (see table no. 4).

Table no. 4

#### Gender differences regarding current adequacy of pensions (2009)

Gender differences regarding:	EU27	Romania	Hungary	Poland	Czech Republic	Slovakia	Bulgaria
At-risk-of-poverty rate (%)	-8,6	-20,5	-1,7	-4,7	-11,5	-16,6	-25,6
Aggregate replacement ratio (%)	0,04	0,06	0,07	0,08	-0,06	0,03	0,05
Relative income of elderly people	0,10	0,20	0,09	0,26	-0,11	-0,08	-0,01

Source: EU-SILC

Regarding the objective of ensuring financial sustainability of the pension systems in view of the aging population and increased pressure on public finances, the performance of the pension system in Central and Eastern European countries can be observed analyzing the data in table no. 5.

Table no. 5

#### Indicators regarding sustainability of the public pension system

Indicators regarding sustainability of the public pension system	EU27	Romania	Hungary	Poland	Czech Republic	Slovakia	Bulgaria
Public pension expenditure as GDP %, 2007	10,1	6,6	10,9	11,6	7,8	6,8	8,3
Public pension expenditure as GDP %, 2060	12,5	15,8	10,7	8,8	11,0	10,2	11,3

Source: EUROSTAT/ESSPROS

From the table we can notice that among all countries analysed Romania is the country with the highest risk regarding the public pension system sustainability. Anticipated growth in public spending on pensions as % of GDP during 2007-2060 in our country is 9.2 pp compared with only 2.3 pp in the EU27. One country will present an improvement in financial sustainability of the system, namely Poland.

The explanation for this development is related to the inclusion in the Polish public pension system of an automatic mechanism for adjusting the level of pension and ongoing coverage of the system depending on the development of objective indicators (such as demographic dependency ratio).

It should be noted here however that the European Commission's forecasts do not take into account changes in the new pension law for Romania (Law 263/2010). The legislative changes introduced by this law aims to:

- introducing a new pension indexation formula, less generous, since 2012;
- raising the retirement age to 63 years for women and 65 for men gradually until 2030;
- inclusion of certain categories of taxpayers who have not previously contributed (army, police, etc.);
- reduction of early retirement and restriction of disability retirement;
- increasing the contribution base to include new categories (liberal professions).

All these measures will result in a less pronounced increase in public spending on pensions in the future compared with the 2009 European Commission forecast.

### **A few conclusions**

Each of the pension systems of the six countries examined shows both strengths and weaknesses. In terms of financial sustainability the Polish system seems to have the best performance, while the Romanian system seems to present the greatest risk. The most effective systems in poverty relief of the elderly are the pension systems from Hungary and Czech Republic. Romania, although it has the second-highest at-risk-of-poverty rate for the elderly, presents high median relative income for people of 65+ and a relative high aggregate replacement rate. But we have to take into account the fact that both of these indicators are relative measures and their values are influenced by changes in the income of both the elderly (numerator) and the working age population (denominator). If the income of the working age population is low that might give the impression that the position of the older cohort is good.

We cannot finish this paper without making the following remarks:

- there is no ideal pension system that fits all countries;
- the optimum system differs from country to country and from one period to another;
  - by the mean of the reform should be obtained a solidarity beneath and between generations, an adequate pension level, a modern and financially sustainable pension system;
  - the pension reform should not be made in detrimental of the current beneficiaries;
  - for justifying the reform, by participating in more than one pension schemes, the total amount of pensions must be higher than the total amount of the

pension from the unreformed pension system (regard the high level of administration costs!)

- people now have more options, but also, they are exposed to more risks.

### **Acknowledgement**

*This paper is supported by the Sectoral Operational Programme Human Resources Development (SOP HRD), financed from the European Social Fund and by the Romanian Government under the contract number SOP HRD/89/1.5/S/62988.*

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Section II

**MANAGEMENT IMPROVEMENT – PREMISES AND  
CONDITION OF INCREASING THE EFFICIENCY  
OF THE ECONOMIC ACTIVITY**



# TWO QUANTITATIVE FORECASTING METHODS FOR MACROECONOMIC INDICATORS IN CZECH REPUBLIC

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## **Abstract**

*Econometric modelling and exponential smoothing techniques are two quantitative forecasting methods with good results in practice, but the objective of the research was to find out which of the two techniques are better for short run predictions. Therefore, for inflation, unemployment and interest rate in Czech Republic some accuracy indicators were calculated for the predictions based on these methods. Short run forecasts on a horizon of 3 months were made for December 2011-February 2012, the econometric models being updated. For Czech Republic, the exponential smoothing techniques provided more accurate forecasts than the econometric models (VAR(2) models, ARMA procedure and models with lagged variables). One explication for the better performance of smoothing techniques would be that in the chosen countries the short run predictions more influenced by the recent evolution of the indicators.*

**Keywords:** *accuracy, econometric models, forecasts, forecasting methods, smoothing exponential techniques*

**JEL Classification:** E<sub>21</sub>, E<sub>27</sub>, C<sub>51</sub>, C<sub>53</sub>

## **1. Introduction**

In establishing the monetary policy, the deciders must take into account the possible future evolution of some important macroeconomic variables as inflation rate, unemployment rate or interest rate. This fact implies the knowledge of the predictions of these indicators. In econometrics we can build forecasts starting from a valid model. The real problem appears when we use two or more different forecasting methods and we must choose the one which generated the forecasts with the higher degree of accuracy.

In this article, we modelled the three selected variables and we made predictions for them. Using indicators of accuracy we demonstrated that the smoothing exponential techniques generated better forecasts than simple econometric models in Czech Republic.

## **2. Literature review**

To assess the forecast accuracy, as well as their ordering, statisticians have developed several measures of accuracy. For comparisons between the MSE

indicators of forecasts, Granger and Jeon (2003) proposed a statistics. Another statistics is presented by Diebold and Mariano (1995) for comparison of other quantitative measures of errors. Diebold and Mariano proposed in 1995 a test to compare the accuracy of two forecasts under the null hypothesis that assumes no differences in accuracy. The test proposed by them was later improved by Ashley (2003), who developed a new statistics based on a bootstrap inference. Subsequently, Diebold and Christoffersen (1998) have developed a new way of measuring the accuracy while preserving the co-integrating relation between variables.

Armstrong and Fildes (1995) showed that the purpose of measuring an error of prediction is to provide information about the distribution of errors form and they proposed to assess the prediction error using a loss function. They showed that it is not sufficient to use a single measure of accuracy.

Since the normal distribution is a poor approximation of the distribution of a low-volume data series, Harvey, Leybourne, and Newbold (2003) improved the properties of small length data series, applying some corrections: the change of DM statistics to eliminate the bias and the comparison of this statistics not with normal distribution, but with the T-Student one. Clark (2006) evaluated the power of equality forecast accuracy tests, such as modified versions of the DM test or those used based on Bartlett core and a determined length of data series.

In literature, there are several traditional ways of measurement, which can be ranked according to the dependence or independence of measurement scale. A complete classification is made by Hyndman and Koehler (2005) in their reference study in the field, *Another Look at Measures of Forecast Accuracy*:

- **Scale-dependent measures**

The most used measures of scale dependent accuracy are:

- Mean-Square Error (MSE) = average ( $e_t^2$ )
- Root Mean Square Error (RMSE) =  $\sqrt{MSE}$
- Mean Absolute Error (MAE) = average ( $|e_t|$ )
- Median Absolute Error (MdAE) = median ( $|e_t|$ )

RMSE and MSE are commonly used in statistical modelling, although they are affected by outliers more than other measures.

- **Scale-independent errors**

- *Measures based on percentage errors*

The percentage error is given by:  $p_t = \frac{e_t}{X_t} \cdot 100$

The most common measures based on percentage errors are:

- Mean Absolute Percentage Error (MAPE) = average ( $|p_t|$ )
- Median Absolute Percentage Error (MdAPE) = median ( $|p_t|$ )



- Root Mean Square Percentage Error (RMSPE) = geometric mean ( $p_t^2$ )
- Root Median Square Percentage Error (RMdSPE) = median ( $p_t^2$ )

When  $X_t$  takes the value 0, the percentage error becomes infinite or it is not defined and the measure distribution is highly skewed, which is a major disadvantage. Makridakis (1984) introduced symmetrical measures in order to avoid another disadvantage of MAPE and MdAPE, for example, too large penalizing made to positive errors in comparison with the negative ones.

- Mean Absolute Percentage Error (sMAPE) = average ( $\frac{|X_t - F_t|}{X_t + F_t} \cdot 200$ )
- Symmetric Median Absolute Percentage Error (sMdAPE) = median ( $\frac{|X_t - F_t|}{X_t + F_t} \cdot 200$ ), where  $F_t$  – forecast of  $X_t$ .

➤ *Measures based on relative errors*

It is considered that  $r_t = \frac{e_t}{e_t^*}$ , where  $e_t^*$  is the forecast error for the reference model.

- Mean Relative Absolute Error (MRAE) = average ( $|r_t|$ )
- Median Relative Absolute Error (MdRAE) = median ( $|r_t|$ )
- Geometric Mean Relative Absolute Error (GMRAE) = geometric mean ( $|r_t|$ )

A major disadvantage is the too low value for the error of benchmark forecast.

➤ *Relative measures*

For example, the relative RMSE is calculated:

$$rel\_RMSE = \frac{RMSE}{RMSE_b}, \text{ where } RMSE_b \text{ is the RMSE of "benchmark model"}$$

Relative measures can be defined for MFA MdAE, MAPE. When the benchmark model is a random walk, it is used rel\_RMSE, which is actually Theil's U statistic. Random walk or naive model is used the most, but it may be replaced with naive2 method, in which the forecasts are based on the latest seasonally adjusted values according to Makridakis, Wheelwright and Hyndman (1998).

- **Free-scale error metrics (resulted from dividing each error at average error)**

Hyndman and Koehler (2005) introduce in this class of errors “Mean Absolute Scaled Error” (MASE) in order to compare the accuracy of forecasts of more time series.

In practice, the most used measures of forecast error are:

- Root Mean Squared Error (RMSE)

$$RMSE = \sqrt{\frac{1}{n} \sum_{j=1}^n e_x^2(T_0 + j, k)}$$

- Mean error (ME)

$$ME = \frac{1}{n} \sum_{j=1}^n e_x(T_0 + j, k)$$

The sign of indicator value provides important information: if it has a positive value, then the current value of the variable was underestimated, which means expected average values too small. A negative value of the indicator shows expected values too high on average.

- Mean absolute error (MAE)

$$MAE = \frac{1}{n} \sum_{j=1}^n | e_x(T_0 + j, k) |$$

These measures of accuracy have some disadvantages. For example, RMSE is affected by outliers. Armstrong and Collopy (2000) stress that these measures are not independent of the unit of measurement, unless they are expressed as percentage. These measures include average errors with different degrees of variability. The purpose of using these indicators is related to the characterization of distribution errors. Clements and Hendry (1995) have proposed a generalized version of the RMSE based on errors inter-correlation, when at least two series of macroeconomic data are used. If we have two forecasts with the same mean absolute error, RMSE penalizes the one with the biggest errors.

U Theil’s statistic is calculated in two variants by the Australian Treasury in order to evaluate the forecasts accuracy.

The following notations are used:

- a – the registered results
- p – the predicted results
- t – reference time
- e – the error (e=a-p)
- n – number of time periods

$$U_1 = \frac{\sqrt{\sum_{t=1}^n (a_t - p_t)^2}}{\sqrt{\sum_{t=1}^n a_t^2 + \sum_{t=1}^n p_t^2}}$$

If  $U_1$  is closer to one, the forecast accuracy is higher.

$$U_2 = \sqrt{\frac{\sum_{t=1}^{n-1} \left(\frac{p_{t+1} - a_{t+1}}{a_t}\right)^2}{\sum_{t=1}^{n-1} \left(\frac{a_{t+1} - a_t}{a_t}\right)^2}}$$

If  $U_2 = 1 \Rightarrow$  there are not differences in terms of accuracy between the two forecasts to compare

If  $U_2 < 1 \Rightarrow$  the forecast to compare has a higher degree of accuracy than the naive one

If  $U_2 > 1 \Rightarrow$  the forecast to compare has a lower degree of accuracy than the naive one

Other authors, like Fildes R. and Steckler H. (2000) use another criterion to classify the accuracy measures. If we consider,  $\hat{X}_t(k)$  the predicted value after  $k$  periods from the origin time  $t$ , then the error at future time  $(t+k)$  is:  $e_t(t+k)$ . Indicators used to evaluate the forecast accuracy can be classified according to their usage. Thus, the forecast accuracy measurement can be done independently or by comparison with another forecast.

Clements and Hendry (2010) presented the most used accuracy measures in literature, which are described below.

### 1. *The specific loss function*

Diebold, Gunther and Tay (1998) started from a loss function  $L(a_t, x_{t+1})$ , where:

$a_t$  – specific action

$x_{t+1} \rightarrow f(x_{t+1})$  – the future value of a random variable whose distribution is known

$f(\cdot)$  – density forecast

The optimal condition involves minimizing the loss function when the density forecast is

$$p_{t,1}(x_{t+1}): a_{t,1}^* = \arg \min_{a_{t,1} \in A} \int L(a_{t,1}, x_{t+1}) p_{t,1}(x_{t+1}) dx_{t+1}$$

The expected value of loss function is:

$$E[L(a_{t,1}^*, x_{t+1})] = \int L(a_{t,1}^*, x_{t+1}) f(x_{t+1}) dx_{t+1}$$

The density forecast will be preferred above any other density for a given loss function if the following condition is accomplished:

$$E[L(a_{t,1}^*(p_{t,1}(x_{t+1})), x_{t+1})] < E[L(a_{t,2}^*(p_{t,2}(x_{t+1})), x_{t+1})],$$

where  $a_{t,i}^*$  – the optimal action for the following forecast:  $p_{t,i}(x)$ .

Making decisions based on forecast accuracy evaluation is important in macroeconomics, but few studies have focused on this. Notable achievements on forecasts performance evaluation were made in practical applications in finance and in metrology. Recent improvements refer to the inclusion of disutility that is presented in actions in the future states and take into account the entire distribution of forecast. Since an objective assessment of prediction errors cost cannot be made, only general absolute loss functions – loss or loss of error squares can be used.

## 2. Mean square forecast error (MSFE) and the second error of the generalized forecast (GFESM)

The most used measure to assess the forecasts accuracy is the mean square forecast error (MSFE). In case of a vector of variables, a MSFE matrix will be built:  $V_h \equiv E[e_{T+h} e_{T+h}'] = V[e_{T+h}] + E[e_{T+h}] E[e_{T+h}]'$ , where  $e_{T+h}$  – vector of errors with h steps-ahead-forecast.

The trace and the determinant of the mean square errors matrix are classical measures of forecast accuracy.

Generalized forecast error second moment (GFESM) is calculated according to Clements and Hendry (1993) as a determinant of the expected value of the forecast errors vector for future moments up to the horizon of interest. If forecasts up to a horizon of h quarters present interest, this indicator is calculated as:

$$GFESM = E \left[ \begin{pmatrix} e_{t+1} \\ e_{t+2} \\ \dots \\ e_{t+h} \end{pmatrix} \begin{pmatrix} e_{t+1} \\ e_{t+2} \\ \dots \\ e_{t+h} \end{pmatrix}^T \right].$$

$e_{t+h}$  – n-dimensional forecast error of n variables model on horizon h

It is considered that GFESM is a better measure of accuracy, because it is invariant to elementary operations with variables, unlike the MSFE trace and it is also a measure that is invariant to basic operations of the same variables on different horizons of prediction, in contrast with MSFE matrix trace and determinant.

Clements and Hendry (1993) showed that the MSFE disadvantages related to invariance models are determined by the lack of invariance indicator non singular linear transformations, that preserves the scale. MSFE comparisons determined inconsistent ranks of forecast performance of different models with several steps along the variables transformations.

### *3. Measures of relative accuracy*

Relative measure for assessing forecast accuracy suppose the comparison of forecast with one of reference, called in literature as “benchmark forecast” or “naïve forecast”. However, the choice of forecast used for comparison remains a subjective approach. Problems that may arise in this case are related to: the existence of outliers or inappropriate choice of models on which forecasts are developed, and the emergence of shocks. A first measure of relative accuracy is Theil's U statistic, for which the reference forecast is the last observed value recorded in the data series. Collopy and Armstrong proposed a new indicator instead of U statistics similar (RAE). Thompson improved MSE indicator, proposing a statistically determined MSE (mean squared error log ratio).

Relative accuracy can also be measured by comparing predicted values with those based on a model built using data from the past. The tests of forecast accuracy compare an estimate of forecast error variance derived from the past residue and the current MSFE.

To check whether the differences between mean square errors corresponding to the two alternative forecasts are statistically significant the tests proposed by Diebold and Mariano, West, Clark and McCracken, Corradi and Swanson, Giacomini and White are used.

Starting from a general loss function based on predictive ability tests, the accuracy of two alternative forecasts for the same variable is compared. The first results obtained by Diebold and Mariano were formalized, as showed Giacomini and White (2006), by West, McCracken, Clark and McCracken, Corradi, Swanson and Olivetti, Chao, Corradi and Swanson. Other researchers started from the particular loss function (Granger and Newbold, Leitch and Tanner, West, Edison and Cho, Harvey, Leybourne and Newbold).

Recent studies target accuracy analysis using as comparison criterion different models used in making predictions or the analysis of forecasted values for the same macroeconomic indicators registered in several countries.

Ericsson (1992) shows that the parameters stability and mean square error of prediction are two key measures in evaluation of forecast accuracy, but they are not sufficient and the introduction of a new statistical test is necessary.

Granger and Jeon (2003) consider four models for U.S. inflation: a univariate model, a model based on an indicator used to measure inflation, a univariate model based on the two previous models and a bivariate model. Applying the mean square error criterion, the best prediction made is the one based on an autoregressive model of order 1 (AR (1)). Applying distance-time method, the best model is the one based on an indicator used to measure the inflation.

Ledolter (2006) compares the mean square error of ex-post and ex ante forecasts of regression models with transfer function with the mean square error of univariate models that ignore the covariance and show superiority of predictions based on transfer functions.

Teräsvirta et al. (2005) examine the accuracy of forecasts based on linear autoregressive models, autoregressive with smooth transition (STAR) and neural networks (neural network-NN) time series for 47 months of the macroeconomic variables of G7 economies. For each model is used a dynamic specification and it is showed that STAR models generate better forecasts than linear autoregressive ones. Neural networks over long horizon forecast generated better predictions than the models using an approach from private to general.

Heilemann and Stekler (2007) explain why macroeconomic forecast accuracy in the last 50 years in G7 has not improved. The first explanation refers to the critic brought to macroeconomic models and to forecasting models, and the second one is related to the unrealistic expectations of forecast accuracy. Problems related to the forecasts bias, data quality, the forecast process, predicted indicators, the relationship between forecast accuracy and forecast horizon are analyzed.

Ruth (2008), using the empirical studies, obtained forecasts with a higher degree of accuracy for European macroeconomic variables by combining specific sub-groups predictions in comparison with forecasts based on a single model for the whole Union.

Gorr (2009) showed that the univariate method of prediction is suitable for normal conditions of forecasting while using conventional measures for accuracy, but multivariate models are recommended for predicting exceptional conditions when ROC curve is used to measure accuracy.

Dovern and Weisser (2011) used a broad set of individual forecasts to analyze four macroeconomic variables in G7 countries. Analyzing accuracy, bias and forecasts efficiency, resulted large discrepancies between countries and also in the same country for different variables. In general, the forecasts are biased and only a fraction of GDP forecasts are closer to the results registered in reality.

In Netherlands, experts make predictions starting from the macroeconomic model used by the Netherlands Bureau for Economic Policy Analysis (CPB). For the period 1997-2008 was reconstructed the model of the experts macroeconomic variables evolution and it was compared with the base model. The conclusions of Franses, Kranendonk and Lanser (2011) were that the CPB model forecasts are in general biased and with a higher degree of accuracy.

### 3. *The models used to make macroeconomic forecasts*

The variables used in models are: the inflation rate calculated starting from the harmonized index of consumer prices, unemployment rate and interest rate on short term. The last indicator is calculated as average of daily values of interest rates on the market. The data series are monthly ones and they are taken from Eurostat website for the period from February 1999 to October 2011 for Czech Republic. The indicators are expressed in comparable prices, the reference base being the values from January 1999. We eliminated the influence of seasonal factors for the inflation rate using Census X11 (historical) method.

In Czech Republic only the date series for inflation and unemployment rate were transformed to become stationary.

Taking into account that our objective is the achievement of one-month-ahead forecasts for December 2011, January and February 2012, we considered necessary to update the models. We used three types of models: a VAR(2) model, an ARMA one and a model in which inflation and interest rate are explained using variables with lag. The econometric models used for Czech Republic are specified in **Appendix 1**.

We developed one-month-ahead forecasts starting from these models, then we evaluated their accuracy. The one-step-ahead forecasts for the 3 months were presented in **Appendix 2**.

### 4. *The assessment of accuracy for predictions based on econometric models*

A generalization of Diebold-Mariano test (DM) is used to determine whether the MSFE matrix trace of the model with aggregation variables is significantly lower than that of the model in which the aggregation of forecasts is done. If the MSFE determinant is used, according to Athanasopoulos and Vahid (2005), the DM test cannot be used in this version, because the difference between the two models MSFE determinants cannot be written as an average. In this case, a test that uses a bootstrap method is recommended.

The DM statistic is calculated as:

$$DM_t = \frac{\sqrt{T} \cdot [tr(MSFE_{VAR(2) \text{ model}})_h - tr(MSFE_{ARMA \text{ model}})_h]}{s} = \frac{1}{s} \cdot \sqrt{T} \cdot \left[ \frac{1}{T} \sum_{t=1}^T (em_{1,1,t}^2 + em_{2,1,t}^2 + em_{3,1,t}^2 - er_{1,1,t}^2 - er_{2,1,t}^2 - er_{3,1,t}^2) \right] \quad (1)$$

T – number of months for which forecasts are developed

$em_{i,h,t}$  – the h-steps-ahead forecast error of variable i at time t for the VAR(2) model

$er_{i,h,t}$  – the h-steps-ahead forecast error of variable i at time t for the ARMA

s – the square root of a consistent estimator of the limiting variance of the numerator

The null hypothesis of the test refers to the same accuracy of forecasts. Under this assumption and taking into account the usual conditions of central limit theorem for weakly correlated processes, DM statistic follows a standard normal asymptotic distribution. For the variance the Newey-West estimator with the corresponding lag-truncation parameter set to  $h - 1$  is used.

On 3 months we compared in terms of accuracy the predictions for all the three variables, predictions made starting from VAR(2) models and ARMA models. Calculating DM statistics the accuracy of forecasts based on VAR models is higher than that based on ARMA models for all chosen countries.

In **Table 1** the accuracy indicators for the predictions are displayed.

Table 1

**Indicators of forecasts accuracy for the inflation, unemployment and interest rate (Czech Republic)**

Inflation rate	Models used to build the forecasts		
Indicators of accuracy	VAR(2)	ARMA	Models with lag
RMSE	0,17051339	0,8532325	3,6277209
ME	-0,6694	0,0955	-3,9449
MAE	1,3694	0,6045	4,6449
MPE	-0,0650	-0,0336	-0,2550
U1	0,051257	0,017019	0,151515
U2	1,388935	0,981571	2,980709
Unemployment rate	Models used to build the forecasts		
Indicators of accuracy	VAR(2)	ARMA	
RMSE	0,57231311	2,0922862	
ME	-0,51277	-2,09223	
MAE	0,512767	2,092233	
MPE	-0,07696	-0,31383	
U1	0,040086	0,186124	
U2	3,914625	15,89517	
Interest rate	VAR(2)	ARMA	
RMSE	0,03663478	0,3635292	
ME	0,0052	-0,3693	
MAE	0,0164	0,3693	
MPE	0,0100	-0,5302	
U1	0,014359	0,36058	
U2	0,761926	14,99092	

Source: own calculations using Excel.



In Czech Republic, when an econometric models was used to make forecasts, the ARMA procedure is the most suitable for the inflation rate, while the best results are given by VAR(2) models for unemployment and interest rate. However, only the predictions based on the ARMA models for inflation rate and on VAR for the interest rate are better than those that used the naïve model.

For Czech Republic only VAR and ARMA models could be built to explain the evolution of the interest rate. Best results for the interest rate in Czech Republic are given also by the VAR models.

### 5. *The assessment of accuracy for predictions based on exponential smoothing techniques*

Exponential smoothing is a technique used to make forecasts as the econometric modelling. It is a simple method that takes into account the more recent data. In other words, recent observations in the data series are given more weight in predicting than the older values. Exponential smoothing considers exponentially decreasing weights over time.

#### 4. *Simple exponential smoothing method (M1)*

The technique can be applied for stationary data to make short run forecasts. Starting from the formula of each rate  $R_n = a + u_n$ , where  $a$  is a constant and  $u_t$  – resid,  $s$  – seasonal frequency, the prediction for the next period is:

$$\hat{R}'_{n+1} = \alpha \times R'_n + (1 - \alpha) \times \hat{R}'_n, n = 1, 2, \dots, t + k \quad (2)$$

$\alpha$  is a smoothing factor, with values between 0 and 1, being determined by minimizing the sum of squared prediction errors.

$$\min \frac{1}{n} \sum_{i=0}^{n-1} (R'_{n+1} - \hat{R}'_{n+1})^2 = \min \frac{1}{n} \sum_{i=0}^{n-1} e_{n+1}^2 \quad (3)$$

Each future smoothed value is calculated as a weighted average of the  $n$  past observations, resulting:

$$\hat{R}'_{n+1} = \alpha \times \sum_{i=1}^n (1 - \alpha)^i \times \hat{R}'_{n+1-s} . \quad (4)$$

#### 5. *Holt-Winters Simple exponential smoothing method (M2)*

The method is recommended for data series with linear trend and without seasonal variations, the forecast being determined as:

$$R_{n+k} = a + b \times k . \quad (5)$$

$$a_n = \alpha \times R_n + (1 - \alpha) \times (a_{n-1} + b_{n-1}) \quad (6)$$

$$b_n = \beta \cdot (a_n - a_{n-1}) + (1 - \beta) \cdot b_{n-1}$$

Finally, the prediction value on horizon  $k$  is:

$$\hat{R}_{n+k} = \hat{a}_n + \hat{b}_n \times k \quad (7)$$

### 6. Holt-Winters multiplicative exponential smoothing method (M3)

This technique is used when the trend is linear and the seasonal variation follows a multiplicative model. The smoothed data series is:

$$\hat{R}'_{n+k} = (a_n + b_n \times k) \times c_{n+k} \quad (8)$$

where a – intercept, b – trend, c – multiplicative seasonal factor

$$a_n = \alpha \times \frac{R'_n}{c_{n-s}} + (1-\alpha) \times (a_{n-1} + b_{n-1})$$

$$b_n = \beta \times (a_n - a_{n-1}) + (1-\beta) \times b_{n-1} \quad (9)$$

$$c_n = \gamma \times \frac{R'_n}{a_n} + (1-\gamma) \times c_{n-s}$$

The prediction is:

$$\hat{R}'_{n+k} = (\hat{a}_n + \hat{b}_n \times k) \times \hat{c}_{n+k} \quad (10)$$

### 7. Holt-Winters additive exponential smoothing method (M4)

This technique is used when the trend is linear and the seasonal variation follows a multiplicative model. The smoothed data series is (14):

$$\hat{R}'_{n+k} = a_n + b_n \times k + c_{n+k}$$

a – intercept, b – trend, c – additive seasonal factor

$$a_n = \alpha \times (R'_n - c_{n-s}) + (1-\alpha) \times (a_{n-1} + b_{n-1})$$

$$b_n = \beta \times (a_n - a_{n-1}) + (1-\beta) \times b_{n-1} \quad (11)$$

$$c_n = \gamma \times (R'_n - a_n) + (1-\gamma) \times c_{n-s}$$

The prediction is:

$$\hat{R}'_{n+k} = \hat{a}_n + \hat{b}_n \times k + \hat{c}_{n+k} \quad (12)$$

### 8. Double exponential smoothing method (M5)

This technique is recommended when the trend is linear, two recursive equations being used:

$$S_n = \alpha \times R_n + (1-\alpha) \times S_{n-1} \quad (13)$$

$$D_n = \alpha \times S_n + (1-\alpha) \times D_{n-1}, \text{ where S and D are simple, respectively double}$$

smoothed series.

In **Table 2** the accuracy indicators for predictions based on exponential smoothing techniques are presented for all the three countries. Analyzing the values of these indicators, the smoothing method is better than the econometric models for the mentioned countries.

Indeed, the exponential smoothing techniques provided the most accurate predictions for all indicators in Czech Republic. For the inflation rate the best method to be applied was additive exponential smoothing technique, while for unemployment and interest rate the simple exponential smoothing technique generated the best results due to the value of U1 that is very closed to zero. All the predictions for the unemployment rate based on the exponential smoothing

techniques are more accurate than those based on the naïve model. All forecasts are overestimated on the chosen horizon, excepting those of the unemployment rate in case of Holt-Winters and double smoothing method and those of interest rate when the additive technique is used. The low values for RMSE imply a low variability in the data series.

Table 2

**Measures of accuracy for forecasts based on exponential smoothing techniques for inflation, unemployment and interest rate (Czech Republic)**

Inflation rate	RMSE	ME	MAE	MPE	U1	U2
M1	0,288386455	-1,73383	1,800501	-0,08296	0,056005	1,545809
M2	1,119007113	-1,50076	1,567428	-0,08027	0,049381	0,189913
M3	-	-	-	-	-	-
M4	0,859249004	-0,53664	0,603307	-0,03108	0,01775	0,947732
M5	1,039570357	-1,45292	1,519589	-0,0779	0,0475	0,228745
Unemployment rate						
M1	0,081731	-0,03343	0,033433	-0,00499	0,004345	0,43671
M2	0,058351	0,049443	0,049443	0,007421	0,00436	0,44044
M3	0,111016	-0,07804	0,09456	-0,01163	0,008375	0,836498
M4	0,116203	-0,0839	0,100421	-0,0125	0,00877	0,87466
M5	0,048776	0,01744	0,044912	0,002621	0,003653	0,365749
Interest rate						
M1	0,033121	-0,01294	0,022964	-0,01635	0,021484	1,125963
M2	0,045165	-0,01788	0,030232	-0,02586	0,02999	2,013734
M3	0,098583	-0,09484	0,094845	-0,13656	0,075181	4,417344
M4	0,076148	0,014587	0,094149	0,022764	0,068091	3,35745
M5	0,03487	-0,01772	0,023895	-0,02554	0,0225	1,657338

Source: own computations using Excel.

## 5. Conclusions

In our research we proposed to check if the exponential smoothing techniques generate better short run predictions than the simple econometric models.

According to some recent researches, simple econometric models are recommended for forecasts due to the high degree of accuracy for predictions. For prognosis made for December 2011- February 2012 this hypothesis is not checked for Czech Republic.

In Czech Republic the recent values in the data series used for predictions have the biggest importance. Therefore, the exponential smoothing methods determined the best results in terms of forecasts accuracy. Simple and additive exponential smoothing techniques are recommended for Czech Republic.

To improve the policy we can use monthly forecasts based on the better method for that country. The policy is improved by choosing the most accurate forecast which will help the government or the banks in taking the best decisions. In our study we analyzed the results of only two quantitative methods, but the research could be extended by adding other quantitative forecasting methods or by using qualitative methods or predictions based on combinations of the two types of methods.

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## APPENDICES

### APPENDIX 1

#### Models used for one-month-ahead forecasts (Czech Republic)

Reference period of data series	VAR(2)
February 1999- November 2011	$\begin{aligned} \text{INTEREST\_CR} &= 1.032955367*\text{INTEREST\_CR}(-1) - \\ &0.07435234854*\text{INTEREST\_CR}(-2) + 0.01622901437*\text{RI\_CR}(-1) \\ &- 0.02073687184*\text{RI\_CR}(-2) - 0.2030556239*\text{UR\_CR}(-1) + \\ &0.1918379768*\text{UR\_CR}(-2) + 0.1620812519 \end{aligned}$ $\begin{aligned} \text{RI\_CR} &= 0.07613664735*\text{INTEREST\_CR}(-1) - \\ &0.08479586276*\text{INTEREST\_CR}(-2) + 1.091002306*\text{RI\_CR}(-1) - \\ &0.1006512028*\text{RI\_CR}(-2) - 0.1904207202*\text{UR\_CR}(-1) + \\ &0.1284548155*\text{UR\_CR}(-2) + 0.6752498405 \end{aligned}$ $\begin{aligned} \text{UR\_CR} &= -0.1503567547*\text{INTEREST\_CR}(-1) + \\ &0.1438367589*\text{INTEREST\_CR}(-2) - 0.01694177212*\text{RI\_CR}(-1) + \\ &0.0156354488*\text{RI\_CR}(-2) + 1.616200903*\text{UR\_CR}(-1) - \\ &0.633750514*\text{UR\_CR}(-2) + 0.1397074831 \end{aligned}$
February 1999- December 2011	$\begin{aligned} \text{INTEREST\_CR} &= 1.03212544*\text{INTEREST\_CR}(-1) - \\ &0.07367847639*\text{INTEREST\_CR}(-2) + 0.01566704719*\text{RI\_CR1}(-1) - \\ &0.02030389812*\text{RI\_CR1}(-2) - 0.2054864774*\text{UR\_CR1}(-1) + \\ &0.1938526614*\text{UR\_CR1}(-2) + 0.1654661173 \end{aligned}$ $\begin{aligned} \text{RI\_CR1} &= 0.08149977622*\text{INTEREST\_CR}(-1) - \\ &0.08915054128*\text{INTEREST\_CR}(-2) + 1.094633835*\text{RI\_CR1}(-1) - \\ &0.103449154*\text{RI\_CR1}(-2) - 0.1747121244*\text{UR\_CR1}(-1) + \\ &0.1154355747*\text{UR\_CR1}(-2) + 0.6533762543 \end{aligned}$ $\begin{aligned} \text{UR\_CR1} &= -0.1495715212*\text{INTEREST\_CR}(-1) + \\ &0.143199176*\text{INTEREST\_CR}(-2) - 0.01641006788*\text{RI\_CR1}(-1) + \\ &0.01522579148*\text{RI\_CR1}(-2) + 1.61850085*\text{UR\_CR1}(-1) - \\ &0.6356567043*\text{UR\_CR1}(-2) + 0.1365048988 \end{aligned}$
February 1999- January 2011	$\begin{aligned} \text{INTEREST\_CR} &= 1.031008851*\text{INTEREST\_CR}(-1) - \\ &0.07233575969*\text{INTEREST\_CR}(-2) + 0.01671004085*\text{RI\_CR1}(-1) - \\ &0.02111360193*\text{RI\_CR1}(-2) - 0.2024762562*\text{UR\_CR1}(-1) + \\ &0.1916516303*\text{UR\_CR1}(-2) + 0.1588725354 \end{aligned}$

	$RI\_CR1 = 0.05833066638 \cdot INTEREST\_CR(-1) - 0.06128930788 \cdot INTEREST\_CR(-2) + 1.116275846 \cdot RI\_CR1(-1) - 0.1202504248 \cdot RI\_CR1(-2) - 0.112250345 \cdot UR\_CR1(-1) + 0.06976440581 \cdot UR\_CR1(-2) + 0.5165601085$ $UR\_CR1 = -0.1488160438 \cdot INTEREST\_CR(-1) + 0.1422907021 \cdot INTEREST\_CR(-2) - 0.01711575102 \cdot RI\_CR1(-1) + 0.01577363214 \cdot RI\_CR1(-2) + 1.616464153 \cdot UR\_CR1(-1) - 0.6341675 \cdot UR\_CR1(-2) + 0.140966076$
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Reference period of data series	ARMA
February 1999- November 2011	$ri\_cr_t = 0,152 + 0,985 \cdot ri\_cr_{t-1} - 0,972 \cdot \varepsilon_{t-3} + \varepsilon_t$ $ur\_cr_t = -0,012 + 0,688 \cdot ur\_cr_{t-1} + \varepsilon_t$ $int\ erest\_cr_t = 1,662 + 0,958 \cdot int\ erest_{t-1} + \varepsilon_t$
February 1999- December 2011	$ri\_cr_t = 0,152 + 0,987 \cdot ri\_cr_{t-1} - 0,972 \cdot \varepsilon_{t-3} + \varepsilon_t$ $ur\_cr_t = -0,0127 + 0,689 \cdot ur\_cr_{t-1} + \varepsilon_t$ $int\ erest\_cr_t = 1,667 + 0,959 \cdot int\ erest_{t-1} + \varepsilon_t$
February 1999- January 2011	$ri\_cr_t = 0,153 + 0,988 \cdot ri\_cr_{t-1} - 0,973 \cdot \varepsilon_{t-3} + \varepsilon_t$ $ur\_cr_t = -0,013 + 0,689 \cdot ur\_cr_{t-1} + \varepsilon_t$ $int\ erest\_cr_t = 1,667 + 0,96 \cdot int\ erest_{t-1} + \varepsilon_t$

Reference period of data series	Models having variables with lags
February 1999- November 2011	$ri\_cr_t = 0,197 - 0,546 \cdot ur_{t-2} + \varepsilon_t$
February 1999- December 2011	$ri\_cr_t = 0,198 - 0,546 \cdot ur_{t-2} + \varepsilon_t$
February 1999- January 2011	$ri\_cr_t = 0,198 - 0,5463 \cdot ur_{t-2} + \varepsilon_t$

Source: own calculations using EViews.

**One-month-ahead forecasts based on econometric models (Czech Republic)**

Inflation rate	VAR(2) models	ARMA models	Models with lags
December 2011	16,6238	16,411	13,2974
January 2012	16,7299	16,9035	13,4066
February 2012	16,638	18,972	13,4612

Unemployment rate	VAR(2) models	ARMA models
December 2011	6,0388	4,5288
January 2012	6,2199	4,5969
February 2012	6,203	4,5976

Interest rate	VAR(2) models	ARMA models
December 2011	0,70482	0,34218
January 2012	0,67838	0,32302
February 2012	0,72238	0,31685

*Source:* own calculations using Excel.





# THE IRRIGATION SYSTEM IN BRĂILA – A FARMER ECONOMIC FOCUSED APPROACH –

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## **Abstract**

*In the present context marked by ever increasing global climate changes, the use of irrigations in agriculture represents not only an option but more and more a necessity for ensuring a higher yield of agricultural products whose demand increases every year based on population growth. The present paper focuses on the specific elements of the irrigation systems from Brăila County, the way the farmers have access to and the different implications derived by using these systems. The paper turns to quantitative analysis of available statistical data and qualitative analysis of the interviews with local farmers focused on economic efficiency of the water used for irrigations.*

**Keywords:** *agriculture, irrigation, Brăila, economic efficiency, firm behaviour*

**JEL Classification:** Q<sub>14</sub>, Q<sub>24</sub>, Q<sub>25</sub>, D<sub>22</sub>, D<sub>23</sub>, P<sub>25</sub>

## **Introduction**

Brăila County is located in an area with continental climate, with higher temperatures and lower rainfall in recent years, multi-year averages. Under the conditions of climatologically aridity tendency, in which the soil moisture deficit during the growing season reaches approx. 350mm/season, irrigation is absolutely necessary (Symposium 2007).

The soils from Brăila County are predominantly chernozem (class I and II of suitability for agriculture). There are soils with naturally high fertility in which the percentage of humus is 3.0-4.5% (MARD, 2007: 12). According to the MARD data – Department of Agriculture Brăila, the average production in the main field crops (cereals, oilseeds) increased by 40 to 70% for irrigated crops compared to the non-irrigated crops (Table 1).

Table no. 1

**Average annual yields for the main crops in irrigated and non-irrigated systems – North Terrace – Brăila**

Crop / Production system		2008		2009		2010	
		average production		average production		average production	
		t/ha	irrigated/ non-irrigated (%)	t/ha	irrigated/ non-irrigated (%)	t/ha	irrigated/ non-irrigated (%)
Wheat	Irrigated	4.65	152.6	3.31	144.6	3.92	137.0
	Non-irrigated	3.05		2.29		2.86	
Maize	Irrigated	2.72	152.4	5.13	126.1	8.52	178.1
	Non-irrigated	1.79		4.07		4.79	
Sun flower	Irrigated	2.35	159.5	2.64	147.8	2.67	147.3
	Non-irrigated	1.47		1.79		1.81	

*Source:* own calculation based on data from the Department of Agriculture Brăila, for irrigation area North Terrace Brăila (Cazasu, Silișteea, Vădeni, Tudor Vladimirescu and Brăila municipality).

Over 90% of the agricultural and arable lands of Brăila County (92.6% and respectively 93.3%) have, according to NIS data for 2010, available facilities for irrigation. According to MARD, Brăila is the county in which, by far, the irrigations represent an important component of farming, having the largest area covered by Organizations of Irrigation Water Users – OUAI (200,028 ha) (MARD 2011:24), the largest irrigated area (65% of the actual irrigated area at national level in 2010 – NIS 2012 data base) and the largest quantity of water pumped (46% of water used for irrigation in 2009 at national level – MARD, 2011). However, in the same year – 2010 –, the use of irrigation system in Brăila was very low. Effectively irrigated areas with at least one watering represented only 15% of the total agricultural area equipped for irrigation at the county level, respectively, 16.4% of arable land provided with such facilities (NIS 2012).

Ministry of Agriculture has developed, after extensive studies on the irrigation system, a national investment strategy in this sector. Through this strategy, the 56 hydro-technical viable arrangements have been ranked in order of the priority for the investment for rehabilitation and modernization of the irrigation systems that they will benefit; in the top three, in priority order, are placed three arrangements from Brăila County that cover 31% of the county area provided with reliable irrigation systems, the rest of the hydro-technical viable areas from Brăila County falling within the category of secondary priorities (MARD, 2011).

Given the records of the irrigation system in the county with the largest area of operation and its use – Brăila: irrigation system is still functional in much of the area with such type of facilities (in 2009 for 62.4% of the county area with hydro-technical facilities, irrigation system was classified as “viable”, capable of use and recipient of the investment in system rehabilitation – MARD, 2011); the acute need for irrigation given by the agro-pedo-climatic conditions; substantial increase of the

yield per unit area due to the use of irrigation water; investment efforts of the public authorities in rehabilitation of the irrigation system in the county – the question that arises is whether and to what extent the strategic, financial and institutional efforts for increasing viability of the irrigation system respond to the triad: *needs - resources - efficiency* at farmers level in Brăila County.

### **Literature review**

The growing water scarcity and the misuse of available water resources are nowadays major threats to sustainable development for most countries. The important role that agriculture could play not only in feeding and clothing burgeoning population is well recognized, but also in increasing the limited available water supply by reducing water losses and by increasing the water use efficiency in the irrigation sector. In agriculture, water use efficiency may be defined quite differently by a farmer, a manager of an irrigation project, or a river basin authority (Hamdy, A. et. al., 1999).

From the economic perspective, a series of static and dynamic methods for evaluating irrigation efficiency was developed in literature. In the present moment these methods recognize the importance of managers' goals such as profit maximization and risk minimization as well as the impact of limited information on the attainment of these goals (Bosch D.J. et al., 1987). The present state-of-the-art related to irrigation systems analysis identifies factors affecting organization of water users' associations, and collective action by farmers in major canal irrigation systems and move beyond isolated case studies to comparative analysis of the conditions for collective action based on quantitative and qualitative analysis of a stratified sample of irrigation systems (Rosegrant et. al., 1995; Rasmussen et. al., 1995; Meinzen-Dick et. al., 2002).

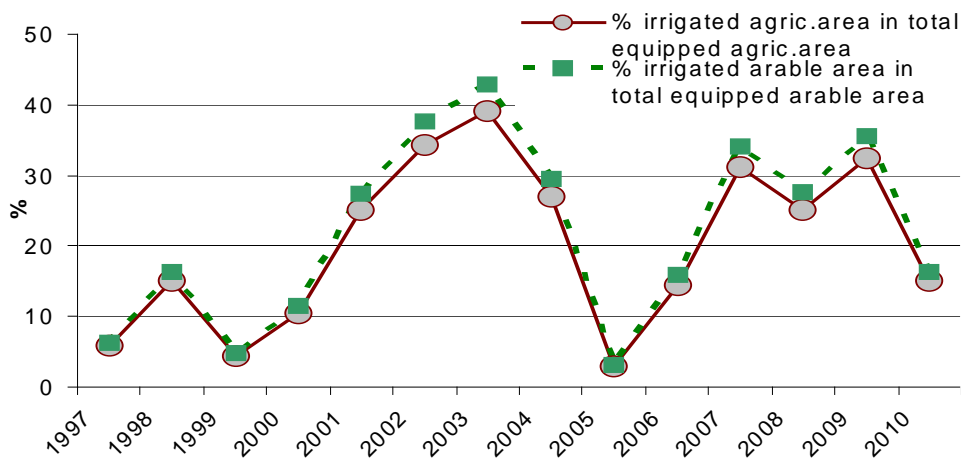
### **Theoretical background**

The finding of this analytical approach was based on the research undertaken within the project: *Sustainable Irrigation water management and River-basin governance: Implementing User-driven Services – SIRIUS* – (2010-2013) funded through 7 Framework Programme of the EU. Quantitative analysis of available secondary statistical data sources from NIS and territorial agricultural departments was used to elaborate a picture of the current situation and of the recent developments in access and use of the water for irrigation in Brăila County. This overview is supplemented with quantitative analysis and, especially, qualitative analysis of the interviews that were conducted with farmers from the North Terrace – Brăila (the interviews were designed by a team of researchers from the Institute of Agricultural Economics, Bucharest in the June 2011 - March 2012 period). By this method we tried to query the opinions of the farmers with access to irrigation system on: awareness of the *need* to access and use water for irrigation; economic and technical capacity to access the irrigation system, in other words, the *resources* available at the farm level that enhance/restrict the access to the water for

irrigation; the perception of economic *efficiency* of water use for irrigation in the investigated area.

### Brăila Irrigation System – farmer’s economic point of view

The secondary statistical information available at the level of National Institute of Statistics for the 1997-2010 period shows that in Brăila County there are significant variations of irrigated farmland from one year to another. These fluctuations are partly explained due to environmental conditions but, at the same time, these are motivated, as confirmed to us by the farmers themselves, by providing subsidies and access to the irrigation system. Thus, setting up of the Irrigation Water Users Associations – IWUA (since 1999) that associations of farmers with access to irrigation facilities, has enabled: i) the transfer of ownership of the tertiary irrigation infrastructure to the IWUA associations; farmers become responsible in maintaining and repairing the irrigation infrastructure that belongs to the IWUA; ii) access to subsidized electricity needed to run the irrigation system (which is mostly in the price paid for access to irrigation system in Brăila). This new institutional construction with private foundation, slowing down the degradation of irrigation system infrastructure and the subsidies allocated from the state budget for irrigation increased the access to water for irrigation (the irrigated area increased exponentially after 1999 so that, in 2003, they are nine times extended compared to the onset of reorganization of irrigation) (Figure 1).



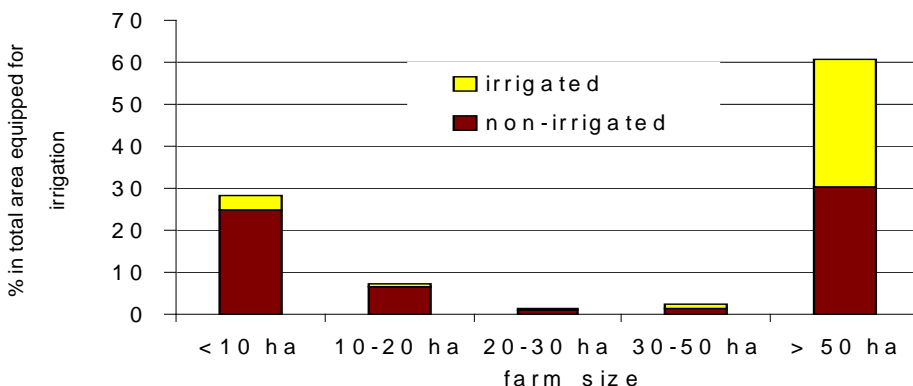
Source: NIS (2012)

Figure no. 1. *The use of irrigation system, Brăila County*

The 2004-2005 period, excessively rainy year, according to the information of National Administration of Meteorology (Sandu, 2009), reduced the demand of water for irrigation, but as soon as the climate regime reversed, the need for irrigation in the agricultural sector increased appetite of farmers to use alternative

water sources. 2010 is the year that shows the existing reverse relationship between the use of irrigation water system and subsidies received from the state for this. Basically, in a dry year (2010), the area of irrigated agricultural and arable land almost halved compared to the previous year, the interviewed farmers accusing the high cost of access to the water through irrigation system once the subsidies were eliminated.

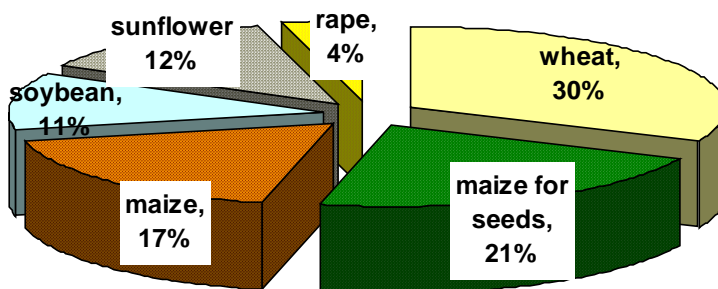
The NIS statistics also show a direct correlation between the agricultural farm land size and the utilization of irrigation facilities (Figure 2). Small farms with access to irrigation systems water a small part of agricultural land on which they operate, compared with the large and commercial farms. Although 28.4% of irrigation facilities in Brăila County are located in the area of the small farms (less than 10 ha), in 2007 these farmers applied watering only for 1/10 of these areas. In the same year, at the level of commercial farms (over 50 ha), at least one watering have been applied for a half of the area equipped for irrigation.



Source: NIS (2008)

Figure no. 2. Utilization of irrigation facilities by size of farms, 2007, Brăila County

It seems that even in the period when the irrigation system was subsidized (2007), the inclination of the small farms to use water for irrigation was relatively low, mainly because of their poor technical capacity to access the farm irrigation system. Their low economic power and the focus on the semi-subsistence agriculture of these small farms have limited their chances to increase their agricultural areas and to acquire advanced agricultural equipment necessary to facilitate access to irrigation now when subsidies were removed. Therefore, their technical and economic capacity to using water from the irrigation system has been further reduced, after 2010.



Source: MARD (2010)

Figure no. 3. *The structure of irrigated crops Viziru Terrace, Brăila (2009)*

The fact that the large farmers are those who used mostly the water from the irrigation system in Brăila County has influence over the structure of irrigated crops. Thus, the production structure of this type of farm is more directed to field crops and agricultural seeds production (Figure 3), suitable to be grown on large areas and less for vegetables that involve a lot of work force and a greater consumption of water. More than that, for vegetables, a better coordination between the members of the same IWUA structure is needed in order to correlate their structures of production for a better correlation of water demand for irrigation of all farms and, through this, to optimize the cost for the access to the irrigation system.

The big size commercial farms seem to be favoured in this organizational-institutional framework and, in the context of eliminating the subsidies for irrigations, they are in the best position for optimization of the effect/effort economic ratio, relying on the following arguments:

- *The high productive capacity of the soil in the area*

Soils in classes I and II of suitability for agriculture cover 48% of the agricultural area of the county, a fact that permits high potential yields per area unit and substantial profits even from the big culture.

*„.....this land is good. At wheat I make 2000 kg/ha without doing it anything. If I give it an herbicide it grows by 1000 more. If I water, it grows by 1000 kg”. (farmer Brăila, 52 years old, agronomist engineer)*

- *Technical-financial capacity for the access to the irrigation system*

40% of the interviewed representatives of the commercial farms evaluate as ‘good’ or ‘very good’ the technical capacity of the own farms in order to access the irrigation system.

*“Very good! We have irrigation equipments taken on credit! (farmer Brăila, 42 years old, economic education)*

*“Weak! They do not have enough devices and equipments (n.b. for applying watering at farm level)” (farmer Silișteea – Brăila, 52 years old president of IWUA)*

- *Bigger chances to minimize production costs per area unit and to maximize profitability*

Because of the physical depreciation of the irrigation system on terrace of Brăila, the present output of the flowing in and distribution network is estimated at around 60% (MARD, 2007). The losses are then transferred upon the costs of access and utilization of the water for irrigations.

*“The present price (of the water) is high enough ... it is not real with what is consumed..... ....The engines are very big, the consumption (n.b. electric power) is big. We pay more on water and because of this the engine used for water re-pumping must be replaced)” (farmer, 42 years old, economic education, head of IWUA)*

A great part of the areas irrigated in 2010 at the level of the farms surveyed was destined to the seeding lots contracted before with the seed producers – Pioneer, Monsanto etc. who support a great part of the production costs, including a significant part of the expenses with irrigations.

*“It cannot be without irrigations! We work with maize for seed!” (Farmer Brăila, 42 years old, economic education)*

*„ ...it’s the crop (n.b. maize for seeds) which brings the best profit. 6 million/ha (n.b. in lei, old currency). .... If the seed producer did not give the 200 euro/ha (n.b. for irrigations), I would not have irrigated” (farmer Brăila, 52 years old, agronomist engineer, vice-president of an IWUA).*

The supply channels have a huge ‘reserve’ of weeds seeds brought in by the water or coming from the vegetation not taken off the canals, which is leading to the infestation of the irrigated areas; with big expenses for herbicides used in diseases and pests control from the vegetation in the canals.

*“...open canals where the grass grows... In spring they come (through the water for irrigation in the canals) weeds seeds – bottle grass, cane – 30-40% of the irrigated lands are infested” (farmer Brăila, 52 years old engineer agronomist, vice-president IWUA).*

Farmers are reducing the future risk to increase expenses with crop herbicides application by limiting the water consumption for irrigation.

- *The securing of chances to sell the production and avoiding losses by perish character*

Farmers in Brăila area relate the negative experiences in selling the vegetables, which, in most cases, are connected to non-respect of the clauses in

contracts by the firms for overtake and processing of vegetables: not overtaking the products at terms established, delayed payments, invoking of some clauses for products refuse not foreseen in the initial contract.

- *Avoiding the risks of not having access to irrigation water in due time*

The answer of a farmer who farmed in 2011 over 200 ha of which more than 1/2 was irrigated at the question: How do you make the decision to irrigate a crop area?

*“It is difficult! You are conditioned by the others who are on the same canal (n.b. of irrigations). The decision is commonly agreement taken!”*

## **Conclusions**

Although the farmers in Brăila County are aware of the need for water through the irrigations systems, their capacity to access this system is strongly conditioned by: the land size of the farm, the financial capacity to support the costs of access to the irrigation system, the technical capacity of the farmers themselves to use water from the irrigation system, affiliation and active involvement in an IWUA, membership to a IWUA with a good technical and financial capacity and which brings together viable and solvable users of water for irrigations.

The agricultural size structure of the farms that use water for irrigation and the irrigated crop structure are largely the result of the organization and operating mechanism of the irrigation system in general and are dependent of the IWUA functionality, in particular. Thus, IWUA are associations of farmers, owners of tertiary irrigation infrastructure on their territory which have yearly contracts with the irrigation water suppliers, contracts stipulating the projected periods and quantities of water required for irrigation. Under this contract, the water supply to IWUA is made at its request, demand that represents the cumulative water needs of all farmers, IWUA members. If the price of water to IWUA is established by the annual contract, the water pumping costs, requested for the distribution of water between farmers, depend on the amount of water delivered. According to the principle of decreasing marginal costs, the greater the simultaneously irrigated areas are the smaller the costs of water pumping per irrigated unit area are. This fact: i) favours the large farms that simultaneously irrigate large areas and/or have the capacity to optimize the irrigation costs through a good management of the production structure and of water consumption, ii) determines the farmers to correlate the periods when they ask for the water to irrigate obliging them to uniform their structure of crops.

The big size commercial farms seem to be favoured in this organizational-institutional framework and, in the context of eliminating the subsidies for irrigations, they are in the best position for optimization of the effect/effort economic ratio, relying on the following arguments: the high productive capacity of the soil in the area; technical-financial capacity for the access to the irrigation



system; bigger chances to minimize production costs per area unit and to maximize profitability; the securing of chances to sell the production and avoiding losses by perish character; avoiding the risks of not having access to irrigation water in due time.

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# THE CURRENT STATE OF STAFF DEVELOPMENT AND TRAINING AT A HIGHER EDUCATIONAL INSTITUTION IN NAMIBIA

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## Abstract

*The paper intends to evaluate the current state of staff development and training at tertiary educational institutions, with special emphasis on Namibia. The research adopted a meta-analytical study, which relied on secondary data. A qualitative research approach was utilised and the emic perspective (author's view point) was employed. An empirical analysis was utilised in the paper. The authors are of the view that all staff development and training activities should be linked to the strategic goals of organisations. This paper is original since it examines staff development and training activities and various factors affecting it in higher educational institutions, which creates an opportunity for further investigation into strategic issues confronting staff development and training activities in higher education in general.*

**Keywords:** *development, human resource, institutions, staff, strategic*

**JEL Classification:** A<sub>21</sub>

## Introduction

Education, training and development have reached a turning point in Namibia, which is why education has received the biggest share of the government's budget. During the 2007/2008 financial year, the government spent 3.3 billion Namibian dollars (N\$) on education as an investment in human capital (Government Budget Report, 2007:23). However, the country has still failed to acquire a required skills base, which is necessary to achieve national goals (Heita, 2008). According to Nicko Tromp, group director for Nictus Furniture Stores, cited by Heita (2008), *the lack of skilled people is visible in Namibia*, which demonstrates that business people have also been hard hit by the skills shortage. As a result, the government initiated a programme to raise the profile of education, training and development in the country by launching the Education and Training Sector Improvement Programme in 2006 (ETSIP Phase 1 2006-2011). Therefore, this paper aims to evaluate the state of staff training and development in higher education in Namibia.

## **Education, training and development in Namibia**

ETSIP was developed to support Namibia's Vision 2030 that states that: *Namibia should join the ranks of high income countries and afford all of its citizens a quality of life that is comparable to that of the developed world*, in order to become a knowledge based nation (ETSIP, 2007:1). The government programme via ETSIP has set different objectives for different sectors. The objective for tertiary education and training was *to improve the effectiveness and productivity of academic staff in terms of research and teaching competencies through staff development programmes* (ETSIP, 2007:46). The government further stated that they will involve a percentage of each institution staff member in staff development activities annually (ETSIP, 2007:46). Until presently, the Namibian government has spent N\$19.5 million on this initiative (ibid). From a broader view of education, training and development in Namibia, the focus of discussion will proceed to tertiary education and training institutions in Namibia.

There are only two tertiary educational institutions in Namibia, namely the PoN and the University of Namibia (UNAM). As tertiary educational institutions they are mandated by legislation to produce high level skilled and knowledgeable human resources that are required for the economic growth of the country (Republic of Namibia Higher Education Act, 26 of 2003). Therefore, the director of the science and technology sector developed a report in 2005 to provide a mechanism to support research activities in tertiary institutions, which are essential to build the knowledge capacity of the country and enables employees to perform better in their work environments (Nyiira, 2005:7). Namibia has a long way to go; however, effective training and development policies in tertiary institutions can reduce that long journey. PoN (Polytechnic of Namibia) was established in 1985 under the framework of the Academy for Tertiary Education (1980) as the first higher education institution in Namibia. In 1991 the Presidential Commission of Higher Education recommended the creation of a PoN through merger of the Technikon of Namibia and the College for Out-of-School Training (COST). The PoN was subsequently established by an Act of Parliament, namely Act 33 of November 1994, and started to fully operate as an independent institution on the 01 January 1996 (PSP, 2004-2008:3).

The PoN is the second largest institution in Namibia and has a total staff compliment of 511 full-time staff members of which 230 are Namibians (AA Report, 2007/2008:4). This includes academics, administrative and support staff. Having looked at the broader perspective of education, training and development, some variables that affect effectiveness of the HR Code: SDT, are explicated in detail in the following sections.

Staff members in higher education institutions are key resources. McNaught and Kenedy (2000:95) commented that quality and quantity are both important considerations for universities in the 21<sup>st</sup> century. The quality that service staff members deliver has an impact on student learning. There is a need to continuously enhance staff skills, whilst providing them with resources to consider new ways to design learning, which will enhance student learning (Barnes, 1994:130). Staff

development activities should include institutional policies, programmes and procedures, which facilitate and support staff to increase their performance and to serve the institutions' needs (Webb, 1996:10). Staff development gained increased attention in higher educational institutions in the UK, Australia, New Zealand and Netherlands, since government wanted to make the universities more efficient, effective and accountable (Partington and Stainton, 2003: 475). Provision of training, mentoring and effective review of training and development activities to ensure that they result in the achievement of university goals (Blackmore, 2003:7).

Higher educational institutions have mostly been concerned with academic staff development. Academic staff provides core business activities, which consist of teaching, learning and research (Thackwray, 1997:13). In some academic fields such as engineering and information technology (IT), human knowledge doubles every five or ten years. Therefore, most educational institutions would have units or centres that deal with academic, educational or professional development (Webb, 1996:10) to provide developmental activities that support core business activities and to ensure that they stay abreast of technological changes. Hence, academic staff remained the focus of staff development efforts (Fielden, 1998:7). Due to swift changes in management process and technology, administrative and support staff also require development (Fielden, 1998:8). As a result, higher educational institutions have developed staff development programmes for all staff including academic, administrative and support staff because they all play crucial roles in assisting students to learn and create an environment that facilitates learning (ibid).

Higher educational institutions that are in a climate of change should introduce a coherent staff development policy that is aligned to the university's "corporate vision" (Barnes, 1994:139). McNaughty and Kenedy (2000:98) posited that *effective staff development should be positioned at the centre of university functioning and yet needs to retain connections with the needs and perceptions of teaching staff*. Therefore, staff development programmes will be successful if they are strategically supported by the university.

### **Strategic Human Resource Development (SHRD)**

SHRD is defined as creation of a learning organisation within which all training and development activities respond to corporate strategy (Blackmore, 2003; Millmore, Lewis, Saunders, Thornhill and Morrow, 2007:364). There has been a paradigm shift from training and development to SHRD. Traditionally, training and development was done to resolve work problems and operated in isolation, but this has changed (Opperman and Meyer, 2008:7). Organisations strategically plan their training and development activities by linking it to its business strategy. Blackmore (2003:5) noted that the strategic approach to staff development focuses on strategic change of the organisation, which should involve everyone because they all work towards achieving the same goal (Millmore *et al.*, 2007:354). McCracken and Wallace (2000, cited in Blackmore, 2003:5) identified nine characteristics that distinguish SHRD, namely relationship to organisational

goals; top management support; environmental scanning; staff development plans and policies; relationship to line management; role of staff developer; cultural engagement; evaluation organisation; and relationship to human resources. However, it was argued that an additional point of staff be included for SHRD in higher tertiary institutions. This includes the extent to which staff would be involved in strategic partnerships with the staff development function (ibid). Blackmore (2003) also noted that this involves strategic planning, execution and evaluation of activities of their peers.

Kalamas and Kalamas (2004:106) assert that SHRD should be a top priority on the strategic planning agenda because of the immense contribution that highly skilled employees could make to the long-term sustainability of a company. SHRD could create a strong learning culture, which addresses a need for flexible individuals who constantly learn and develop themselves (Blackmore, 2003:5). Higher educational institutions (HEI) that are learning organisations should view SHRD from a holistic perspective (Blackmore, 2003:5). Once organisations have set their goals they should decide and prioritize their needs. Institutions or business needs are defined as shortcomings between current and desired conditions, which are relative to achieving business goals (Gupta, Sleezer and Russ-Eft, 2007:175). These deficiencies could be identified in terms of employees' knowledge, skills and behaviour in performing the given task (ibid). Deficiencies could be minimised if employee needs are linked to strategic needs of the organisation, which is vital to the organisation's long-term success. Most training and development programmes that are linked to strategic goals and the business strategy of an organisation can yield positive results for the organisation (Dierdorff and Surface, 2008:28). Therefore, by linking training and development programmes, one determines business needs that are essential to assisting the organisation with meeting its goals (D'Netto, Bakas and Bordia, 2008:22).

Organisations that examine their current and future organisational needs in terms of position and position requirements will equip their employees with necessary competencies. Organisations should focus on questions such as "where" and "why" training is necessary to determine their training and development needs (Dierdorff and Surface, 2008:29). A study, which was conducted by Melum (2002, cited in D'Netto *et al.*, 2008:7) concerning 100 top companies in the United States, discovered that 90% of the companies linked their training and development programmes to the business' strategic mission and goals. D'Netto *et al.* (2008) noted that organisations that know their business needs, integrate their needs into their business strategy. Supervisors should understand how to integrate business needs with training and development needs. They should also be able to identify important needs and address them immediately (Gupta *et al.*, 2007; Millmore *et al.*, 2007:364).

Gupta *et al.* (2007:175) state that assessing business needs would benefit the organisation in the following ways:

- develop long-term solutions to existing performance problems or new performance needs; and
- solve problems that affect core business processes such as quality service delivery.

Business needs assessment provides a plan of where the organisation wants to be and how they can develop their employees (Gupta *et al.*, 2007:176). However, the organisational needs should firstly be clearly communicated to everyone in the organisation (Gupta *et al.*, 2007:21). Therefore, training and development needs should be linked to needs of the organisation. Once the business' needs have been identified, training and development needs can be discussed.

### **Evaluating training and development**

If training and development is a process of updating knowledge, skills and abilities of employees to improve their job performance, then training and development should be evaluated. According to Goldstein and Ford (2002:138), evaluation *is the process of appraising something carefully to determine its value*. Most companies and higher educational institutions have shown their support for staff training and development. However, few can demonstrate the value of investments that they have made (Thuckwray, 1997; Sels, 2002; Goldstein and Ford, 2002). One of the reasons could be because they do not evaluate the impact that training has on business results (Aragon-Sanchez, Barba-Aragon and Sanz-Valle, 2003:956).

Large investments in training (input) do not necessarily mean that learning is achieved (output) (Sels, 2002:1279). Evaluating training and development activities will give an indication that training that was provided was beneficial to the organisation and had lead to performance improvement of those who attended the training (Meyer *et al.*, 2003:238). External training providers do not conduct follow-ups and monitoring to assess if training has contributed to improved job performance, therefore, organisations are encouraged to evaluate training programmes (Wickramasinghe, 2006:243). Evaluation is viewed differently in higher educational institutions because not all development is related to teaching and learning of their subject matter. Therefore, evaluating academic staff once they have attended development programmes may not be possible (Thackwray, 1997:178).

Research that was conducted by Swanson and Holton (2001), Goldstein and Ford (2002), Meyer, Mabaso and Lancaster (2003) and Noe, Hollenbeck, Gerhard, and Wright (2006) indicated that there are benefits that can be obtained from evaluating training and development programmes. They noted that training evaluation may lead to performance improvement, profit growth and, decrease labour turnover. It can also be used as a diagnostic technique to review training programmes to meet desired results, and as a method to show job-relatedness of the training programme (Goldstein and Ford, 2002:140). Different models have been developed over the years to evaluate effectiveness of training and development programmes.

One of the most widely discussed models is Kirkpatrick and Phillips' evaluation model (Aragon-Sanchez, Barba-Aragon, and Sanz-Valle, 2003; Wickramasinghe, 2006; Lien, Hung, and McLean, 2007). A study was conducted

by Lien *et al.* (2007:36) on seven leading companies in Taiwan in order to examine training evaluation strategies by using Kirkpatrick's and Swanson's training evaluation models. The study discovered that none of the companies in which the study was conducted could best use the two models of training evaluation. Most of them have developed their own evaluation strategies, which use organisational training goals as a measurement technique for training evaluation.

If training and development is driven by institutional objectives, then any evaluation should be done to achieve the institutions' objectives (Thackwray, 1997:175). Hence higher education evaluation should link training and development to departmental and institutional outcomes (*ibid.*). Training evaluation should be an on-going process (Thackwray, 1997; Millmore *et al.*, 2007) and should not stop at individual levels, but flow down to departments and, the entire organisation. Organisations spend large amounts of money on training and development programmes (Aragon Sancez *et al.*, 2003 and Berge, 2008). Therefore, quantifying results would help organisations to monitor their financial resources (Phillips, 2003:26). Philips expanded Kirkpatrick's four-level model by adding a fifth level of Return on Investment (RoI) to reflect monetary value with program costs. He further explained how organisations should calculate RoI (Phillips, 2003:197).

Training, education and development have different reimbursement timeframes namely, short term, medium term and long-term (Phillips, 2003:21). He stated that training will have short term payback, whereas education will have a medium term payback and development will render long term payback. Philips indicated that the different reimbursement timeframes should be considered when calculating RoI. It is argued that calculating RoI for training could be simple but calculating education could be tricky because sometimes people resign before RoI is calculated. Calculating RoI for education might also be time consuming (Phillips, 2003:24 and Berge, 2008:394). Calculating RoI can be used to demonstrate to management benefits that are gained from training so that they do not logically conclude that training will improve productivity, increase customer satisfaction, enhance quality, reduce costs and save time (Opperman and Meyer, 2008:220).

A study, which was conducted by Lien *et al.* (2007:43) reported that organisations found it difficult to calculate RoI. Berge (2008:393) stated that implementing RoI can be costly and difficult, although RoI can be used to adequately assess training needs. Phillips (2003:27) acknowledged that the process of calculating RoI is challenging, albeit effective if applied correctly, and if those in charge of training understand formulae, statistics and all business operations.

RoI cannot be calculated if transfer of training does not take place. Once employees transfer their skills, the organisation can calculate their RoI by measuring, for example, the number of sales that are made once employees return from training (Phillips, 2003; Opperman and Meyer, 2008). Nevertheless, it would be worth discussing institutional support for the transfer of training. Transfer of training refers to the extent to which trainees can successfully apply their KSA to the job (Goldstein and Ford, 2002:86). Hence, understanding transfer of training is vital for the success of the organisation. Goldstein and Ford (2002) further note that



organisations should ensure that the KSA gained on training leads to improved job performance. A regular follow-up evaluation should be conducted with employees after training to give them a chance to apply their new knowledge and skills in the workplace (D'Netto, Bakas and Bordia, 2008; Scaduto, Lindsay and Chiaburu, 2008).

Studies have been conducted by Velada, Caetano, Michel, Lyons and Kavanagh (2007); D'Netto *et al.* (2008) and Scaduto *et al.* (2008) on the transfer of the training process. Their findings discovered that training will be effective if the work environment, organisational climate and culture supports the answer of training. These were identified as some of the factors that influence the transfer of training. Training will be effective if training outcomes are aligned with employee performance and when the training programme is designed in such a way that employees can transfer learning to the job (Velada *et al.*, 2007; Scaduto *et al.*, 2008). The organisation's climate should show that knowledge and skills that are gained through training are valued (Goldstein and Ford, 2002:86).

Training and development, which is gained, should also be intrinsically valuable to trainees and provide them with transferable qualifications that should be employable in the labour market, while organisations benefit from higher profits, decrease absenteeism and better customer service (D'Netto *et al.*, 2008:4). Measurable training objectives should be set for transfer of training to take place. According to Wickramasinghe (2006:228), setting objectives for training refers to the *process of translating the needs identified into observable and measurable behaviour*. He further notes that the objectives should describe what employees will be expected to do after the training. In other words, pre-and-post performance should be measured. Pre-training data refers to information that is collected before employees are sent on training, which should be used as a tool to measure their post-performance (Berge, 2008:391). Collected information would include the number of errors made, number of returned products, absenteeism and customer complaints. Post-training refers to collected information, which assesses whether the employee's KSA have improved (Scaduto *et al.*, 2008:160). Transfer of training might not take place if employees' performance is not assessed and if training intervention is conducted in isolation (Rowold, 2008:33). Therefore, training and development activities should be supported by the organisation.

**Staff development in tertiary educational institutions** is not only about academic development (Blackmore and Blackwell, 2003:1), since non-academic development should also be recognised. There is a difference between staff developers and academic developers. In academic institutions staff developers are mainly responsible for administrative functions of staff such as organising training and development activities with the purpose of enhancing staff competencies as means to improve their performance. Academic developers are responsible for developing competencies of academic staff in areas of teaching and research (Webb, 1994:11). Academic developers should assist academic staff with teaching problems that they experience and provide well-designed workshops, mentoring and orientation programmes (*ibid*).

It is a responsibility of the staff developer to identify institutional needs and to incorporate them into the staff development plan (Scollaert, Schollaert and Bright, 2000:35). Staff developers should draft staff development plans by considering the needs of both the organisation and the individual. A staff development plan should begin with a needs assessment. Needs that are identified in the strategic plan might be met by a training and development programme for some staff members. Developing a staff development plan will ensure that goals that are set in the strategic plan, are achieved in a focused and systematic way (Scollaert *et al.*, 2000:35).

Scollaert *et al.* (2000) indicate that the following components should be included in a staff development plan:

- a summary of the institution's needs and individual needs;
- a prioritisation of those needs with reference to the strategic goals of the institution;
- available financial resources;
- the nature, time and targeted audience of activities that are planned;
- the evaluation procedure; and
- the approval of management.

A well established staff development plan can serve as a record of proof of training and development efforts, as well as proof of responsibility towards authorities that offer funds to the institution or organisation (Scollaert *et al.*, 2000:36). Policies that are formulated and implemented should support the staff development plan.

### **Empirical analysis**

The study adopted a qualitative (focus on understanding) research method in order to study the various literature and analyse documents on staff development and training in both developed countries and developing country tertiary higher educational institution. Minutes of council meetings were reviewed to obtain information concerning issues that were discussed on matters related to staff development and training. The council forms part of the PoN decision-making board. The aim of the review of minutes was to assess if there were any inferences to events that is occurring in other institutions and in companies. The Higher Education Quality Councils' Audit report (HEQC) of 2007 and the World Bank report (2005) were also consulted. The Polytechnic's Strategic Plan 3 (PSP-3) was reviewed to investigate whether the staff development activities are aligned to the goals of the institution. One could argue that when policies are effectively implemented and monitored, it could lead to the achievement of set objectives. In assessing effectiveness of training and development at the PoN, the researcher posed questions and made statements to ascertain if the HR Code: SDT is implemented, as stated in the HR Code in order to identify weaknesses. The questions posed were:

- How frequently were staff members sent on training and development?

- Were the performances of staff members assessed before and after training?

The rationale for this information was to measure if staff members were sent on training and development programmes and to ascertain whether their job performances were assessed before and after they returned from training. Further reason was to establish whether staff members' job performance was assessed and whether training and development needs were properly identified, as stated in the HR Code: SDT.

Table no. 1

**Frequency of staff training and development and assessment of their performance before and after training**

		Performance assessment before and after training		Total
		Yes	No	
Number of times staff was sent on training	Never	4	29	33
	Some times	26	52	78
	Often	3	3	6
	Total	33	84	117
	Missing system	13	00	13

(n=117)

The cross tabulation revealed that from the 130 respondents, 33 of the respondents had never been sent on training and development programmes, while 78 of the respondents were sometimes sent and 6 were often sent on training and development programmes. The statement that respondents had to reply to was: my job performance is assessed before and after I went on a training and development programme, and while 33 of the respondents replied yes, 84 replied no. This gave a total of 117 respondents, while other respondents chose not to respond.

**Conclusion**

The above analysis revealed that training and development is not a standalone function, it requires involvement by all stakeholders. Changes in the external environment have led to organisations realising that their competitive advantage depends on skills and knowledge of their human resources. In other words, training and development has become such an important aspect for both organisations and individuals. The cross tabulation shown in Table 1 revealed a different point of view from the 84 staff members that had attended training and development, since none of their performance was assessed before and or after the training and development programme. The reviewed literature shows that performance improvement will result in the achievement of organisational objectives only if performance is assessed (Goldstein and Ford, 2002:130). If performance is not

assessed, then transfer of training might not take place. In terms of the PoN, it was also found that there are no formal assessment, evaluation and monitoring mechanisms to assess performance. Furthermore, the literature revealed that a staff development policy should have a plan of what should be achieved once training and development has been offered (University of Free State: staff development policy, 2005:3). This would facilitate that monitoring is conducted to ensure that intended results are accomplished. Tertiary education institutions are faced with double challenges, since on the one hand they have to deliver quality services to students and, on the other hand, meet national demands, which is to create a knowledge-based economy. The PoN is one of the two public higher tertiary educational institutions in Namibia, which focuses on delivering quality tertiary education. It is imperative for tertiary educational institutions, including the PoN to increase their training and development budgets, because staff development and training can be challenging, when there are no support base for the transfer of knowledge.

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# APPROACHES FOR CONCEPTUALIZING CUSTOMER SATISFACTION AND PERCEIVED SERVICE QUALITY

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## **Abstract**

*Customer satisfaction and perceived service quality seem to be in a permanent struggle to get unspoiled attention from marketers; thus, service companies should be aware of various approaches for conceptualizing their similarities and differences. The relationship between these concepts seems to be unclear and, therefore, marketing specialists should constantly monitor the factors that influence customer satisfaction of services and the importance perceived service quality has among these factors.*

**Keywords:** *customer satisfaction, perception, services quality, perceived performance, expectation.*

**JEL Classification:** M<sub>30</sub>, M<sub>31</sub>

## **Introduction**

In today's marketplace, services companies are faced with very tough competition and, at the same time, customers are becoming more and more demanding due to the fact that they have the greatest number of options to choose from than ever before.

Nowadays, clients are much more unwilling to accept inefficient or unpleasant services and due to the fact that they benefit from better and better services their expectations are continuously increasing. No client would come back in a place where he has been neglected or treated inadequately (poor services quality, unfair report price/services) and, in addition, he would share with his friends and acquaintances his lived dissatisfaction.

The influence factors of consumer satisfaction and service quality are difficult to analyze due to consumer's complex behaviour (Cătoi and Teodorescu, 2004) and of multiple elements that influence the consumer. Moreover, there is a close relationship between products and services quality, customer satisfaction and company's profit. A higher level of quality attracts a higher level of customer satisfaction, which implies higher prices and, sometimes, reduces costs. Therefore, programs for quality improvement usually have their share to profit growth.

A company has to be aware of the way clients perceive quality and what quality they expect to receive. Given the circumstances, that company should offer a higher degree of quality than its competitors. As a consequence, quality has to be

treated as a satisfaction antecedent, i.e. if there is service quality, there is also customer satisfaction. Another important aspect is the way consumers distinguish between customer satisfaction and services quality, more exactly how marketers set the differences between psychological processes that are underlying their comprehension.

This paper aims at pointing the similarities, the differences and the relationship existing between services quality and consumer satisfaction by making a brief overview of customer satisfaction literature, by emphasizing the factors that influence the customer satisfaction of services and the importance service quality has among these factors.

Both satisfaction and perceived services quality are based on distinctive research models that use both *expectations* and *perception* as their *key determinants*. Similarly to satisfaction, perceived services quality is often defined as being the comparison between expectations regarding a service and real perceptions. However, perceived service quality been defined as a determinant of customer satisfaction and not as a concept similar to it.

From this short introduction, one can deduce that the two concepts are apparently similar; both are based on a *comparison* between the *consumer's expectations* and *perceived performance*.

### **A brief overview of customer satisfaction literature**

In the specialty literature, there is a series of variants defining consumer satisfaction or dissatisfaction. Nevertheless, Richard Oliver, a famous researcher in the field, considers that everyone seems to know what satisfaction is until one is asked to actually define it, when no one knows what it is anymore. According to Oliver (1997), satisfaction is “the consumer’s fulfilment response”. It refers to the judgement on the features of a product or service and the degree of fulfilment they provide after consumption, including over-fulfilment or under-fulfilment. On the other hand, Tse and Wilton (1988) argue that customer satisfaction stems from the client’s reaction as result of evaluating the perceived expectations and the actual performance of a product or service.

Philip Kotler considers that *consumer satisfaction* “reflects comparative judgments of a person connected to the *difference* between the *perceived performance* of a purchased product (or of a provided service) and the *expectations* that he made concerning this performance. If the performance fails to meet expectations, the client will be unsatisfied or disappointed. If the performance meets expectations, the client will be satisfied. If the performance exceeds expectations, the client will be extremely satisfied or delighted” (Kotler and Keller, 2008).

Even if in the specialty literature there are numerous definitions of customer satisfaction, they still have in common the following three elements (Muntean, 2010):

- consumer satisfaction in an emotional or cognitive answer;



— the answer is centred on the expectations, product, consumption experience;

— the answer manifests at a certain moment in time (after consumption, after choice, based on an experience cumulated in time etc.)

Satisfaction is thus the result a buyer feels in his relation with a company whose performances have met his expectations. The buyers are satisfied when their expectations are met and delighted when they are exceeded. Satisfied customers stay loyal for a longer period of time, purchase in larger quantities, are less influenced by price and present the company favourably to their friends.

There are several methods used to measure customer satisfaction. These are: periodic surveys, regularly measuring the customer loss rate, mystery shoppers and monitoring competitive performance (Kotler and Keller, 2006). Another model to measure consumer satisfaction is the *customer satisfaction index*. The American Customer Satisfaction Index (ACSI) developed at the University of Michigan at the National Quality Research Centre quarterly measures consumer satisfaction in USA by interviewing 80000 Americans every year about their satisfaction regarding durable and non-durable goods, local and federal government services etc.

Customer satisfaction is thus a particularly special indicator for evaluating the persons who formulate the demand. To be aware about the satisfaction or the dissatisfaction degree of consumers means to evaluate the success or the failure of some action, but also forecasting on their future behaviour. At the same time, it allows comparisons between different market segments.

### **Factors that influence consumer satisfaction of services**

*Expectations* mix clients' experience with a service, i.e. with information on the sales agents and other buyers' opinions. The level of expectations influences the appreciation of qualitative parameters, as well as sales forecasts. Zeithaml, Parasuraman and Berry (1990) suggest as key factors influencing customers' expectations: word-of-mouth communications, personal needs, past experience and external communications.

Client's expectations concerning standard services they anticipate are thus influenced by the accumulated experience due to previously delivered services, the standard for the respective service and by the price level for that particular service. As a consequence, customer satisfaction measurement mainly depends on their expectations concerning the services customers want, expectations which have known in time a whole series of modifications generated by the information provided by television, great choice possibilities, higher education standards and a great mobility etc., which led to the formation of customers with superior discernment, with a lot more knowledge and more expertise.

*Perceived service quality* is measured through three dimensions: the overall service quality, its reliability and the extent to which the service fulfils clients' needs. Cetinã (2009) argues that "Even if quality's benefits are known not only by producers, but also by consumers, quality represents an issue for the majority of companies of services. Quality's definition, its features, its influence factors, its

strategies of improvement, as well as the causes leading to performing medium-quality services are extensively debated in specialty literature, which treats quality as a component of products.”

Zeithaml, Parasuraman and Berry (1990) define service quality as: “the extent of the discrepancy between customers’ expectations or desires and their perceptions”. They define ten dimensions representing evaluative criteria that clients make use of regarding service quality: tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication, understanding the consumer. The SERVQUAL model used to measure service quality includes five of these dimensions considered the most important: reliability, assurance, tangibles, empathy and responsiveness. According to Shoemaker, Lewis and Yesawich (2007): “These dimensions lead to the acronym RATER. All dimensions together result in the total experience the customer takes away.” Cronin and Taylor (1992) argued that using SERVPERF to measure service quality is better than SERVQUAL in terms of validity, reliability and forecasting. According to Lovelock and Wirtz (2004), service quality has different meanings for customers and it also depends on service delivery perception.

Satisfaction is thus deeply influenced by the quality of the product or service. C. Miller from the American Society for Quality considers that quality is represented by all attributes and traits of a product or service that manage to satisfy all clients’ needs. (Miller, C. in Kotler and Keller, 2006). This customer-centred definition refers to the fact that one may talk about true quality whenever the service meets or exceeds customer’s expectations.

*Perceived performance* is a variable, which intervenes in the process of non-confirmation of expectations, as previously mentioned and it directly influences consumer satisfaction. “It has been empirically demonstrated that direct causal connections between satisfaction and perceived performance may explain satisfaction variation; moreover, some authors argue that perceived performance would be a better predictor of satisfaction than expectations non-confirmation variable.” (Muntean, 2010)

As far as *perception* is concerned, the consumer of a product or service is subject to numerous sensorial inputs, which reach him through his five senses and to whom consumer gives certain significance through his inner perception. “The perception process starts or is activated through a certain form of sensorial impulse that is directed towards the individual’s sensorial receptors. The five basic units of the stimuli that form the sensorial inputs are hearing, seeing, taste, smell and the tactile sense. Besides these five ways individuals are bombarded with all kinds of inputs” (Cătoiu, 2004). Philip Kotler argues that “people may form different impressions about one and the same object” due to perceptual processes such as *selective attention*, *selective distortion*, *selective memorization* and *subliminal perception* that take place for each consumer. (Kotler, 2008)

A useful framework is *customer perceived value (CPV)* that provides useful insights for customer satisfaction. According to Kotler and Keller (2006), value perceived by customers (CPV) is triggered by the perceived and actual difference between the evaluation of all advantages and costs of a product or service and their

competitors. Firstly, the seller must assess the total customer value and cost of all offers of the competitors. Then, the seller who finds himself/is situated at the customer perceived value disadvantage must take action. He has the following options: to increase total customer value or to decrease total customer cost, each options having their specific modes of action such as strengthening the attributes of the product or service or simplifying the delivery process, etc.

In fact, Shoemaker, Lewis and Yesawich, (2007) point out that perception is reality for the consumer and that one of the greatest mistakes marketers make is to believe that what they perceive is what customers perceive. The only reality is what consumers perceive and marketers should focus on influencing consumer's perceptions, irrespective of their own.

### **Advantages generated by consumer satisfaction and its relation to service quality**

Fornell (1992) has proposed the following benefits generated by consumer satisfaction:

– *Consumer loyalty* – in the case of satisfied customer there is a greater probability to repurchase a certain product or service. Strong loyalty of customers will ensure a constant and sure cash flow for the company that shall be reflected in its earnings.

– *Reduced price elasticity* – consumer satisfaction reduces price elasticity for current customers. Satisfied customers are much more willing to pay for benefits they obtain and are much more tolerant to price increases.

– *Reduced transaction costs* – a high level of consumer satisfaction will reduce the future transaction costs, because the company will not need to spend extra money to attract new customers. Satisfied customers will purchase with an increased frequency and a greater quantity not only the product that satisfied them, but also other products offered by the company.

– *New customers* – the costs for choosing new clients are smaller for companies that provide satisfaction for their consumers. They will recommend the respective product / service to other persons (relatives, friends, acquaintances etc.). The media sources shall also be more willing to provide positive information for prospecting new buyers.

– *Enhanced reputation* – a high level of consumer satisfaction will determine an improvement of the company's reputation, which will be an advantage for making a decision on introducing new products because they increase consumer's trust and the risk he associates to the choice. Good reputation is also an advantage regarding the maintenance of good relations with the providers, distributors and potential business partners.

Dăculescu (2006) considers that care for customers is a concept, which implies specific actions through which customers are permanently satisfied, thus transforming them in loyal clients, which come back with new and enhanced expectations. Customer satisfaction has thus benefits not only for them, but also for the supplier. A satisfied customer will repurchase, becoming a loyal customer, will

transmit the post-purchase satisfaction feeling to his friends, relatives, colleagues, will increase self-trust in the choice he made and will give less attention to competitor products. This will result in the creation of favourable company image and of market prestige.

As far as the relation between service quality and consumer satisfaction is concerned, Davis-Sramek et al. (2009) evinced that both technical and relational service quality greatly influence satisfaction, which consequently impacts both affective and calculative commitment.

## **Conclusions**

As already stated, not only quality, but also consumer satisfaction are extremely important subjects that gain more and more attention worldwide. The importance of measuring the satisfaction degree of consumers of any company stems from the possibility to create a competitive advantage that helps the company differentiate on the market (Porter, 1985). Khan (2010) considers that service quality measurement helps companies acknowledge their real position on the market and thus it contributes to the increase of its competitiveness.

Quality is the best insurance policy for and has great impact on both customer loyalty and satisfaction, it is the most efficient defence against competition and the only way to develop and obtain income. Miller (1993) from the American Society for quality argues that true marketing specialists should have as ultimate goal to become *customer satisfiers*; they should constantly improve quality in order not to become outdated and by using all tools of traditional marketing to ensure the best level of quality and, in consequence, deep customer satisfaction.

Marketers should bear in mind that their mission is to satisfy their customers at the highest level possible. Therefore, companies should constantly measure the level of satisfaction of their customers. Suggestive positive consequences formulated by Kotler and Keller (2006) refer to the fact that satisfied customers are loyal on the long run, buy in larger quantities than normal customers and recommend the company's products or services to others; they are less attentive to competitors and not very sensitive to prices, they provide ideas for improving products or services and it is more easy to serve them in comparison with new clients. At the same time, companies should be aware that deep satisfaction may be, may mean or may refer to different degrees of satisfaction for two different customers. A person may be easier to satisfy than another person and for different reasons and customer perceived value provides useful tips for customer satisfaction.

Last but not least, the company has to act according to the conception that it has to ensure a high level of customer satisfaction, but at the same time it has to ensure an acceptable degree of satisfaction for the stakeholders, taking into consideration its total resources.

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## Acknowledgments

*This work was co-financed from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/107/1.5/S/77213 "Ph.D. for a career in interdisciplinary economic research at the European standards".*



# THE IMPACT OF USING THE INTERNET IN PROMOTING ROMANIAN INDUSTRY

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## **Abstract**

*Central element of the marketing mix, advertising can differentiate the companies in Romanian industry through the strategy used by each company. The present paper summarises the results of a qualitative research conducted in 15 companies acting in food, mechanical processing, textile, leather, and footwear industries. Throughout this study the benefits of using online promotion were highlighted and a diagnosis regarding the use of the Internet for promoting products in Romanian industry was performed.*

**Keywords:** *online promotion /advertising, contextual advertising, PPC, Text Link Advertising*

**JEL Classification:** M<sub>31</sub>

## **Introduction**

Promotion is one of the most important elements of the marketing mix through which businesses communicate with the environment in which they operate, aiming to generating reactions or influencing the behaviour of people receiving the message. We can consider that many of the problems companies currently face are due to poor promotion, inadequate to the environment in which they operate (Tutunea, 2009). Consequently, achievement of the company's strategic goals cannot be conceived without paying special attention to promotion.

The present research had the aims of identifying the benefits enjoyed by companies using online promotion, respectively performing a diagnosis of the current situation in the Romanian industry.

Aims:

- A1) identification of the main benefits;
- A2) performing diagnoses of the present situation regarding the use of online promotion by companies in the processing industry in Romania.

## **Literature review**

Advertising in the virtual environment is mostly carried out by the means of *contextual advertising, Pay-Per-Click advertising, text link advertising, banner advertising, newsletter advertising, email advertising*, but it is not limited only to them. In the virtual space new advertising methods evolve quite frequently.

**Contextual advertising** evolved when a decline in the effectiveness of existing ('traditional') forms of online advertising was registered, i.e. the audience was no longer reacting, banners were slowly losing their value and companies were losing large amounts of money. This advertising method is based on the content (which can be in the form of a text or an image), having as result an increasing number of customers in a quick and easy way. In general, companies using this type of advertising contract marketing agencies that display well-targeted ads on the sites within their own network or on partners' sites. This service not only improves the web users' experience by displaying useful ads, but also offers various benefits to customers, such as obtaining profit or extension of the coverage area. This type of advertising means creating advertisements in the form of text or image which then are submitted and paid for, to websites with relevant content in relation to the respective advertisements (targeted advertisement). The ads are delivered directly and automatically. Their relevance and targeting are established automatically by the search engine algorithms. Contextual advertising is often used in the virtual environment, due to the powerful influence it has on the users. For example, the user reading an article on how to get more visitors on a site may be shown, within or in the vicinity of the article, a text or image advertisement of a software through which the reader can send the site to multiple web directories. Or, on a site containing articles about security software, the reader can be targeted with an advertisement that contains details about such a software. Typically, companies that own websites with a huge traffic, make available to advertisers a system of measuring the success of the advertisement placed on their websites. Thus advertisers will be able to know who has read the message (geographic area has been very accurate lately), what site the viewer came from, how many times he/she clicked on the advertisement etc. This type of advertising is carried out on content websites and those with embedded search engines (and having a large volume of queries).

**Pay-Per-Click Advertising.** This type of advertising is mostly found on search engines. The most common engine used by the Romanians, and not only, is Google, completed by Yahoo! and Live Search (owned by Microsoft). On Google, this type of ads is purchased depending on the keywords defined. That is, for a given product a company wants to promote, a general name is given taking into account what the search engine user would look for (for example: "shoes"). The company will buy a share of the respective word depending on how big the competition is for it (Tutunea, 2009). This type of advertising is usually expensive, depending on the field of activity to which the advertised service or product belongs to. It is paid based on the number of clicks made on the advertisement of the company. On Google, as well as in other similar promotion channels, the results can be measured in real time, and it is possible to see at what time potential clients were interested in the respective product. Similar to contextual advertising, advertisements consist of a link containing the title of the message, and the message body. On Google, as well as on other search engines, there are so-called "organic results" and "paid results". As a result of research made by Enquiro



Research Paper (Canadian company specialized in the research of Internet users' behaviour) at the beginning of 2007, it has been concluded that users of Google search engine click very rarely on the ads displayed on the right side of the page (paid links). Organic results, indexed by the search engine, are the most used links. Pay-Per-Click advertising has immediate results and offers companies full control over their advertisements. The set of keywords targeted one day can be changed the following day. This is a short term promotion strategy. Its main disadvantage is its price: reaching the top position for certain keywords may require investing thousands or tens of thousands of Euros per day.

**Text Link Advertising.** This type of advertising is the main vehicle for SEO (Search Engine Optimization). Links boost a website's position in the results of queries and it is possible to get targeted visits (if advertisement is displayed on a similar website). These text type advertisements can be purchased on various websites which enable it, using broker networks (Text Link Ads, Link Adge, Link Worth, Live Customer, Site Point, etc.), or directly from the owners of these websites. It is preferable that the sites belong to the same field of activity; link weight will be higher and it will influence organic positions of the product, service or website promoted on search engines.

**Banner advertising.** Web banners are counterparts of conventional advertising boards or inserts from newspapers and magazines. They are present on most sites and invite you to "click" on them to direct you to a specific place on the Web. Banners are a very powerful promotional tool since they are seen by many people. On a popular site, advertisement is seen by a few hundreds, thousands or even millions of people daily. By simply clicking on the banner, you will get directly to the specific site. These ads may be found all over the Web, especially on company sites, on the sites offering daily quotations or general information. A main purpose of such a site is to attract a huge number of visitors and thus, be able to sell advertising spaces at a higher price. As TV stations, Web pages bring benefits to its operators through earnings from advertising, payment of a subscription fee for access or from selling other products. Productivity of an ad depends on the site where it is placed, its design and its layout in the page (Tutunea 2009). The best places for displaying an ad are the right side of the site, inside the article and above the article, but the main factor is the number of visitors to the hosting site and the rate between the number of visitors and the number of those who click on the ad. To select the site in which you buy a place for an advertisement, the specific characteristics of the site have to be taken into account. For example, an e-commerce site has a general audience, while a site addressing computer security has a very specific audience. In general, the cost of an ad is directly proportional to the average number of visitors in a particular period of time.

**Newsletter advertising.** Newsletters are not merely emails, but are a great tool to educate and inform customers and potential clients about the company, its products, values and people. It is a means of promoting the image of the brand, generating positive reactions that ultimately lead to the emergence of several opportunities. A very important aspect of this type of advertising is avoiding

spamming (sending unsolicited commercial emails). In this case, the firm or agency that sends these information emails, news etc. can be accused of violating laws of the Internet (in Romania, by ANRCTI – National Regulatory Authority in Telecommunications) and shall be punished by a fine. To avoid spam, advertising agencies usually have in their own network a number of sites having a large number of users. Users are those persons who, on registering to the site, agreed to receive advertising messages from the agency's network. The advantages of using newsletters are numerous, including: emails sent to a large number of people; advertising can be targeted according to the users' interests; it is financially affordable; each person seeing the ad is a potential customer. An email newsletter can convey information or news, required regularly or not by the user of a site and display targeted or general advertisements.

### **Research results**

Starting from the need to outline marketing strategies in closer relation to the market demands, Romanian production enterprises must have a very good image of the environment in which they operate. This study was conducted between June and September 2012 at 15 production enterprises in three counties: Alba, Sibiu and Cluj. It was a qualitative research based on semi-structured interviews conducted with persons working in the marketing department.

#### *A1. Identification of the main benefits*

Based on the survey the following conclusions can be drawn:

a. *Cheap and lasting.* The Internet has become a highway of information for the consumer. Promotion on the Internet offers a cheap and simple way for small companies to increase their distribution networks for their products and services. For example, the use of portals can create a new channel for marketing and targeting, or could allow new ways of accessing the products by the customer. Compared to other forms of marketing, online promotion has the advantage of a low budget and minimum storage space requirement, as compared to the production of printed brochures, advertising clips and running a telemarketing centre. It provides a cheap and quick way to penetrate new markets.

b. *Development of new markets.* The websites act as virtual fronts of a shop allowing 24 hours per day sales. Online promotion ensures greater visibility of a business creating new ways to increase the number of customers at relatively low costs. It has never been easier for a new company to interact with millions of potential customers and establish a successful position, without high costs of infrastructure or costly marketing tactics.

c. *Real-time statistics to measure the success of promotional campaigns.* One of the greatest advantages of online marketing is that its success is easily measurable. Entrepreneurs may use the tools that offer real-time data about unique visitors, returning visitors or lick through rating of ads, thus enabling them to assess the effectiveness of the promotional campaign. This allows them to establish the techniques that have a powerful impact on a particular market segment and the

consequences of changes in their marketing strategy on sales. Based on the analysis we concluded that the majority of the survey participants were aware of the benefits of online promotion for their company.

*A2. Performing diagnoses of the present situation regarding the use of online promotion by companies in the processing industry in Romania*

Among the participant companies 8 operate in light industry, 3 companies in food industry and 4 companies in mechanical processing industry. All companies belong to the category of medium-size businesses and have a marketing department. They all have own website. Their analysis resulted in the situation presented in Figure 1.

Analysis at the level of branches of industries revealed the following situation:

The eight companies from the light industry have as activity production and sales of textile, leather and footwear products. Three of them gave up entirely their own shops in 2011. In these companies all promotion and sales activities are carried out only online. Based on the analysis performed at six months after implementing this system, expenditure fell by 12% and sales rose by 3% at the textile company.

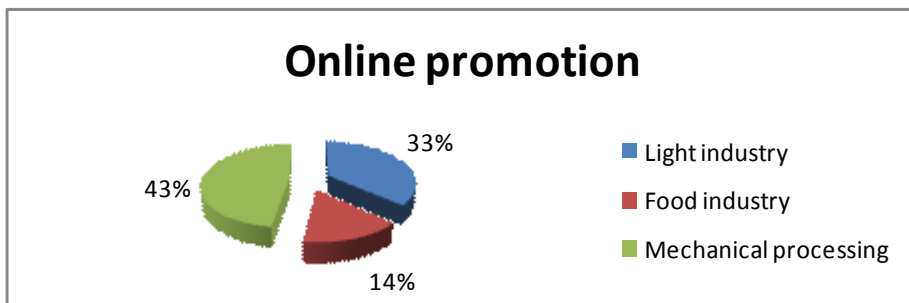


Figure 1. *Situation of online promotion by participating branches of industry*

The companies from the mechanical processing industry had an intense online promotion activity since their set-up. These companies currently have a portfolio of mainly foreign clients. Due to the specificity of activities in food industry, these companies do not have a predominant online promotion strategy. They prefer using classical promotion methods and communication channels, providing a physical proximity of the products to potential clients.

## Conclusions

Considering the comparative analysis of the two media of communication – online and offline – it can be concluded that online media provides more advantages than the offline media in today's society. Among these advantages it stands out the high degree of interactivity that enables the company to be in touch with its consumers and adapt in real time to their requirements.

The target audience of many companies are young people and time spent by them in front of the television decreases in favour of time spent in front of the computer. Besides, promoting itself on the Internet, the company can communicate directly with them, find out what they want and target the message down to the level of the individual.

Analysing the characteristics of online and offline promotion, we can conclude that the online environment provides more advantages than the classic one. The two types of advertising, however, have at least one point in common: in both cases, the company must know very well the target audience addressed with the message. Online and offline advertising should be mutually supportive, conveying the same idea, reinforcing the message and not misleading the consumer.

The online advertising market in Romania is growing faster than in developed countries of the European Union, although the degree of penetration of the Internet in our country is far lower than in those countries. Consumers' confidence in this new communication channel is increasing and it slowly becomes part of their lives, being the place where they can find any information they want, can buy any product they want (the Internet ensuring them anonymity, making possible any kind of shopping without being subjected to the eyes of curious people).

Taking into account the upward trend of penetration and use of the Internet and the benefits offered by the online environment in promoting a company's products and image, anyone who advertises should turn with confidence to online advertising, while those who already use it should grant it more importance and a higher percentage of the promotion budget.

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Bun de tipar: 22.03.2012; Coli tipar: 8  
Format: 16/70×100

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Editura Fundației *România de Mâine*  
Bulevardul Timișoara nr.58, București, Sector 6  
Tel./Fax: 021/444.20.91; [www.spiruharet.ro](http://www.spiruharet.ro)  
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