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### *10 years from the beginning for Revista tinerilor economişti...*

*Ten years ago, November 2003, this journal started from scratch under the initiative of an enthusiast group of young teachers from University of Craiova – Faculty of Economics and Business Administration. They putted in practice very quick an idea of the faculty Dean from that period prof. Dumitru Constantinescu. That group managed to realize from nothing something that is called today Revista Tinerilor Economisti/The Young Economists Journal.*

*In time the structure of the editorial group was changed but all of the initial members kept strong relations with the journal.*

*The initial team (in same order as they appear on the first number of the journal) was form by:*

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*The editorial team try to improuve continuously the quality of the journal.*

*If the journal is a success today that is the result of a good teamwork.*

*Today the journal faces with other new challenges and it need a new team of young economists capable to go further than the initial team. The journal was an expression of the young economists generation and must be continued in the same way.*

*Assoc. Prof. Costel Ionascu PhD.*



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PARADIGM OF PUBLIC DEBT – ECONOMIC DEMARCATION, THEORETICAL DIVERSITY, HIERARCHY AND PRAGMATIC ASSOCIATIONS, FOCUSING ON STATISTICAL THINKING

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**Abstract:** In its introductory section, the article develops the contemporary paradigm of public debt, which, gradually, occupies increasingly more space in the European and international praxeological discourse; the initial approach starts from debt in its most general sense, going down to the concepts of public debt and external or foreign debt, described by significant common intersections or even congruence in various economies, in relation to their monetary convertibility. The central section of the paper is descriptive, focusing on the ranking of contemporary economies in relation to their public debt (including, in a relatively forced manner, also Romania in the table of the nations with a statistically significant impact globally (over 0.5 % of the total/world value) and identifies associations between public debt indicators and other macroeconomic indicators, carried out in conditions of ensured methodological and statistical comparability. A few final remarks describe both the importance and the multiple meanings of the present paper, revealing some of the prospects of new investigations of the public debt paradigm, placed in the author's good intentions portfolio.

**JEL classification:** H63, H60

Key words: public debt, external / foreign debt, external public debt, budget deficit, public debt as % of GDP, public debt service.

**INTRODUCTION – OR FROM DEBT TO PUBLIC DEBT PARADIGM**

In its broadest economic sense, as well as in terms of linguistic explanation, *debt* is a key concept in transactions, which structures and pragmatizes the very fabric of economic activities: debt is defined as an *obligation* (arising from a contractual relationship or a legally binding document) *assumed by a debtor to a creditor*, who holds a corresponding claim attested by a certain juridical relationship concerning the return, before a given deadline, of an amount of money or property, and will be discontinued through the action of complete fulfillment of the obligation. In a market economy debt (private) can only evolve in the sense of its discontinuation, although the contemporary reality



of individual and even community actions, the uniqueness of this reasoning is denied, which actually broadens the alternatives by which a debt may be settled, partially or totally, voluntarily forgiven by the lender, according to the Austrian school libertarian views, from Eugen von Böhm-Bawerk, to Friedrich Hayek, Ludwig von Mises, and the dean of that school, the American Murray N. Rothbard (Rothbard, 1992), relaxing or even virtually saving the debtors, and thus making possible such future transactions and essentially the survival of economy.

In a free market economy, which respects the rights of property, the amount of (private) debt is self-controlled by means of the very need for the creditor to repay debt rather than by a government's or the state's decisions, in the spirit of interventionism in the Keynesian thinking model (Keynes, 1937), and the interest rate that must be paid by a borrower will depend not only on the overall rate and its evolution over time, but also on the riskiness of the borrower as to the lender: a prodigal borrower will have to pay a much higher interest rate, commensurate with the risk level of such misguided loan, and the future will no longer allow him/her access to capital markets; such negative standing will generate praxeological loans, or, in the spirit of the Austrian economics school, simultaneously unpayable and unallowable loans... This is actually the context generated by the false Keynesian assumptions of *the aggregate relations* in the economy, when at the root of recessions, and their causative factors, normally remain microeconomic ones (Hayek, 1989).

Following a cycle both investigative and interrogative (Săvoiu, 2007), specific to statistical thinking applied to a contemporary post-Keynesian type of reasoning (which delimits duty within the broad concept of aggregate demand, starting from the general finding: Revenues – Expenses = Net Savings, and then rearranging everything in a new relationship, of the type: Expenses = Income – (Net Savings), where, by initially introducing in the left part of the relation, for expenditure, and substituting in the limit of covering the concept of *net savings*, by *net increase of debt* ( $D_1 - D_0$ ), the final result in the right part will be:

$$\text{Expenses} = \text{Income} - (\text{Net Savings}) = \text{Income} + \text{Net Increase of Debt} \quad (1)$$

The contemporary significance, micro- and later macro-aggregated (Keen, 2009), of this economico-mathematical reality contains a paradox in the praxeologic spirit of the Austrian School, who deny even the concept of aggregate demand (Hazlitt, 1959). Thus it appears that if the growth rate of the debt is reduced, there occurs basically a reduction in the result called expenditures (Keynesian aggregate demand), and by a decrease in debt or a slowdown in refunding it, one can only get a much higher final loan in the oncoming period). In the Keynesian theory, only one “mild” solution is required to go out of the labyrinth of this paradox, i.e. an increase of the debt, but at a much lower rate than that of the final economic results (aggregate expenditure, and thus GDP).

From the widest dictionary acceptance, the meaning of debt, which brings forth a major paradox in contemporary economics, to the paradigm of public debt, the itinerary of downward and logically related theoretical concepts

is a defining one, generating a wide range of derived concepts covering a highly complex conceptual domain. Thus, *public* (national) *debt* describes and includes the entire pecuniary obligations of the state, arising from internal and external loans, either medium-term or long-term, contracted by the state in its own name, or guaranteed by it; it is also known as *government debt*. In the U.S. and other federal countries *public debt* is determined and classified in a variety of state and structural-administrative areas, from state debt or provincial government debt, to municipal or local government public debt.

The government can fulfill both the part of a debtor and o a creditor, by issuing e.g. stocks and bonds, etc., and in some cases it is still the government that can create money to capitalize claims, thus eliminating the need to pay interest too, and reducing the cost of public debt, though not its initial level. In the case of less developed and less creditworthy states or economies, they may get loans directly from a supranational organization, such as the World Bank, or from international financial institutions. In the relatively long history of public debt, the need has always been felt of rapporteurs of debt. In the U.S., on the website of the specialized institution *Bureau of the Public Debt Homepage* there appears a suggestive fragment of the first report on public credit signed by Alexander Hamilton in 1790, showing the significance and importance of U.S. public debt as the price of its freedom: *The United States debt, foreign and domestic, was the price of liberty.*"<sup>1</sup>

As part of the conceptualization made by a dictionary of economics, *public debt* is defined as *all the debt obligations assumed by the State when making internal and / or external loans to finance the economy, when it is facing budget deficits, with insufficiency of currency reserves and other phenomena of imbalance.*<sup>2</sup> A public debt is intended to make up public capital, to stimulate investment, and to increase employability, and is linked to the State's financial intervention in the economy, of a Keynesian type, and includes visible debt, resulting from deposits of cash in public vaults from depositors, which is chargeable at any time.

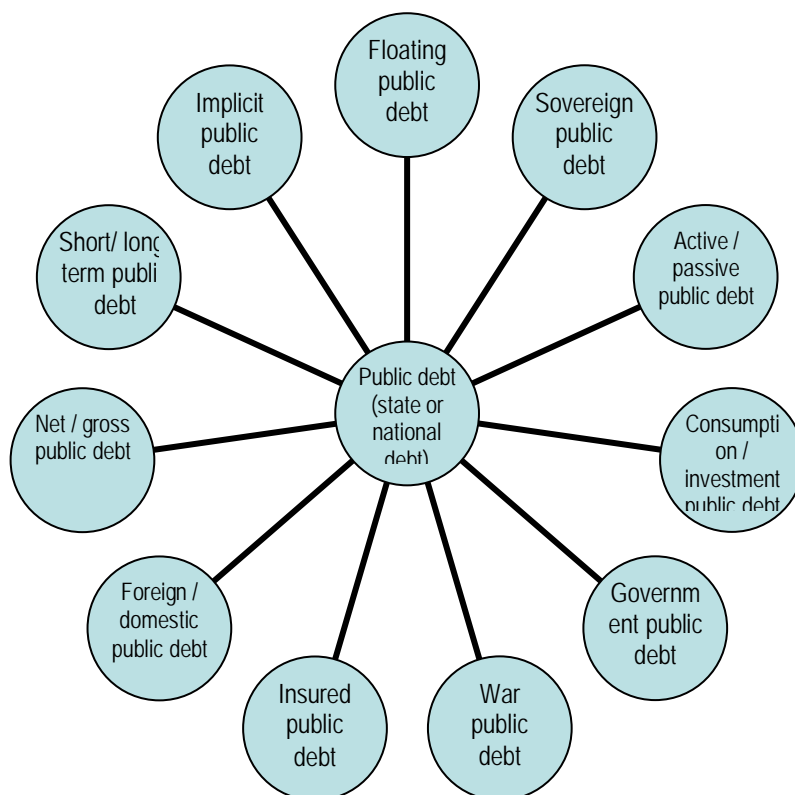
Convertible currencies redefine the *sovereign* character of debts; the time horizon structures *differentiated* (short-, medium- and long-term) categories of interest; the creditor's location naturally generates the *external* or *internal / domestic* character of debt, the presence of interest structures debt as *active* and *passive*, its destination multiplies it as *consumption* and *investment* debt, guaranteed securities define debt as *floating* or *refunded in the same financial year*, the cause of borrowing extends it to *war* public debt, its consolidated character subdivides it into *refundable* or *perpetual* debt, in relation to ending it and calling for a new loan, etc.

*Implicit* public debt is a government's promise to provide future payments from the State, usually in the long term for welfare payments such as pensions and health care and education expenditure. *Government* public debt

<sup>1</sup>Bureau of the Public Debt Homepage. United State Department of the Treasury. <http://www.publicdebt.treas.gov/index.htm>

<sup>2</sup> Dobrotă, N., Dicționar de economie, Editura Economică, București, 1999

unites all the internal/domestic and external financial obligations of the State at a given time, from direct loans or guaranteed by the government, through the Ministry of Public Finance, in the name of Romania, from the specialized financial markets.<sup>3</sup>



**Figure 1. Structural typology of public debt**

The IMF *Guide* defines gross external debt, globally or worldwide, as follows: “*Gross external debt, at any given time, is the outstanding amount of those actual current, and not contingent, liabilities that require payment(s) of principal and/or interest by the debtor at some point(s) in the future and that are owed to nonresidents by residents of an economy.*”<sup>4</sup> Contingent liabilities are not included in the definition of external debt, being defined as arrangements under which one or more conditions must be fulfilled before a financial transaction takes place. External public debt usually means the debt of countries with non-convertible currencies, most of them developing countries, while developed countries have a unique level of public debt; external debt is treated as domestic public debt.

Regarding the conceptual principledness of external debt in IMF 2013

<sup>3</sup> Matei, Gh., Drăcea, M., Mitu, N., Drăcea, R. – *Finanțe publice. Teorie, grile, aplicații*, Editura Sitech, Craiova, 2007, p. 298

<sup>4</sup> IMF, *External Debt Statistics: Guide for Compilers and Users*, 2013, pag.5

Guide, the principle stand out of the priority importance of current actual debt between a resident debtor and non-resident creditor, though there is no principle of priority of the principal credit or interest rate, only that of the duty owed by a resident to a non-resident; similarly, the residency principle should not be mistaken for that of nationality, and the demarcation between the resident debtor and the non-resident creditor is done in keeping with their centers of economic interest; one last aspect is related to the non-inclusion of contingent liabilities into the foreign debt (as defined in an uncertain manner, or predefined by a set of prerequisites that have to be met for a commercial transaction to be able to take place).

External / foreign debt is classified variously on a real level – from a minimum of four general categories: a) public debt, and publicly guaranteed debt; b) non-guaranteed private loans; c) central bank deposits; d) loans from the IMF or other world institutions –, to a maximum of seven as in the case of India, which adds another three categories of different structuring, amplifying the importance of multilateral debt in relation to the bilateral debts, or of liabilities calculated in rupees.

Trading debt is and will remain completely different from that of private debt. Joseph Schumpeter's realism, focused on the principle that morality and economic usefulness generally go hand in hand, does not apply in the area of contemporary public or government in general, unlike the euphemistic assessment of national debt as a "national blessing", a formula which belongs to Alexander Hamilton (as the first reporter of U.S. debt in 1790), and as limiting evidence, even government expenditure self-classified as investments are actually nothing but consumer goods serving government customers. Public debt does not have the features of a contract between two legitimate owners or identical constraints or responsibilities, and in point of its logical approach, naturally it is required that its level be truly the lowest possible, due to the waste and inefficiency that characterizes and dominates it.

The theoretical range of debt in the economy is and will remain a finite one theoretically, as it is centered on a paradigm of an ever more intense contemporary interest, tending to gradually take it over almost entirely, demarcated by the major concept of public debt.

### **RANKING TODAY'S ECONOMIES IN RELATION TO PUBLIC DEBT, AND SOME ASSOCIATIONS WITH OTHER MACROECONOMIC INDICATORS**

Permanent macroeconomic aggregation of budget deficits first generates, and then renders permanent an increase in the volume of public debt, and when its expansion rate exceeds the rate of economic growth, it can lead to a dangerous increase in the share of public debt to gross domestic product. The interventionist state does not consider debt expansion a real economic problem, because for the citizens of a Keynesian state debt is owed by them to themselves, and no one else.

The hypothesis is completely false, and a whole system of indicators was created specifically to promptly indicate certain serious developments with a major impact on all economies affected by public debt. Before entering the "euro

monetary space”, i.e. specific to the more developed EU countries, the relationship between public debt and foreign/external debt in Romania is a typical relationship of intersection of two different concepts according to the mathematical theory of sets, no less than in any state with a lower level of development and a currency that is not yet a freely convertible (Figure 2):

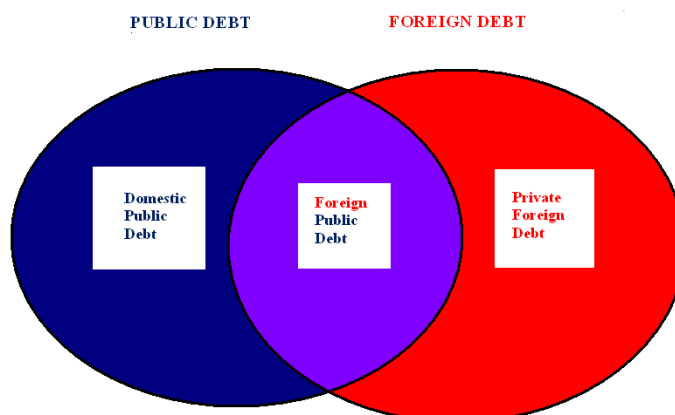


Figure 2. The intersection of the public debt with foreign debt

Public debt should never be confused with external debt in a country like today's Romania, which reflects the foreign currency liabilities of both the public sector and the private sector, and must be financed from revenues in convertible currency or foreign exchange. A public debt is monitored closely by specific statistical indicators and the public debt service, i.e. through everything that is related information-wise to the payments due during a year to repay public debt, which consists of installments due, interest, charges and fees associated.

The analysis indicators of public debt bring together a diverse assortment of statistical indicators, described in the four Cartesian quadrants of Table 1:

Table no. 1 THE FOUR SUBSYSTEMS OF PUBLIC DEBT INDICATORS

<b>PUBLIC DEBT STRUCTURE</b> Typological shares, parts and sub-quotas, weighting coefficients for estimates and predictions, concentration-diversification Gini-Struck coefficients, etc.	<b>INDEBTEDNESS</b> - in relation to the minimum, maximum, European limiting (60%), etc. - in relation to various specific SCN macro aggregates, etc.
<b>ASSESSMENT OF DOMESTIC DEBT</b> - the sheer size of domestic debt - domestic public debt service - the share of domestic public debt to GDP - the share of interest of the domestic public debt to GDP - the share of domestic debt in the overall public expenditure - the average per capita of domestic public debt.	<b>ASSESSMENT OF EXTERNAL DEBT</b> - the sheer size of the external public debt - external public debt service - the share of external public debt to GDP - share of external public debt in exports - the share on the external public debt in the overall public expenditure - the share of interest of the external public debt to GDP - the average per capita of external public debt.

Global public debt represents an international aggregate of debt that brings together the value of all loans of all countries of the world expressed in U.S. dollars (Table 2); as can be seen from the selection of public debt with a major impact in point of indebtedness, as well with respect to percentage of overall debt, Romania ranked 94, so not among the nations that have a share in excess of 0.5% of the total value in 2012, according to CIA World Factbook 2013.

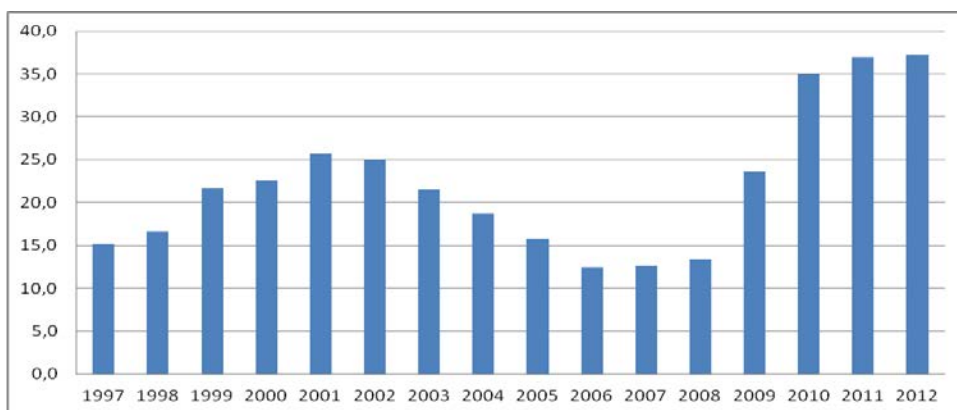
**Table no 2 Public Debt of Countries Exceeding 0.5% of World, 2012 estimate (CIA World Factbook 2013) including Romania**

No.	Economic Area Country or Economy	Public Debt			
		(billion USD)	% of GDP	per capita (USD)	% of World Public Debt
1	World	56,308	64	7,936	100.00
2	United States	11,607	73.60	36,653	20.61
3	Japan	9,872	214.30	77,577	17.53
4	China	3,894	31.70	2,885	6.91
5	Germany	2,592	81.70	31,945	4.60
6	India	995	51.90	830	1.75
7	Italy	2,334	126.10	37,956	4.14
8	France	2,105	89.90	31,915	3.74
9	United Kingdom	2,064	88.70	32,553	3.67
10	Brazil	1,324	54.90	6,588	2.35
11	Spain	1,228	85.30	25,931	2.18
12	Canada	1,206	84.10	34,902	2.14
13	Mexico	629	35.40	5,416	1.12
14	Korea, South	535	33.70	10,919	0.95
15	Turkey	489	40.40	6,060	0.87
16	Netherlands	488	68.70	29,060	0.87
17	Egypt	479	85	5,610	0.85
18	Greece	436	161.30	40,486	0.77
19	Poland	434	53.80	11,298	0.77
20	Belgium	396	99.60	37,948	0.70
21	Singapore	370	111.40	67,843	0.66
22	Taiwan	323	36	13,860	0.57
23	Argentina	323	41.60	7,571	0.57
24	Indonesia	311	24.80	1,240	0.55
25	Russia	308	12.20	2,159	0.55
26	Portugal	297	119.70	27,531	0.53
27	Thailand	292	43.30	4,330	0.52
28	Pakistan	283	50.40	1,462	0.50
94	Romania	37.04	37.2	1841	0.0007

*Source: CIA's World Factbook list only percentage of GDP, the debt amount and per capita is calculated with GDP (PPP) and population figures of same report.  
<https://www.cia.gov/library/publications/the-world-factbook/fields/2186.html>*

The Maastricht Treaty does not provide a strict timetable for adopting the euro, apparently leaving this process up to each EU member country, in consultation with the European Commission (in Brussels) and the European Central Bank (in Frankfurt), while identifying five essential criteria that include specifying a limit below 60% of GDP of government debt, both directly and indirectly, or in a resultative manner in point of development of budget deficits to maximum 3% of GDP, accompanied by an inflation rate that should not exceed by more than 1.5% the average inflation rate of the “best” values of the previous year and long-term nominal interest (10 years) not exceeding by more than 2% the average interest rate of the “best” values of inflation at the time of analysis, not forgetting the mandatory participation of each nation in ERM-2 for at least two years, and without unilateral devaluation.

In the case of Romanian public debt, plotted in isolation in Figure 3, and confronted (Săvoiu, 2013), statistically and internationally, most of the accelerated dynamics of public debt mainly results from the country’s transition to a market economy and global recession, while the medial deceleration, as a favorable phenomenon, belongs to the effort of the country’s integration in, and accession to the EU.



**Figure 3. The evolution of public debt in the last 15 years (in% of GDP)**

Comparing the dynamics of public debt as far as the system of national accounts (SNA) is concerned, it appears the main effects are a negative net export, or negative return of foreign direct investment, while obtainable GDP falls, the national wealth diminishes as well, and part of our assets will be owned by nonresidents; yet there is the consolation of temporal placement in an era of globalization, which makes the developments as such not to be considered maximally negative or a real catastrophe in the national economy (but it is clear that Romania’s balance of payments will be permanently under the pressure of public debt and its interest, and the negative balance of trade, and perhaps of services and even foreign investment, as a result of their repatriation or withdrawal from the underperforming economy, inevitably lead to an avalanche of effects of unfavorable factors, by aggregation), and by adding to the current public debt, the annual debt to be paid will be increasingly higher, tending to as much as 50% of GDP in less than six or seven years.

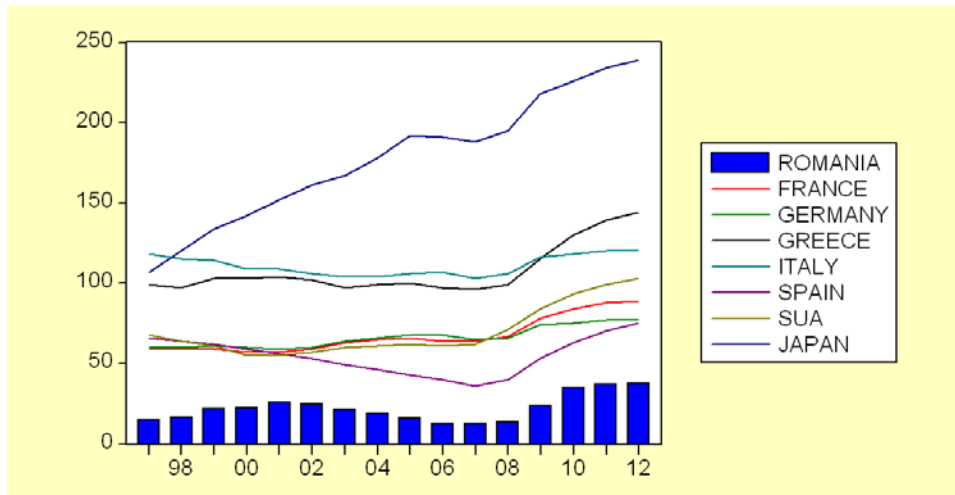


Figure 4. The dynamics of Romania's public debt as% of GDP, compared with seven other European and world economies in the last 15 years

Another equally important aspect is the association of Romania's public debt dynamics with the dynamics of other economies, in Figure 4, and the values of correlation R ratio approach 0.9 for Greece (almost totally similar in point of dynamics, and certainly in point of economic consequences, but on a different level of development), followed by values higher than 0.7 for France, Italy and Spain.

Using correlation matrices and the Eviews software package to identify a number of significant associations, in Romania after 1997 (the last 15 years with higher dynamics, falling and rising, of public debt levels as a percentage of GDP), brings new results, namely average correlations for two classic and predictable factors (Săvoiu, 2010), such as the interest rate and the budget deficit level, whose intensity is even higher than 0.6 for three external factors, namely gross fixed capital formation and investment in the EU and economies in the EU and worldwide, as well as a maximum value slightly higher than 0.8 for gross fixed capital formation globally or investment in the global economy. All values of R that are commented are negative in all these associations, which translate an inverse correlation; so, these aspects must be retained for future econometric modeling and simulation.

## CONCLUSIONS

Very much like recessions, debt flows have initial origins rooted in microeconomic imbalances, and are the result of human actions directed towards a specific purpose, as stated by the whole theory of the Austrian school of



economics.<sup>5</sup> The solution of the macroeconomic causal approach based on the theory of state interventionism taking support on a growing public debt, yet at a pace lower, if possible, than the rate of economic growth, proved, after nearly eight decades, as unsuccessful as the previous solutions based on Keynes's theory. Thus, on the brink of the 2008 recession, a careful analysis of past event similar in point of impact, i.e. the 1929 recession, caused by the huge loss of production by the private sector, which had to be compensated, in the Keynesian theory, by state intervention and government spending, implying, as a normal state, the existence of a public debt specially generated to this purpose, which basically offset private debt, revealed the flimsiness of the solution of interventionism and debt growth (even at lower rates than economic growth).

The essentially statistic error, redefined economically by Guy Debelle, Rory Robertson and Steve Keen, consisted in comparing, through the indicator of public debt as a percentage of GDP, of an indicator of the stock with a flow one – a misunderstanding of the concept of dynamics and comparability specific to the classical and even neoclassical economic school. From a dynamic point of view, the ratio of public debt to GDP shows how many years it would take to reduce the debt to zero if all income were exclusively devoted to debt repayment.

As long as the budget deficit as a percentage of GDP exceeds the growth rate of GDP, the deficit to GDP ratio is considered to have an uptrend in future, forgetting the gravity of the lack of methodological unity of the construction of the classic indicator defined as “public debt as percentage of GDP”. Some (particularly banking) studies estimate that Romania's public debt to GDP will exceed 50 percent by 2020, while the average expansion will be 1.2%, yet against a higher value of economic growth. Payment of interest on that debt, at the horizon of 2020, will require severe government spending cuts, which no elected government could survive, in the context of forecasts and with the current dynamics of development in Romania. The author's prospective researches can target new statistical instruments and models with the hope of identifying more realistic methodological solutions, more reliable indicators and econometric models for forecasting and simulation with much smaller errors.

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## THE ISLAMIC BANKING - THE INTEREST FREE BANKING

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**Abstract:** The article provides an overview of the Islamic banking as a system of banking that is consistent with the principles of the Sharia law which prohibits the payment or acceptance of interest (“*riba*”) and speculative behavior. The Islamic banking industry has great potential for global expansion in order to continue its growth, with a growth rate of 25%-30% over the past five years, nearly double the growth rate of conventional banking. The largest centers for Islamic finance remain concentrated in Middle East but the Islamic banking is not limited to the Arab world. The UK as well as other Western European countries offers great opportunities to Islamic banking development, due to its largest Muslim community.

**JEL classification: G21, G24, G28**

Key words: Islamic banking; fully Sharia-compliant bank; conventional bank, Sharia-compliant assets; Islamic window; Islamic banking products and services

### 1. INTRODUCTION

Over the years, Islamic Finance has grown from a niche sector into a well-established industry. In today’s economic climate, Islamic finance is a commercial alternative to conventional banking and a viable banking option for non-muslims as well. (Islamic Finance, 2011, p. 11)

Islamic banking, also known as interest free banking system, provides banking products and services in accordance with Islamic principles, rules and practices. The concept of Islamic banking is interest free banking because “*riba*” (interest), also known as “*usury*”, is totally prohibited in Islam, being considered an excess or addition, an effortless profit, a risk-free or guaranteed interest on a loan.

### 2. OVERVIEW OF ISLAMIC MODES OF FINANCING

According to Islamic financial law (known as *Fiqh al-Muamalat*: Islamic rules of transactions), the most important methods of financing are:

*Mudarabah (Profit and Loss Sharing, PLS)* - is a profit sharing arrangement or financial agreement between two parties: Rabb-al Mal, the capital owner, and Mudarib, an investment manager. Profit is shared between the capital

owner and the bank, as entrepreneur, based on a pre-agreed ratio. Any financial loss is borne by capital owner; the loss to the manager being the opportunity cost of his own labor, which failed to generate any income for him. *Mudarabah* is the most frequently used Islamic mode of financing.

The principle of *Mudarabah* can be applied to Islamic banking operations in two ways: between a bank (as the entrepreneur) and the capital owner, or between a bank (as capital owner) and the entrepreneur.

*Musharakah (Joint Venture)* - refers to a business partnership between two parties or more, or a joint business venture to make profit. The profits made on the basis of *Musharakah* are shared on an agreed ratio while losses will be divided based on the equity participation ratio (ratio of funds invested by each partner). This is often used in investment projects, letters of credit, and the purchase of real estate or property.

*Murabahah (Cost Plus Profit Margin)* - this concept refers to a contract for purchase and resale and allows the customer to make purchases without having to take out a loan and pay interest. Under this contract, the client orders an Islamic bank to purchase for him a certain commodity at a specific price, and re-sells it to the client on a deferred price, adding an agreed profit margin. This type of contract can involve only two parts (buyer and seller), or also an intermediary bank which performs the deal between parts for a specific commission.

*Ijarah (Leasing)* – a bilateral lease contract allowing the transfer of the usufruct of an asset rather than the sale of the asset.

*Istisna* – is a contract that refers to an agreement to sell to a customer a nonexistent asset, which is to be manufactured or built according to the buyer's specifications and is to be delivered on a specified date at a predetermined selling price. (Glossary, 2012, p. 97)

*Salam* – is a sales contract in which the price is paid in advance at the time of contracting, against delivery of the purchased good/services at a specified future date.

Islamic banks provide products and services in compliance with Sharia law (approved by the Islamic Sharia Committee), that fulfill the requirements of Muslim community in different sectors especially in *Ijarah*, *Takaful* (Islamic insurance comparable to mutual insurance with the insured donating their contribution to a mutual fund. (Waseem, A., 2008, p 27)

Islamic banks provide saving facilities to depositors and extend loans to deficit units, such as savings account, current (checking) accounts, fixed or investment deposits and are also involved in facilitating international trade for their customers: services such as letters of credit, bills for collection, letters of guarantee, buying and selling of foreign currencies.

Even if the Islamic banking is very similar to conventional banking system, there are some main differences such as:

**Table no. 1 Difference between Islamic and Conventional banking**

Islamic Banking	Conventional Banking
Money is not a commodity though it is used as a medium of exchange and store of value. Therefore, it cannot be sold at a price higher than its face value	Money is a commodity besides medium of exchange and store of value. Therefore, it can be sold at a price higher than its face

<b>Islamic Banking</b>	<b>Conventional Banking</b>
or rented out.	value and it can also be rented out.
Profit on trade of goods or charging on providing service is the basis for earning profit.	Time value is the basis for charging interest on capital.
Islamic bank operates on the basis of profit and loss sharing. In case, the businessman has suffered losses, the bank will share these losses based on the mode of finance used (Mudarabah, Musharakah).	Interest is charged even in case the organization suffers losses by using banks funds. Therefore, it is not based on profit and loss sharing.
The execution of agreements for the exchange of goods & services is a must, while disbursing funds under Murabaha, Salam & Istisna contracts.	While disbursing cash finance, running finance or working capital finance, no agreement for exchange of goods & services is made.
Islamic banking tends to create link with the real sectors of the economic system by using trade related activities. Since, the money is linked with the real assets therefore it contributes directly in the economic development.	Conventional banks use money as a commodity which leads to inflation.

*Source: Guide to Islamic Banking, available at: [www.mib.com](http://www.mib.com)*

### **3. THE DEVELOPMENT OF ISLAMIC BANKING IN THE UK**

The Islamic banking is not limited to the Arab world. The UK as well as other Western European countries offers great opportunities to Islamic banking development, due to its Muslim community, which is expected to have the largest increase in Europe in the next years. The number of Muslims in the UK is projected to almost double from 2,869.000 million in 2010 to 5,567.000 million in 2030. By 2030, Muslims are expected to make up 8,2% of the UK's population, up from 4,6% in 2010. Most of them come from: Pakistan(1,6% of the UK's population and 43% of the Muslim population in the UK), India(1,8% of the UK's population) and Bangladesh(0,5% of the UK's population)

With a strong and active Muslim community, Islamic banking is very popular and contains a prominent position in the financial sector of the UK, but is equaled popular in all non-Muslim communities as well, even if all the banking and financial rules are established in favor of conventional banking system. A report by International Financial Services London, reveals that Britain's Islamic banking sector is now bigger than of Pakistan.

London is the biggest financial market in the world and for some time London officials and UK finance community executives have expressed the intention of making London the capital of Shariah-compliant finance in the West.(Shariah Finance Watch, 2013, p. 1)

Currently, there are 22 Islamic banks in the UK, five of them are fully Sharia compliant banks, providing products which prohibit interest payment and investment in alcohol or gambling firms, in accordance with Islamic Sharia law, more than in any other Western country, while another 17 are conventional banks Islamic windows("Islamic windows" is a division that provides Islamic banking services for a conventional bank. "An Islamic window is simply a window within

a conventional bank via which customers can conduct business using only Shariah compatible instruments”(Sole, J., 2007, p. 8)

**Table no 2 Islamic banks in the UK**

	<b>Fully Sharia compliant banks</b>
1	Bank of London and the Middle East
2	European Islamic Investment Bank
3	Gatehouse Bank
4	Islamic Bank of Britain
5	Qatar Islamic Bank UK
	<b>Conventional banks Islamic windows</b>
6	Ahli United Bank
7	Alburaq
8	Bank of Ireland
9	Barclays
10	BNP Paribas
11	Bristol&West
12	Citi Group
13	Deutsche Bank
14	Europe Arab Bank
15	HSBC Amanah
16	IBJ International London
17	J Aron & Co
18	Lloyds Banking Group
19	Royal Bank of Scotland
20	Standard Chartered
21	UBS
22	United National Bank

*Source: The Banker*

According to The Banker’s 2011 Report on the Top 25 Countries by Sharia-Compliance Assets, the UK from the 9<sup>th</sup> place, is the leading Western country and Europe’s premier center with \$18,949.0 billion in Sharia-compliant assets(SCAs), based mainly on Bank of London and the Middle East(BLME), European Islamic Investment Bank(EIIB), Islamic Bank of Britain(IBM). HSBC Amanah Finance has taken the decision to restructure its Islamic banking business, following a strategic review of its operations around the world and will no longer offer Shariah compliant products and services in the UK, with the exception of wholesale Islamic financing/Sukuk products that will continue to be offered.(HSBC, 2013)

**Table no 3 Sharia-compliant assets of Islamic banks in the UK, \$m**

Bank	Year-end	2007-08	2008-09	2009-10	%change 2009-10
HSBC Amanah Finance	Sep-10	15194	16537	16699	1
Bank of London and the Middle East	Jun-10	1196	1119	1041	-7

HSBC	Sep-10	570	698	524	-25
European Islamic Investment Bank	Dec-09	648	555	271	-51
Islamic Bank of Britain	Dec-09	337	394	336	-15
QIB UK	-	94	-	-	-
Gatehouse Bank	Dec-09	15	108	79	-27
Total		18055	19411	18949	-2

*Source: The Banker*

In 2013, Bank of London and the Middle East (BLME), was awarded Best Islamic Bank in Europe by Global Finance Magazine and also is reportedly the largest independent Islamic bank in Europe. Its consolidated total assets exceeded £1 billion (up from £807 million in 2011), for the first time in the 12 months to December 31. Last year also saw a return to profitability for the bank, with total operating income increasing by 22% to £52.5 million and group operating profit before tax of £5.5 million (after a £10.8 million in 2011). Since its inception in July 2007, the bank has provided more than £500 million worth of lease finance, £250 million worth of property finance and £250 million in financing to small and medium enterprises (SME). (Global Finance Magazine, 2013, p. 3)

According to Humphrey Percy, the Chief Executive Officer at BLME, the bank, "...is targeting 15 percent growth in assets this year and plans to have a presence in the emirate's offshore financial district later this year to attract regional business from countries such as Qatar and Saudi Arabia". (Reuters, 2013, p. 1)

BLME is an independent UK, wholesale Sharia compliant bank based in London, designed as a bridge between European, especially UK, and Middle Eastern markets, having the aim of becoming the market leader in Islamic finance. The bank offers financial services in three core areas: [wealth management](#), [corporate banking](#) and [treasury](#). (BLME, 2013) In 2012 BLME participated in the first renewable energy deal in the UK funded by Islamic finance, launched an asset-based lending offering support SMEs and acted as co-lead arranger on a murabaha financing agreement for a biodiesel plant in the UK. (BLME, 2013)

The Islamic Bank of Britain (IBB), created in 2004, is a woolly Sharia compliant retail bank, having a high presence with its eight branches and around 50,000 customers, offering the largest range of Sharia compliant retail financial products in the UK. These include Sharia compliant mortgage alternatives, the Home Purchase Plan (HPP) and Buy to Let Purchase Plan (BTLPP), current accounts and savings accounts. The Bank was also the first to introduce Sharia compliant business banking to the UK, and now offers a wide range of institutional and business banking products and services, including Commercial Property Finance. Several of the Bank's products remain unique in the UK's retail financial market. (IBB, 2013)

Gatehouse Bank is a Sharia compliant wholesale investment bank operating in capital markets, real estate, asset finance, Treasury business and

Sharia advisory services (Islamic Finance, 2011, p. 5). Gatehouse Bank has reported income for December 2012 up 153 percent to £13.3 million (\$20.3 million) and the operating profit was £4.9 million (\$7.5 million). Income has been driven by an active real estate strategy, with assets under management now approaching £1 billion (\$1.5 billion). In 2012, the Bank completed seven new acquisitions (five in the UK, two in the US) and made two successful disposals.

Wealth Management income increased by 237% to £2.6 million (\$4.5 million), while Treasury income grew by 470% ,year on year, to £3.9 million (\$6.5 million), driven by investments in listed equities and investment grade Sukuk markets. (Gatehouse Bank, 2013)

The UK has a strong interest in the development of the sukuk market.

Qatar Islamic Bank (QIB) UK, has been managing the largest Sukuk Fund in the market for over three years with close to 220 million USD of AUM and 30.01% return for its investors which is a performance of over 20% above its benchmark. (International Sukuk Portfolio, 2012, p. 1)

Most of major banks have opened “Islamic windows”. The importance of institutions with Sharia windows is growing as some of the largest financial institutions, such as Citi, HSBC Group, UBS Group, Barclays and Lloyds and Standard Chartered Bank, are focusing on Islamic finance in both the wholesale and retail areas. (The Banker, 2007, p.2)

The majority of Islam banks from UK have witnessed a good performance despite the international financial crisis. Besides most of them have realized high growth and adequate returns in comparison to banks in other markets. Islamic banking may offer great opportunities for the financial system and economy. For example the presence of Islamic banks can be considered as an attraction of an important part of oil capital from the Middle East countries, becoming an important source of liquidity.

#### 4. ISLAMIC BANKING SYSTEM PERFORMANCE

According to Pew Research Centre, there are estimated about 1,6 billion (1.629.072.223) Muslims around the world, means 23, 2% of the worlds populations (7.021.863.029) and will grow at a rate of 25% in 2020 and 26,4% in 2030 of the world's population. In this condition the idea of interest-free banking and Islamic financial services has become increasingly attractive to Muslims across the world.

Shariah-compliant finance remains the fastest-growing area of finance worldwide, with more than 600 Islamic Financial Institutions (IFIs) around the world. Financial institutions practicing Islamic finance, reveal that sharia-compliant assets rose fast by 8.85% from \$822 billion in 2009 to \$895 billion in 2010, by 7.37% from \$1,086 billion in 2011 to \$1,166 billion in 2012.

Islamic finance has continued to demonstrate upward growth despite growing pains and a loss of confidence in global financial systems, being less affected by the financial crisis. The global crisis gave Islamic financial



institutions an opportunity to prove their inherent stability and resilience characteristics.

Islamic finance has been growing at a rate of 25-30% over the past five years, nearly double the growth rate of conventional banking. According to Top 25 Countries by Sharia-Compliant Assets, Iran is the country with the highest level of Sharia-compliant assets, with assets rose from \$154,616.28 billion in 2007 to \$314,897.4 billion in 2010.

**Table no 4 Top 25 Countries by Sharia Compliant Assets(2007; 2010)**

Rank	Country	Sharia-compliant assets(\$m) 2007	Sharia-compliant assets(\$m) 2010	% change
1	Iran	154,616.28	314,897.4	104%
2	Saudi Arabia	69,379.15	138,238.5	99%
3	Malaysia	65,083.37	102,639.4	58%
4	United Arab Emirates		85,622.6	
5	Kuwait	37,684.47	69,088.8	83%
6	Bahrain	26,251.86	44,858.3	71%
7	Qatar	9,459.71	34,676.0	267%
8	Turkey	10,065.96	22,561.3	144%
9	UK	10,420.47	18,949.0	82%
10	Bangladesh	4,331.90	9,365.5	116%

*Source The Banker*

The largest centers for Islamic finance remain concentrated in Middle East, including Iran, with a share of 35.7% in total Islamic finance assets, Saudi Arabia, 13.9%, United Arab Emirates (UAE), 8.7%, Kuwait, 7.3%, Bahrain, 5.3%, and Qatar, 4.8%, in addition to Malaysia in Asia, with a share of 12.3%. In OIC(The Organization of Islamic Cooperation), member countries in the Middle East such as Turkey, Sudan, Egypt, Jordan and Syria, Islamic finance industry is developing very quickly. In SSA, Nigeria is stepping up the efforts to capitalize on the Islamic finance industry. Other OIC member countries in Asia such as Indonesia, which has the largest indigenous Muslim population, and Bangladesh, each represent around 1% of the global Islamic finance industry.

According to The Banker's 2012 Report on the Top 500 Islamic Financial Institutions, "Shariah-compliant assets rose by 21.41% from \$894bn in 2010 to \$1,086bn in 2011" and "Islamic finance has held a compound annual growth rate of 18.82% from 2006 to 2011." It has been performing extremely well since its creation 40 years ago, and its expansion has accelerated in the past few years, within emerging economies around the world but also in non-Muslim majority regions like Europe. In the future, Sharia-compliant assets(SCAs), will become a larger percentage of the overall financial sectors in a number of counties.

## 5. CONCLUSIONS

The majority of Islam banks have witnessed a good performance despite the international financial crisis. Besides, most of them have realized high growth and adequate returns in comparison to banks in other markets.

There are still many problems that Islamic finance will have to face. Islamic banks must offer banking products and services in accordance with Sharia law, much more competitive, able to satisfy their customer's requirements and demands in order to succeed in this competitive market.

The main problems that Islamic banks faces in UK are the competition from conventional banks, how to make a transparent Islamic banking system, how to promote policies and financial instruments that are compatible with these, how to increase the number of its clients, to make them aware of the merits of the Islamic banking, how to develop a stronger market of compliant products and services, how to gain a strong and a respectable position in the banking sector of the UK, how to determine the conventional banks with Sharia-compliant activities to report Sharia-compliant assets and activity separately, in order not to create confusion among their customers who cannot appreciate whether their bank's activities are permissible.

*Global Finance's* publisher, Joseph D. Giarraputo says: "The winning banks were all noteworthy in their dedication to satisfying their customers' increasingly sophisticated needs in accordance with the rules of Islamic finance"

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## IMPACT OF IFRS TRANSITION ON FIRM-VALUATION, AN ACCRUALS ANALYSIS ON BSE COMPANIES

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**Abstract:** Financial reporting environment has registered an enormous number of changes in the last decade. In international financial actors attention was confirmed the preoccupation toward a global harmonization of national accounting regulations. Around IASB efforts, along a significant time frame, there has been recorded a great success with the actual international accounting convergence process. But, there is still progress to achieve, especially regarding statutory financial reporting, where political, economic, financial, and cultural factors persist to make pressure in the process of accounting normalization. This study represents an empirical analysis of the accruals recorder by companies listed on BSE before and after the implementation of IFRS on preparing annual financial reports. It, also, tries to underline several determinants of the accruals quality and relate to the financial information usefulness in firm valuation. Overall, the conclusion is that there are no significant differences before and after IFRS implementation regarding the connection between cash flow and accruals level.

**JEL classification:** M40, M41, G33.

**Key words:** IFRS, accrual-accounting model, firm-valuation model, DCF., regression.

### 1. VERSORS OF INTERNATIONAL ACCOUNTING HARMONIZATION

The profound changes recorded on account of globalization in the economic environment have equally affected strategies, policies, techniques and tools used in the financing and investment decision taking. In this context, the financial accounting information released from the synthesis financial statements is the main source of information for capital market players, because of its regulated character, and consequently a significantly lower cost of procurement, analysis and interpretation.

The accounting system represents a figment of the economic system and must answer the demand's dynamics of financial accounting information in a timely manner. Otherwise it will install a state of disbelief about the usefulness of accounting information, a perception which is often justified by the adverse effects of creative accounting techniques which seeks an embellishment of a reporting entity's economic reality, for the managers' or shareholders' benefits. Stepping into an international perspective, we find that differences recorded between domestic economic environment and financial reporting system generates and hardens international financial analyses, which are essential for multinational and international listed companies, thus facing so many obstacles, starting from the difficulty of translating concepts that operates in drafting financial reports, and continuing with differences on recognition, classification and measurement of assets and liabilities, determining earnings, volume, format and frequency of financial reporting, cultural differences and so on (Alexander & Nobes, 2004).

The European Union has opted for an accounting standardization attempt by elaborating the 4th Directive (1978) on annual accounts and the 7th Directive (1983) on consolidated accounts. But accounting standardization efforts undertaken in the European Union did not generate the expected positive effects (Joos & Lang, 1994). The failure is justifiable, taking into account the multitude of options accounting nested in the legal text, the ambiguity of accounting concepts, or delayed and ineffective implementation of the local accounting laws. Under these conditions community countries too, have opted to join the international accounting harmonization process.

With accounting harmonization process, the IASB has gained greater legitimacy in the international accounting standardization approach, especially in terms of consolidated financial reports, which have a lower incidence in relation to tax-accounting rules. A survey has revealed that international accounting convergence process is supported by 90% of the 143 respondents from 91 countries, representing important leaders involved in the regulatory accounting (AICPA, 2008).

Since the beginning of the convergence process, a constructive attitude in favor of adopting IFRS has been formed, recalling an international opinion survey that reveals that 95% of respondents expressed their desire to adopt IFRS or IFRS implementation and also finalized it. Moreover, most respondents choose a replacement of local GAAP to IFRS; only unforeseen treatments of IFRS being stored in local GAAP (Street, 2002). However, numerous impediments representing translation problems were provided; also ambiguity in accounting conceptualization and axiomatization, frequency, volume and complexity of IFRS; endorsement process difficulties, the effectiveness of enforcement of IFRS and not the least, the need for an IFRS implementation guide and proliferation of interpretation efforts (IFAC, 2004).

Whether it is about macro factors<sup>6</sup> (Shima & Yang, 2012), or firm - specific factors<sup>7</sup> ( Alia & Branson, 2011), implementation of IFRS requires reporting entities to publish financial statements that are relevant, reliable and timely. IFRS quality is reiterated in literature repeatedly ( Soderstrom & Sun , 2007; Leuze & Wysocki , 2008; Chen et . Al. , 2010; Houqi et . Al. , 2013).

Such a position of specialists drew a predictable course of international accounting harmonization approach. Such a study reveals that , in 2008, companies representing 33% of global equity market capitalization were already using IFRS accounting standards, while 22 % of them turn expressed the option to make the transition to IAS / IFRS and only 10% kept local accounting standards ( Fosbre , 2009).

However, the positive effects of adopting IFRS recorded in the first year of adoption are higher than in subsequent years. It also, marks the distinction between high amplitude effects of voluntarily adoption of IFRS and the effects recorded in the case of adoptions required by legal regulations. In addition, the adoption of IFRS recorded positive economic effects especially if there are large differences between international referential and local accounting regulations. Last but not least, it should be noted that the inconsistent application of IFRS cause a significant reduction in the expected positive effects.

It is essential the direction of recent developments in financial reporting matters, which sketched an approach oriented towards capital markets because lenders have preferential access to financial information of credited entities. Therefore, the regulation of financial reporting level must be settled on financial information market, thus reducing the potentially negative externalities.

In the following table that summarizes the advantages and disadvantages we present the results concluded by the studies mentioned above:

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>- assure efficient capital allocation;</li> <li>- reduction of debt cost capital;</li> <li>- reduction of equity cost capital;</li> <li>- financial markets integration;</li> <li>- reduction of negative effects of creative accounting;</li> <li>- increase relevance of financial information through mark-to-market model ;</li> <li>- generate positive marginal cross-border</li> </ul>	<ul style="list-style-type: none"> <li>- persistence of multiple accounting options;</li> <li>- increase value volatility, through fair value accounting valuation practice;</li> <li>- difficulties on accounting estimation models (discount rates, timeframe, aggregate level of financial performance used);</li> <li>- proprietary cost;</li> <li>- litigation costs, especially related to forecasted financial information;</li> <li>- sensitive to financial incentives, cause of high</li> </ul>

<sup>6</sup> funding system with the option to switch to Piette funding capital or funding based on bank lending, the legal system, especially targeting the protection of investors; prevalence fiscal rules on accounting rules, the political regime makes reference to the doctrinal aspects of the configuration economic environment, and thus accounting system; economic environment through rate component on privatization and economic structure areas, inflation, trade alliances such as ASEAN, EEC, colonialism, education or culture;

<sup>7</sup>size of the economic entity, the concentration of ownership, foreign listing, the options for auditing the financial statements or corporate governance mechanisms;

Advantages	Disadvantages
investments; - more timely and reliable; - reduction of reporting and auditing fees costs.	flexibility of standards (fiscal incentives, investor protection regulations, signaling theory); - difficulties on interpreting.

However, the quality of IFRS is subject to a number of environmental constraints, among which the most important are internal enforcement mechanisms (internal audit, corporate governance, etc.) and external (audit, tax audit, etc.) of IFRS such as tax incentives granted to annual accounts tutors, technical support of IFRS interpretation and the curriculum problem. On European level, a recent study on the economic path recorded several milestones due to the adoption of IFRS on consolidated financial statements, by Regulation 1606/2002:

➤ seen by investors, positive influence on the adoption of IFRS investment decision is only 41%, out of which only 10 % confirms a notable influence, however, 63 % of them confirm an increase in the quality of financial reports, out of which only 6% certified a significant increase, overall, 60 % of them conclude on an improvement in comparability of financial information, but 49 % put a warning sign of a lack of financial statements comprehension improvement;

➤ consolidated accounts setter confirm only in 31% a sensitive impact on economic performance indicators, but on enhancing the quality of financial reporting perception is reiterated by 60 % of them, by improving comparability; a contradictory opinion to that of investors is that of setters which in a share of 42% confirm an improvement in intelligibility financial reports with the purpose of investors usage;

➤ auditors' position is not surprising whereas 80% of them say that IFRS adoption translates into improvements in the quality of financial reports, mainly due to increasing international comparability, however, only 51 % of them attest to the improvement of the understanding of the financial statements by investors (ICAEW, 2007).

Therefore, the state, by means of bodies and competent authorities, has a key role in the smooth running of the implementation and monitoring of IFRS financial reporting and regulation of areas where there is conclusive evidence to stimulate annual accounts tutors in order to use various techniques of discretionary financial reporting. Accounting standardization bodies must equally respond quickly to dynamic business environment, in order to avoid regulation gaps and potential techniques of financial statements alteration.

## 2. ACCOUNTING INFORMATION AND FIRM – VALUATION

It is known that the main objective of any economic entity from shareholders' perspective is to increase shareholder value maximization. This concept involves multiple valences. So shareholder value can be defined in a patrimonial approach, as the residual interest of shareholders, by size of adjusted

net assets. In the context of developed capital markets, the market value of an enterprise, obtained by multiplying the number of shares of a stock traded to the number of transactional shares at some point, became a fundamental concept in strategy -utility optimal allocation of capital funds. But in recent years MBR report (Market-to-Book-Ratio) defined as the ratio between market value and book value of those companies, registered rising values based on :

- violation of capital market efficiency hypothesis;
- certain prudential accounting practices;
- false signals sent to markets on financial performance indicators through the use of relative accounting techniques due to legislative lacks;
- inappropriate application of international financial reporting standards , due to objective reasons caused by lack of guidelines for interpretation, by ambiguity of the accounting conceptual frame or subjective reasons fuelled various financial incentives given to enterprise managers ;
- slipped errors in synthesis forecast financial reports;
- lack of an effective enforcement system (audit, corporate governance mechanisms, monitoring and sanctioning institutional framework), and the list can continue.

In this context, the accounting system must respond appropriately to changes occurred in the economic environment. Despite the views of complainants of recent developments in financial reporting, which consider financial reporting system as the main culprit of installing the current economic crisis , financial reporting synthesis remained the main source of information for investors , due to the lower cost of purchasing regulated accounting information.

But accounting information, in order to be useful in the evaluation of an enterprise must also be relevant and reliable. Therefore we conclude the fact that a mixed approach is much healthier, which both investor's risk aversion, and the evolution of accounting figures are to be found in enterprise value. However, this time we are talking about the company's return value determined by discounting future earnings at a minimum remuneration rate accepted by investors (shareholders, creditors) to ensure continuity of funding and the economic development of the enterprise.

Generalized model of evaluation based on estimations made on future accounting earnings is expressed by the relation  $V = \sum_{t=1}^{\infty} \left( \frac{\text{earnings}}{(1+r)^t} \right)$ , where V is the financial value of an enterprise, r remuneration rate expected by investors, and t expresses the temporal variable. In conditions of steady gains, financial value can be reformulated by the relationship  $= \frac{\text{earnings}}{r}$ .

This model raises numerous debates among specialists, both in terms of future earnings level of aggregation (the result of exploitation, current result, net income, dividends, and cash flow) and the choice of discount rate.

Discussions on performance indicators as identified and correctly used in earnings , revolves around comparability of accounting figures (especially in the context of accounting diversity still visible at the international level ) , the effects

of the financing decision and dividends decision of the enterprise. Furthermore, if you opt for assessing equity, earnings express the size of dividends, while the use of CFROI<sup>8</sup> is found in the valuation of businesses, based on their own investment projects portfolio.

At the same time, the discount rate, reflecting a relatively subjective assessment of investor's risk aversion, is defined according to the CAPM model, by a component of the normal expected return, and respectively a component of systematic risk assumed by the investor.

*EBIT* -

- tax payable

= NOPAT

+ annual depreciation and amortization expenses

= *gross cash flow*

-  $\Delta NWC$ <sup>9</sup>

+  $\Delta non - current assets$ <sup>10</sup>

- investments expenses

= *cash flow from operating activities*

In order to measure the economic value of the enterprise, it is necessary to remove the effects of financing policy and implicitly the financial result for the year. Therefore we opted for *earnings from operations*. In addition, the evaluation model is more reliable with uncertainty as achieving future earnings decreases. Therefore cash flow is the best measure of future earnings without being affected by the accounting methods chosen by the company, and thus the size of accruals. Thus, the analyzed model becomes  $V = \sum_{t=1}^{\infty} \left( \frac{E(CFO_t)}{(1+r)^t} \right)$ ,

where  $CFO_t$  is cash flow from Operations, and E Express expected value of  $CFO_t$  operator, ignoring residual value ( Fernandez , 2002). Continuing this reasoning, we deduce that the size of earnings is best shaped by value NOPAT<sup>11</sup> by calculating the relationship  $CFO_t$  ( Dumitrescu et. al., 2002) above.

In the literature, several concerns regarding the correlation between price- shares and that accounting -based earnings are underlined, also known as event studies. The Ohlson model (1995), also known as residual income valuation model, is one result of such intellectual effort, which determines the value of the shareholders of the company (market value of equity), based on figures released from the financial accounts of synthesis. Starting from the MDD model (Model of Discounted Dividends), it is based on the relationship  $V = bps_0 + \sum_{t=1}^n \left( \frac{eps_t - r \cdot bps_{t-1}}{(1+r)^t} \right) + \frac{price_n - bps_n}{(1+r)^t}$ , where n is the number of unit time interval used in the valuation model. Thus, it explains the equity value by

<sup>8</sup> Cash Flow Return on Investment

<sup>9</sup> change in net working capital needs

<sup>10</sup> sales of fixed-assets

<sup>11</sup> Net Operating Profit After Taxes



their baseline on balance sheet ( $bps_0$ ) to which value created during earnings component is used is added, after deduction of dividends to shareholders.

But earnings size is profoundly affected by *accrual-based accounting* principles and techniques, by the application of revenue recognition principle and *connecting expenses to revenues principle*. Literature lists numerous creative accounting methods and techniques, especially in the area of *income smoothing*, which seeks getting long term favorable financing conditions and a maximization of short-term compensation benefits managers to fulfill contract mandates (Stolowy & Breton, 2000).

Although in the long-term no differences in the accrual basis of accounting balances and cash accounting are registered, in the short term earnings level is affected by the size of accruals. By definition, the level of earnings is determined by the relation  $earnings_t = CFO_t + accruals_t$  (Barth, 1999). Therefore, the economic value of the enterprise is direct influenced by the accruals evolution, reformulating the determining relationship

$$V = \sum_{t=1}^{\infty} \left( \frac{E(NOPAT_t - accruals_t)}{(1+r)^t} \right).$$

The validity of this model is confirmed in the literature, being subject to a heightened transparency regarding provisional forecast of *future earnings* analysis, and non-existence of *abnormal earnings* (*dirty surplus* earnings), which can affect the quality of future earnings forecast model, and consequently the *future cash flows* (Frankel & Lee, 1999). In the same context we mention the notion of *discretionary accruals* that Gramlich & Sorensen (2004) define them as excessive in relation to the expectancy value of accruals<sup>12</sup>.

The accruals level may be determined by two methods (Lev et. Al., 2010):

- starting from released figures from the balance sheet and income statements:

$$\begin{aligned} & \text{annual change in currents assets}^{13} \\ & - \text{change in cash and cash equivalents} \\ & - \text{change in current liabilities}^{14} \\ & + \text{change in long-term debt included in current liabilities} \\ & + \text{change in income taxes payable} \\ & - \text{annuals depreciation and amortization expenses} \\ & = \text{balance sheet-based accruals} \end{aligned}$$

<sup>12</sup> representing an average value accruals evolution on a time weighted by the probability of different economic scenarios, the size reflects the normal accruals;

<sup>13</sup> short term receivables, inventory, prepaid expenses, other current assets

<sup>14</sup> accounts payable, deferred income, accrued payroll, income taxes payable, other current liabilities

- starting from the cash flow statement:

earnings before extraordinary items and discontinued operations  
 - net cash flow from operating activities  
 = ***cash flow statement- based accruals***.

But the size of  $CFO_t$  is not determined only by differences arising between the recognition of financial structures in the income statement, but also by a component of accounting estimates arising from the calculated result elements (amortization , provisions) , changes in accounting methods and the variability of fiscal framework (as an example, the *differed taxes* component). Moreover, especially in the case of jurisdictions that choose to switch to reporting accounting numbers in the spirit of international accounting referential , the differences are largely justified by changes occurred in the background of different criteria of recognition and classification of different account structures, and not the least by *latent gains* obtained from their revaluation at fair value. Under these circumstances, financial analysts' forecasts are essential, while the notes should provide as much details about the impact of adopting IFRS as possible. Therefore it is necessary to reflect on the appropriateness of minimal regulation of forecasting reports, both in terms of minimal content and in terms of relevance and reliability figures obtained.

All these attest, once again, the importance of information obtained from financial statements of synthesis, and especially financial analysts' reports regarding accounting provisions. Thus, we enter into a new stage of development, including financial reports where actuarial accounting gains ground against the historical cost model. Actuarial forecasting model of accounting evaluation is equally considered a real alternative to the model of evaluation in relation to the market , as is the case of intangible assets valuation, in which either intangible nature character, or uniqueness of assets do not allow a market valuation, but a determination of utility value.

### 3. DETERMINANTS OF ACCRUALS ON IFRS VS ROMANIAN ACCOUNTING MODEL

Harmonization of Romanian accounting regulations with international accounting referential represents a shift from an extremely rigid general accounting plan, to an axiomatized approach to accounting and economic events reporting. Factors which contribute to the defining of economic accounting system are those that also generate numerous gaps recorded in certain cases (financing, internal financial control mechanisms and external complexity of economic activity undertaken, the degree of regulatory reports, etc.).

Feleaga (1999) foresaw the incompatibility of the Romanian accounting system with international accounting standards, whether it is about the way to finance the economy or, tax-accounting report, accounting normalization mechanism, accounting axiomatization, or the level of conceptualization. However, the political factors will have engaged the Romanian accounting system to a cumbersome process of profound reform. Thus the goal of joining the

EU and the IMF agreement were essential pillars to Romania's motivation to embrace international accounting standards approach to financial reporting.

The starting point of harmonization of Romanian accounting legislation with the IASB standards was the publication of OMF 403/1999, representing a pilot phase in which 13 companies have opted for voluntary IFRS constantly being counseled by British accountants in the Romanian Accounting System of Development programme funded by DFID6.

Due to the numerous deficiencies generated by OMPF 403/1999 , especially in terms of amount of reported information, two years later, OMF 94/2001 was issued by which additions were made , noting that SMEs will apply IAS provisions, but in a simplified form. Consequently, the OMF 306/2002 approved simplified financial reporting statements regulations, harmonized with European Directives. In addition to this, the Ministry of Finance has published a practical guide to IFRS, not for regulatory reasons, but solely for guidance and facilitation of concepts, principles and other controversial issues of Romanian companies' assimilation (MFP, 2001).

OMPF 1752/2005 provides a removal of Romanian conceptual accounting framework from the provisions of International Accounting Standards, preferring a focus on vision dictated by European Directives (ROSC, 2008).

Romania's aspirations to join the EU economic area, together with external creditors (World Bank , IMF ) pressures are the basis for issuing OMPF 907/2005 (amended by OMPF 2001/2006 and that 1121/2006 ), which introduces compulsory writing consolidated financial statements under IFRS as endorsed by the EU of the listed companies. In parallel, other companies may opt for voluntary adoption of IFRS, for information purpose, without being exempt from having to draw consolidated financial statements according to OMPF 1752/2005. In hope of a late reconciliation legislative bodies emit OMPF 3055/2009 that does not change the format of the annual financial statements, but produces changes in the accounting policies and strategies level.

**Most frequent differences meet during IFRS transition, in annual accounts**

Financial structure / treatment adjusted	Standard	Operation
<i>investment property</i>	IAS 40 „ <i>Investment Property</i> ”	- tangible assets reclassification, given that OMFP 3055/2009 does not provide a separate position for investment properties, being included in category of tangible assets;
<i>non-current assets held for sale</i>	IFRS 5 „ <i>Non-current Assets Held for Sale and Discontinued Operations</i> ”	- tangible assets reclassification, given that OMFP 3055/2009 does not make a separation between the assets held for use and those held for sale;
<i>biological assets</i>	IAS 41 „ <i>Agriculture</i> ”	- tangible assets reclassification, given that OMFP 3055/2009 does

Financial structure / treatment adjusted	Standard	Operation
		not provide a separate position for biological assets, being included in category of tangible assets;
<i>Inventories</i>	IAS 2 „ <i>Inventories</i> ”	- OMFP 3055/2009 permits also LIFO inventory method valuation, even if IFRS prohibits it;
<i>construction contracts</i>	IAS 11 „ <i>Construction contracts</i> ”	- OMFP 3055/2009 does not provide any treatment for this issue;
<i>deferred taxation</i>	IAS 12 „ <i>Income taxes</i> ”	- OMFP 3055/2009 does not regulates the notion of deferred taxation, but provides some special situations in which may be constituted provisions for taxation;
<i>derivative financial instruments</i>	IAS 39 „ <i>Financial Instruments: Recognition and Measurement</i> ”	- OMFP 3055/2009 regulates the accounting for these instruments only when settlement.
<i>Amortization</i>	IAS 36 „ <i>Assets depreciation</i> ”	- OMFP 3055/2009 does not define the concept of residual value for assets; so they are amortized at their cost;
<i>Revenue</i>	IAS 18 „ <i>Revenue</i> ”	- OMFP 3055/2009 does not mention anything about effective interest method; also, there are no specification regarding income actualization;
<i>accounting policy definition</i>	IAS 8 „ <i>Accounting Policies, Changes in Accounting Estimates and Errors</i> ”	- OMFP 3055/2009 consider amortization as an accounting policy, while IASB consider it as an estimation; also, it discourage using estimations;

*Source: KPMG, 2012*

Again for political reasons, it is decided the adoption of IFRS in the statutory financial statements of listed companies, with the adoption of OMPF 1286/2012. Thus, from the harmonization of Romanian accounting regulations with international accounting standards (Order No. 94 /2001, the OMPF 1752/2005 OMPF 3055/2009) it gradually reaches to embrace the process of accounting convergence results by full adoption of IFRS by the listed companies.

Through these legislative changes some major changes regarding the accounting of economic events and financial position reporting, financial results and financial position changes were made.

The analysis of accruals level must be done carefully, because international accounting referential permissiveness regarding the use of accounting estimations considered necessary in shaping economic uncertainty may lead to a distortion of informational value of accruals in the presence of

estimation errors. It remains to determine the accounting treatment intention that lies behind this estimation error, especially in the current context in which discretionary accruals justify a more significant part of total accruals at the enterprise level, precisely because of the existence of multiple motivations of managers: contractual motivation, remunerating motivation, debt-financing motivation, asses - pricing motivation, earnings management motivation, fiscal motivation (Fields et. al. , 1011 ) . In addition to this, fair value is a factor of increasing accruals informational inconsistency by volatility ( Feleaga & Malciu , 2004). However, although there are opinions according to which, at the base of financial crisis lies applying the concept of fair value itself, recent studies claim that the incorrect application of the concept of fair value accounting and exploring creative opportunities in the assessment of financial instruments are major causes to deterioration of financial information relevance ( Laux & Leuze , 2009).

#### 4. METHODOLOGY RESEARCH

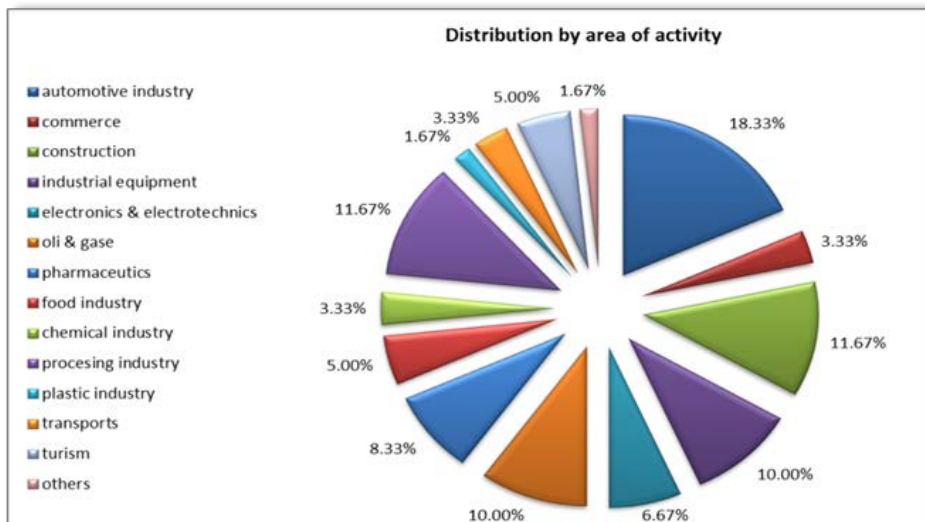
The present paper brings contributions to special literature through an analysis of the impact of IFRS adoption on the statutory financial statements in the case of listed companies under by OMPF 1286/2012. This step has significant differences both in the delimitation of financial structures, and in terms of accounting valuation and estimation policies. Although the Romanian economic environment proved reluctant in adopting IFRS, the political factor finally decided to foreign creditors' pressures and the requirements of accession to the EU (Ionascu et. Al, 2011). Despite the positive economic effects of adopting IFRS the accruals matter in Romanian accounting persists, seriously affecting economic decisions of users of accounting information. By default, the accruals level affects the market value of the company, be it a market-based approach, or using an actuarial evaluation model.

In order to measure the impact of such changes in the Romanian accounting regulations, we opted for a comparative analysis of the relevance of accruals ( $ACC_t$ ) in explaining the level of cash flow released from ordinary activities  $CFO_t$ . Comparative analysis involves calculating accruals from both released statements in accordance with regulations OMPF 3055/2009 and financial reporting and compliance with the requirements of IFRS. Therefore we chose to analyze financial data for fiscal year 2011 and 2012. But analysis of the figures of 2012 are limited to financial data processed in financial statements prepared in letter IFRS , as most companies have opted for a parallel reporting separate financial statements as required OMPF 3055/2009 .

By definition, the level of earnings is determined by the relationship  $earnings_t = CFO_t + accruals_t$  (Easton, 2007). Therefore, eliminating the influence on the performance of enterprise financing decision, we opt for calculating the accruals relationship  $ACC_t = \frac{Profit_{operations_t} - Cash\ flow_{operations_t}}{Total\ assets_t}$ .

It will proceed to deflation of  $Cash\ flow_{operations}$  and  $\Delta Cash\ flow_{operations} = Cash\ flow_{operations_t} - Cash\ flow_{operations_{t-1}}$  to the size of  $Total\ assets_t$  to keep the uniformity of compared values. Last but not least, in the last part of the analysis the influence of  $accruals_t$  will be measured and the  $CFO_t$  influence on  $ROA_t = \frac{Profit_{operations_t}}{Total\ assets_t}$  return on assets.

The sample used consists of 60 non- financial companies listed on the BSE (from the top 100 listed companies), representing 60.11 % of market capitalization. Below is shown the structure, by area of activity.



The comparative analysis involves the construction of eight linear regression models, which measure :

- evolution of the correlation between the accruals and cash flow value recorded in current operations : model II , model V , VI model ;
- influence of availability of liquidity from previous exercise: model I , model III ;
- the impact of adopting IFRS on the level of liquidity of the company: model III, model IV ;
- influence of  $accruals_t$  and that of  $CFO_t$  on the  $ROA_t$  return on assets : model VII , model VIII.

## 5. ANALYSIS AND INTERPRETATIONS

The adoption and implementation of IFRS has recorded visible global disparities, based on numerous causes of form and substance: means of implementation, difficulties in conceptualizing, mechanisms of corporate governance, quality of enforcement process, multitude of accounting options

allowed, area of application, or relevance and reliability of accounting estimations (Nobes, 2011).

Persistence of accruals in financial reporting represents a problem in adopting the right economic decisions, despite the progress recorded in international accounting harmonization. Kabir & Laswad (2011) attest, for a sample of 13 countries that have adopted IFRS, that there are differences in the quality of accruals, through the *discretionary accruals* component. Cormier et al. (2011) highlights the importance of enforcement process in increasing the accruals quality, and also claim that discretionary accruals are more obvious in the case of companies from the Anglo-Saxon countries where the impact of earnings management is more pronounced than in countries of civil-law enforcement because of a faulty system. Through their study, Doyle et al. (2007) justifies the poor quality of accruals on account of exercising internal financial control function.

Determinants of *accruals quality* are equally the quality of corporate governance mechanisms, the quality of accounting policies for financial reporting, quality accounting standards, and even the quality of the educational system, especially given that professional judgment is fundamental to the accounting model dictated by international accounting standards.

On companies listed on the BSE level we can see that the industry has a role in the differentiation of *accruals*. While the automotive industry significant negative accruals are recorded, industrial equipment industries companies report financial figures that develop positive values of accruals. Instead, travel and food industry, on passing from local accounting regulations to international accounting standards provisions recorded a dramatic decrease in the level of accruals.

However, these values should be considered with caution, as we are talking about a period of transition towards IFRS of separate financial reporting, a period that receives the greatest differences (Daskal, 2008). IFRS 1 also requires several exceptions from retrospective application, including: maintaining previous estimates if they were obtained prior regulations in accordance with IFRS, hedge accounting elements recognition which focus on specialist firm stated intention detached from a prior declaration, a justifying prospective of hedge effectiveness, efficiency control of real and permanent documentation.

**Accruals descriptive statistics, by domain**

Domain	IFRS				RAS	
	2012		2011		2011	
	Mean	STD	Mean	STD	Mean	STD
<i>automotive industry</i>	-0.008	0.085	-24.296	74.987	-23.168	75.571
<i>Commerce</i>	-0.066	0.053	-1.385	4.178	0.437	1.774
<i>Construction</i>	-0.094	0.090	0.239	4.668	0.762	6.765
<i>industrial equipment</i>	-0.008	0.080	13.742	33.462	14.474	33.157
<i>electronics &amp; electro-techniques</i>	-0.007	0.042	0.970	0.561	1.010	0.642
<i>oil &amp; gas</i>	-0.038	0.029	-5.353	11.881	-5.550	11.826
<i>Pharmaceutics</i>	0.065	0.059	-0.809	1.333	-0.636	1.207
<i>food industry</i>	-0.022	0.022	5.004	7.494	-2.432	4.588
<i>chemical industry</i>	-0.376	0.417	3.151	3.186	3.216	3.093

Domain	IFRS				RAS	
	2012		2011		2011	
	Mean	STD	Mean	STD	Mean	STD
<i>processing industry</i>	-0.049	0.100	-0.298	2.770	-0.420	2.533
<i>Transports</i>	-0.016	0.000	0.810	2.768	0.890	2.656
<i>Tourism</i>	-0.010	0.001	<b>-0.166</b>	0.568	<b>2.004</b>	4.481
<b>All</b>	<b>-0.052</b>	0.111	-0.699	21.712	-0.784	21.810

*Source: own calculus*

Also, IFRS 1 provides some exceptions allowed to the first companies adopting IFRS, recalling such: adjustments related to intangible items, to be charged on goodwill, use of fair value or revaluation by applying an index to determine the price change base depreciation of fixed assets, except for those intangible, full accounting of actuarial differences relating to employee benefits. The impact of this change is observed in the positive evolution of accruals released in accordance with the IFRS financial statements for the year 2012 compared to the corresponding fiscal year 2011. But even under these conditions a significant reduction in accruals level value from -0784 to -0052 can be observed.



**Panel A: descriptive statistics**

	<i>ifrs current assets 2011</i>	<i>ras current assets 2011</i>	<i>ifrs liability 2011</i>	<i>ras liability 2011</i>	<i>sales ifrs 2011</i>	<i>sales ras 2011</i>	<i>profit ifrs 2011</i>	<i>profit ras 2011</i>	<i>profit ifrs 2012</i>	<i>cash ras 2011</i>	<i>cash ifrs 2011</i>	<i>cash ifrs 2012</i>	<i>non-current assets</i>
Mean	1.112	1.120	0.699	0.705	1.646	1.744	<b>0.032</b>	<b>0.051</b>	0.050	0.091	0.089	0.120	1.045
St. Error	0.143	0.157	0.128	0.131	0.238	0.295	0.029	0.031	0.026	0.025	0.025	0.033	0.046
St. Dev.	1.109	1.212	0.994	1.016	1.841	2.286	0.223	0.241	0.198	0.193	0.195	0.258	0.358
Min	0.045	0.045	0.010	0.018	0.026	0.071	-1.038	-1.043	-0.522	-0.591	-0.591	-0.480	0.293
Max	4.838	4.838	5.103	5.060	8.563	14.375	0.609	1.023	0.824	0.713	0.713	1.084	3.322
Confidence Level	0.286	0.313	0.257	0.263	0.476	0.591	0.058	0.062	0.051	0.050	0.050	0.067	0.092

Source: own calculus with MS Excel 2010

**Pannel B: regression models**

Dependent variable	Model	Explanatory variable	Coefficient	Std. Error	t-Statistic	Prob.	R <sup>2</sup>	F-statistic	Prob (F-statistic)
cash flow ifrs 2012	I	<i>cash_ifrs 2011</i>	0.381	0.119	3.196	0.23%	<b>59.58%</b>	42.00	0.00%
		<i>accruals_ifrs 2012</i>	-0.731	0.082	-8.911	0.00%			
	II	<i>accruals_ifrs 2012</i>	<b>-0.700</b>	0.088	-7.980	0.00%	<b>52.33%</b>	63.68	0.00%
	III	<i>cash_ifrs 2011</i>	0.631	0.134	4.703	0.00%	<b>54.49%</b>	34.12	0.00%
		<i>accruals_ifrs Δ<sub>2011-2012</sub></i>	<b>-0.742</b>	0.093	-8.010	0.00%			
	IV	<i>cash_ifrs 2011</i>	0.527	0.120	4.391	0.01%	<b>65.72%</b>	35.78	0.00%
		<i>accruals_ifrs 2012</i>	<b>-0.476</b>	0.111	-4.283	0.01%			
		<i>accruals_ifrs Δ<sub>2011-2012</sub></i>	<b>-0.374</b>	0.118	-3.167	0.025%			
cash flow ras 2011	V	<i>accruals_ras 2011</i>	<b>-0.194</b>	0.089	-2.175	3.37%	<b>7.54%</b>	4.73	3.37%
cash flow ifrs 2011	VI	<i>accruals_ifrs 2011</i>	<b>-0.281</b>	0.115	-2.454	1.71%	<b>9.41%</b>	6.02	1.71%
ROA ifrs 2011	VII	<i>cash flow ifrs 2011</i>	1.169	0.075	15.611	0.00%	<b>88.37%</b>	216.50	0.00%
		<i>accruals ifrs 2011</i>	<b>1.229</b>	0.069	17.883	0.00%			
ROA ras 2011	VIII	<i>cash flow ras 2011</i>	1.395	0.766	1.822	7.37%	<b>23.46%</b>	8.74	0.05%
		<i>accruals ras 2011</i>	<b>2.227</b>	0.541	4.118	0.01%			

Source: own projection constructed based on Eviews 7.0 outputs

Notes: a. all variable are obtained by deflating absolute value with value of non-current assets; consequently to compare non-current assets, we have chosen the report between non-current assets according to OMFP 3055/2009 financial statements and the ones according to IFRS statements; b. RAS- romanian accounting standards;

Accruals mean , by various determinants

Determinant		IFRS	RAS	$\Delta$
Ownership dispersion	<i>Moderate</i>	-0.040	-0.070	-0.030
	<i>Low</i>	-0.022	-0.026	-0.004
	<i>High</i>	-0.050	0.052	0.102
Firma audit	<i>domestic</i>	-0.032	-0.040	-0.007
	<i>International</i>	-0.026	-0.016	0.010
Cash flow reporting method	<i>Indirect</i>	-0.044	-0.069	-0.025
	<i>direct</i>	-0.020	-0.002	0.018

Source: own calculus

We can also notice the influence of degree's concentration of ownership, type of audit firm, and not the least, the method of reporting cash flows. Predictably, the accruals in the case of indirect method of reporting cash flows is more increased than in the case of direct method, but of opposite sign, which certifies an understatement of enterprises through an approach based on model updating operating profits.

Significant is also the role of audit in highlighting accruals , as international audit firms ( BDO , Deloitte ) certify an increase with the implementation of IFRS accruals (  $\Delta = 0.010$  ), while local audit firms certify an insignificant decrease (  $\Delta = 0.007$  ).

Accruals variation is largely explained by the variation of profit from ordinary activities, largely determined by accounting estimations component, because the differences in the current assets, current liabilities, and sales revenues are rather small. Moreover, fixed assets register, on average, a decrease of approximately 4.5 % with the transition to IFRS financial reporting.

Constructed linear regression statistics confirm unanimously negative impact on cash flow accruals level of current activities. But unexpectedly, this influence is more acute with the IFRS transition ( coefficients corresponding to models V and VI ,  $\text{accruals\_ifrs } 2011 = -0.281 < \text{accruals\_ras } 2011 = -0.194$  ) . Also, the coefficient of determination of model VI records a slight increase (  $R^2 = 9.41\%$  ) compared to that of the model reflecting operating cash flow released from the financial statements prepared according to OMPF 3055/2009 (  $R^2 = 7.54\%$  ).

Although the differences between the accrual accounting values compared to those of the house accounting is accentuated (  $\text{accruals\_ifrs } 2012 = -0.700$  in model II , in relation to  $\text{accruals\_ifrs } 2011 = -0.281$  in model VI ) , we observe an increase in fundamental relevance, for model II (  $R^2 = 52.33\%$  ) rather than model VI (  $R^2 = 9.41\%$  ). This strengthens the negative relationship between cash flow from operations and net income from operations (  $-0.700$  ) .

However, cash flow from operations is better explained by cats accruals and cash flow from operations for the previous year (  $R^2 = 59.58\%$  for model I ) , which certifies their greater predictability , and therefore relevant accounting figures of companies in the evaluation process by calling Ohlson model ( 1995). But the predictability of cash flows from current activity is in close relationship with impact of first adopting IFRS , by the size variable  $\Delta \text{ accruals\_ifrs } 2011$ -

2012 , which is achieved by including a prediction improves engineering model (R2 = 65.72 % for the IV model is R2 = 54.49% higher for the model III).

Z test confirms that the transition to IFRS in drafting individual financial statements does not generate significant changes in the test specimen assembly representing companies ( $z_{\text{calculated}} = -0.037 < z_{\text{standard}} = 1.645$  with an error probability of 48.54% , largely due to the heterogeneity of the sample ) .

z-Test: Two Sample for Means

	Accruals IFRS	Accruals RAS	CFO <sub>2011</sub> IFRS	CFO <sub>2011</sub> RAS	NI <sub>2011</sub> IFRS	NI <sub>2011</sub> RAS
Mean	-0.032	-0.030	0.088	0.090	0.035	0.058
Known Variance	0.086	0.112	0.200	0.190	0.220	0.240
z	<b>-0.037</b>			<b>0.018</b>		<b>0.256</b>
P(Z<=z) one-tail	48.54%			49.28%		39.92%
z Critical one-tail	<b>1.645</b>			<b>1.645</b>		<b>1.645</b>
P(Z<=z) two-tail	97.09%			98.56%		79.83%
z Critical two-tail	1.96			1.96		1.96

Source: own projection with MS Excel calculus

However, the decrease in net operating income ( profit\_ifrs\_2011 = 0.032 < profit\_ras\_2011 = 0.051 ) , given that no significant differences are recorded in enterprises' assets after the transition to IFRS , generates a decrease in the role of accruals ( cash\_flow\_ifrs\_2011 = 1.229 < accruals\_ras\_2011 = 2.227 ) in explaining the return on assets (ROA) . Also determination report increases from of 23.46 % ( model VIII) to degree of relevance of 88.37 % ( model VII).

Consequently , we accept the hypothesis that the legislative changes required by the OMPF 1286/2012 does not cause a significant impact on the financial analysis , but makes an increasing relevance of financial figures towards improving predictability of cash flows from ordinary activities , which involve improvement of information value of enterprise obtained using a discounting model of cash flow . This situation can be explained due to the sluggish process of harmonizing Romanian accounting legislation with European and IASB accounting regulations ( Order No. 94 /2001, the OMPF 1752/2005 and finally OMPF 3055/2009 ) .

## 6. CONCLUSIONS

The discussion around the objective of financial statements is topical , given the multiple functions performed by the accounting and financial reporting . But it is widely accepted the hypothesis that the funding system is an essential factor in shaping strategies and financial reporting policies of enterprises. Equally, the cultural factor, through the dose of caution and Romanian accounting normalization process is present in the context of an accrual -based accounting and greatly distorts the information content of financial reports . Last

but not least , macroeconomic accounting approach does not respond properly the new business model.

Solution to overcome this impasse is to continue harmonizing Romanian accounting regulations with international accounting standards and expand IASB philosophy regarding financial reporting to the regulations regarding non-listed companies. Just this philosophy proves to be sufficiently permissive with creative accounting practices, particularly in terms of earnings management. Under these conditions, the informational value of profit and loss statement loses its relevance, but balance records a significant improvement in relevance in the context of fundamental analysis in the evaluation process of enterprise ( Hail , 2012). Therefore, optimization efforts should be focused on financial reports for extensive modernization project of accounting conceptual framework, especially in relation to the recognition and classification of balance sheet structures, and of course reviewing mark -to -market accounting evaluation model.

This study is limited to accruals analysis, a comparative approach, with the main landmarks company earnings components derived from operating activities, respectively operating cash flows size and accruals size. The study represents a starting point for further analysis of the determinants of the accruals' evolution, doing so in a breakdown of the contribution of each element of the overall level of accruals. In this direction, researchers will be able to make a clear distinction between discretionary accruals (change in accounting policy on depreciation, provisions and accrued income and expenditure, measuring relevance of valuation and estimations models, etc. . ) and normal accruals ( accruals generated by the economic enterprise, or the seasonal nature of economic activity undertaken ).

The general conclusion of the study is that, the impact of applying OMPF 1286/2012 shows no significant difference in the accruals. On the contrary, we see a slight increase in the relevance of predictability model of cash flow from operations based on the accruals and cash flow from operations of previous financial year. This conclusion is a positive feedback in the context of ongoing dynamics of harmonizing the Romanian accounting regulations with IFRS.

Although investors are especially interested in, the financial information released in the consolidated financial statements, we consider it appropriate to work through the reality of the Romanian capital market, which is dominated by domestic listed companies, whose building area is reduced to a safe reporting entity. In addition, Changes in the individual financial statements after applying OMPF 1286/2012 explains a closer correlation between performance and Consolidated and unconsolidated financial position .

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## QUALITY OF FINANCIAL REPORTING IN ACCORDANCE WITH IAS 7 "CASH FLOW STATEMENT"

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**Abstract:** This paper aims to research economic entities accounting compliance with the requirements of International Accounting Standard IAS 7 "Cash Flow Statements". In this respect, the index is calculated according to the requirements of IAS 7 for each economic entity in the sample analyzed. With Pearson coefficient is checked whether or not correlation between the index under the following economic sizes: financial leverage, size enterprise, enterprise performance.

**JEL classification:** M40, M41

Key words: critical; coefficient of conformity, correlation coefficient, financial leverage, size enterprise, enterprise performance

### 1. INTRODUCTION

Romania has been concerned with the implementation of the International Accounting Standards in order to develop the accounting system, to provide pertinent and good-quality accounting information to local and foreign investors. But, it is a long way from the legal adoption of the standards to their implementation into practice. The question is whether those who apply IFRS know their content well. Through EC Regulation no. 1606/2002, the international reference IFRS becomes mandatory and consequently the research studies aim first of all the manner of applying these standards. In this context, this paper empirically tests the compliance of the financial statements of the Romanian companies listed at the stock exchange with the requirements mentioned in IAS 7 "Cash Flows". It also verifies the factors that influence the practices of disclosing information concerning cash flows, and their correlation with the level of compliance. Our paper falls within the field of the research concerning the mandatory disclosure of information on cash flows.

## 2. RESEARCH METHOD

In order to measure the level of compliance of the financial statements of the Romanian companies with the requirements specified in IAS 7, I used the index of disclosure initially developed by Buzby and subsequently improved by Cooke. This index is calculated using the formula:

$$Ic = \sum_{i=1}^n d_i, \text{ where } d_i = 1, \text{ if the information specified by IAS 7 is disclosed;}$$

$d_i = 0$ , if the information specified by IAS 7 is not disclosed;

$n$  = the number of items of information that must be disclosed.

Using a sample of 40 companies, I checked the compliance with the requirements of IAS 7 (Annex 1), i.e. I calculated the coefficient of conformity for each company in the selected sample.

In our opinion the sample is representative taking into account that the companies listed at the stock exchange, under the public pressure, are concerned to submit financial statements reflecting as accurately as possible their financial position and their performance. A cross-sectional analysis was approached in a single financial year.

The behavior of the companies in disclosing information is influenced by a number of characteristics of the companies such as: the size of the company, the performance of the company, the financial leverage, etc.

I expressed these influences of the above/mentioned factors on the variation of the coefficient of conformity using the following research assumptions:

- Assumption 1 – The coefficient of conformity is directly correlated to the size of the company;
- Assumption 2 - The coefficient of conformity is directly correlated to the performance of the company;
- Assumption 3 - The coefficient of conformity is correlated to the financial leverage (Debts/Equity capital).

In order to validate or invalidate the research assumptions I used the correlation coefficient or the Pearson correlation coefficient that is determined using the formula:

$$r = \frac{C O(X,Y)}{S_x S_y}, \text{ where } S_X \text{ and } S_Y \text{ are standard deviations for the}$$

series X and Y respectively.

I interpreted the values of the correlation coefficient taking into account Colton's rules (174).

The epistemological positioning is positivist constructive and the research methods are: documentation, non-participant observation, data analysis and interpretation.



### 3. KNOWLEDGE STAGE IN THE SPECIALTY LITERATURE CONCERNING THE CONFORMITY OF THE DISCLOSURE OF INFORMATION WITH THE REQUIREMENTS OF THE INTERNATIONAL ACCOUNTING STANDARD

The specialty literature is characterized by the existence of several theories on the disclosure of financial information, starting from the agency theory (Watts & Zimmerman, 1978) to the contingency theory (Doupnik & Salter, 1995). As found by Verrecchia (2001), we cannot have a single information theory as long as there is information asymmetry. In terms of applying the international reference, several studies highlighted the lack of compliance of the financial information with certain requirements specified in the accounting standards (Street et al., 1999, Fekete, 2009). Due to the diversity of the disclosure practices, researchers have selectively approached, in their studies, certain aspects concerning the conformity with the accounting standards.

### 4. CHECKING THE RESEARCH ASSUMPTIONS AND INTERPRETING THE RESULTS

All these companies disclose in the explanatory notes the “Cash flow statement”. We determined the coefficient of conformity for each company in the selected sample from the perspective of the 13 requirements of IAS 7 “Cash flows”.

**Table no 1: The coefficient of conformity**

Company	I <sub>1</sub>	I <sub>2</sub>	I <sub>3</sub>	I <sub>4</sub>	I <sub>5</sub>	I <sub>6</sub>	I <sub>7</sub>	I <sub>8</sub>	I <sub>9</sub>	I <sub>10</sub>	I <sub>11</sub>	I <sub>12</sub>	I <sub>13</sub>	I <sub>c</sub>
CLUJANA S.A.	1	1	1	0	0	0	1	1	0	0	1	1	0	7
CHIMICA S.A.	1	1	1	0	0	0	1	1	0	0	1	1	0	7
CHIMCOMPLEX BORZESTI S.A.	1	1	1	0	0	0	1	1	0	0	1	1	0	7
CERSANIT ROMANIA S.A.	1	1	1	0	0	0	1	1	0	0	0	1	0	6
COMPANIA HOTELIERA INTERCONTINENTAL ROMANIA S.A.	1	1	1	0	0	0	1	1	0	0	1	1	0	7
COMAT MET S.A.	1	1	1	0	0	0	0	0	0	0	1	1	0	5
COMPONENTE AUTO S.A.	1	1	0	0	0	0	0	0	0	0	0	0	0	2
ECOPACK S.A.	1	1	0	1	0	0	1	1	0	0	0	1	0	6
ELECTROUTILAJ S.A.	1	1	1	0	0	0	0	1	0	0	1	1	0	6
ELEROM S.A.	1	0	0	0	0	0	0	0	0	0	0	0	0	1
EMAILUL S.A.	1	0	0	0	0	0	0	0	0	0	0	0	0	1
FARMACEUTICA ARCATIM S.A.	0	1	0	0	0	0	0	1	0	0	1	1	0	4
FEPA S.A.	1	1	0	1	0	0	1	1	0	0	1	1	0	7
FIMARO INVEST S.A.	1	1	1	0	0	0	0	0	0	0	1	1	0	5
FIRM-RECOM S.A.	1	1	1	0	0	0	0	0	0	0	1	1	0	5
FLACARA S.A.	1	1	0	0	0	0	1	1	0	0	1	1	0	6
FLAROS S.A.	1	1	0	0	0	0	1	1	0	0	1	1	0	6
FORMA S.A.	1	1	0	0	0	0	1	1	0	0	1	1	0	6
GENERAL TRANSPORT S.A.	1	1	1	0	0	0	1	1	0	0	1	1	0	7
AZOMA S.A.	1	1	0	1	0	0	1	1	0	0	1	1	0	7
BAZA ATELIERE SI TRANSPORT S.A.	1	1	0	0	0	0	1	1	0	0	1	1	0	6

Company	I <sub>1</sub>	I <sub>2</sub>	I <sub>3</sub>	I <sub>4</sub>	I <sub>5</sub>	I <sub>6</sub>	I <sub>7</sub>	I <sub>8</sub>	I <sub>9</sub>	I <sub>10</sub>	I <sub>11</sub>	I <sub>12</sub>	I <sub>13</sub>	I <sub>c</sub>
CET S.A.	1	1	0	0	0	0	0	0	0	0	1	1	0	4
ACI BISTRITA S.A.	1	1	0	0	0	0	1	1	0	0	1	1	0	6
COMINCO S.A.	1	1	1	1	0	0	1	1	0	0	1	1	0	8
GALFINBAND S.A.	1	1	1	0	0	0	1	1	0	0	1	1	0	7
GALGROS S.A.	1	1	1	0	0	0	1	1	0	0	1	1	0	7
GASTRONOM S.A.	1	1	0	1	0	0	1	1	0	0	1	1	0	7
CNF GIURGIU NAV S.A.	1	1	1	1	0	0	1	0	0	0	1	1	0	7
GRANITUL S.A.	1	1	1	0	0	0	1	1	0	0	1	1	0	7
FAREX S.A.	1	1	0	0	0	0	1	1	0	0	0	1	0	5
MOBEX S.A.	1	1	1	0	0	0	0	0	0	0	1	1	0	5
METAL LEMN S.A.	1	1	0	0	0	0	1	1	0	0	1	1	0	6
MECANOENERGETICA S.A	1	1	0	0	0	0	1	1	0	0	1	1	0	6
MACOFIL S.A.	1	1	1	0	0	0	1	0	0	0	1	1	0	6
LACTA S.A.	1	1	0	0	0	0	1	1	0	0	1	1	0	6
PANTEX S.A.	1	1	0	0	0	0	0	0	0	0	0	1	0	3
PALACE S.A.	1	1	1	0	0	0	1	1	0	0	1	1	0	7
MAT S.A.	1	1	0	0	0	0	1	1	0	0	1	1	0	6
MARTENS S.A.	1	1	0	0	0	0	1	1	0	0	1	1	0	6
MAGAZIN UNIVERSAL MARAMURES S.A.	1	1	0	0	0	0	1	1	0	0	1	1	0	6

where: I<sub>1</sub>, I<sub>2</sub>,....., I<sub>13</sub> represent the disclosure requirements IAS 7.

I<sub>c</sub> represents the coefficient of conformity

In this study, in addition to the dependent variable (the coefficient of conformity) I used three independent variables, i.e. factors influencing the conformity of the financial statements of the selected companies with IAS 7 represents the disclosure requirements in IAS.

#### ● the size of the company

There are several reasons supporting the correlation of the information level with the size of the company. Thus, big companies are expected to have better information systems, being concerned with supplying relevant financial statements that should increase the trust among the users of the information. On the other hand, a large company can afford to pay higher costs in order to achieve better information. According to the methods used by several authors, we determine the size of a company with the help of its total assets.

#### ●Company performance

Previous studies identified a positive correlation between performance and the quality of disclosure. (Ali et al., 2003). We believe that a profitable company is interested to communicate detailed information to its shareholders. Performance is reflected by the profit before tax.

#### ●Financial leverage

Previous empirical studies in the specialty literature have obtained conflicting results regarding the correlation between the financing structure and the conformity with IFRS. Some authors, based on the signaling theory, believe that there is a negative relation between leverage and the level of information (Abd –Elsalam & Weetman, 2003). Others, on the contrary, claim that entities

with a high financial leverage submit financial statements in accordance with the International Accounting Standards (Tarca et al., 2005).

The financial leverage is determined as a ration between own debts and equity capital, which values are taken from the financial statements of the companies listed at the Stock Exchange.

**Table no 2: Determination of financial leverage**

Company name	The coefficient of conformity	Liabilities	Equity	Leverage
CLUJANA S.A.	7	4.396.000	12.126.080	0,36
CHIMICA S.A.	7	43.361.924	28.628.273	1,51
CHIMCOMPLEX BORZESTI S.A.	7	82.274.675	146.449.000	0,56
S.C. CERSANIT ROMANIA S.A.	6	178.629.046	-13.430.020	-13,30
COMPANIA HOTELIERA INTERCONTINENTAL ROMANIA S.A.	7	64.114.365	170.528.833	0,38
COMAT MET S.A.	5	71.973	8.977.125	0,01
COMPONENTE AUTO S.A.	2	10.042.908	24.861.204	0,40
ECOPACK S.A.	6	51.700.152	49.942.724	1,04
ELECTROUTILAJ S.A.	6	4.327.723	4.691.276	0,92
ELEROM S.A.	1	1.125.117	9.634.329	0,12
EMAILUL S.A.	1	76.750	3.646.265	0,02
FARMACEUTICA ARCATIM S.A.	4	11.468.303	14.768.901	0,78
FEPA S.A.	7	33.404.108	17.539.553	1,90
FIMARO INVEST S.A.	5	2.566	8.042.931	0,00
FIRM-RECOM S.A.	5	153.531	343.090	0,45
FLACARA S.A.	6	749.184	5.543.513	0,14
FLAROS S.A.	6	1.258.269	10.444.204	0,12
FORMA S.A.	6	2.707.732	1.652.703	1,64
GENERAL TRANSPORT S.A.	7	0	15.631.134	0,00
AZOMA S.A.	7	18.793.586	10.000.705	1,88
BAZA ATELIERE SI TRANSPORT S.A.	6	14.080.167	983.233	14,32
CET S.A.	4	71.592.013	-14.967.963	-4,78
ACI BISTRITA S.A.	6	4.729.411	7.188.286	0,66
COMINCO S.A.	8	61.149.169	27.562.670	2,22
GALFINBAND S.A.	7	13.590.948	17.335.381	0,78
GALGROS S.A.	7	550.953	22.437.317	0,02
GASTRONOM S.A.	7	276.037	9.281.751	0,03
CNF GIURGIU NAV S.A.	7	15.611.604	7.549.675	2,07
GRANITUL S.A.	7	312.800	7.771.226	0,04
FAREX S.A.	5	76.750	3.646.265	0,02
MOBEX S.A.	5	12.961.424	16.812.018	0,77
METAL LEMN S.A.	6	6.104.418	37.363.204	0,16

Company name	The coefficient of conformity	Liabilities	Equity	Leverage
MECANOENERGETICA S.A.	6	5.345.497	7.088.502	0,75
MACOFIL S.A.	6	40.601.108	35.683.316	1,14
LACTA S.A.	6	4.169.951	3.918.061	1,06
PANTEX S.A.	3	18.031.193	3.542.035	5,09
PALACE S.A.	7	2.942.688	12.949.612	0,23
MAT S.A.	6	11.140.095	97.038.175	0,11
MARTENS S.A.	6	33.819.744	22.756.134	1,49
MAGAZIN UNIVERSAL MARAMURES S.A.	6	6.604.262	6.513.106	1,01
Total	229	832.348.144	862.473.827	26,13

Description of the studied variables and their values are shown in the table below.

**Table no 3**

Company name	The coefficient of conformity	Total assets	Gross result	Leverage
CLUJANA S.A.	7	12.126.080	1.733.330	0,36
CHIMICA S.A.	7	39.887.911	-796.086	1,51
CHIMCOMPLEX BORZESTI S.A.	7	166.315.645	1.021.000	0,56
S.C. CERSANIT ROMANIA S.A.	6	120.606.928	-10.393.476	-13,30
COMPANIA HOTELIERA INTERCONTINENTAL ROMANIA S.A.	7	170.801.891	-15.961.749	0,38
COMAT MET S.A.	5	8.977.125	-523.029	0,01
COMPONENTE AUTO S.A.	2	25.959.951	141.502	0,40
ECOPACK S.A.	6	50.032.348	878.492	1,04
ELECTROUTILAJ S.A.	6	4.691.276	1.732.998	0,92
ELEROM S.A.	1	10.270.946	933.797	0,12
EMAILUL S.A.	1	3.646.265	-143.173	0,02
FARMACEUTICA ARCATIM S.A.	4	14.769.144	2.288.264	0,78
FEPA S.A.	7	18.107.518	465.981	1,90
FIMARO INVEST S.A.	5	8.042.931	-727.981	0,00
FIRM-RECOM S.A.	5	343.090	92.349	0,45
FLACARA S.A.	6	6.706.718	456.158	0,14
FLAROS S.A.	6	10.746.243	4.377.068	0,12
FORMA S.A.	6	4.058.552	756.351	1,64
GENERAL TRANSPORT S.A.	7	19.446.292	-17.258	0,00
AZOMA S.A.	7	13.507.795	570.552	1,88
BAZA ATELIERE SI TRANSPORT S.A.	6	12.178.249	421.743	14,32
CET S.A.	4	-574.678	-13.994.998	-4,78

Company name	The coefficient of conformity	Total assets	Gross result	Leverage
ACI BISTRITA S.A.	6	10.447.051	1.101.521	0,66
COMINCO S.A.	8	42.956.341	403.322	2,22
GALFINBAND S.A.	7	24.598.916	654.060	0,78
GALGROS S.A.	7	22.437.317	1.670.532	0,02
GASTRONOM S.A.	7	9.291.240	701.559	0,03
CNF GIURGIU NAV S.A.	7	7.854.485	-7.677.842	2,07
GRANITUL S.A.	7	8.217.065	-5.229.132	0,04
FAREX S.A.	5	3.646.265	-143.173	0,02
MOBEX S.A.	5	21.778.780	2.737.732	0,77
METAL LEMN S.A.	6	37.364.633	381.455	0,16
MECANOENERGETICA S.A	6	7.878.039	97.074	0,75
MACOFIL S.A.	6	13.656.278	38.253	1,14
LACTA S.A.	6	3.725.716	-328.219	1,06
PANTEX S.A.	3	22.268.293	-2.473.144	5,09
PALACE S.A.	7	3.736.652	78.870	0,23
MAT S.A.	6	100.988.197	88.230	0,11
MARTENS S.A.	6	15.964.337	-3.248.560	1,49
MAGAZIN UNIVERSAL MARAMURES S.A.	6	6.514.887	-63.890	1,01

In order to test the correlation between the coefficient of conformity and the independent variables, I determined the coefficient of conformity between the two variables:

$$R_{xy} = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2} \cdot \sqrt{\sum_{i=1}^n (y_i - \bar{y})^2}};$$

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n}; \bar{y} = \frac{\sum_{i=1}^n y_i}{n}, \text{ where :}$$

x = the coefficient of conformity, dependent variable;

y = the independent variable (total assets, gross profit, financial leverage);

n = number of companies.

**Testing assumption no. 1 “The coefficient of conformity is directly correlated to the size of the company”**

Following the calculations a coefficient of conformity was obtained:

$$R_{xy} = \frac{588.926.123,80}{10,10 \cdot 255.086.881,67} = \frac{588.926.123,80}{2.576.377.504,87} = 0,23$$

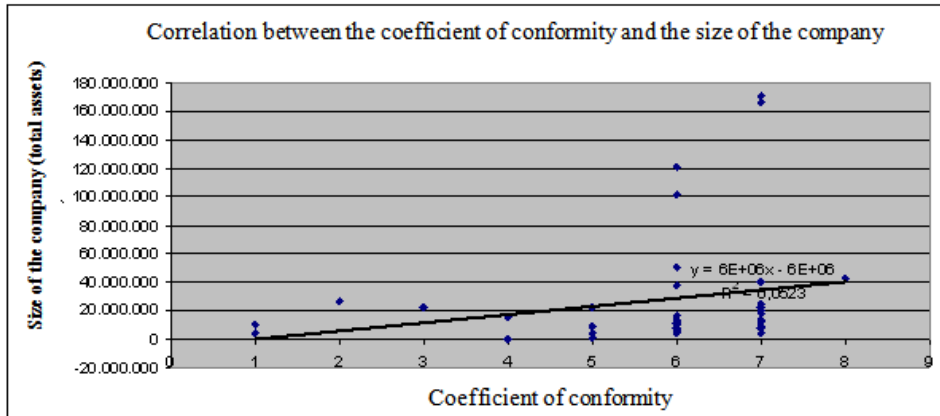


Figure no 1: Correlation between the coefficient of conformity and the size of the company

The coefficient of conformity has the value of 0.23, which means that the coefficients of conformity and company size are weakly correlated.

**Testing assumption no. 2 "The coefficient of conformity is directly correlated to the performance of the company"**

$$R_{xy} = \frac{-7.524.032,18}{10,10 \cdot 25.974.519,92} = \frac{-7.524.032,18}{262342651,19} = -0,03$$

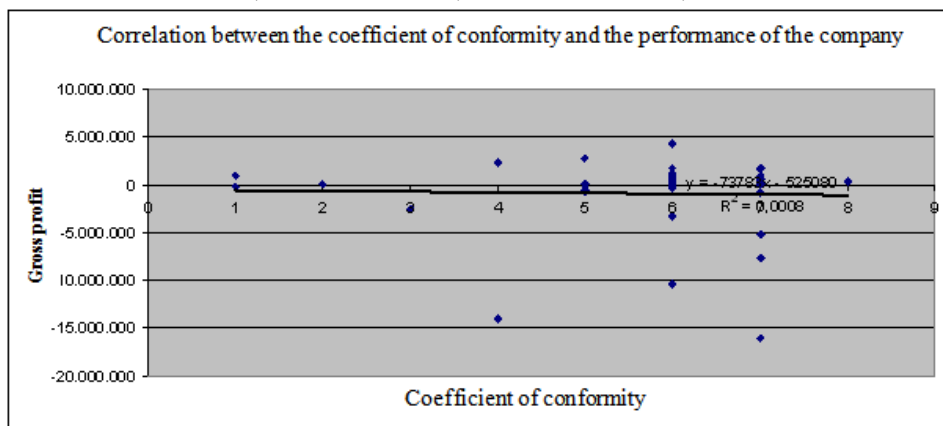


Figure no 2: Correlation between the coefficient of conformity and the performance of the company

**Testing assumption no. 3 "The coefficient of conformity is correlated to the financial leverage".**

$$R_{xy} = \frac{10,58}{10,10 \cdot 21,13} = \frac{10,58}{213,41} = 0,05$$

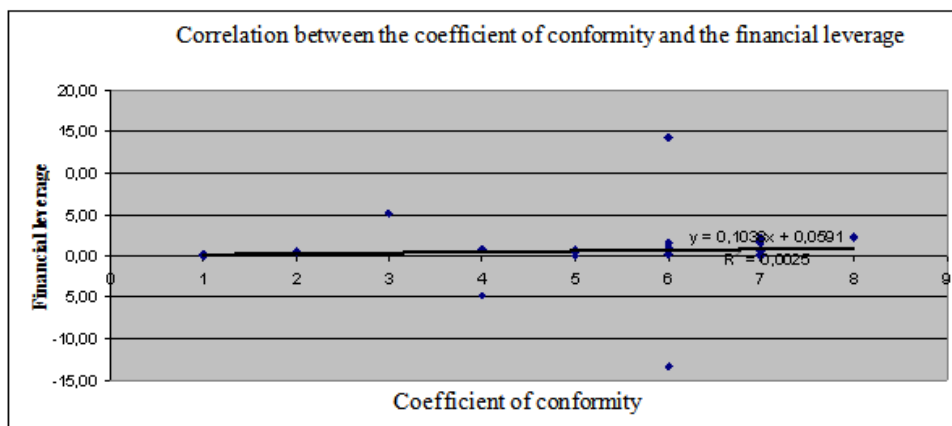


Figure no 3: Correlation between the coefficient of conformity and the financial leverage

The coefficient of conformity has the value of 0.05, therefore the coefficient of conformity and the financial leverage are not correlated.

#### 5. CONCLUSIONS AND LIMITATIONS OF THE RESEARCH

Following the research, none of the assumptions was confirmed. The compliance with the IAS 7 requirements does not depend on the size of the company, the performance of the company, or the financing structure quantified by the financial leverage. The limits of the study are given by the relatively short period (one year), by the low number of factors influencing the level of information of the companies in compliance with the international reference.

From the perspective of the future research, it is necessary to take into account other factors impacting the level of information disclosure, such as: the nature of the auditor, the branch of activity, the size of the capital market, etc. Moreover, the objective of a future research is to take into account all the information disclosure requirements in order to conduct a dynamic analysis of the conformity with the International Accounting Standards with the help of a multifactorial model.

#### Annex 1: Presentation and disclosure – IAS 7 “Cash Flow Statements”

The following should be disclosed:

1. Cash and cash equivalents in the cash flow statement and a reconciliation with the equivalent items in the balance sheet;
2. Details about non cash investing and financing transactions (for example, conversion of debt to equity);
3. Amount of cash and equivalents that are not available for use by the group;
4. Amount of undrawn borrowing facilities available for future operating activities and to settle capital commitments (indicating any restrictions);
5. Aggregate amount of cash flows from each of the three activities related to interest in joint ventures

6. Amount of cash flows arising from each of the three activities regarding each reported business and geographical segment;
7. Distinction between the cash flows that represent an increase in operating capacity and those that represent the maintenance of it;  
The following should be shown in aggregate in respect of both the purchase and sale of a subsidiary or business unit:
8. Total purchase or disposal consideration;
9. Purchase or disposal consideration paid in cash and equivalents;
10. Amount of cash and equivalents in the entity acquired or disposed;
11. Amount of assets and liabilities other than cash and equivalents in the entity acquired or disposed
12. Free cash flow available to owners
13. Discretionary free cash flow

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## POSSIBILITY OF IMPLEMENTING A MODERN SYSTEM OF REPORTING PERFORMANCE INDICATORS AT THE LEVEL OF TOURISM UNITS

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**Abstract:** Selection of appropriate measures to evaluate performance is a challenge for managers of tourism units. As shown, there is not currently universally a recognized method of measuring performance, but only a general concept that value creation, defining performance and that attempts to identify metrics as loyal and easier to calculate.

**JEL classification:** M41, M10

Key words: tourism, modern, indicators, performance, methods

### 1. INTRODUCTION

Classic indicators provide information on the historical performance of organizations, without taking into account the cost of capital, or the results of its use. As a result, plenty of organizations meet record notable performances, but that does not create value but destroy the existing one.

### 2. DISCUSSION

Performance modern indicators for analyzing tourism unit facilities can be constructed using methods based on value creation. Creating value is an objective of the organizations performance with synthetic valences of all activity.

Modern measurement indicators of economic performance perceived by the shareholders of the organization are classified by their origin criteria in four categories:

1. Measures of business performance consultancies promoted by Stern Stewart: economic value added (EVA) and market value added (MVA);
2. Indicator of performance measurement company promoted by Boston Consulting Group and HOLT Value Associates in Chicago: CFROI - Cash Flow Return on Investment;
3. Indicator of performance measurement company promoted by Accor: the rate of return on capital employed (ROCE - Return of Capital Employed);
4. Indicator of performance measurement company promoted by Applied Finance Group since 1995: economic margin (EM - Economic Margin).

**Economic value added (EVA)** is in our opinion the most representative indicator of the reflecting modern performance. Economic value added analysis at the level of tourism units is based on the following findings:

- economic value added is a measure of financial performance on which to determine whether the unit achieved higher real cost benefits of capital employed;

economic added value best reflects the true economic profit of unity obtained as the difference between operating profit and total expenses paid capital;

Since the main objective of any organization is to maximize the value of using economic value added as an indicator, this cannot be done directly, but by influencing the component this value, travel benefits, operating margin, income taxes, investment working capital, investment in fixed assets, weighted average cost of capital).

Briefly, it can show how development affects economic value added components:

**Table no. 1. EVA dynamics at the level of tourism units**

COMPONENT EVOLUTION	IMPACT ON A ELEMENT OF ECONOMIC VALUE ADDED	IMPACT ON ECONOMIC VALUE ADDED
- Increase in receivables	- Increased cost of capital	- Decrease in economic value added
- Appreciation obligations on short term	- Lower cost of capital	<i>-increase of economic value added</i>
- Increase sales	- Increase in net profit of exploitation	<i>-increase of economic value added</i>
- Upgrading equipment	- Increased cost of capital	- Decrease in economic value added
- Appreciation of investments ongoing	-	- Does not affect the economic value added
- Increased availability	- Increased cost of capital	- Decrease in economic value added
- Decrease in inventories	- Lower cost of capital	<i>-increase of economic value added</i>
- Lower costs	- Increase in net profit of exploitation	<i>-increase of economic value added</i>

Economic value added can be determined from the few items whose knowledge is essential for performance touring units. To that end I switched to the determination of this indicator at a hotel based on data:

**Table no. 2. Determination of EVA in the hotel**

Indicators (mii lei)	Period		Deviations	Indexes %
	2011	2012		
1. Operating result	168.930	263.440	+ 94.510	155,94
2. Tax	51.520	40.460	- 11.060	78,53
3. Net Operating Profit	117.410	222.980	+ 105.570	189,91

Indicators (mii lei)	Period		Deviations	Indexes %
	2011	2012		
4. Total capital	180.277	199.812	+ 19,535	110,83
5. Return on invested capital	6,51	11,16	+ 4,65	171,42
6. Equity	117.359	143.581	+26,22	122,27
- Share in equity%	65,1	71,85	+ 6,75	110,84
7. Return on Equity%	10	15,53	+ 5,53	155,3
8. Total debt	62.918	56.231	- 6.687	89,37
- Share in total capital%	34,9	28,15	- 6,75	80,66
9. Interest expense	876	1.381	+ 505	157,65
10. Interest rate%	1,39	2,45	+ 1,06	176,68
11. Weighted average cost	6,84	11,74	+ 4,89	171,47
12. Economic Value Added (EVA = (6 - 12) x 5	- 611	- 1.167	- 556	191

When performing the calculation of economic value added, on the one hand the goal is to find the best balance between accuracy and simplicity functional economic and secondly to define a scale for measuring value creation that can be understood by all users.

After determining this indicator we found that the advantages of economic value added to the hotel are:

- the unit is given more precise objectives;
- are established clear criteria for decisions;
- are set precise criteria for analysis of their duties;
- namely capital is allocated to business units.
- is taken into account the capital invested in all periods and can be used for performance measurement purposes and for investment related decisions, and in other cases the decision;
- seeking capital management throughout the life of the investment, beyond the initial cost of funds;
- allow an integrated approach emphasizing annual contribution which will be the basis for assessing the economic value added;
- disregard profits for investment in progress;
- to measure performance over a certain period of time;
- to calculate performance and periods of less than one year, this may help to make the intermediate corrections.

Economic value added gives a clear annual value added of the project, as long as the cost of capital is quantified and compared periodically throughout the investment, not only the beginning for the full amount but for the whole period.

Since the book value of invested capital, which it is registered, do not always reflect fair value, given that the absolute values are not always comparable, should take account of changes in economic value added, reflecting changes it from one period to another.

Change in economic value added is a relevant indicator for managers of

tourism units because:

- in evaluating opportunities, economic value added is a good sign;
- in setting goals, changes in economic value added indicates the best choice;
- when measuring results, changes in economic value added provides a comparable picture.

Since the present value of economic value added provides a more complete picture of the profitability of operations, not only on a global scale of a project, but in every moment of its life cycle, by adding regular amounts incurred up to that point, this makes it easy to change on the fly to further investment decision or off and adjust up or down according to conditions emerging in the process and could not be anticipated from the beginning.

One of the recognized merits of EVA is trying to measure the value of the organization. Since the objective of tourism facilities in recent years has been creating value, EVA can be considered a relevant indicator in this direction.

**Market value added (MVA)** measures the value newly created by the difference between the current market value of the unit and the unit's permanent capital at their fair value. This definition shows that the indicator serves as economic value added information interests of investors, who can then determine how management managed capital entrusted to.

Market value added is determined as the difference between the total market value of the unit, expressed as market value of equity and book value of debt and equity and debt.

So:

$$\text{MVA} = (\text{MVCpr} + \text{MVD}) - (\text{VCpr} + \text{VD}) = 205485 - 201517 = 3968$$

Where: MVCpr - market value of equity

MVD - Market value of debt

VCpr - at book value of equity

VD - at book value of debt

Market-based value added at the level of tourism units reflects:

- overall economic performance of the unit corresponding to one period;
- the difference between the market value of the unit and its capital is permanent;
- previous capital investment success and the success of the unit's anticipated future capital investments;

#### **Return on cash flows (CFROI)**

CFROI specific indicator of tourism unit activity is the internal rate of return on existing investment cash flows. Generally, in assessing the quality of investments, these cash flows must be reported to the capital cost.

CFROI calculation method at the level of tourism involves the use of four variables:

Gross capital invested (CBI) in existing assets. Gross value is determined by adjusting the residual value of the assets acquired by investment depreciation recorded up to that point and depreciation due to inflation;

Gross cash-flow (FNB). It is considered gross cash flow generated in the current year gross invested capital is calculated according to the formula:

$$\text{FNB} = \text{net operating result} + \text{depreciation} = 1825476 + 97546 = 1923022$$

normal life of existing assets (n) initial investment. It is usually expressed in years.

Residual value of assets (VR) at the end of normal life. The residual value is expressed in terms update and generally regarded as being a part of the initial capital invested.

Under this method, we define CFROI as the internal rate of return that makes the net present value of gross cash flow and residual value to be equal to the gross capital invested.

If the net present value is the basis for studying the economic value added indicator in terms of the concept of value, internal rate of return is based on the study of CFROI. When striving for the analysis of investment internal rate of return of a project is calculated using the initial investment and cash flows generated during the project life.

An internal rate of return above the cost of capital shows that tourism drives properly manage their assets. Conversely, if the IRR is less than the cost of capital, the owner should rather sell the asset to achieve its market value rather than continuing exploitation.

Thus, the tourism unit value depends on:

- CFROI appropriate existing assets;
- Speed and pace with which CFROI is reduced due to the action factor "depreciation".

Therefore, a tourism unit shall have the following methods to increase value:

- Increase CFROI related existing assets for a given level of gross capital invested;
- Decrease the speed with which CFROI is reduced by the action factor "depreciation";
- Decrease in the rate with which CFROI is reduced by the action factor "depreciation"

In conclusion, we can say that an increase in CFROI by itself does not indicate an increase in the value of the tourism unit, as this may increase the rate of return on cash flows have resulted due to lower economic growth and / or higher risk.

### **Return on capital employed (ROCE)**

Indicator of the rate of return on capital employed (ROCE engl. - Return of Capital Employed) is another way of measuring the performance of tour units.

Is determined using the following formula:

$$\text{ROCE} = \frac{\text{FNE}}{\text{Ci}} = \frac{67300}{123568} = 0.54$$

Where: FNE - operating cash flow, calculated as the difference between operating revenue and payments of operating activities, but - capital invested.

Depending on the need of information units travel managers consider to be useful and the following indicators:

### **Discount rate**

The discount rate is a tool used to convert future values into present values. The most important problem related to this is the estimate of the discount rate.

The fundamental rule underlying discount rate estimate could be summed up as follows:

"If current projections are expressed in local currency, inflation rate update is and if they are expressed in constant currency, the update is non-inflationary rate."

Choosing the rate is not random but is based on certain criteria. Usually, the discount rate consists of:

a) base rate, which corresponds to the risk-free investments. In general, it establishes the obligations of interest or a rate of return considered normal (ie, 12-15%);

b) risk premium, which is all the greater as economic instability is more pronounced.

Risk discount rate can be determined by adding the hotel at the current rate of a risk premium that is equal to a number between 1 and 6 percent, as follows:

$$\mathbf{Ra = in (1 + R) = 1563600 (1 + 0.5) = 2345400}$$

where: Ra = discount rate; R = first (rate) risk.

Under customary international risk premium R, take the following values

- 0.25 for low risk;
- 0.5 for average risk;
- 1.0 to less high risk;
- 1.5 for high risk
- 2.0 for high risk.

In terms of the estimated hazard ratio, we classify risks assumed by an investor as follows:

a) Investment risk - which remunerated by a risk premium that compensates following:

- Risk of bankruptcy, default for any business (risk of non-recovery of the full amount invested);

- Liquidity risk (the bank deposit or government bond can be recovered even before the deadline, losing only to gain the amount remains full);

b) Risk Sector - determined by a risk premium reflecting differences between sectors (in terms of investor) in respect of:

- typical structure of assets (affecting liquidity);
- rotation average equity (market value) and assets;
- The average lifetime collection / payment obligations.

c) national risk - expressed through a risk premium expected by investors who can alternative the destination (geographical) of the investment and includes:

- Contingency;
- Political risk;
- Economic risk.

d) Risk organization - is due to the company's specific situation (position indicators against industry averages, quality management, relations with the external environment) and the feasibility of scenarios developed under projections.

Estimation of risk components can lead to calculating the most appropriate discount rate.

Forecast period

Period for which projections are for a period of time is due to the decision making analysis.

Encountered in practice are the following:

- Indefinitely (in economic terms, this means the lifetime of the business, so 10-12 years);

- Limited unit;

- Limited period, divided into sub periods with different characteristics.

Factors that may influence the choice of the forecasting period are:

- Life cycle tourism unit (if it is during the development period will be higher, while for the period of maturity is shorter than expected);

- Availability of information;

- Estimated payback time.

If forecasts relate an infinite time horizon, consistent with segmentation method, we present:

- Close period (1-3 years) for which detailed forecasts flows in several different versions, and specifying different possibilities of realization;

- Intermediate period (2-5 years), resulting in the near extrapolated trend;

- Early period, for which there can be only rough estimates, based on the latest achievements of the interim period.

### **Return on investment (ROI)**

Return on investment (ROI) is a carrying amount of profit divided by book value of investments.

Return on investment is a plausible alternative measuring performance for two reasons: combines all the elements of profitability - revenue, costs and investments - in a single indicator expressed as a percentage and can be compared with the rate of return opportunities elsewhere, either within or outside tourism units.

Like any single indicator of performance, ROI should be used carefully, however, together with other indicators and is determined as follows:

**ROI = Return on commercial x rotation rate of the asset**

Or

$$\begin{aligned} \text{ROI} &= \frac{\text{profit}}{\text{number of tourism services performed}} \times \frac{\text{number of tourism services performed}}{\text{invested capital}} \\ &= \frac{1485524}{1256789} = 1.18 \end{aligned}$$

ROI is also called accounting rate of return or cumulative accounting rate of return. Managers often use the term "ROI" when assessing the performance of a division or subunit and the term "cumulative accounting rate of return" when an indicator of ROI is used to evaluate a project. Way profit is determined by the numerator and investment the denominator in calculating ROI varies from one unit to another. Some companies use operating profit in the numerator. others prefer to calculate ROI using net income (as is the case with our hotel). Some companies use total assets in the denominator, others prefer focus only on assets financed by long term debt using total assets minus current liabilities.

A tourism unit can increase ROI by increasing revenues or reducing costs (which increase the number in the numerator) or by reducing investments. Often, managers are tempted to pursue only profitable tourism benefits, and therefore merit of ROI is forcing managers to control investment, as expenditure control, revenue and sales volume. ROI brings together many aspects of accountability of managers in a single formula.

By controlling the ROI, managers can improve performance as follows: by increasing tourism benefits by reducing costs or by reducing assets. Each of these dimensions can have positive as well as negative medium and long term (eg, to reduce costs may prefer cheaper materials, but with worse quality).

### 3. CONCLUSIONS

Selection of appropriate measures to evaluate performance is a challenge for managers of tourism units.

As shown, there is not currently universally a recognized method of measuring performance, but only a general concept that value creation, defining performance and that attempts to identify metrics as loyal and easier to calculate.

It is generally accepted that the reprocessing methods of accounting information and the complexity of the approach is the weak point of many quantifying performance indicators modern tourism facilities as strict accuracy of the results depends on the number of restatements required by the creators indicators and assumptions it adopted. In this context we chose EVA indicator for the determination to be made in light key strengths contributing to the performance at the level of tourism units, but we also consider other modern indicators as a complement to the performance information provided by the indicator.

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## CHARACTERISTIC FEATURES OF THE MARKETING IN THE ACCOUNTING PROFESSION

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**Abstract:** We live in an environment which offers numerous options and alternatives, but, despite this, as customers, we often feel we do not have the necessary tools and information to make the best choice. Furthermore, the alternatives we opt for and the satisfaction we have as a consequence are determined to a great extent by the comparisons we make with our past experiences, expectations and current situation. At the other side of the spectrum, as suppliers, we need to catch the attention of the potential customer, both by means of the promotion methods used, as well as by the quality of the services/ products offered. From this perspective, the field of accounting holds a special place due to its characteristics, the promotion of services being made in accordance with a series of fundamental principles.

**JEL classification:** M41, M31

Key words: accounting profession; marketing in accounting; price of accounting services; CECCAR; choosing an accounting office

### 1. INTRODUCTION

It is to be noticed that the accounting profession distinguishes itself from other professions as a result of assuming the responsibility regarding the public interest. This involves the supply of high quality services by professional accountants, which should ensure the necessary information for decision-makers. At the same time, both the relationships that are established between professional accountants and their customers or employers, and the relationships between professional accountants themselves need to comply with a set of strict rules as regards the professional conduct. These rules are aimed at preserving or even improving the public image on the accounting profession, at preventing financial and accounting information leakages towards users who can negatively impact the public decisions.

According to the National Code of Ethics for Professional Accountants, advertising represents the delivery towards the public of information regarding the services offered or the qualification of the professional accountant, with a view to getting work to do. Likewise, the advertisement is defined as the delivery towards the public of facts regarding professional accountants. Assuming responsibility towards the public interest in this field also involves a series of

prohibitions concerning advertising and offers, the following being forbidden: advertising using comparison with other offices which impinges the latter in any way; offering discounts for fees; abusing a political mandate, mission or administrative position.

## 2. PROMOTING FINANCIAL AND ACCOUNTING SERVICES AND PROFESSIONAL DEONTOLOGY

The activity of promoting professional services is governed first of all by honesty and loyalty, which are also encompassed in the area of the deontology of the accounting profession, of the professional ethics. The Oxford Business Dictionary defines ethics as a “conduct considered to be good, fair and honorable, based on principles or indications in a specific ethical theory”. The notion of ethics is not limited to the activity effectively conducted within the profession, but also refers to what happens until the cooperation with potential customers begins. Professional bodies recommend their members to include the essential principles of the code in their contracts with customers, in order for the former to have knowledge of the conduct the latter expect from them.

According to the European directives in effect, depending on the specific features of each profession, a code of ethics needs to include both commercial ways of communication and rules regarding the conditions in which professional people operate. These are mainly aimed at guaranteeing independence, impartiality and professional secrets. The Code of Ethics issued by the International Ethics Standards Board for Accountants in 2013<sup>15</sup>, makes the following specifications regarding the marketing of professional services:

1. When the development of activities in the field requires the use of advertising or other forms of marketing in advance, problems may occur regarding the compliance with fundamental principles. For example, the services offered can be promoted in such a way as to conflict with the rules and code of ethics of the accounting profession.
2. Professional accountants must not bring their profession into disrepute when resorting to the promotion of the professional services offered.
3. Honesty and truth are fundamental values, the following aspects being forbidden:
  - Exaggerated statements regarding the services offered, the qualifications or experience in the field;
  - Comparative references meant to degrade or discredit others' activity.

It needs to be mentioned that advertising and offers are allowed only to the active members of the Body of Chartered and Certified Accountants in Romania. The professional accountant disposes of a series of promotion ways such as: publishing the identification data for the office in directories, catalogues and other similar materials; sending an offer to a potential customer directly or indirectly.

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<sup>15</sup> International Ethics Standards Board for Accountants - Handbook of the Code of Ethics for Professional Accountants, 2013 Edition, pag. 38

### 3. CHARACTERISTIC FEATURES OF THE FINANCIAL AND ACCOUNTING SERVICES IN ROMANIA

In continental Europe, normalization was ensured by bodies more or less independent from public power, as compared to England, where normalization was the result of the liberal accounting profession experience. Accounting is totally separated from taxation, and the influence of the accounting profession in the normalization process is paramount. It needs to be mentioned that the pragmatic spirit of the British laid its mark on the continent, too, through the introduction of the concept of loyal image, through offering a complement of information which invites account producers to transparency<sup>16</sup>. Drawing a parallel with the situation in Romania, we notice that taxation holds an important place, but it also needs a long period of time. Thus, in Romania, we can state that professional accountants work first of all for the Tax Administration, the economic agent holding a secondary place. There are a lot of statements to be filled in, many times with close deadlines, even between one and three months, the accounting office having the responsibility to ensure the protection of the economic agent in front of the fiscal authority. The latter generally tends to interpret the law to the economic agent's detriment. The professional accountant must ensure a correct calculation of taxes, must be informed about the legislative news in the field and must have the necessary preparation to put forward fiscal arguments when control bodies want to interpret the company's fiscal statements in an exaggerated way, to the latter's disadvantage. Thus, one can certainly say that taxation dominates accounting, the amount and structure of taxes representing one of the main problems of the managers who await solutions from professional accountants. As of 1<sup>st</sup> May 2008, the Ministry of Economy and Finance has offered tax-payers the possibility to file a series of fiscal statements electronically, thus avoiding a part of the red tape involved by the classic procedure. At the same time, this triggers discipline in the relationship between the company and the accounting office.

Another characteristic feature of the field of accounting in Romania, which also has an impact on the marketing of these services, is represented by the dynamics of legislative changes. In this respect, the accounting office should have a precise procedure for providing the information which is connected both to legislative changes, and to the financial and accounting situation of the economic agent in as accessible a way as possible and in a user-friendly form. The main purpose is to help him/ her in the management of the company with such aspects as: provide early warning regarding the value of the VAT, of the profit tax, possible losses etc. This kind of information can be provided under the form of tables, graphs, which should summarize the evolution of expenses and revenues in general, possible extreme aspects, key-points which could impinge on the activity of the economic agent and which are revealed by the statements devised by the accounting office.

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<sup>16</sup> Tabără, Neculai; Horomnea, Emil; Mircea, Mirela-Cristina - "Contabilitate internațională", Editura Tipo Molvoda, Iași, 2010

Among other particular features, we mention the drawing up of very many documents, including the issuing of invoices, details regarding the value of materials, assets, stocks. Furthermore, as a result of the strong development of the accounting profession, which has gained a lot of attributes, at present, good accountants are able to offer services both from his area of expertise and from other fields, such as the legal and the human resources ones.

The most important categories of information managers are interested in in their current activity and which is offered by professional accountants are the following:

1. Fiscal information:
  - a. Budgetary bonds (taxes and duties);
  - b. Fiscal facilities;
2. Expenses, revenues, the profit and loss of the activity, respectively;
3. The company's debts in the relationship with third parties (banks, suppliers etc.);
  - a. how large they are;
  - b. the reimbursement deadline.

In addition, managers want that the financial and accounting information is:

- presented in due time, and in real time if possible;
- presented in accessible formats even for those who do not have economic knowledge.



Figure no. 1 Categories of information and their quality for managers

In order to attract more customers, certain accounting offices have adopted the strategy to accept lower fees at the beginning and then double or triple them, although the customer's activity does not increase significantly. In the same rush for customers, certain companies accept lower fees, offering services directly proportional with the money required. Given the increasing number of chartered accountants and of the companies in the field, accepting low fees without offering complete quality services fosters the chance to discover these aspects as a result of the controls performed by fiscal bodies, when filing

documents for accessing a credit etc. The Body registered 20094 active members in 2012, as published in the Official Gazette of Romania.

In 2009, CECCAR attempted to introduce a regulation on the discipline of fees, compensations and criteria for paying back expenses for the professional services of chartered and certified accountants, and on the approval of the Professional fee, regulated at the time by Decision no. 144/12.01.2009. This clearly stipulated the fees which were to be required by professional accountants, according to the economic agent's turnover, amount of labor, gross value of accounts in the balance (except for adjusting entries), surveys, appraisals, opinions, censoring activities, management and mitigation missions, corporate operations, economic and financial consultancy etc. Despite this, in 2010, The Competition Council issued Decision no.47/02.11.2010, by means of which the Body of Chartered and Certified Accountants in Romania is penalized for having set specific fees. The measure which was taken consisted in applying a fine of 4.056.264 lei, representing 9.2% of the total revenues of CECCAR in 2009, and in repealing this regulation. The Decision of the Competition Council was largely promoted at the time of its adoption, ignoring the defense formulated by CECCAR.

#### 4. ASPECTS REGARDING THE DEMAND AND SUPPLY OF FINANCIAL AND ACCOUNTING SERVICES IN OUR COUNTRY

When starting or developing a business, it is natural to ask which accounting method is best. When the economic agent hires an accountant, the control is permanent, the information being provided in real time. On the other hand, resorting to an accounting office, costs are reduced, time is saved and the staff is qualified and well prepared. Confidentiality represents an aspect which needs to be ensured in both cases. Hired accountants know the data on the business performance best. The accounting office has the responsibility to conclude professional liability insurance, whereas in the other case, the manager is liable for the possible irregularities discovered and is liable to pay fines. Despite all this, regardless of the variant chosen, there should be a win-win situation. The economic agent wants a reliable partner and advisor, the ability to communicate being essential for a long term and appropriate relationship.

In order to identify some benchmarks for choosing accounting methods, as well as the price of these services in Romania, a research study was conducted in the period 03 July – 25 September 2013 starting from the questionnaire below. The research was performed on 163 respondents in Romania, the target population being represented by company managers or decision-making people within companies. In what follows we present the main questions which had to be answered:

1. In your company:
  - a. the accounting service is outsourced
  - b. there is a distinct department which manages all the accounting and financial activities
2. Which is the main reason why you have chosen this variant?
  - a. Reduced costs

- b. The close control over the financial and accounting department
  - c. The lack of confidence in accounting companies
  - d. Expertise, experience, qualifications and professionalism
  - e. To save time
  - f. The responsibility involved
  - g. The certainty of confidentiality
  - h. The quality and diversity of services
3. Are you pleased with the present way of organizing accounting in your company?
- a. Yes
  - b. No
4. Which is the sum of money which you are ready to pay to a company specialized in accounting?
- a. under 200 lei
  - b. between 200 – 400 lei
  - c. over 400 lei
5. How easy do you think you can find an accounting company you completely trust, on a scale from 1 (very easy) to 5 (very difficult)?
6. Which do you think are the most important criteria when choosing an accounting company, on a scale from 1 to 3, 1 being the least important, and 3 the most important criterion:
- a. Recommendations
  - b. The customer portfolio
  - c. The cost of such a service.
7. Please specify the turnover range for your company, as an average for the last three years, as follows:
- a. less than 50.000 lei
  - b. between 50.001 and 150.000 lei
  - c. between 150.001 and 300.000 lei
  - d. over 300.001 lei

The conclusions of the study were the following:

- 1. 71% of the companies outsourced the accounting service;
- 2. in 44% of the cases, the reason for choosing the accounting method was determined by the quality and diversity of services, 29% referred to the reduced costs and 13% to the responsibility involved;
- 3. 82% are pleased with the current situation;
- 4. 43% of the respondents are ready to pay under 200 lei to a company specialized in accounting, 31% between 200 – 400 lei, and 26% would pay over 400 lei;
- 5. most of the respondents (64%) consider finding an accounting company which they entirely trust a medium-difficulty task;
- 6. following the aforementioned answer, most of the respondents stated that the most important criterion when choosing an accounting company is represented by recommendations (69%), followed by costs (21%) and the customers' portfolio (10%). The graphic representation of these values can be found below;

7. 18% of the respondents have an average turnover for the last three years below 50.000 lei, 29% between 50.001 and 150.000 lei, 32% between 150.001 and 300.000 lei, 21% over 300.001 lei.

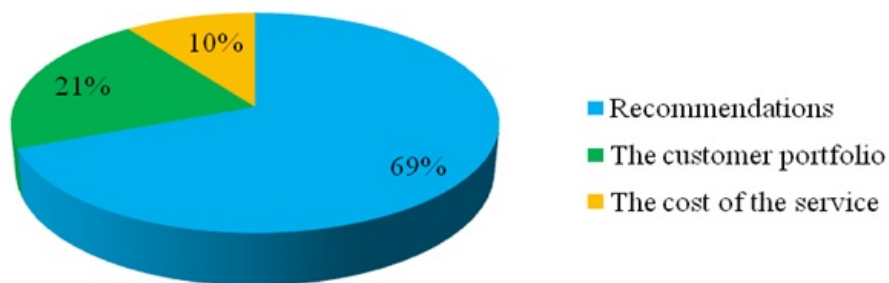


Figure no. 2 Main criteria for choosing an accounting company

Out of the accounting services the specialized offices generally offer, we mention: keeping the books; drawing up and certifying financial statements; the conversion of financial situations in compliance with IFRS or other reporting criteria; accounting expertise; financial and accounting consultancy. For some of these, economic agents are ready to pay additional sums to the fee practiced by the accounting office. Generally, the prices corresponding to accounting services are set according to a series of factors, such as: the amount of accounting documents, the way the company is organized, the number of employees etc.

The Porter's Generic Strategies state that there are two great axes companies should guide towards in order to be sustainable: cost strategy or differentiation strategy, depending on a series of factors, such as industry, the resources used etc. In the case of accounting services, given that the market is covered and, generally speaking, competition represents a source for enhancing the market share, it is preferable to adopt a differentiation strategy.

According to a recent study, several companies from Central and East Europe choose outsourcing to the detriment of internal processing. The market of salary outsourcing saw an increase of 15% in 2013, thus reaching 170.000 processed employees, as compared to 150.000 in 2012. Over the last five years, the increase has been of 110%, according to one of the main outsourcing and business consultancy companies in Central and East European zone<sup>17</sup>. According to the same source, the trend will continue to increase this year by 10-15%, the main reasons being represented by the confidentiality of the salaries offered within the company, cost reductions, as well as by the necessity for consultancy services, which have the potential to add value in the field. As compared to the states in Western Europe, the salary outsourcing market from Romania still has room for increase, as well as the potential to shortlist those suppliers who constantly offer high quality services.

In the field of accounting, there are many specialized companies which also operate in our country, known under the name of "The Big Four", i.e.

<sup>17</sup> Sursa: firma Accace



KPMG, PriceWaterhouseCoopers, Ernst & Young and Deloitte. They have worldwide reputations and are in direct competition, having many of the great corporations in their portfolio.

#### 5. ONLINE MARKETING AND FINANCIAL AND ACCOUNTING SERVICES CONCLUSIONS

At present, the concern for promoting online services registers quite a low level on the financial and accounting services market for in our country. The marketing research conducted revealed the fact that many companies which operate in the financial and accounting field rely on the fame they have obtained and to a lesser extent or even not at all on the principles and methods for promoting interactive marketing.

In August 2012, the first portal to gather both the offer and the demand for financial and accounting services was launched. Its aim was to gather a percentage of 25% of all experts in accounting companies and the self-employed people nationwide. In addition, the target as regards unique demands of accounting services is 25 per day. The portal offers simple and tested methods for finding accounting companies or customers, the information being placed on the same level, thus representing a new service in Romania. The idea is based on similar portals in western countries and not only. As service suppliers, on a fee which is part of an annual subscription, they offer the possibility to promote services, change the advertisement and access to the latest articles and news in economics free of charge. When asking for services, one should know that he/she has free access to the portal and the possibility to manage the advertisement, consult data bases as regards the offer, articles and news in the economic field. Thus, for professional accountants, the portal represents the opportunity to enhance the customer portfolio.

Taking into account the progress and benefits offered by information technology, companies which offer financial and accounting services will consider more and more online advantages, web sites and other tools specific to online marketing, and to Internet marketing generally.

#### 6. CONCLUSIONS

The activity performed by professional accountants, including the marketing one, needs to be in accordance with the values and obligations stipulated in the mission statement of the Body: "Science, Independence, Morality".

At the end of the previous year, figures showed that the accounting, consultancy and auditing market increased by 5%, in comparison with 2011, the first 300 companies in the field registering a total turnover of approximately 206 million euros<sup>18</sup>.

Although, according to Coface, at the end of June 2013, 12.739 companies were situated at different stages of the insolvency procedure, 10% fewer as compared to the same period of the previous year, it is obvious that we

<sup>18</sup> <http://www.9am.ro/stiri-revista-presei/Business/234489/piata-de-contabilitate-consultanta-si-audit-in-urcare-cu-5-anul-trecut.html>

are living in a dynamic environment and, on the one hand, there are companies which close and, on the other hand, some new ones start up. Regardless of the size of the companies and of their juridical form – limited liability companies, joint-stock companies, self-employed people - the financial and accounting elements require the collaboration with an accounting company or the organization of a financial and accounting department within the company. Here comes the dilemma of the entrepreneurs, who can choose out of a wide range of accounting services offered by specialists in the field, irrespective of the variant they choose.

According to the Annual Report 2012, CECCAR supports the enhancement of the accounting information transparency and quality in the public and private sectors. This can be achieved by adopting a high quality normative framework, adapted to the needs of the business environment in Romania, given the proactivity of the stakeholders and the promotion of the ethical values of the accounting profession.

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## NATIONAL INNOVATION SYSTEM IN MACEDONIA: A CRITICAL REVIEW

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**Abstract:** After a period of radical economic and political reforms, Macedonia makes certain efforts to consolidate the economic processes and provide a more dynamic economic growth. This is an approach that includes new strategic directions and sets an ambitious target for the country to achieve higher level of convergence with the processes of developed countries. Given that development of the science, technology and innovation (STI) are considered driving forces of the economic progress, Macedonia strives to respect such trends and incorporate them into different policies and strategies. The new strategic framework provides for developing a stimulating environment and conditions as regards the STI. Hence, this paper is to offer a critical review of the current processes in this domain. SWOT analysis is therefore going to be implemented so as to present the strengths, weaknesses, but also the opportunities and threats of the innovation system.

**JEL classification:** O30, O31

Key words: National Innovation System, Technological development, R&D

### 1. INTRODUCTION

The transformation into a market economy was a relatively heavy process for the Republic of Macedonia, followed by periods of recession and high inflation during the nineties, but nearly few years without foreign investment, as well. The stability has improved while the country experienced steady growth rates long afterwards. Yet, “with an unemployment rate of 32.2% in 2009 (World Bank, 2011a), and although participation in the informal economy may lead the Labor Force Survey (LFS) to overestimate this ratio, the former Yugoslav Republic of Macedonia is one of the SEE economies where unemployment is the highest”<sup>19</sup>. All the above problems entail a relatively low GDP per capita in the Republic of Macedonia (4552 US\$ in 2010). In

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<sup>19</sup> OECD, The Former Yugoslav Republic of Macedonia: review of the national innovation system, p.16, [http://www.pintoconsulting.de/eng/wp-content/uploads/2013/02/macedonia\\_national\\_innovation\\_system\\_2011.pdf](http://www.pintoconsulting.de/eng/wp-content/uploads/2013/02/macedonia_national_innovation_system_2011.pdf).

comparison, it is below some of the Western Balkan countries and almost the same with Bosnia and Herzegovina and Albania which are considered one of the poorest economies in Europe. Additionally, the country's growth prospects are quite limited by the lack of competitiveness if compared with the rest of the South East Europe. In other words, "in 2008, GDP per person employed in the Former Yugoslav Republic of Macedonia represented 79% of the SEE average and only 59% of the EU average (Eurostat, 2010). This indicator of global productivity of the economy grew by 1.1% between 2005 and 2008, the lowest growth rate observed in SEE economies where data are available"<sup>20</sup>.

The country is relatively open to trade, dependent upon the international economic flows, but also sensitive to external shocks. Thus, the industrial production and exports decline has mirrored the impact of the recent financial crisis on the real economy. Generally, exports and imports have exhibited dynamic movements over the past years, with the former being constantly outperformed by the latter (the exports have increased from \$1.3 billion to \$4 billion, while imports rose from \$2.1 billion to \$6.5 billion in 2000 and 2012, respectively). In addition, the country has relatively modest performance as regards the foreign direct investment (FDI) inflows. They were very low in the early years of independence. The FDI inflows have increased afterwards due to the process of privatization and acquisition of some companies and banks by foreign investors.

Nowadays, the key challenge and main strategic priority of the country is the possibility to overcome certain weaknesses and boost the economic growth. In this context, the crucial prerequisite for the Republic of Macedonia is the necessity to effectively adapt and respect the general global trends so as to improve the economic performance and competitiveness.

The world economy is moving towards a new paradigm – the knowledge-based economy, whereby the national competitiveness and economic development are defined by the innovation capabilities, scientific and technological development. The Knowledge Society and the Knowledge Economy place cognitive resources at the center of human activity and social dynamics. In such an environment, innovation can be generated from the synergies amongst opportunities, capacities, resources and incentives.<sup>21</sup> Innovation, which involves both the creation and diffusion of products, processes and methods, is a critical part of creating new sources of growth, as it provides the foundation for new industries, businesses and jobs.<sup>22</sup>

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<sup>20</sup> OECD, The Former Yugoslav Republic of Macedonia: review of the national innovation system, p.17, [http://www.pintoconsulting.de/eng/wp-content/uploads/2013/02/macedonia\\_national\\_innovation\\_system\\_2011.pdf](http://www.pintoconsulting.de/eng/wp-content/uploads/2013/02/macedonia_national_innovation_system_2011.pdf)

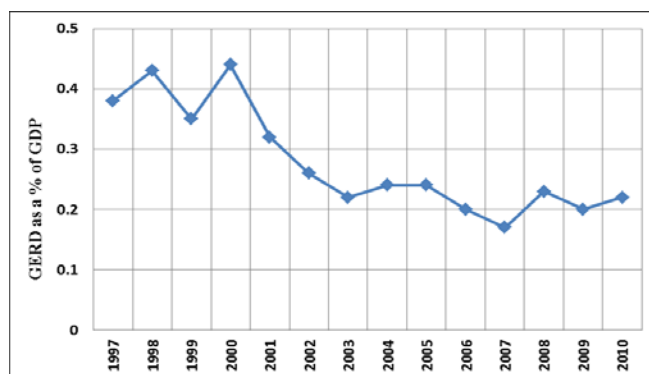
<sup>21</sup> V. Lynn Meek, Ulrich Teichler, Mary-Louise Kearney (Editors), Higher Education, Research and Innovation: Changing Dynamics, Report on the UNESCO Forum on Higher Education, Research and Knowledge 2001-2009, International Centre for Higher Education Research Kassel (INCHER-Kassel), Kassel, 2009

<sup>22</sup> Ministerial Report on the OECD Innovation Strategy: Fostering Innovation to Strengthen Growth and Address Global and Social Challenges –Executive Summary, Internal document, OECD, Paris, 2010

Such global trends make challenge for the Republic of Macedonia to provide a more dynamic development of the science, technology and innovation.

## 2. RECENT CHANGES IN THE NATIONAL INNOVATION SYSTEM

The past two decades do not point towards the country's improvements in the level of convergence with the global changes in STI. Thus, the R&D activity records an adverse movement i.e., the R&D expenditures as a percentage of GDP move downwards from 0.44% to 0.22% in 2000 and 2010, respectively (Figure 1).



Source: UNESCO - UIS 2013 & State Statistical Office of the Republic of Macedonia

Figure no. 1 GERD as a percentage of GDP

The research activities are principally concentrated in the public higher education institutions and research institutes. The business sector has a minor importance in this domain which is confirmed by the fact that it engages just about 1.5% of the total number of researchers unlike the 75.5% being employed in the higher education. Such a situation implies unfavorable effects for the business innovation performance. The empirical research clearly indicates that a large share of R&D employees associates with innovation, especially for the manufactures.<sup>23</sup> In fact, the poor innovation performance of the Macedonia's business sector is the reflection of the extremely low BERD to GDP ratio (BERD as a percentage of GDP decreased from 0.065 in 2008 to 0.025 in 2010)<sup>24</sup>. Likewise, there is an insufficient research collaboration between industry and academia and, where existent, it is usually based upon the individual initiatives and contracts.

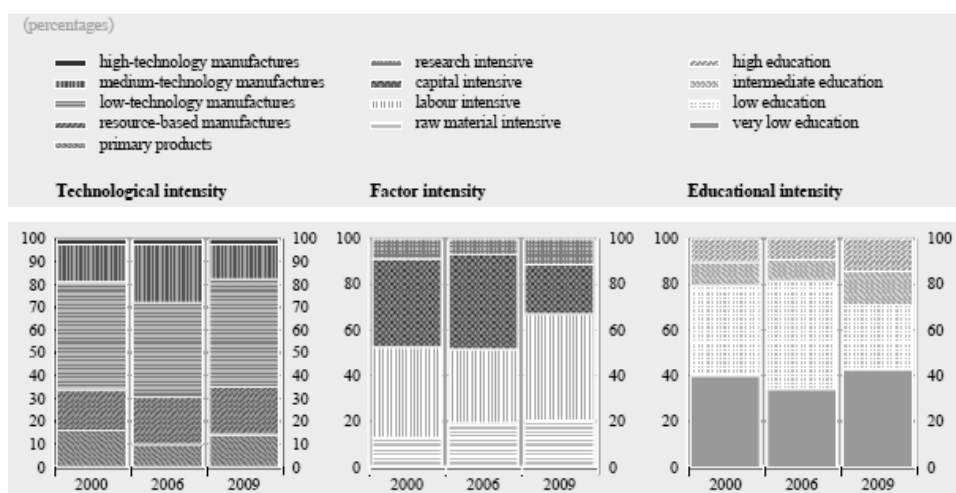
Besides the R&D activities, the national innovative capacity is also affected by the international trade and foreign direct investment (FDI). The openness of national markets strengthens the competitive pressure and implies the necessity for an appropriate response by improving the total factor

<sup>23</sup> Abreu, V. Grinevich, M. Kitson and M. Savona, Absorptive Capacity and Regional Patterns of Innovation Centre for Business Research (CBR), University of Cambridge, 2006

<sup>24</sup> Sasho Josimovski, Erawatch Country Reports 2012: The Former Yugoslav Republic of Macedonia, JRC Scientific and Policy Reports, 2013, <http://ipts.jrc.ec.europa.eu>

productivity and the business innovative performance. Likewise, the trade allows an access to foreign technologies and leads economies to specialize in sectors which have a comparative advantage and can therefore foster the welfare-enhancing restructuring of countries' production and innovation structures.<sup>25</sup>

In this context, it is noteworthy to mention that the process of transition to a market economy did not call forth any important shifts for the Republic of Macedonia towards developing the sectors distinguished by higher technological intensity and innovation. The complexity of exports is considered especially important for a certain country to possibly increase its export flows. Yet, despite the trade restructuring efforts of the EU candidate countries, the analysis based upon three different classifications of the export structure (factor intensity, technological intensity and educational intensity) indicates that majority of their exports are still composed of resource-intensive sectors and unskilled labor.<sup>26</sup> This is certainly the case for Macedonia exports with the prevailing share of labor- and resource-intensive products, unlike the medium and high-technology which records merely 1% of totals. However, Macedonia "experienced some improvements towards medium-technology and capital-intensive products during the pre-crisis period. This trend appears to have reversed in 2009"<sup>27</sup>. (Figure 2).



Source: <http://www.ecb.europa.eu/pub/pdf/scpops/ecbocp141.pdf>, p. 26

Figure no. 2 Complexity of merchandise exports

As regards the FDI inflows, estimates suggest that, in most cases, the FDI impact in terms of linkages is relatively weak. They have a very low expression in the greenfield investment since those companies, generally, import most of their inputs, while at the same time, their efforts are concentrated on

<sup>25</sup> Innovation for development, A discussion of the issues and an overview of work of the OECD Directorate for science, technology and industry, OECD, Paris, 2012

<sup>26</sup> Orszaghova, L., Savelin, L., Schudel, W., "External competitiveness of EU candidate countries", occasional paper series, 2013, No. 141, p. 28

<sup>27</sup> Ibid

exports. The linkages are more visible in acquired companies whereby those with domestic suppliers are maintained and upgraded, at the same time. When it comes to technology transfer (both physical and intangible transfer), one may notice that some of the affiliates introduce an advanced technology in the Republic of Macedonia (importation from their parent companies). But, “due to the missing linkages, the technology transfer remains within the mother company-affiliate framework and does not benefit domestic suppliers”<sup>28</sup>.

In this context, the competitiveness report published by the World Economic Forum indicates no signs of progress in innovation for the Republic of Macedonia. Even more, its position is becoming worse in the past five years. The rankings that include progress in innovation (12th pillar of competitiveness according to the World Economic Forum’s methodology) point to certain deterioration of the country’s position in 2012/13 compared to 2009/10.<sup>29</sup> (Table 1).

**Table no. 1 Macedonia rank, Global Competitiveness Index (12th pillar: innovation)**

	2008/09	2009/10	2010/11	2011/12	2012/13
<b>pillar: Innovation</b>	<b>99</b>	<b>92</b>	<b>97</b>	<b>105</b>	<b>110</b>
01 Capacity for innovation	83	86	87	86	99
02 Quality of scientific research institutions	95	90	71	86	100
03 Company spending on R&D	98	114	111	109	123
04 University-industry collaboration in R&D	89	78	74	92	105
05 Gov’t procurement of advanced tech products	111	106	110	110	102
06 Availability of scientists and engineers	70	81	95	114	106
07 Utility patents granted/million pop	88	61	90	90	59

*Source: WEF, the Global Competitiveness Report, different years*

### 3. CERTAIN ASPECTS OF THE ABSORPTIVE CAPACITY

The absorptive capacity includes the ability of the companies “to recognize the value of new, external information, assimilate it, and apply it to commercial ends”<sup>30</sup>. Likewise, Cohen and Levinthal underline the “complex nature of the sources and processes that characterize any innovative process, which means that the complementarity of innovation manifests itself in various ways between the internal and external knowledge of the firm, between the absorptive capacity of individuals and organizations, and between internal and

<sup>28</sup> UNCTAD, “Investment policy review: The Former Yugoslav Republic of Macedonia”, United Nations, New York and Geneva, 2012, p. 21

<sup>29</sup> World Economic Forum, The Global Competitiveness Report, different years, <http://www.weforum.org/reports>

<sup>30</sup> Wesley M. Cohen, Daniel A. Levinthal, Absorptive Capacity: A New Perspective on Learning and Innovation, Administrative Science Quarterly, 1990, Vol. 35, No. 1, Special Issue: Technology, Organizations, and Innovation



external R&D”<sup>31</sup>. Additionally, Zahra and George emphasize that the absorptive capacity comprise the “knowledge acquisition, assimilation, transformation, and exploitation”<sup>32</sup>, whereas knowledge acquisition and assimilation stands for a potential absorptive capacity, while transformation and exploitation is to represent a realized absorptive capacity. Yet, the ability of the Macedonian companies to generate their own innovation or to adopt, transform and implement the knowledge from external sources is fairly limited. SMEs have a dominant role in the economy comprising 99% of the total number of companies. Generally, most of them do not have financial resources either to complete their own R&D activities, or to purchase advanced technologies. Innovation is not a result of the systematic activities for majority of SMEs; instead, it is an outcome of the rare and occasional initiatives arising from the internal processes on one side, but also the interactions with clients and suppliers, on the other.

Another limiting factor for developing the innovation capabilities is the low level of technological cooperation among the companies within the national economy, as well as with the other countries. Such a situation limits in particular the possibilities for making the most of benefits from the technology learning process. Likewise, there is no practice for establishing technology alliances among firms, while the technology transfer is relatively modest. Additionally, the industry-academia linkages and collaboration are relatively weak. It is therefore considered one of the major reasons for the modest and limited flow of knowledge. The lack of research facilities, insufficient and inadequate financing, as well as the weak infrastructure are just few of the limiting factors for the capacities of the companies and research institutes to absorb and implement the technological information. The lack of skills in the field of innovation management should be added, as well. The use of new management techniques positively associates with the increased innovation activity.<sup>33</sup> However, the management of the Macedonian companies still does not recognize the importance of innovation in creating and maintaining the competitive advantage, or it is not well-equipped for the possibility to develop an innovation stimulating environment, as well as to follow, accept and apply the new knowledge.

Strengthening the absorptive capacity certainly requires the necessity to implement “distributed model of innovation” which is based upon developing the innovative skills of all the human resource engaged in the company’s activity. In other words, “... innovation is much more distributed in the systemic model - basically all levels of skill are important and a sound basic education is the foundation upon which all adaptable, innovation-related skills are based”<sup>34</sup>. The

<sup>31</sup> Verònica Gombau, Agustí Segarra, Innovation and absorptive capacity: What is the role of technological frontier?, Departament d’Economia, Universitat Rovira i Virgili, 2011, [www.fcee.urv.es/departaments/economia/public\\_html/index.html](http://www.fcee.urv.es/departaments/economia/public_html/index.html)

<sup>32</sup> Zahra, S.A., & G. George, Absorptive capacity: a review, reconceptualization, and extension. *Academy of Management Review*, 2002, 27(2)

<sup>33</sup> Abreu, V. Grinevich, M. Kitson and M. Savona, Absorptive Capacity and Regional Patterns of Innovation Centre for Business Research (CBR), University of Cambridge, 2006

<sup>34</sup> Tether, B.S., Mina, A., Consoli, D. & Gagliardi, D., A literature review on skills and innovation: how does successful innovation impact on the demand for skills and how do skills drive

Macedonia's higher education restructuring according to Bologna concept has implied a certain modification of the curricula and the introduction of courses related to entrepreneurship, innovation, information technology, etc. During the last decade, one may also notice an accelerating trend towards improving the level of human resource education, especially reflected in the growing number of persons completing the tertiary education. In the period 2006-2010, the number of 30-34 year olds holding a university degree has increased from 11.6% to 19.1%. Yet, the Republic of Macedonia significantly lags behind the EU which reports 34% and 36% in 2010 and 2012, respectively. Besides, the structure of graduates is not well-matched to the necessity for developing the innovation-driven economy. In fact, more than two thirds are in the field of social sciences and humanities, unlike the limited presence of natural and technical sciences. Finally, the unfavorable economic condition and the high level of unemployment (31% in 2012) have stipulated an increased outflow of highly skilled labor abroad. The evidence suggests that 29% of the highly educated people have left the country over the past 20 years, while 85% of the final year students are seeing their future outside the country. In the efforts to cope with such tendency, the Ministry of education and science has drafted a national strategy to reduce the outflow of the highly educated staff, networking and collaboration 2013-2020.

#### 4. POLICY VERSUS REALITY

During the past few years, particularly after 2009, the importance of innovation for economic growth has been increasingly emphasized within the country. This is also the background for the activities of the Government which takes a proactive approach in promoting the science, technological development and innovation. It is therefore supported by a number of strategic documents and programs adopted by the institutions responsible for boosting the development of the national innovation system. The National innovation strategy for the Republic of Macedonia (adopted in 2012) lays out directions for the innovation development over the period 2012-2020. Thus, the prospective activities are going to target several domains highlighted within the strategy, such as: a) strengthening the propensity of firms to innovate; b) strengthening human resource for innovation; c) creating a regulatory environment to support innovation; d) increasing the flow of knowledge and interactions among the major actors in innovation. The new strategic framework is supposed to encourage the policies that will provide for efficient mobilization of the resources available and setting up partnerships and links among all the relevant stakeholders so as to proper implement the concept of innovation. Additionally, the other strategic documents emphasize the importance of innovation and technological development, but also define guidelines for their improvement (National strategy for the development of electronic communications with information technologies; National strategy for information society development and action plan; The National Strategy for e-Government 2010-2012; National

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innovation?, CRIC report for the Department of Trade and Industry, ESRC Centre for Research on Innovation and Competition, University of Manchester, 2005

Strategy for Sustainable Development in the Republic of Macedonia (2009-2030); Strategy for using renewable energy sources; Industrial Policy of the Republic of Macedonia 2009 – 2020; The National SME development strategy; Innovation Strategy of the Republic of Macedonia (2012-2020); Strategy for Intellectual Property of the Republic of Macedonia). The new strategic framework has implied an accelerated change and certain adaptation of the legislation so as to create a favorable environment for its achievement.

In order to implement the new strategic goals, the Government envisages introducing the Innovation and Technological Development Fund in 2013, aimed at: a) providing technical support and consulting services for the existing and newly established firms to increase the investment in innovation; b) financing and co-financing the researchers and innovation projects of the firms; c) commercialization of the knowledge and science throughout the establishment the university spin-off companies.

“Over recent decades there has been a trend towards “decontextualized” convergence of innovation discourses (both academic and policy) whereby catching-up economies are increasingly designing innovation policies in the context of theories and concepts derived from the developed economies”<sup>35</sup>. In principle, the Republic of Macedonia follows the practice of the other catching-up countries while designing its innovation policies. The measures incorporated into the new innovation policies are wide-ranged and quite diverse, but implementation resources are fairly limited and modest. Thus, the achievements of the expected effects are rather uncertain. The majority of analyses about the current trends in this domain indicate that “there is a “flood” of strategic documents, manly copy of EU strategies which never come to realization. There is a lack of strategic visions and plans based on analytical studies, existing competences and technology foresight exercise or assessments.”<sup>36</sup>

Several ministries have a dominant role in innovation governance by releasing a number of strategies, documents and programs to stimulate the innovation and technological development. Such an innovation system created according to the “top-down” model is highly centralized and does not allow for the innovation processes to be driven by the market forces and interactions among the innovation stakeholders. Additionally, more than evident is the fragmentation of innovation policies, the lack of effective coordination among the institutions within the national innovation system, as well as the insufficient resources to implement the measures of innovation policy.<sup>37</sup> In other words, there is no coherence in innovation policy primarily due to the incompatible activities of individual ministries having the major responsibilities in this domain. The programmes of the Ministry of Economy incorporate a number of measures to improve the innovation of industry, support the companies to implement the

<sup>35</sup> Erkki Karo and Rainer Kattel, Should “open innovation” change innovation policy thinking in catching-up economies? Considerations for policy analyses, *Innovation \_ The European Journal of Social Science Research*, 2011, Vol. 24, Nos. 1-2

<sup>36</sup> WBC-INCO.NET, Comparative analysis of the innovation capacity in the WBC with particular focus on joint cooperation needs, 2011

<sup>37</sup> Ibid.

international standards and intellectual property protection, as well to encourage the entrepreneurship and competitiveness of small and medium-sized enterprises. On the other hand, the Ministry of Education and Science dominates in designing the R&D policy which provides for allocating these activities principally among the universities and research institutes. However, more than evident is the lack of policy integrating elements and coordinating actions among the ministries, since the R&D activities do not hold with the needs of the real sector. The system where the field of R&D is predominantly affected by the Government and public higher education and research institutions has generally been considered a “functionally hermetic”, while the policies providing its support are quite segmented and mostly non-flexible.

So far, the linear approach has dominated in policy making, whereby the supply-side policies have been the prime catalyst for innovation. In terms of low-level innovation capabilities, the supply-side policies are required to match the demand-side policies. In this context, Edler, emphasizes that demand-side innovation policy includes “a set of public measures to increase the demand for innovations, to improve the conditions for the uptake of innovations and/or to improve the articulation of demand in order to spur innovations and the diffusion of innovations”<sup>38</sup>.

Hence, a reorganization of the entire governance structure of the (research, development and innovation) RDI system which includes all relevant stakeholders and ensures an efficient monitoring system would be a very important prerequisite to increase its system’s performances and to reduce the performance gap when compared to other EU countries.<sup>39</sup>

## **5. SWOT ANALYSIS OF THE NATIONAL INNOVATION SYSTEM**

The above considerations about changes of the national innovation system could be summarized within the following analytical framework:

### **Strengths**

- Open economy and stimulating FDI policy
- Adopted innovation strategy
- Increased Government initiatives and willingness to support innovation
- Educated and relatively cheap labor force
- Willingness of the academic institutions to closely cooperate with the business community
- Good ICT infrastructure

### **Weaknesses**

- Slow economic growth

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<sup>38</sup> Edler, J., Demand Policies for Innovation in EU CEE Countries, The Workshop Innovation for Competitiveness INCOM, Prague, 2009

<sup>39</sup> Sasho Josimovski, Erawatch Country Reports 2011: The Former Yugoslav Republic of Macedonia, JRC Scientific and Policy Reports, 2012, <http://ipts.jrc.ec.europa.eu>

- Insufficient coordination of STI policy makers and lack of institutions networking
- Supply-side oriented innovation policies
- Innovation culture is rather low
- Low awareness and lack of interest about the protection of intellectual properties
- Low expenditures in R&D
- Insufficient educational contents and programs aimed at promoting quality, creativity and innovations
- Inadequate skills and competences of the employees
- Deficient structural mobility of the researchers
- Deficient commercialization of the research results
- Rules and regulations are frequently changed
- Outdated technology in many industries and persistent technological lag

### **Opportunities**

- Approximation of the national legislation to the EU law
- Possibilities to support innovation by different international programmes and instruments
- Rising awareness for developing innovation and creating an innovation culture
- Improving the financial instruments to support R&D
- Education reforms for raising skills and competences
- Increasing the industry-academia cooperation
- Pro-active policy for attracting FDI
- Exploring the possibilities of open innovation
- Policy learning from more advanced countries

### **Threats**

- Prolonging the accession to the EU
- Brain Drain
- Consequences of the global economic crisis
- Political issues in the region
- Declining quality of the tertiary education and unfavorable structure among the graduates

## **6. ICT- NEW OPPORTUNITIES FOR STRENGTHENING INNOVATION CAPACITY**

Nowadays, information and communication technology (ICT) is considered a “super capital”. It contributes to economic growth in two ways. At first, ICT as an output allows the users for higher achievements, personal development, and quality of life. For the economy as a whole, ICT contributes toward building a broad knowledge base and expanding the networks of knowledge. Secondly, ICT as an input is considered a “super capital” with strong

impact on the process of production by improving the productivity both at company and the national level.<sup>40</sup>

Generally, the Republic of Macedonia is moving upward in the use of ICT. Thus, in the first quarter of 2012, 58.3% of the households had access to the Internet at home, 68.4% of the total population aged 15-74 used a mobile phone, 59.9% used a computer and 57.5% used the Internet.<sup>41</sup> Dynamic ICT developments have also a certain direct impact on stimulating technology, innovation and a new approach of working. In this context, the domestic companies that have established business relations with foreign ones are highly aware about the advantages that ICT offers both for the quality of work and decreasing cost of communications. The use of Internet has increased, at which Digital Subscriber Line (DSL) technologies, such as ADSL is the most common type of Internet connection. 87.3% of the enterprises with 10 or more employees had broadband connection to the Internet (via fixed or mobile broadband connection). 32.7% have completed an Electronic transmission of data between enterprises suitable for automatic processing (EDI, XML etc.), 13% have had an Enterprise resource planning (ERP) software package and 16.3% have used a Customer relationship management (CRM) software application.<sup>42</sup> Despite such positive trends, little progress has been made in the field of e-commerce. Namely, data for 2011 show that 8.9% of the companies with ten or more employees have been using e-commerce, i.e. they were buying or selling goods and services over computer networks (via web or EDI), 5.3% have completed web sales, and 4.8% of the firms have made a web purchase.<sup>43</sup> According to Metamorphosis, the Republic of Macedonia has reported a continuous increase in opening eStores (81 in February, 2012; 131 in May, 2012; and 160 in September 2012).<sup>44</sup> Yet, the number of persons buying products over the Internet is still not satisfactory. The major problem behind is in the lack of trust for this mode of buying and selling.

## 7. CONCLUSION

Nowadays, the development of science, technology and innovation becomes crucial for the Republic of Macedonia to successfully compete in the global environment. Hence, the Government has recently assumed a proactive approach for developing the STI. The policy incorporates a group of different measures including the promotional campaigns,

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<sup>40</sup> Robert D. Atkinson, Stephen J. Ezell, Luke A. Stewart, The Global Innovation Policy Index, Information Technology and Innovation Foundation and the Kauffman Foundation, 2012

<sup>41</sup> Usage of information and communication technologies in households and by individuals, Statistical Office of the Republic of Macedonia, 2012, News release No: 8.1.12.28, <http://www.stat.gov.mk/pdf/2012/8.1.12.28.pdf>

<sup>42</sup> Usage of information and communication technologies in enterprises, Statistical Office of the Republic of Macedonia, 2012, News release No: 8.1.12.25, <http://www.stat.gov.mk/pdf/2012/8.1.12.25.pdf>

<sup>43</sup> Ibid.

<sup>44</sup> Metamorphosis - Foundation for Internet and Society, <http://www.metamorphosis.org.mk/en/activities/2385>

stimulating financial instruments, measures for education restructuring and quality improvements, boosting the entrepreneurship, attracting the FDI, etc. However, problems still persist with operationalizing some of the measures, insufficient coordination and lack of a holistic approach to implement them properly. One of the major limiting factors is the relatively small amount of funds for encouraging the RDI. Hence, the key issues and challenges ahead refer to the possibility for creating a coherent innovation policy framework that will incorporate measures to efficiently cope with the problems and weaknesses, but also using the potentials for improving the innovative performance of the country.

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## ENTREPRENEURSHIP AND HUMAN DEVELOPMENT IN ROMANIA

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**Abstract:** The paper aims to prove the main hypothesis, namely that the increase interest in entrepreneurship determine the human development. It also presents the main trends regarding entrepreneurship from Braşov region of Romania, considering the role of entrepreneurs in knowledge-based economy and also their role – as economic engines – during economic crisis affecting all the countries from the whole world. There are also presented the main measures affecting entrepreneurship in Romania, namely the ones stimulating the increase of number of small and medium sized enterprises.

**JEL classification: M11, M54**

Key words: entrepreneur; Romania; human development; economy; SME's

### 1. INTRODUCTION

Considering the increased interest in entrepreneurship and the fact that it is considered the main economic factor leading to the development of the society and the economy of every country, this goal being also underlined by European Committee, the present paper aims to establish whether or not the development of interest for entrepreneurship also determine human development.

By now there were considered by the researchers and practitioners that the human development can be determined using longevity, knowledge and life standard. There is also determined a Human Development Report. The first one introduced a new way of measuring development by combining indicators of life expectancy, educational attainment and income into a composite human development index, the HDI.

The breakthrough for the HDI was the creation of a single statistic which was to serve as a frame of reference for both social and economic development. The HDI sets a minimum and a maximum for each dimension, called goalposts, and then shows where each country stands in relation to these goalposts, expressed as a value between 0 and 1.

For the purpose of this paper, the author considers that the human development is determined mostly by life standard. Further, the researchers established that it may be determined through GDP/inhabitant.

The correlation between the GDP and human development, expressed by an index was analyzed by some researchers for high, medium and low human development countries.

The findings showed that the sensitivity of the human development index to changes in per capita GDP was highest in low human development countries. Also, an 'inverted U' type relationship between per capita GDP and the human development index appears to be valid for medium human development countries.

Also, for the interest in entrepreneurship, the instrument used in this paper is the observation, namely the number of small and medium sized enterprises created in the period of time analyzed.

The model used in order to study the problem of correlation between GDP/inhabitant and the entrepreneurship was also analyzed by other researchers for other countries.

## **2. OBJECTIVES**

The paper uses definitions and models previously used, in order to ensure the scientific research character and in order to ensure the viability of the models.

Thus, applying a methodology that will be presented later on, the paper aims to establish what the dependency is between entrepreneurship and life standard at regional level, namely Braşov from Romania.

The results showed that there is a strong, positive relation and dependency between the two analyzed factors at regional level analyzed, meaning that when the interest for entrepreneurship is increasing, the life standard is increasing as well.

Further researches refer to the application of the model over other regions of Romania in order to compare the results and to ensure the scientific research feature of the study.

## **3. METHODOLOGY**

The methodology consists of some steps, as follows. The first step was to choose the region for which the study will be conducted. There was chosen the region of Braşov because the positive evolution from the last four years, in terms of monetary results of economic activity that were higher than the national average.

The second step was to observe and document about the values of GDP/inhabitant for the four years of the study, at the level of Braşov region, considering that GDP/inhabitant was used for expressing life standard.

The data were gathered from the National Institute of Statistics and also from local decision economic factors.

The third step was to observe and document about the number of small and medium sized enterprises at Braşov region level, as an indicator for the interest of population for entrepreneurship.

The data was gathered from Chamber of Commerce and Industry of Braşov where from there were also gathered data regarding the dispersion of small and medium sized enterprises by sectors of activity.

The next step consisted in calculating the correlation coefficient for the two series presented, in order to establish whether there is a relation between the two analyzed factor or not.

#### 4. ANALYSES

The number of small and medium sized enterprises from Braşov region had increased from 2009 to 2012, from 947 to 1867, almost doubling their number in four years of analyzes, as shown in Figure 1.

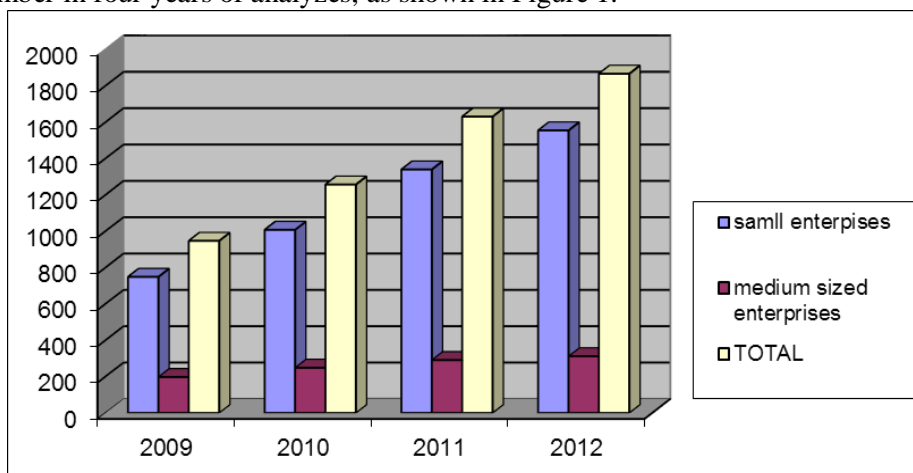


Figure no. 1

The repartition of small sized enterprises and medium sized enterprises on fields of activity showed that most of them activate in commerce, namely en-gross, and construction sector, as shown in Figure 2.

Also the GDP/inhabitant had increased in Braşov region from 3056.9EUR in 2009 to 4518.3EUR in 2012, an increase with 47.8%.

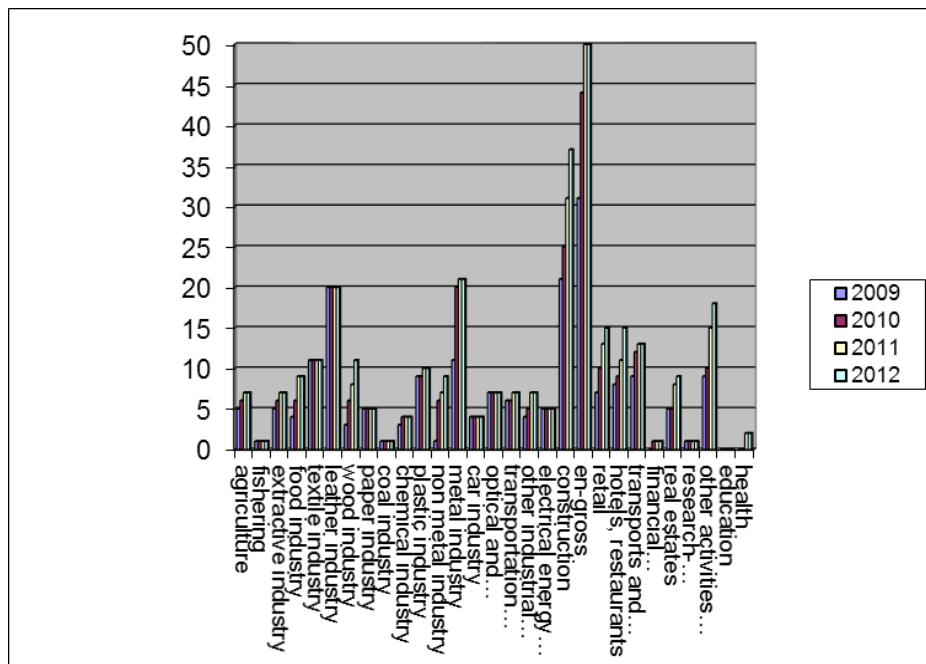


Figure no. 2

Regarding the correlation between the two series of data, namely the GDP/inhabitant and the interest for entrepreneurship, the value of correlation coefficient was 0.99, which means that there is an almost deterministic dependency between the two factors analyzed, meaning that the preliminary hypothesis was verified.

## 5. CONCLUSIONS

Applying a methodology presented, the paper established that is a dependency between entrepreneurship and life standard at regional level, namely Braşov from Romania.

Also, the results showed that there is a strong, positive relation and dependency between the two analyzed factors at regional level analyzed, meaning that when the interest for entrepreneurship is increasing, the life standard is increasing as well.

There is an almost deterministic dependency between the two factors analyzed, meaning that the preliminary hypothesis was verified, so that when the interest for entrepreneurship is increasing, the life standard is increasing as well.

Future research includes the bound between HDI (human development index) and interest for entrepreneurship, as a broader hypothesis. Regarding HDI, each year since 1990 the Human Development Report Office has published the values of this indicator which looks beyond GDP to a broader definition of well-being.

The HDI is composed by three dimensions of human development: living a long and healthy life (measured by life expectancy), being educated (measured

by adult literacy and enrolment at the primary, secondary and tertiary level) and having a decent standard of living (measured by purchasing power parity, PPP, income).

The index is not in any sense a comprehensive measure of human development. What it does provide is a broadened prism for viewing human progress and the complex relationship between income and well-being. The HDI for Romania is 0.825, which gives the country a rank of 62nd out of 179 countries with data.

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## PERENNITY STRATEGIES IN THE FAMILY BUSINESSES FROM THE WINE INDUSTRY: MODEL FOR THE INTERGENERATIONAL ENTREPRENEURSHIP\*

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**Abstract:** Starting from the basic constructs - Entrepreneurship, Family business, Succession - we intend to explore the virgin ground of the intergenerational transfer of the ownership, mission and vision of a family business, and the extent to which it transposes to entrepreneurship in the next generations. Treating this combination of constructs in the wine industry context is unique, especially as it implies identifying factors such as risk, innovation, culture, value, vision, the notion of "stewardship", cohesion, which either speed up or threaten the continuity of the entrepreneurial activity. The result of introducing these factors in the mix of constructs will lead to academic and practical contributions, our ambition being for this preliminary model to generate the interface between strategic management and entrepreneurship in the wine industry.

**JEL classification:** M21, O31, O41

Key words: critical; entrepreneurship, wine industry, family business, perennity strategies

### 1. INTRODUCTION

As for many family businesses, one of the main objectives of winemaking family farms is to pass on control of a sound and improved business to the next generation. Family farming remains of totemic importance despite declining numbers of farms in many parts of the world, coupled with the expansion of corporate farming. Intergenerational succession represents the renewal of the family business and can potentially act as a helpful corrective in addressing the apparent increasingly aged population of founder farmers. Farming remains a largely inherited occupation, in contrast to many other professions in contemporary society, one in which the transfer of business control and ownership to the next generation is arguably one of the most critical stages in the development of the business (Uchiyama, Lobley, Errington, and Yanagimura,

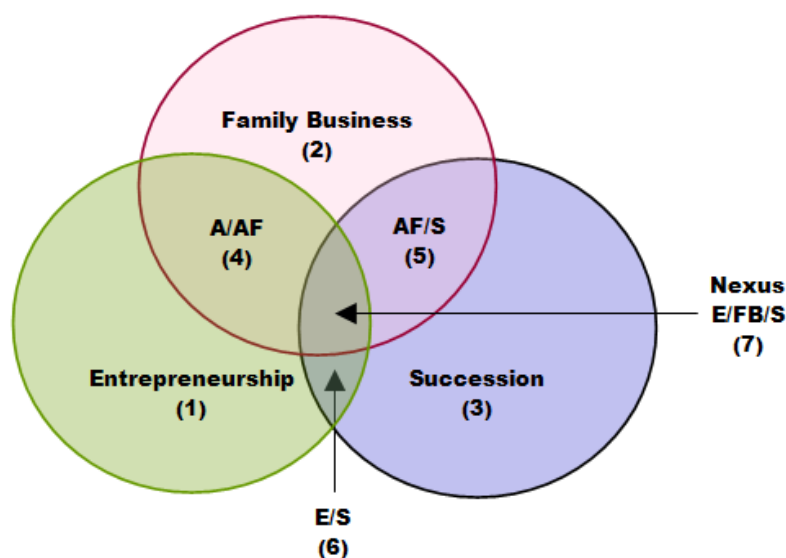
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2008). The main entry route into vine growing remains intergenerational transfer within a family. Many winemakers can trace their family's occupation of the winery back three generations or more, and there is evidence of a strong "rural ideology" that prioritizes passing on the farm within the family (Barclay, Foskey, and Reeve, 2005). In addition to physical assets, intangible assets (e.g., tacit knowledge, leadership experience, authority, decision-making power, equity) are transferred to the successor. Even in the wine industry, succession is an issue that requires analysis from the perspective of family, management and ownership systems, imposing significant changes: realignment of family relationships, redistribution of influence traditional patterns, restructuring of management and ownership structures.

## 2. CONCEPTUAL FRAMEWORK

Three constructs pan out (Figure no. 1), giving start to this discussion - *entrepreneurship*, *family business* and *succession*, studied individually, with the intention of exploring the virgin soil of intergenerational transfer of ownership, vision and mission of a family business and the extent to which it translates into entrepreneurship to future generations. Placing these constructs in the context of the wine industry is unique, especially for that it involves identifying factors such as *risk taking*, *innovation*, *culture*, *values*, *vision*, the notion of "*stewardship*", *cohesion*, with implications on the process of succession.



Source: Author's remake after Woodfield, P. J. - *Intergenerational Entrepreneurship in Family Business*, 2008

**Figure no. 1 - Family Business, Entrepreneurship and Succession Nexus**

Historically, "business" and "family business" are synonymous as an entrepreneur can rely on immediate reservation of resources within the family to start a business. Moreover, many businesses, as they continue on the generational

line, are inherently entrepreneurial in nature, thus allowing them to survive and thrive in fast changing environments, a special note making process planning and strategic management in this context.

## 2.1. Exploring the constructs

**Entrepreneurship.** It is often argued that an entrepreneur is serial in his approach - he starts a project and, once finished, proceeds to the next. Bruyat and Julien (2001) present the definition of entrepreneurship as a summary of key influencing factors that made a distinction between function and innovation, thus dichotomizing the perception on the entrepreneur. In the 17th century, Cantillon argued that *the entrepreneur is the person that takes risks and may legitimately acquire any profits*, while Turgot and Say added that *the entrepreneur obtains and organizes factors of production to create value*. Instead, Schumpeter's entrepreneur is *innovative, going over the contradictions of its system*.

**Family business.** Studies on succession shows that about 1/3 of post-start-up family businesses survive and reach the 2<sup>nd</sup> generation, 12% are still viable in the 3<sup>rd</sup> generation, and only 3% of all family businesses operate after the 4<sup>th</sup> generation. This poor family business dashboard is a concern, given that the main threat to businesses may be family members. Colli (2003) provides a definition of family business based on *kinship, ownership and control*. Kinship is defined by people related either by blood or marriage. Ownership refers to the type of property on the business capital, and control is the authority on the business strategic management. Aldrich and Cliff (2003) comment, that in the last century, family composition, roles and relationships have changed. The ingredients of a family business appear under the spotlight - *governance, management and family* - providing a platform where durability is recognized by vision. *Vision* can change over generations, but, if supported by the *family principles* and the founder's influence, the intrinsic value of vision can be sustainable and recognizable across generations.

**Succession.** Succession (continuity) is a process, not an event. This distinction makes it clear that succession is not just a task but an important process for the life and future of a business. In other words, using a monarchy as an example, succession is what happens after the death of the Queen, but preparing the successor (Prince/Princess) is part of the process. Handler (1990) proposes a theoretical model of resistance to succession in the family business which categorizes succession as a conspiracy, and not as the founder's fault for not planning the succession: at the individual level (L.I), attention will be given to the founder and the next generation, recognizing the importance of the founder due to the influence, centrality of position and possession (Sharma, 2004). The founder initially culminates the *vision and culture of a family business* that must be transmitted to the next generation by the, interpersonal and group level (L.II) of *intergenerational transition*. Some speculation about succession point out the founder's tendency to retain control after his mandate is over. His reasoning is based on fact that current legal systems in many Western countries require a separation of ownership and control. There are also reputational benefits and competitive advantages that can be preserved through leadership in the family



and idiosyncratic know-how that is transferred more efficiently through family members. There comes the organizational (L.III), environmental (L.IV) levels.

## *2.2. Exploring the overlaps*

***Entrepreneurship-Family Business Relationship.*** Entrepreneurship is important for the family business sustainability, but in certain circumstances could be detrimental to it. Entrepreneurship suggests creating (and recreating) products and services, and the company evolution to provide sustainable growth. Considering the unique dynamics of a family business, the potential aversion to entrepreneurial change is significant. Family business and entrepreneurship overlap with early experiences of entrepreneurs' family, including family involvement and support during start-up. This could include family involvement in ownership and operation and employment of family members and inheritance of management positions.

***Family Business-Succession Relationship.*** A key area of interest is the succession and intergenerational transfer of the business - especially the dynamics of creating a dynasty (Fletcher, 2004). In addition, the issue of transfer of the founder's vision to other family members rises. Here is where entrepreneurship becomes a clear need in the process of succession: "founders try to perpetuate the family legacy and to ensure continuous family control through intergenerational succession" (Miller et al., 2005). The role of the founder/entrepreneur found towards the end of his mandate is often difficult, as he does not want to give up what he created and developed, frustrating the succession preparation and resulting in ignoring the need of choosing and mentoring a successor. The problem is that founders tend to gravitate towards rather shaping the protégé according to their own image, than to create what business needs for growth. This problem is recognized in retirement. Founders filled with a glut of skills, activities, environments, roles and relationships, which predisposes them to search internal continuity (continuous strengthening of their personal identity, self-esteem and ego power), and external continuity (responsibilities, relationships and predictable social roles). Other factors that influence resistance to succession are the business characteristics, culture and structure.

***Entrepreneurship-Succession Relationship.*** Problems arising when a business is transferred from the founder of the family business to the next generation are related to entrepreneurial succession and strategic planning and process management. Entrepreneurial succession was interpreted as a continuation of innovation and entrepreneurial behavior from one generation to the next (Woodfield, 2008), which can manifest itself by translating the founder's vision to the next generation through succession. Davis (1968) is credited with being the first to bring to light "entrepreneurial succession". Davis considers the entrepreneur as an important person who has not only the ability to take risks and innovate, but sees that the newly formed organization operates when direction can be "transmitted" to others, confirming the extended family as "*most fundamental and stable unit of social organization in traditional society*".

### 2.3. Entrepreneurship-Business Family-Succession Nexus

The intersection of entrepreneurship and family business becomes successful in the context of succession. Changing market conditions require continuous adaptation and renewal. The company's vision must be developed and implemented and entirely changed by successive generations to ensure economic growth and give a sense of ownership to the business. Wine business performance and development are influenced by succession issues. The "succession effect" (Potter and Loble, 1996) refers to the impact of the "wait and see" status of succession on the farm business. Evidence suggests that wineries should be long over development, in order to provide a business capable of supporting more than three generations. The "successor effect" refers to the impact of the successors as they assume managerial control. In many cases, successors return from a period of agricultural training eager to implement on the business their innovative approach and new ideas. Davis (1968) points out that there may be a problem when "*social function*" outweighs "*economic profit*", affecting "*business stability*" and "*continuity*".

### 3. METHOD

Family business is seen as a system composed of: (i) a subsystem composed of family history, traditions, life cycle, (ii) a business subsystem comprising strategies and structures implemented to create value, (iii) a subsystem composed of individuals, family members characterized by their centers of interest, skills and their level of participation in the control and direction process (Habbershon et al., 2003). On this system relies our further discussion on strategic management dimensions in connection to already mentioned FB specificity criteria.

### 4. THEORETICAL DEVELOPMENT

This definition of the constructs has the merit to focus on management purpose as the core of the family business instead of the usual, more reducing criteria, such as the percentage of participation in the control or management. It emphasizes on perennity search as criterion for defining and delineating the nature of family firms. Therefore, both theoretically and empirically, family businesses are considered those that meet the criteria of proven or desired perennity, insofar as it determines risk taking, strategic horizon, values that in turn influence the innovation process. The result of introducing these factors in the mix of constructs is wanted to generate the interface between entrepreneurship and strategic management in the wine industry. In this stream of thoughts, we consider five dimensions of strategic management that are particularly affected by factors involved in family business succession.

**Scanning intensity.** Scanning provides managers with information about events and trends that are relevant to their environments, facilitating recognition of opportunities and being a method of "uncertainty absorption". An intensive scanning behavior, completed with a short planning horizon and a flexible planning system is a practical approach to entrepreneurial businesses that operate

in a turbulent environment, whereas they must be continually innovative to stay competitive. For winemakers, scanning intensity is not necessarily an advantage, but rather a safety measure. Depending on the climate in that year, the manager must use its knowledge of the past to try to prevent future changes. For that action on grape quality is difficult and typicity of products must be kept, any revolution is prohibited. Especially when a wine farm lays on values such brand awareness and product quality, it cannot afford to tarnish the image and implement hazardous projects which endanger the descendants' wealth.

**Planning flexibility** refers to the business capacity to change its strategic plan based on the opportunities/threats in its environment. Once the manager prepares a plan, there is a tendency to try to "make it work", which leads to resistance to change, following the establishment of a certain mentality and fear to losing status, and "the more clearly articulated the strategy, the greater the resistance to change by the occurrence of both psychological and organizational inertia". Contrary to ideas that the family businesses would be less flexible, resistant to change and attached to traditions, the experience in the winemaking industry emphasizes the link between a family-specific culture and innovation. Hall et al. (2001) argue that the dominant culture of a family business is the result of beliefs, values and objectives which find their origin in family, history and social relations. Transmission of values from one generation to another generates relatively stable cultural features within the family business. But this stability is the one that paradoxically allows promoting flexibility in family firms (Hatun and Pettigrew, 2004). Family values and cultural variables act as filters that lead to the orientation, shaping of strategic decisions, as a source of adaptation or pro-action (Mignon, 2001).

**Planning horizon** refers to the length of future period that decision makers will take into account in planning. Horizon should be long enough to allow planning for expected changes in the strategy and yet be short enough for sufficiently detailed plans to be available. The most important concern of entrepreneurial businesses is innovation in products, which usually must be done in the short term rather than long term to maintain a sustainable competitive advantage. In addition, entrepreneurial firms operating in turbulent environments must reach short-term in order to survive on long-term. A strong, open culture, based on values shared over generations seem to be a catalyst for innovation in wine industry, involving adaptation to competition intensification and changes in consumer tastes, and to cost, quality and environmental constraints.

**Locus of planning.** A deep locus of planning legitimizes the active participation of mid- and lower-level managers in the planning process. Diversity of views is clearly limited where the planning is limited to business founders, not only because of the small number of people involved, but the homogeneous nature of management and team cohesion, in inverse relationship with innovation and change. Family involvement in business management as a source of diversity and the amount of new experiences, and family control positively influence on risk taking (Zahra, 2005). Thus, long-term strategic horizon and longevity of management and control structures allow the distribution of resources for innovation and organization development (stewardship), noting in this case the

impact of family capital in the sense of the theory of resources on creating a sustainable competitive advantage. As for the wine business, the locus of planning succession and transfer of management control and other intangible assets such as knowledge of vineyard, refers to the number of specific decisions taken by the principal winemaker, shared with the successor, or taken solely by the successor. Factors critical to developing leadership interest in the family business include: (1) time with the father (owner) in the winemaking business, (2) exposure to various aspects of the family vineyard and winery, (3) development of skills in the farm, (4) encouragement and positive attitude from the parent about successor's entering the business, (5) making an individual contribution to the team, (6) the time at which an opportunity to join is presented, correlated with the owner's age.

**Control attributes.** The purpose of a control system is to ensure that business strategies reach their predetermined goals and objectives. This means that family business control systems must stimulate innovation, pro-activity and risk taking. *Strategic control* is able to reward creativity and discovery of opportunities through innovation. The difference between conservative and innovative businesses in the wine industry is very fine and depends not only on the will and skills of the owner, but also on attributes of primary materials: climate, soil, grape variety, the terroir, the winemaking process and the wine aging recipe. *Financial control* is specific to distinctive features of conservative companies, being an opportunity for involved parties to agree on objective performance standards long before any assessment of performance. Experience shows that if successors are going to be solely responsible for a decision, that decision would involve vineyard management and the selection, recruitment and supervision of employees. Financial decisions are most likely to be made by the principal farmer only. Parent's reluctance to cede authority to his successor can be correlated with psychodynamic aspects of leadership. Owner's traits often manifest as a need for achievement and power, and as an internal locus of control, reflecting a deep-seated desire for immortality and a sense of indispensability with respect to the business, linking successor's drive to the "entrepreneurial romance" of the founder. Of high interest definitely is to examine the process of succession or the process of transferring managerial control and intangible assets, such as farm-specific knowledge and managerial skills, more likely for the successors who are on the direct route to succession (after they leave school) than successors on the diversion route (professional detour) (Uchiyama et al., 2008).

## 5. CONCLUSIONS

As an entry route to agriculture, succession must be regarded in the context of "intimate coaxing style of management" of owners of a family business - "a sustainable institution protecting not only its economic base, but also its place and surrounding". The strength of a family business is based on close relationships between family members inflaming management continuity, and the "sharing" of tangible and intangible assets and the detailed knowledge of the vineyard resources. "Succession and the failure of succession can have a

powerful influence on the development trajectory of a winery" (Lobley, 2010). The decision to retire from a career seen as a "way of life" for the founder, one in which the individual's and family's social, cultural and economic history and identity inosculate, is often a hard decision to reach. Where a successor has been identified, the sequential hereditability of the "reins of the business" depends on the timeliness and "smoothness" of intergenerational transfer.

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## GEOGRAPHIC ASPECTS OF IPARD FUND USAGE IN FUNCTION OF RURAL DEVELOPMENT

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**Abstract:** Rural development is very important for overall geographic development of the European Union, therefore 1/3 of EU funds are focused on development of lagging behind geographic regions, which are predominately in rural areas. In Croatia in 2013, stakeholders in rural geographic areas can apply for 687.5 million euros, which is much higher amount, than at the pre-accession period funds. This work presents theoretical background of rural development and geography. Also, paper includes the primary research conducted during 2012 in NUTS region of Eastern Croatia, with survey technique, on sample of 100 potential users of IPARD funds. The methods of synthesis and analysis, so as deductive and inductive methods were applied. The results showed that 37.63% of IPARD fund was used. Consequently, there is significant space for reaching the higher level of rural development based on EU funds.

**JEL classification:** M41, M42

Key words: rural development, geography, IPARD, NUTS regions

### 1. INTRODUCTION

Rural development of Eastern (Pannonian) Croatia includes the problems of regional development. Former regional policy and rural development policy has not achieved its goals. Geographic divergence and backwardness of rural areas continues. Eastern Croatia needs a modern concept of rural development that includes: an integrated development, all aspects of human activities based on local resources with the aim of strengthening the economy of rural business; integral protection of all the elements of space, integrating development and protection goals as a function of long-term sustainable development, development of rural tourism and agriculture. It is a prerequisite for increasing the competitiveness of the Croatian economy and easier access to European integration and EU funds.

Understanding the characteristics of rural development in the modern European sense in Croatia is at a low level. The basic legal framework is defined in line with the EU acquis. But the efforts of the Ministry of Agriculture, Fisheries and Rural Development, regional development agencies and the business sector to invest in promoting the implementation of rural development and encouraging the use of it intended for financial aid difficult to reach residents of rural areas. The rate of utilization of various grants for rural development is low and slow growing.

Because of these problems, the aim of this paper is to research positive experience with IPARD funds in the development of agriculture and rural tourism in Eastern

Croatia. At this point, it will be conducted primary and secondary research on the subject topic, and will be given an indication of future trends in this research area.

## 2. THEORETICAL ASPECTS OF GEOGRAPHY AND RURAL DEVELOPMENT IN EUROPEAN CONTEXT

Many scientists tried to define geography as scientific discipline. First of all, geography is the discipline that attempts to explore how environments emerge by natural processes, how societies produce, organize, use and misuse environments, and how societies themselves are influenced by the environments in which they are located. Thus, geography aims to study both natural and human realms and their interactions, focusing on space, places, and regions, addressing and questioning both short-term and longer-term processes and their resultant patterns. (Delserone, L. 2007, p.55)

The contribution of geography to knowledge is in its focus on space and the environment as its principal notions of study. Since space is a basic dimension of both Nature and humanity, containing and related to numerous natural processes and human activities, geography provides integrating and holistic perspectives for phenomena and processes handled simultaneously by several other disciplines. The contribution of geography to society is multifold: it provides people with a better understanding of the places, regions and countries in which they live, as well as of other countries and regions and of the planet at large. It further adds the spatial and integrative dimension and holistic perspective to various planning, forecasting and decision making processes. (Bronnenberg et al, 2003, p.215.)

Rural areas differ in their natural geographical, historical and cultural features, its scenery, wildlife, traditions, habits and economic development. Their development should be primarily based on their own resources and abilities. (Watt, I.1992,p.30). Therefore, there is no universal approach to rural development or form. There are no statutory requirements and criteria to be met and generally accepted orientations, such as the principles of sustainable development, which should be carried out in accordance with local conditions. Understanding the characteristics of rural development in the modern European sense in Croatia is at a low level. The basic legal framework is defined in line with the EU acquis. But the efforts of the Ministry of Agriculture, Fisheries and Rural Development, regional development agencies and the business sector to invest in promoting the implementation of rural development and encouraging the use of it intended for financial aid difficult to reach residents of rural areas. The rate of utilization of various grants for rural development is low and slow growing.

European policy has had over time two main features: welfare state and democracy. Both issues have defined the model of development in Europe and have led to the European integration project. This model of development and continental integration based on the principles of democracy, freedom and solidarity has proven to work. But, nowadays challenges like globalization or European enlargement require new instruments to promote and enhance this model. (Ramos et al, 2003., p.135)

The notion of a “European rural model” appeared several years ago in response to threats resulting from globalization, the opening up of markets and the weakening of public policies in the general context of liberalization. If these processes sometimes provide opportunities for the development of certain European rural areas, they also



pose risks for others and lead to fears that the Union will not be able to preserve certain of its characteristics to which Europeans are attached.

In order to answer these questions, a number of European citizens and institutions have attempted to specify what could be a common perception of the missions of European rural areas, a “model for rural Europe” whose content still has to be clearly specified. In general, however, it incorporates the following goals (European Citizens’ Panel Steering Committee, 2013, p. 4.):

- the conservation of natural resources and the environment;
- the conservation of cultural heritage, both living and historic, as found in architecture, gastronomy and local products, cultures and traditions, etc.;
- economic dynamism based on projects adapted to local needs and the intrinsic potential of each area;
- inhabited and freely accessible rural areas, which have numerous functions, from production to nature discovery and leisure;
- services offered to the rural population: transport, health, education, administrative services, etc.

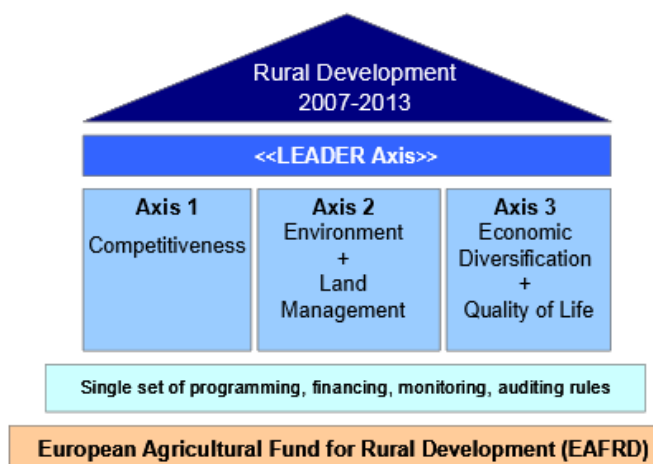
It is, therefore, not a matter of transforming rural areas into living museums which are isolated from modernity, or leisure areas for city-dwellers or even areas exclusively devoted to environmental conservation, agricultural production or the location of economic activities which are not wanted in densely populated areas. European rural areas are, simultaneously, places for living and for activities, natural areas to be protected, areas in touch with current dynamics and notably with urban territories. (Halpin, 2008, p.314)

### 3. THE STRUCTURE OF EU RURAL DEVELOPMENT POLICY

In its early days, Rural Development Policy was essentially sectorial (dealing mainly with agricultural structures), with limited territorial aspects. Agenda 2000 established Rural Development Policy as the second pillar of the CAP and brought Rural Development under a single regulation to apply across the whole of the European Union for the period 2000-2006. In addition to agricultural restructuring, it now also addressed environmental concerns and the wider needs of rural areas. The guiding principles were those of decentralization of responsibilities - thus strengthening subsidiarity and partnership - and flexibility of programming, based on a 'menu' of 22 measures to be targeted and implemented according to Member States' specific needs. (European Union, Directorate-General for Agriculture and Rural Development, 2011)

In September 2005, the Council of Ministers adopted a Rural Development Regulation for the period 2007-2013. Since then, Rural Development has been implemented through one fund, one management and control system and one type of programming. The aims of the policy have been simplified and clarified around three clearly defined economic, environmental and territorial objectives, namely:

- (1) improving the competitiveness of agriculture and forestry;
- (2) improving the environment and the countryside; and
- (3) improving the quality of life in rural areas and encouraging diversification of economic activity.



Source: European Union, Directorate-General for Agriculture and Rural Development, 2011

Figure no. 1 The structure of EU Rural Development Policy 2007-2013

Each of these objectives forms one of the three thematic axes which, together with the cross-cutting Leader approach, make up the structure of Rural Development Policy 2007-2013. To help ensure a balanced approach to policy, Member States and regions are obliged to spread their rural development funding between all of these axes. (D'Alessandro-Scarpari, C., 2011, p.263)

#### 4. GEOGRAPHY POSITION AND NUTS REGIONS OF CROATIA

The Geography of Croatia is defined by its location— it is described as a part of Central Europe and Southeast Europe, a part of the Balkans and Mitteleuropa. Croatia's territory covers 56,594 km<sup>2</sup> (21,851 sq mi), making it the 127th largest country in the world. Bordered by Bosnia and Herzegovina and Serbia in the east, Slovenia in the west, Hungary in the north and Montenegro and the Adriatic Sea in the south, it lies mostly between latitudes 42° and 47° N and longitudes 13° and 20° E. Croatia's territorial waters encompass 18,981 square kilometres (7,329 sq mi) in a 12 nautical miles (22 km; 14 mi) wide zone, and its internal waters located within the baseline cover an additional 12,498 square kilometers (4,826 sq mi).

The Pannonian Basin and the Dinaric Alps, along with the Adriatic Basin, represent major geomorphological parts of Croatia. Lowlands make up the bulk of Croatia, with elevations of less than 200 meters (660 ft) above sea level recorded in 53.42% of the country. Most of the lowlands are found in the northern regions, especially in Slavonia, itself a part of the Pannonian Basin plain. The plains are interspersed with horst and graben structures, believed to have broken the Pliocene Pannonian Sea's surface as islands.

The greatest concentration of ground at relatively high elevations is found in the Lika and Gorski Kotar areas in the Dinaric Alps, but high areas are found in all regions of Croatia to some extent. The Dinaric Alps contain the highest mountain in Croatia—1,831-metre (6,007 ft) Dinara—as well as all other mountains in Croatia higher than 1,500 meters (4,900 ft). Croatia's Adriatic Sea mainland coast is 1,777.3 kilometers (1,104.4 mi) long, while its 1,246 islands and islets encompass a further

4,058 kilometers (2,522 mi) of coastline—the most indented coastline in the Mediterranean. Karst topography makes up about half of Croatia and is especially prominent in the Dinaric Alps, as well as throughout the coastal areas and the islands. (Bilen, 1996, p.91.)

As an acceding country to the European Union, Croatia is included in the Nomenclature of Territorial Units for Statistics (NUTS). The NUTS of Croatia were defined during the Accession of Croatia to the European Union, codified by the Croatian Bureau of Statistics in early 2007. The regions were last revised in 2012. The three NUTS levels are: NUTS-1: Croatia; NUTS-2: 2 Regions (non-administrative) and NUTS-3: 21 Counties (administrative).

## 5. QUANTITATIVE ANALYSIS OF IPARD FUND USAGE IN EASTERN CROATIA NUTS REGION

Author conducted a research to determine use of the IPARD program and the problems and difficulties that arise during the process of application of projects. The number of applied projects is analyzed and it is placed in relation to the total approved projects. Based on conducted interviews are identified the reasons for these findings and are provided guidelines for improvement in the future.

### 5.1 IPARD MEASURE 101, 103, 301 - INVESTMENT IN FARMS AND FARM PRODUCTS

For measure 101 (Investment in agricultural economies) and measure 103 (Investments in processing and marketing of agricultural products) were conducted 6 call for proposals. Indicators of available resources are shown in the tables 1 below:

Table no 1. Ratio of applied and approved projects in IPARD (Measures 101 and 103) - the first 5 call for proposals

Status	No of applications	Amount of investments (in HRK=0.133€)	Amount of support (in HRK)
Total	160	713.740.553,38	347.534.173,95
Measure 101	112	331.290.807,77	161.065.052,83
Measure 103	48	382.449.745,61	186.469.121,12
Rejected	51	172.865.640,54	78.485.919,69
Gave up of application	5	29.876.972,74	14.994.040,72
Measure 101 approved	75	221.239.888,07	115.668.964,01
Measure 103 approved	29	267.109.751,46	133.553.408,79
Total arranged	104	488.349.639,53	249.222.372,80

Source: Paying Agency for Agriculture, Fisheries and Rural Development, 2012

In Table 1, we can see the relationship of applied and approved projects through Measures 101 and 103 through the first five competitions in the period from January 4<sup>th</sup> 2010 to November 28<sup>th</sup> 2012. The total number of applications was 160, of which were approved 104, 51 applications were rejected and 5 applicants gave up the project.

In Table 2, we can see the relationship of reported and approved projects through Measures 101 and 103 through the 6<sup>th</sup> call for proposal, which was published in the period October 17<sup>th</sup> 2011 to November 28<sup>th</sup> 2011. Processing project applications are pending, and the total number of applications is 61st Approval of projects that will

be praised is expected during 2012 year. So far, the two projects were rejected during the administrative checks due to incomplete documentation.

**Table no 2. Relationship of reported and approved projects IPARD program (measures 101 and 103) - the 6<sup>th</sup> call for proposal, processing in progress**

Total	No of applications	Amount of investments (in HRK=0.133€)	Amount of support (in HRK)
Measure 101	61	345.333.925,34	165.966.289,50
Measure 103	44	157.312.704,46	79.260.567,05
Rejected	17	188.021.220,88	86.705.722,45
Gave up of application	2	8.846.584,99	4.528.517,11
Measure 101 approved	In process	In process	In process
Measure 103 approved	In process	In process	In process
Total arranged	In process	In process	In process
Total	In process	In process	In process

*Source: Paying Agency for Agriculture, Fisheries and Rural Development, 2012*

### **5.2. MEASURE 301 - IMPROVEMENT AND DEVELOPMENT OF RURAL INFRASTRUCTURE**

For Measure 301 (Improvement and development of rural infrastructure) were performed 2 call for proposals. Indicators of available resources are shown in the table 3 below.

**Table no 3. The ratio of reported and approved projects IPARD (measure 301)**

Status	No of applications	Amount of investments (in HRK=0.133€)	Amount of support (in HRK)
Measure 301	113	470.859.394,06	440.741.832,54
Rejected	66	274.041.378,54	251.373.629,96
Gave up of application	2	6.177.493,00	6.177.493,00
Total arranged	45	190.640.522,52	183.190.709,58

*Source: Paying Agency for Agriculture, Fisheries and Rural Development, 2012*

In Table 3, we can see the relationship of reported and approved projects through the Measure 301 through two new calls for proposals during the period from 06<sup>th</sup> December 2010 to 13<sup>th</sup> June 2011. The total number of applications was 113, of which were approved 45, 66 applications were rejected, two applicants gave up of the project.

### **5.3. MEASURE 302 - DIVERSIFICATION AND DEVELOPMENT OF RURAL ECONOMIC ACTIVITIES**

For Measure 302 (Diversification and development of rural economic activities) were conducted 2 calls for proposals. Indicators of available resources are shown in the 4 table below.

In table 4 we can see the relationship of reported and approved projects through the Measure 302 through two new calls for proposals during the period from January 3<sup>rd</sup>

2011 to October 31<sup>st</sup> 2011. The total number of applications was 56, approved were 40, 16 applications were rejected, while none of the applicants has given up the project.

Table no 4. The ratio of reported and approved projects IPARD (Measure 302)

Status	No of applications	Amount of investments (in HRK=0.133€)	Amount of support (in HRK)
Total measure 302	56	53.868.701,15	27.141.352,52
Rejected	16	11.968.754,02	6.596.726,82
Gave up of application	0	0	0
Total arranged	40	41.899.947,13	20.544.625,70

Source: Paying Agency for Agriculture, Fisheries and Rural Development, 2012

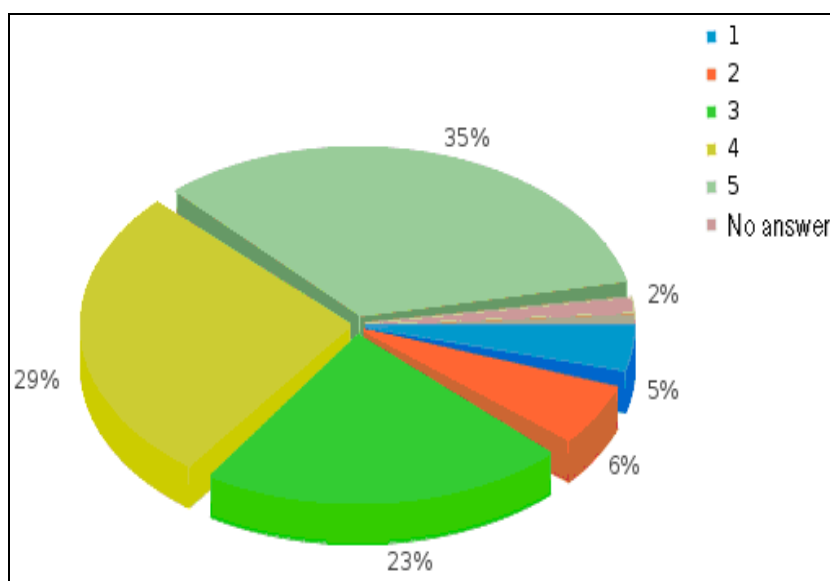
## 6. METHODOLOGY AND RESULTS

Actual knowledge and research in the field of measuring of capacities of IPARD funds in geographic regions of Croatia are quite deficient. Relatively few papers are dealing with the problems of economic and fiscal problems of IPARD funds in Croatia. However, even these works did not enter into a deeper elaboration of criteria and calculation of fiscal capacities and fiscal needs of Croatian counties based on which the state provided a good system of awarding grants for equalization.

In a primary research, the local representatives were active, and researchers have provided all the necessary logistics. So for the purposes of this research a survey was designed, with 32 questions, and it was fulfilled by 100 examinees, potential users. We used the recommendations and papers of several consultants and local consultants, to form the survey as clear and enough simple for the representatives of local stakeholders. We tried to make them as short as possible with a small number of open-response questions. Respondents were also questioned about the key issues they face in their daily work. Trust and anonymity of examinees and interviewees in this research were guaranteed, however, were encouraged them to disclose their identity. Although, aware of the fact that the response in Croatia on survey of this type of research questionable, we were able to make up the additional interviews with local stakeholders in Eastern Croatia.

With method of synthesis and analysis were compared the research results with the actual results in the field, the amount of the EU funds, which are allocated to the stakeholders in the observed years. Inductive method based on the general part of the research tried to confirm / deny hypotheses, in order to gain a clearer picture about the topic of research. Deductive-logical methods were used in making more accurate conclusions on the basis of the empirical results.

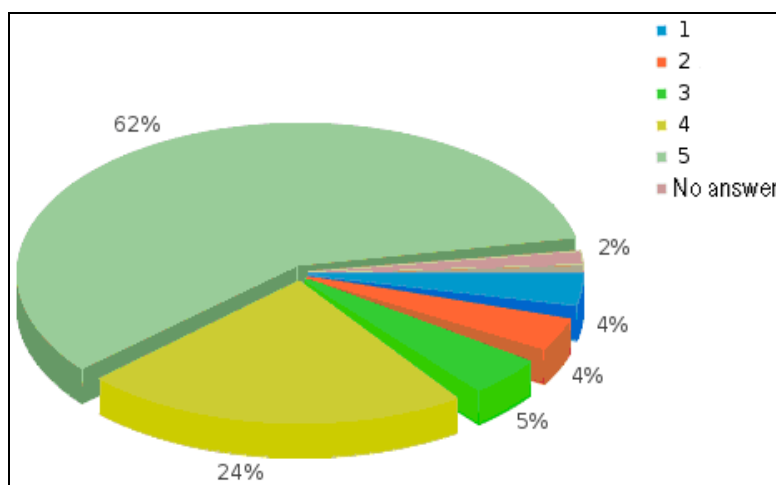
Because the fact that research brought answers on 30 questions, it is impossible to present all of them in this paper, so we present only some which we perceive as a significant. In this case figures are divided as follow: 1-completely disagree; 2-mostly disagree; 3- nor agree nor disagree; 4-mostly agree; 5- completely agree. In graph one 1 is presented attitude of examines on funds of European union as a potential source of financial aspects.



Source: Own research, 2011-2012

Figure no 2. Counting more on EU funds as potential source of financial assets

As we see 35% completely and 29% mostly agree in perceiving EU funds as potential source of financial assets. 6% mostly and 5% completely disagree. Therefore, we can conclude that examines, as potential IPARD users believe in potential of EU funds.

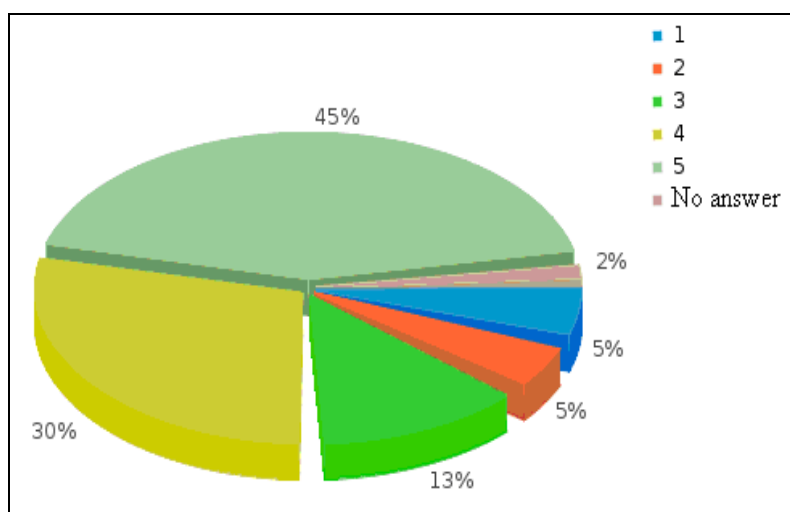


Source: Own research, 2010-2012

Figure no 3. Use of all available supporting infrastructure-agencies, chambers

The figure of 62% examines, that believe that is very important to use available supporting infrastructure means several things; first of all that stakeholders needs support, that they are not able to prepare qualitative project alone, without help from agencies, chambers etc. Finally, according to those facts, they need help and support in

project preparation and implementation. Data presented show examinees attitude on application of projects to open call for proposals.



Source: Own research, 2010-2012

Figure no 4. It is important to apply on as much as possible open EU funds calls for proposals

Examinees in 45% completely believe or 30% mostly believe that is important to apply on many EU funds. This fact is encouraging on one side, on the other side; it shows that there is lack of strategy in approaching to the EU funds. Because, in that case, the stakeholders are not aware that their absorption capacities are limited, and in that sense stakeholders have to manage that capacities very carefully-in a way that have to choose on which project they will apply and on which they will not. Namely, many stakeholders only want to withdraw some money from European Union funds, therefore they do not calculate on which fund and with which idea they will apply for funding. They just want to use the opportunity to get funds. For further implementation, they do not care much. This is naturally completely opposite to strategically approach, which is based on planning of cost and benefits in the long term.

## 7. CONCLUSIONS

After an analysis of the geographic implementation of research funds from the IPARD program, it is evident that there is a possibility of increasing the use of available funds. Detected problems are unacceptability of registered investments, incomplete documentation, the invalidity of documents, financial gap, the problems of ownership, technical problems. It is certainly evident that the funds realized from available IPARD could be increased. One of the usual reasons for the rejection of the project application is unacceptability of registered subjects. This includes the definition of the cost of the project that is not allowed for funding and is therefore very important to take into consideration guidelines for the preparation of projects. Usual case is also incomplete documentation, which is applied to the contracting authority. Either out of ignorance, superficial information or the impossibility of obtaining certain documents. As much as

the project applied has a high quality, if the documentation is incomplete, the project cannot be approved for funding. Because of all these reasons, further researches will be focused on analyzing IPARD funding in other geographic regions of Croatia.

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## AN EMPIRICAL APPROACH ON OLIGOPOLISTIC COMPETITION

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**Abstract:** During the past decade international trade models have been focused more and more on the oligopolistic competition and more importantly on determining a general equilibrium. The aim of this paper is to use a General Oligopolistic Equilibrium model, GOLE, to analyze the international trade dynamics in three of the most important players on the world market, USA, EU and Japan. In doing so we intend to see whether the strategy that these three players have adopted during the past few years has been a good one, or on the contrary, some measures should be taken in order to reduce the trade balance deficit. Furthermore, we will try to determine the impact that changes in trade policy and in technology have had on each country have affected as well as on their trade partners.

**JEL classification: F12, F14**

Key words: General Oligopolistic Equilibrium; trade strategy; international trade; technology

### 1. INTRODUCTION

In this paper we try to use a well-known GOLE model developed by Peter Neary for the analysis of international trade dynamics concerning the three biggest players of the world market.

Neary's model is set in an oligopolistic framework in which changes in technology or trade policy expose domestic firms to greater foreign competition. The model integrates insights from the theory of industrial organization with the kind of general equilibrium approach to goods and factor markets needed in trade applications. (Neary, November 2002)

Neary argues that increased competition from foreign firms can modify the technology choice of local firms as well as their skills differentials, even when actual imports do not increase significantly. In his 2002 article (Neary, November 2002), he presents a general equilibrium model in oligopoly (which he calls "GOLE"), in which the reduction of import barriers (whether technological or of a commercial type) encourages companies to make strategic investments. These assumptions are consistent with nowadays economic reality: higher skill premia, a higher ratio of skilled to unskilled workers in the economy, minor changes in the volume and value of imports, and rapid technological progress with relatively small changes in the total productivity of the factors of production.

More than a decade of rigorous empirical analysis carried out by economists specializing in international trade and in labor market revealed a series of economic realities on which there seems to be general agreement.

One of the main problems of the international economy is that large countries with large open economies tend to be more competitive. This issue has been addressed from different perspectives. Oligopoly in partial equilibrium models have shown that trade liberalization and increased market size affects competition by reducing production and profit margins of companies and may affect the ability of firms to sustain repeated interaction with the competitors.

Brander (Brander, February 1981) is one of the first economists who use a partial equilibrium model to analyze strategic interactions between firms in intra-industry trade with similar products, while developing Rotemberg and Saloner (Rotemberg, May 1989) and later, Fung (Fung, 1992) have developed partial equilibrium models in oligopoly that analyze strategic interactions between countries.

Krugman (Krugman, 1979) has shown that the effects on competition may also occur in a general-equilibrium model with differentiated products, on free entry markets and with additively-separable demand functions. However, most subsequent studies of international trade in general equilibrium model have used the Dixit-Stiglitz model of monopolistic competition, which assumes that price-cost margins of firms, and thus the competitiveness of an economy, are independent of market size.

The model developed by Melitz (Melitz, 2003) introduces firms heterogeneity in the Dixit-Stiglitz model and demonstrates that trade liberalization promotes efficient firms at the expense of less efficient. But this is a result of consumer choice rather than one of competitiveness since each firm has the same benchmark.

In the 2008 article, Melitz and Ottaviano (Melitz M. J., 2008) use a quadratic demand system but since they assume that preferences are quasi-linear, they do not model the impact on factor markets.

The number of models developed for this particular analysis is quite big. However, Neary managed to create original and very useful model of oligopolistic competition and general equilibrium.

The aim of this paper is to use such a model in order to analyze the international trade flow dynamics of the European Union, USA and Japan. In doing so we want to take Neary's theoretical model and transform it in an empirical one.

## 2. THE MODEL

We will now present the basic model that Neary developed in his 2002 article. Therefore we will follow the same assumptions, in considering first an oligopolistic industry with  $n$  firms, each of which produces a symmetrically differentiated product. The inverse demand function for good  $i$  (based on a quadratic-form utility function) will be written as:

$$p_i = a_i - b[(1 - e)x_i + eX] \quad (1)$$

where we consider  $a_i \geq 0$  as the consumer's willingness to pay (Eckel, 2010),  $b \geq 0$ ,  $X$  is the total output of all firms (Neary J. P., 2002), while  $e$  represents an inverse measure of product differentiation ranging from zero, for heterogeneous goods to one, for homogeneous products. (Neary P. J., 2012)

Since the aim of this paper is to analyse the strategy of the three world players mentioned above, we will follow Neary's assumption that firms engage in two-stage competition, first choosing their levels of investment and then choosing outputs in a Cournot manner. Furthermore, firms will incur an upfront quadratic cost of  $\gamma k_i^2 / 2$ , where  $\gamma$  represents the investment cost parameter, which is the same for all firms and  $k_i$  denotes firm  $i$ 's investment. The benefit from investment will be reflected in a reduction of the marginal cost of production,  $c_i = c_i^0 - \theta k_i$ , where  $c_i^0$  represents the marginal costs of production in the absence of investment and  $\theta$  denotes the investment effectiveness parameter, which is the same for all firms. (Neary J. P., 2002)

Therefore, firm  $i$ 's profit will be written as:

$$\pi_i = (p_i - c_i)x_i - \gamma \frac{k_i^2}{2} \quad (2)$$

The equilibrium is sub-game perfect, so firms take their investment decisions anticipating the effects on future product-market competition. (Neary J. P., 2002)

In the second stage of the game, firms will engage in a Cournot competition, thus they will choose the quantity they will produce. The equilibrium level of output is given by the standard first-order condition in a Cournot-type competition:

$$p_i - c_i = bx_i \quad (3)$$

By substituting for  $p_i$  from (1) in equation (3) we will then obtain firm  $i$ 's reaction function, which depends on its own output and the output of all  $n$  firms:

$$b(2 - e)x_i = a_i - c_i - beX \quad (4)$$

In order to obtain the equilibrium level of investment, which is the purpose of the first stage of our game, the first-order condition is:

$$\frac{d\pi_i}{dk_i} = \frac{\partial \pi_i}{\partial k_i} + \sum_{j \neq i} \frac{\partial \pi_i}{\partial x_j} \frac{dx_j}{dk_i} = 0 \quad (5)$$

Neary's interpretation of equation (5) is quite comprehensive: "The first term on the right-hand side represents the non-strategic motive for investment: it measures the direct benefits and costs of a unit increase in investment. The second term represents the strategic motive, as firm  $i$  anticipate the effects which a shift in its own period-2 reaction function will have on the outputs of other firms. Higher investment by firm  $i$  reduces the equilibrium output of every other firm, which in turn from (2) raises firm  $i$ 's profits. So each firm has a positive strategic incentive to invest." (Neary J. P., 2002)

### 3. AN EMPIRICAL ANALYSIS OF THE MODEL

If we look at the world market today, the European Union, the United States of America and Japan are undoubtedly key players. The high value of trade recorded by these three power poles of world trade lead us to believe that these countries have a great influence on the development of both value and physical structure of international trade flows.

The European Union has a common trade policy which allows the European Commission to negotiate trade agreements and represent the interests of the EU on behalf of the 27 Member States. The European Commission consults Member States

through an advisory committee, which discusses a full range of trade policy issues affecting the Community, including multilateral instruments, bilateral and unilateral. The European Union is responsible for one fifth of global imports and exports of goods.

USA is one of the leading exporters in the world, alongside China and Germany. However, U.S. demand for imported goods exceeds the export earnings. Therefore, since 1976, the United States has registered a growing trade deficit, except for 2005-2008, when the trade deficit has remained relatively unchanged. The increased value of U.S. exports was due to changes in exchange rates, the development of domestic production and increased foreign investment.

Since the early 1980s, Japan has accumulated large trade surpluses, as its diversified industrial sector has produced high quality products, such as electronics and cars, with a high demand on the international market. The Great East Japan Earthquake caused a blockage of supply such as large reductions in production, the cutoff or the closure of factories and ports, rather than a reduction in global demand, as was the case with the financial crisis. Therefore, as expected Japan's international trade started to recover, following the Japanese companies' efforts to recover from the impact of the earthquake.

In order to simplify our approach and to focus on the international trade dynamics we will consider that  $x_i$  from the model as the level of exports for industrial products and  $X$  as the sum of industrial goods exports in the other two partner countries in 2011 (World Trade Organization). Furthermore, we will consider the marginal costs of production as the number of workers needed for production. (Eurostat), (The Statistics Bureau of Japan), (U.S. Bureau of Labor Statistics)

According to the model presented above, the equilibrium output will be of the form:

$$x_i = \frac{a_i - c_i - beX}{2be} = \frac{a_i - c_i^0 + \theta k_i - beX}{2be} \quad (6)$$

By applying the first-order condition from equation (5), the equilibrium level of investment will be:

$$k_i = \frac{x_i \theta}{\gamma} = \frac{(a_i - c_i^0 - beX) \theta}{2be\gamma + \theta^2} \quad (7)$$

In Table 1 we present the number of workers needed in the industrial sector by EU, USA and Japan during 2009-2011. As stated above, the values presented in this table will be our  $c_i^0$  from equation (6).

Furthermore, since we have stated that the investment parameter  $\theta$  and the investment cost parameter  $\gamma$  are the same for all firms, thus the same for all three traders analyzed, and since we consider the case of open economies with free entry and the same market size  $a_i, b, e$  are the same for all countries.

**Table 1. Number of workers in the industrial sector in E.U., U.S.A. and Japan (thousands)**

	European Union	United States	Japan
2009	129918	159510	858490
2010	126054	161800	854810
2011	127008	164610	852740

*Source: Eurostat; U.S. Bureau of Labor Statistics; The Statistics Bureau of Japan*

Therefore, without loss of generality we will consider the case of homogeneous products and we will set  $\theta$  as the number. For  $a_i = 3, b = 0,5$  and  $\gamma = 5$ , the equilibrium level of investment and exports for the three world traders considered will be:

**Table 2. The equilibrium level of investment for E.U., U.S.A. and Japan**

	European Union	United States	Japan
2009	289644	322935	1109287
2010	284640	324854	1104491
2011	285925	328227	1102374

*Source: own calculations based on Table 1 and on equations (6) and (7)*

**Table 3. The equilibrium level of exports for E.U., U.S.A. and Japan**

	European Union	United States	Japan
2009	39932	40857	62700
2010	39647	40764	62421
2011	39730	40905	62409

*Source: own calculations based on Table 1 and on equations (6) and (7)*

As we can see from the tables above, in a world with three players, the European Union, the United States and Japan, where each player decides how much to produce, to export and to invest based on the decisions he anticipates the other players will take, the value of industrial goods exported should decrease dramatically.

#### 4. CONCLUSIONS

The model we have tried to present in this paper has been developed by Peter Neary in 2002. It has also played a key role in the development of other, more recent models concerning this particular subject.

As Neary very well states: "No theoretical approach or empirical evidence can be considered irrelevant, since what we are attempting to do is to give a coherent explanation of the evolution of income distribution in both rich and poor countries over past decades." (Neary J. P., 2002)

Therefore there are still many aspects of the model that would need improving, and based on the latest articles (Neary P. J., 2012) a very interesting approach would be to use at least two factors of production and to consider that the strategic investment would not only reduce the costs of production but it will also determine an increase in productivity.

In this paper we have tried to develop a multi-sectorial general-equilibrium model of oligopoly and trade in line with the ones already available in the last year's literature. We have considered trade between three identical and symmetrical countries, which depends on oligopolistic interaction and comparative advantage.

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REFLECTIONS ON CONCEPTUAL DEVELOPMENT AND SOCIAL RESTRICTIONS ON THE  
SUSTAINABLE DEVELOPMENT OF HUMAN SOCIETY

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**Abstract:** Developments in developed countries, especially after 1950, have highlighted the weaknesses and challenges in taking into account the basic needs of society - employment, nutrition, quality of life needs of present generations to those of future generations etc. Although there have been increases in welfare based on technological and economic development model adopted, the price was paid by: continuing environmental degradation, negative social effects (large urban areas), irrational and inappropriate exploitation of resources, aiming at obtaining of maximum economic gains. Therefore, at present, the concept of development cannot be separated from issues and concerns to ensure sustainable development.

**JEL classification: Q01, Q56**

Key Words: sustainable development, human development, ecological crisis, environmental accounts.

## 1. INTRODUCTION

The concept of sustainable development has started and grew as a result of gradual awareness of serious imbalances emerging in the development of human society today, amid economic and social globalization processes. Merit to be released first alarm about breaking the balance between contemporary and the planet's resources development is the Club of Rome, whose first report (*growth boundaries*) was developed by team at the Massachusetts Institute of Technology, 1972. Have emerged since then two aspects: first, the deterioration of the balance quantity, limiting the resources available on the world energy, drinking water, food, raw materials and increasing demands arising from economic and social growth, and on the other first, the deterioration of the quality balance of environmental factors, by the action of economic and social factors, through water, air and soil.

Compared with the development so far (classical), modern vision of sustainable development integrates some major demands in all national economies and the global economy as a whole, as follows:

- Substantial improvement of development in developing countries, in relation to the economically advanced states;
- Strategic planning of development, with specific and common elements, which are in direct compatibility, both national and international;

- Achieving a rational and sustainable state of balance by fundamental reconsideration of human values, economic objectives and collaboration with the natural environment.

In the last three decades, the specialized agencies of the United Nations and the International Council of Scientific Unions has promoted a series of regional and global programs and projects of investigation and evaluation of data, which have proven dimensions of planetary *ecological crisis* and the critical phase is learn the relationship between social and economic system dynamics and dynamic ecological system components.

Components of the sustainable development process are characterized by the compatibility and interdependence. Sustainable development cannot be achieved in one area or another, it must be to capture the entire human society, acting and making economic phenomena, social and political level both vertically and horizontally.

## 2. DEFINITION, CONCEPTUALIZE

*The first works* on developing the concept of sustainable development in the economy had seen on a planetary scale, given the fact that at this level have become more easily visible negative effects of industrial type development. The concept of development, in view of the interdependence of environmental issues, general welfare and economic growth, has seen many improvements and interpretation of that which proposes that practical measures to stop economic growth, to one that absolutize future role in the evolution environment society.

In general, a synthesis of many approaches, the concept of *sustainable* development or *sustainable* as we can define the *type of economic development that can ensure satisfaction of present needs without compromising the possibilities of new generations to meet their own can*.

From the perspective of real understanding of the significance of the concept, it can be explained by several expressions of Romanian, namely: developing moderate, cautious development, equitable development, balanced development, sustainable development, developing viable, sustainable development and others. The name is *a viable development* closer to what is meant originating *sustainable development*, which plays the fact that development can take place if there are resources able to support it and would exist if their operation will be rational, with prudence and responsibility.

Containing in itself a series of restrictions, the concept of sustainable development implies the necessity to integrate economic and environmental objectives and environmental protection, and compatibility relations between the main economic sectors (industry, agriculture, construction, transport, services) and between different branches (such as the extractive industry towards manufacturing, crop production over the animal, compared to banking to tourism).

Moreover, compatibility and interoperability between systems (the economic, human, environmental and technological), so as to ensure meeting the needs of the present without compromising the ability of future generations to meet their needs, designates the *scientific content of the notion of sustainable development*. Population, resources and natural environment, agricultural production, industrial production and pollution are the main determinants of contemporary development process.

At the level of each country, but worldwide, there is concern on the development of consistent *strategies* of sustainable development, which are the result of



a complex of issues on how contradictory on so alarming, such as poverty in the midst of wealth, environmental degradation, unequal distribution of income, loss of confidence in institutions, demographic explosion, uncontrolled expansion of urbanization, decreasing life expectancy worrisome in some countries, lack of employment, removal of traditional values, international terrorism.

Participation in the economic circuit, socially and environmentally international in terms of sustainable development cannot be achieved without *conducting a thorough*, based on which need to be clearly determined courses of action, in terms of maximum efficiency. For this, it must use a *system of macroeconomic indicators*, which can reflect the social and economic achievements obtained and ensure internationally comparable economies and world states.

So, *scientists* should have a role increasingly important in a country's sustainable development by increasing resource efficiency, developing new environmental technologies, with high productivity and low energy consumption and identifying new resources to allow operation on a long time horizon.

Defining sustainable development as a process of transformation, in which exploitation of resources, targeting investments, and institutional change is taking place in an ingenious way, *the World Commission on Environment and Development* emphasizes that achieving these objectives will contribute to strengthening economic potential, present and future, so to better respond to the needs and aspirations of humanity. In this vision, for its sustainable development can be implemented, must adopt a lifestyle that respects the ecological limits of the planet, not to damage the natural ecosystems, due to which there is.

### 3. VIEWS AND DIFFERENT APPROACHES

However, the term *sustainable* express not quite clear (sometimes even confusing) original term, more specific terms such as: developing ecological development viable or even sustainable development. The concept became a turning point in the development of new approaches to the issues in question. Place it carefully in a new type of development that will ensure long term growth and conserve natural resources. In this context, Gabriel Pascariu, to work *what is and what appears to be sustainable development?* (Arhitext Design Magazine, nr.10/1993), says that environmental sustainability requires a major reduction in resource consumption and pollution, means being able human to adapt the environment and accountability for species survival.

Sustainable development is therefore a critical concept, came in response to what is called development in the 8th decade of last century. Demographic explosion and the main energy resource depletion spectrum glimpse the idea that economic growth and material wealth will lead, sooner or later, to collapse. In such a situation, there was a new attitude, a reconsideration of the human-environment. This new guidance does nothing more than to support progressive development of mankind, as long as man does not disrupt the ecological process of organizing their rational exploitation, paying particular attention to the environment.

In view of Serban Cantacuzino, to work *towards a new urban ecology* (Arhitext Design nr.8/1998), the significance of sustainable development is a bottom-up development, provided that creates an equal ratio between development and regeneration process planetary ecosystem.

Principles and objectives of sustainable development has gained international consecration in 1992, was submitted in the *Declaration of Rio and Agenda 21*, the UN Conference on Environment and Development in Rio de Janeiro. Here, sustainable development was conceived in the vision of reconciliation between economy and environment, on a new path of development that sustain human progress, not only in some places and for some years, but for the entire planet for a long time (after as shown and the *economy work and defiance of nature*, Economic Publishing, 1994, author Camelia Camasoiu).

However, only the *European Council in Gothenburg* (June 2001) agreed a strategy for sustainable development, which provides a third dimension, environmental, and establishes a new policy approach. The strategy is based on the principle that the economic, social and environmental impacts should be considered in a coordinated way and taken into account in making decisions.

In this context, the *current requirements* concentrate primarily on the need for two new types of technologies: rational technologies (technologies with reduced consumption of materials and energy) and technologies clean (which involves the greening of existing ones adapted to new requirements and use).

Also, analyzing the world we live in economic, social, human and ecological studies undertaken (see Lester Brown's photos, *Global problems of mankind. The state of the world in 1991*) found these two contradictory opinions:

- according to indicators economic world is in a reasonable state of good and long term forecasts are promising...economists believe that advanced technology can overcome any limitations;
- according to indicators which measure the health of the environment, every major indicator shows a deterioration of the systems natural (pastures are contracting areas, deserts are expanding, the ozone layer becomes thinner, air pollution reached alarming levels).

Professor M. Babeanu in volume *Management and administration in the market economy* (Universitaria Publishing, Craiova, 1993) support the notion of sustainable development and is founded on the idea that any development process must have human purpose and to allow extending the range of choices that each individual can do to satisfy its many can.

According to the authors of the *Human Development Report* for the year 1995, developed under the UNDP (United Nations Development Program), there are three indicators with which it can measure in terms of human, synthetic performance of development:

- The average life expectancy at birth, which synthesize conjugated influence of many factors on life (health, nutrition, housing);
- Training rate, which reflects the amount of knowledge available to individuals, skills and ability to communicate and to participate in economic and social activities;
- GDP per capita, which expresses the average size of resources that individuals have access to satisfy a standard of living.

Interesting is that, since 1972, when the Conference on Environment held in Stockholm and until now, have been identified *over 60 definitions or interpretations* of the concept of sustainable development of their area ranging between two extreme limits: the one which proposes to halt economic growth and other which absolutize the

environment. According to the authors of the textbook on *political economy* (Economic Publishing House, 2000) from ASE Bucharest, sustainable development may be the solution to all conflicts conciliation, provided that the interests of unanimity to converge towards human development.

*New in the concept of sustainable development* is that it pays particular attention to poorer segments of the population everywhere, and for this purpose are formulated these ideas:

- Placing the human being in the center of priorities (economic growth should be viewed as a means to sustain human development);
- Most developed countries consider air pollution as a threat to health and look more concerned with long-term degradation of life, as protective actions but costly and lack the financial strength indicates that poverty is an enemy of the environment like wealth itself;
- For developing countries should not be preferably between growth and environmental protection.

Also, Professor C. Popescu, to *increase the work that impoverishes* (Publishing Tribuna Economica, 2003) believes that the issue of new developments (especially in our country) is not the lack of economic resources, but inefficient use of their failure to capitalize fully or partially waste from production processes.

M. Finally, in the work of *population health, human capital and sustainable development in Romania* (Universitaria Publishing, Craiova, 2004), authors M. Babeanu and A. Moldoveanu, based on five factors interfere in the process of development - population, natural resources, agricultural production, industrial production and pollution, argue that sustainable development strategy aims to find the most appropriate methods to optimize the ratio needs - resources, facilities, based on a dynamic compatibility between the natural and economic.

Sustainable development cannot be achieved without conscious human action. In order for man to do so, it is to transform itself, ie to develop their capacities. Follows naturally that in the process of sustainable development, whether man is part of the mechanism. *Sustainable development and human development involves so*. The two phenomena can occur only when it is in full compatibility. Besides this report they are functional.

In summary, if we were to break a few key phrases and at the same time, the foundations of sustainable development, we consider the following: present, future, collective responsibility, human society, eliminates poverty, dignity, respect for human and environment.

#### 4. CONCLUSIONS, PROPOSALS

We believe that human welfare (understood not only as their material wealth, but also reflect the quality of life they live) determine the nature and direction of sustainable development and their energy and initiative drive development. Social cohesion of a country can only be achieved by a well-educated and healthy population.

The current evolution of human society, it requires *reordering of economic activities*, in terms of ecological and human. Sustainable development should also outline the purpose of human socio-economics, the ultimate solution aim not only to profit and other material benefits, but rather is a means of celebrating the human being. In this idea, growth, look at the planetary level, but national and even individual must

be the result of other people's actions, much different from today, namely, action to permanently include *their concerns towards the social environment, natural*, in which they do business (for example, to realize a certain entrepreneur, who runs a prosperous business in terms of profits or turnover, and cannot enjoy the party plenum a holiday at the seaside, although have enough money because of polluted sea water to shore or sudden temperature changes due to climate imbalances that appeared; is simply a realistic example that shows how people in the future, can reach the situation of not enjoy a good life, though may have a considerable material wealth).

In Romania, we believe the *state should create a sound policy*, which agree specific criteria of market economy with sustainable development requirements, with the final goal of human economies. Policies and sustainable human development cannot take place or not feasible If the state, which is responsible for implementing them is not active and strong.

Alternatives to develop the country must start from what has managed to achieve to date and what to do in perspective. Any strategy in this regard should focus on economic growth by *investing heavily in new technologies and techniques, clean, and in attracting new resources and exploitation of raw materials*, the farthest limit of exhaustion than at present.

Adopting a *new model of sustainable development* in Romania involves developing scenarios based on adequate prospective methods, reflected by the relationship between natural capital, social and man-taking as a benchmark positive international experience.

The scenarios must take into account the growth rate of GDP, the internalization of environmental costs, the indicator is correlated with potential supportability of resources available to Romania. Expression of progress only by GDP, as is done now, is recognized as poor as environmental damage costs are generally avoided in order not to lead to a decrease in the indicator. In this respect, it requires a *set of indicators* to express better quality of life and to replace GDP as the sole indicator of development.

Thus, one aim of a new approach to sustainable development is the *highlight deficiencies present accounting system*, about the contribution of environment and natural resources to economic and social development process.

Currently, there are *three main accounting orientations* related natural environment, considering the proximity to the National Accounts system, namely:

- Adjust the *System of National Accounts*, this approach requires modification and adjust the structure of the traditional system, suitable for incorporation of the environmental component, environmental spending;
- *Satellite accounts*, this approach mainly aims to bring an additional information in the national accounting without introducing changes in the system of accounts and statistics combining physical environmental information with information in monetary terms the costs of environmental damage and costs of production;
- *Accounts of the natural environment and natural resources* is an independent approach, directed toward obtaining information on the quantity and quality of natural resource stocks and flows (flows between the environment and the economy, flows of resources within the economic system, expressed in physical units).

New methodological studies of environmental accounting and natural resources involves a variety of methods and procedures of analysis for verifying sustainable use of natural resources and achieving sustainable revenue.

Deficiency in current accounting system is contempt consumption of natural capital, its depreciation and the impact on society, leading to a false quantification of development in economic terms. Narrow national accounts indicators of well-being of a nation, because they include information about the changes in the natural resources and natural environment and do not reflect the depreciation of natural capital (water, air and land).

For our country, the main concerns should be aimed at identifying key indicators of sustainable development and monetary assessment of natural resources. An important role is and develops capacity for collecting and processing environmental data by improving socio-economic surveys, the description of the environment, developing statistical series of environmental monitoring.

Assessment techniques were commonly used to inform the project and sector levels. They are also necessary to influence national decisions. Conventional national accounts can be useful to macroeconomists, but they respond very least needs measuring sustainable income or change in productive capacity of a nation. These accounts include estimates of depreciation of capital produced by humans, but not the depreciation of natural resources, which is particularly important for some countries. For example, when grub tropical forests, there is no estimate on the loss of such irreplaceable asset.

An environmental management performance must start from recognition of the overall cost of damage to environment and taking them into account in decision making. But this is difficult in practice, that would be necessary to estimate not only the direct benefits for humans (for example, benefits due to improved soil productivity or clean water), but also the indirect benefits (protection of river water as a result of this forested lands). In addition, some natural assets, such as biological diversity, have the potential values that are not yet informed (for example, provision of new drugs in the future) and that are difficult to estimate.

A significant number of techniques, including conditional evaluation, estimating the cost of replacement or markets using "surrogate", have been improved for estimating value to environmental services. In this sense, the World Bank recently gave more consistent health policy makers in developing countries, the use of these techniques. Yet, many other things in terms of improved methodologies and empirical application.

Moreover, the World Bank collaborated with the UN Statistics Office and other institutions, making the point, despite the many technical problems, a new system of national accounts - Integrated Environmental and Economic Accounts - also covering issues the natural environment.

In conclusion, *application of the accounts of the environment and natural resources* should be seen as a process of evolution in the correct understanding of the relationship between economy and environment, is necessary to substitute the current system of accounting and economic quantification. Further, considering that we humans live environment and natural resources are *gifts of nature*, and work with indicators of economic growth that ignores the overexploitation of natural capital and loss of sustainability.

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## CHALLENGE THE CLIMATE CHANGE EFFECTS IN MOUNTAIN TOURISM: EVIDENCES FROM PREDEAL RESORT\*

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**Abstract:** This paper focuses on the assessment of climate change effects in a mountain resort from Romania, namely Predeal resort. Using data from surveys conducted from June 1 to September 15, 2012, the research finds interesting connections related to the climate change impact on tourism activity in Predeal resort, and not only.

**JEL classification:** Q54, L83

Key words: climate change, Predeal, winter sports, tourism, effects assessment.

### 1. INTRODUCTION

Civil society and government pays a more increased attention to environmental issues, underlining these aspects in their current agendas so, and inevitably including aspects related to environmental and natural resources, sustainable development, biodiversity etc. Depending on the level of development of regions and countries, the availability of technology and resources, these issues mentioned above are transformed into concrete measures, implemented and evaluated.

Tourism is currently facing the challenges of climate change, not only for the tourism industry in mountain areas, but also for the seaside and balneal resorts. For mountain tourism, snow reduction, increased frequency of extreme events etc., are issues that require immediate solutions, being events that may adversely affect human settlements, agriculture, business environment etc. Climate change brings positive and negative effects for the tourism sector, but not all resorts can be affected by climate change in the same manner.

Climate change is a challenge with significant effects already reported in many areas of the economy, including tourism, especially by some resource-dependent sectors sensitive to climate variability and thus having a high vulnerability. This creates obvious risks to recreational sector activities with already visible effects of certain tourism season overlapping of course with the climate season. Information on how

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climate change will interact with market and social trends on long-term are still limited, highlighting the need for in-depth analysis of the relationship of climatic factors with socio-economic parameters in regional territorial to highlight results and solutions on long-term according to the natural and economic features of the studied territory.

The analysis of bioclimatic parameters, on the one hand, and socio-economic environment and its internal sensitivity, on the other hand, and the study and modeling of the relationship climate – tourism indicators at local and regional level could provide a real and objective response and medium and long term signals to be integrated into viable strategies towards economic sensitivity and exposure to the variability of natural external factor.

The effects of climate change on winter sports tourism are different (Koenig and Abegg, 1997; Breiling and Charamza, 1999; Burke et al., 2003; Duchosal, 2007; Moen and Fredman, 2007; Scott et al., 2007; Tepfenhart et al., 2007; Tervo, 2007; Vrtačník Garbas, 2007; Dingeldey and Soboll, 2010; Surugiu et al., 2010) and can be expressed through: restriction of viable ski area and favorable periods to practice winter sports due to the reduction in thickness and persistence of snow, especially in resorts at low and medium altitudes below 1500 m; economic losses for the mountain settlements and tourism businesses and increase of the adaptation costs as a result of the reduction of tourism activity in winter season; increase of tourist demand for winter sport in resorts at higher altitudes above 2000 m, with increasing pressure on higher areas, carrying capacity may be exceeded; increase number of extreme events and their power are another threat to tourism activities and infrastructure. Therefore, there is a need to diversify the offer of winter sports tourism resort located at altitudes below 1500 m, while future ski resorts should be located at altitudes above 2000 meters.

This present paper aims to analyze the effects of climate change on tourism sector in Predeal – a mountain resort in Romania, well known for the winter sport infrastructure. The following section presents the objectives and some theoretical aspects of the methodology of the data analysis, followed, in section three and four, by the main findings and the recommendations. The last section concludes the article.

## **2. DATA AND METHODOLOGY**

Climate change is a significant and immediate threat that makes its effects felt in various sectors of the economy, including tourism. It is important to investigate the perception of tourism stakeholders on climate change, to ease the formulation of specific adaptation and mitigation measures at local and regional level, and to increase awareness of the impending impact of climate variability. In this regard, a survey was conducted at Predeal resort – an important mountain resort from Romania, well-known for its winter sport infrastructure.

The effects of climate change are strongly felt in recent years (e.g., heat waves and low temperatures periods, modification of the seasons structure, floods and heavy rainfall, prolonged droughts, lack of snow), requiring behavioral adaptation of tourists, but also adjustment of adaptation and mitigation measures adopted by stakeholders in tourism. In this respect it is necessary to formulate concrete measures of awareness.

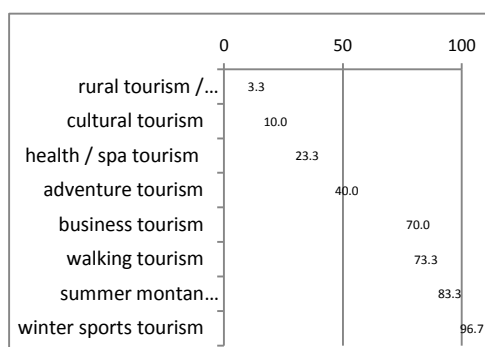
In addition, awareness measures are necessary in order to emphasize the role of tourism as a tool for economic, social and cultural development and the incidence of the effects of climate change. This research provides results of the survey conducted from June 1 to September 15, 2012 in Predeal resort. The questionnaire was completed



online and through direct interviews, face to face, being addressed to tourism operators, travel agencies, tourism professional associations, central and local authorities, academics and researchers.

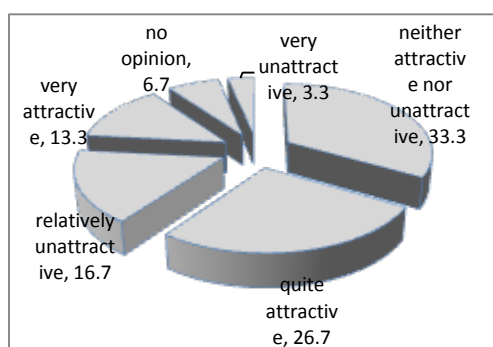
### 3. MAIN FINDINGS

In the following section the results of the investigation on the effects of climate change in Predeal resort are presented. The main forms of tourism at Predeal resort are winter sports tourism and summer mountain tourism (over 83.3% and 96.7%), while health / spa tourism was mentioned only by 23.3% of respondents as practiced in the resort. Forms of tourism that generates the most revenue are winter sports tourism, followed by mountain tourism, but business tourism was mentioned by 53.3% of respondents as an important generator of income.



Source: data processed by the authors

Figure no. 1 Forms of tourism offered in Predeal resort



Source: data processed by the authors

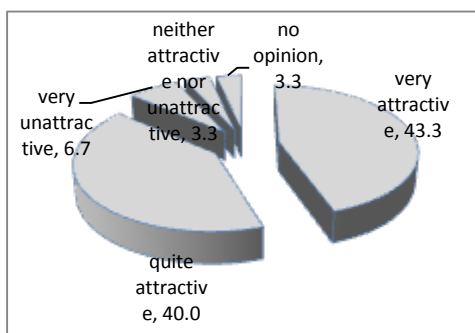
Figure no. 2 Level of attractiveness of cultural resources from Prahova Valley - Brasov region for the tourism in Predeal resort

In summer, natural resources from Predeal resort (e.g. ski optimum: thickness and duration of snow cover allowing winter sports and especially skiing) were appreciated by most respondents as being quite attractive, only 33.3% of them considered them very attractive. In the winter season, natural resources have been appreciated by most respondents as being very attractive (43.3%). Regarding cultural resources, 33.3% of respondents felt that they are neither attractive nor unattractive, and only 26.7% of respondents felt they were quite attractive.

Tourism offer from the resort is considered partially innovative by 46.7% of respondents and quite innovative by 20% of respondents, while 10% of respondents consider tourism offers not innovative. Balance tilts finally to a relatively low level of innovativeness of tourism offers. Innovative offerings appreciated by the respondents were: amusement parks, training centers / qualification of private company's personnel, chair lift facilities, tourist packages for all types of customers including spa, massage, ATV, romantic dinners.

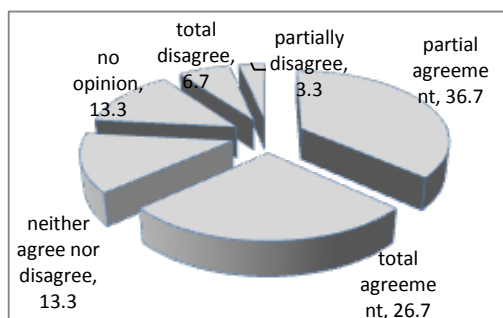
Climate changes produces effects on various sectors, on population's health, quality of life, quality of life, human settlements and 26.7% of respondents fully agreed,

while 36.7% were partially agree with this statement. Most respondents (40%) were in total agreement that climate change will have effects on different sectors.



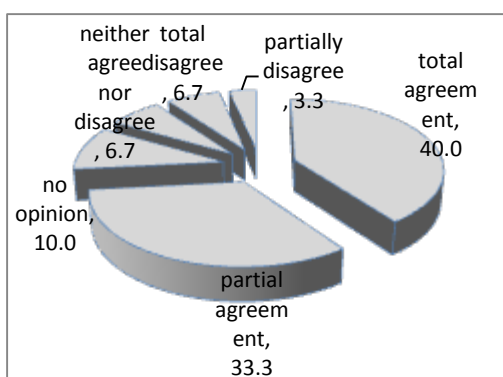
Source: data processed by the authors

Figure no. 3 Attractiveness of natural resources in Predeal resort for tourism in the winter?



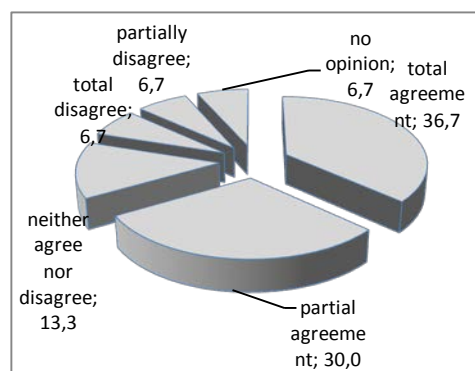
Source: data processed by the authors

Figure no. 4 Climate change generates effects on different sectors, on population health, quality of life, human settlements



Source: data processed by the authors

Figure no. 5 Climate change will have effects on different sectors

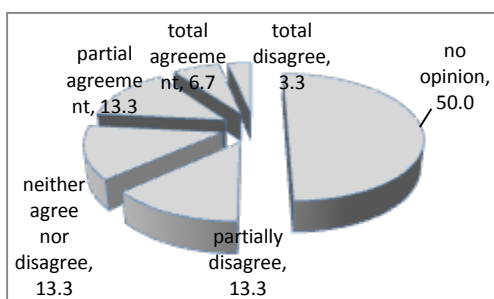


Source: data processed by the authors

Figure no. 6 Tourist activities are threatened by climate change

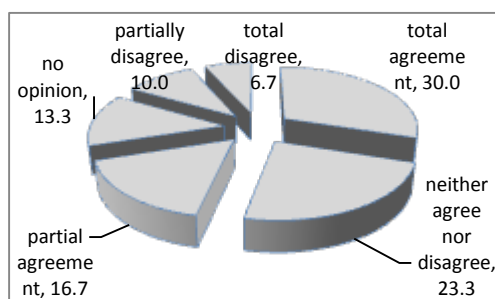
Of all respondents, 36.7% were in total agreement that tourism activities are threatened by climate change, while 30% have partially agreed on the above statement. Regarding the climate change that are already causing problems in Predeal resort, 13.3% of respondents expressed the answer "neither agree nor disagree", while 30% of respondents were in total agreement that climate change will cause problems in Predeal.

Interviewed on the effects of climate change that are expected in Predeal resort within the timeframe 2020-2050, 63.3% of respondents rated temperature rise during the summer and annual average temperature increase, while 53.3% considered the temperature increase in winter and 50% changes in flora and fauna. The increase of the frequency of extreme events (e.g. storms, heavy rainfall, heat waves, floods, tornadoes etc.) was mentioned by 23.3% of respondents.



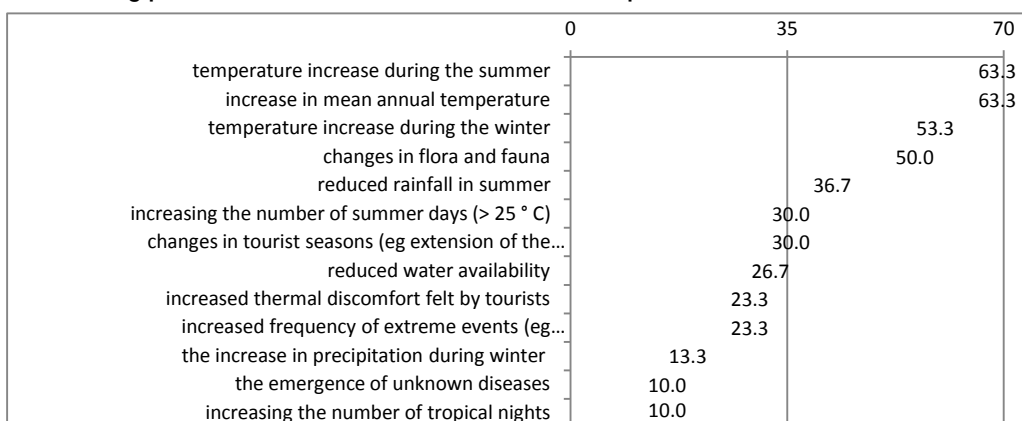
Source: data processed by the authors

Figure no. 7 Climate change is already causing problems in Predeal resort



Source: data processed by the authors

Figure no. 8 Climate change will cause problems in Predeal resort



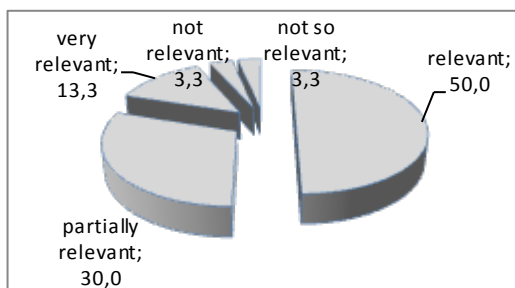
Source: data processed by the authors

Figure no. 9 Effects of climate change do you estimate that will appear in Predeal resort by 2020 - 2050

The impact of climate change is considered relevant by 50% of respondents and only 30% responded as partially relevant. The persistence and thickness of the snow in winter sports season is a very relevant issue for socio-economic activities in the Predeal resort for 60% of respondents.

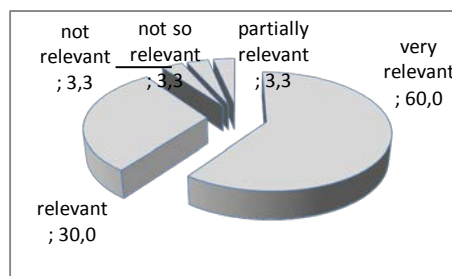
The temperature rise in mountain area from the Prahova Valley - Brasov is an important condition, but not essential to extend the summer tourist season for 43.3% of respondents, while 23.3% think it is essential.

46.7% of respondents expressed a partial agreement on the fact that the reduction of thermal comfort in summer affects the length of stay of tourists in Predeal, while 23.3% expressed complete agreement. The presence of rainy days during the summer season affects the occupancy rate in Predeal in the perception of 60% of respondents which expressed total agreement.



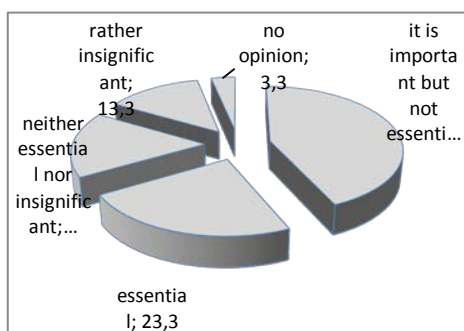
Source: data processed by the authors

Figure no. 10 Relevancy of the impact of climate change for Predeal resort



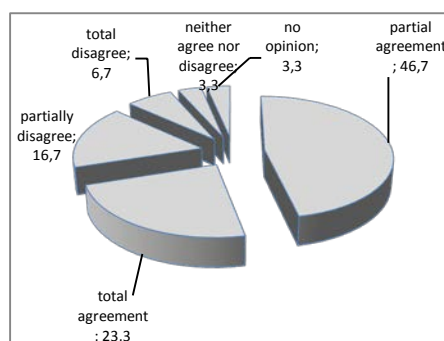
Source: data processed by the authors

Figure no. 11 Persistence and thickness of snow in the winter sports season for social and economic activities in Predeal resort



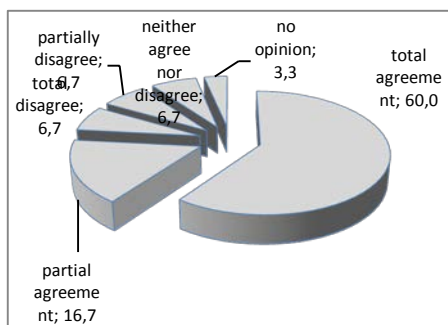
Source: data processed by the authors

Figure no. 12 Increasing of temperature in mountain area of Prahova Valley - Braşov is an essential prerequisite for extending the summer tourist season



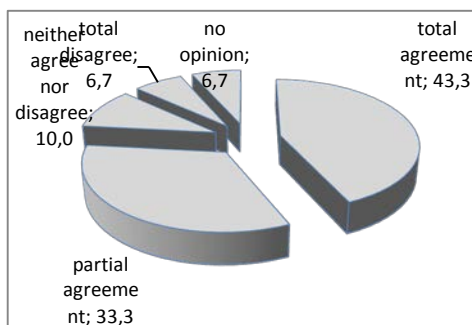
Source: data processed by the authors

Figure no. 13 Persistence and thickness of snow in the winter sports season for social and economic activities in Predeal resort



Source: data processed by the authors

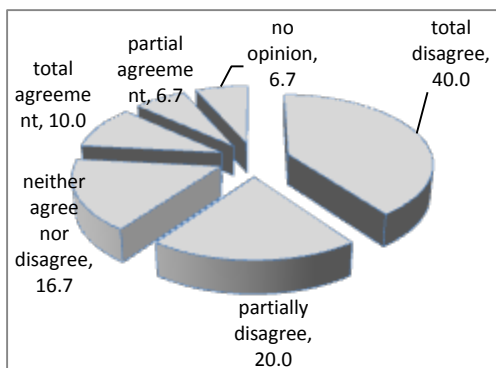
Figure no. 14 The presence of rainy days during the summer season influences the occupancy rate in Predeal resort



Source: data processed by the authors

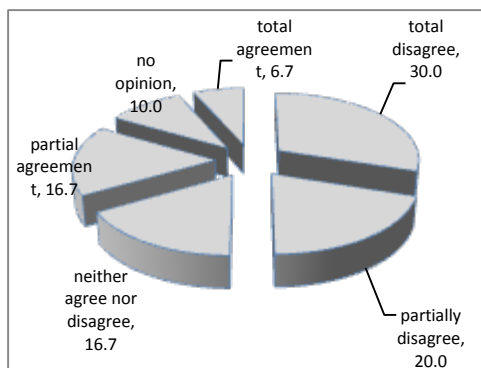
Figure no. 15 Global warming offers opportunities and threats for tourism business

Of all respondents, 43.3% were in total agreement that global warming offers opportunities and also threats to tourism business, while only 33.3% of respondents expressed partial agreement on this statement.



Source: data processed by the authors

**Figure no. 16 Tourism contributes to global warming**



Source: data processed by the authors

**Figure no. 17 Tourism has a role in controlling global warming**

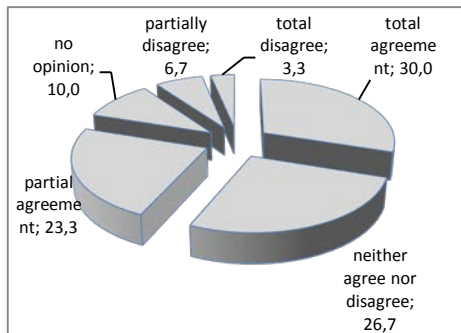
Respondents' opinions on the statement that tourism contributes to global warming are divided, 40% of respondents expressing a total disagree, while 20% are in partial disagreement on the statement. Also, 30% of respondents expressed total disagreement on the statement that tourism has a role in controlling global warming, while 20% are in partial disagreement.

Most of the respondents (30%) totally agreed that measures should be taken to prevent the negative effects of climate change on tourism in the Predeal resort. Among the mentioned measures by the respondents in order to adapt to climate change which may be implemented are: creating new tourist attractions in summer (93.3%); development of spa programs and promoting health tourism packages (80%), development of all-round tourism offers throughout, independent of climate and weather (80%), while 66.7% of respondents agreed that the activities on which the tourism sector should focus to adapt to climate change are the artificial snow supply, and the development of other forms of tourism (53.3%).

The main sources of information on climate change and possible adaptation strategies are the Internet (60%), television (56.7%), newspapers and radio (23.3%). Regarding tourism capacity to adapt to climate change impacts in Predeal resort, 43.3% of respondents rated it as average. In the opinion of 23.3% of respondents, there is a reduced capacity to adapt.

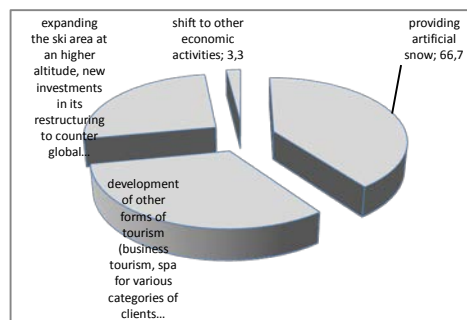
Missing information to perform activities to adapt to climate change refers to a proper presentation of scenarios of climate change, in particular of the effects that they might generate in tourism sector, information on climate change for Predeal area which may be presented by experts in the field or which may be offered by the local government. Regarding additional activities which should be done to increase adaptation capacity of tourism to climate change impacts, respondents mentioned the following: development of new recreation locations, development of new spa centers, new investment in artificial snow making systems, dissemination of research results, explaining the phenomena and effects to the general public, setting clear objectives to

pursue on long-term while monitoring of predetermined intermediate steps in a settled timeframe.



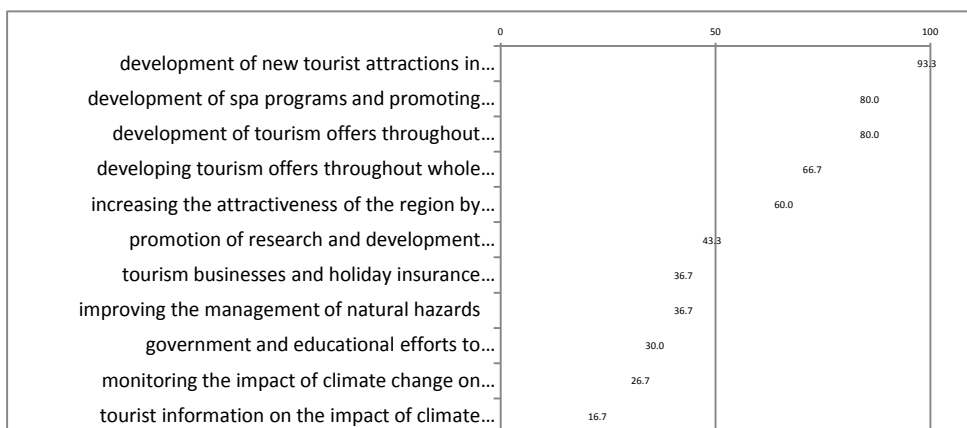
Source: data processed by the authors

Figure no. 18 It would be necessary to take measures to prevent the negative effects of climate change on tourism in Predeal resort



Source: data processed by the authors

Figure no. 19 Most viable alternative if the case of drastic reduction of the conditions for practicing winter sports in Predeal resort



Source: data processed by the authors

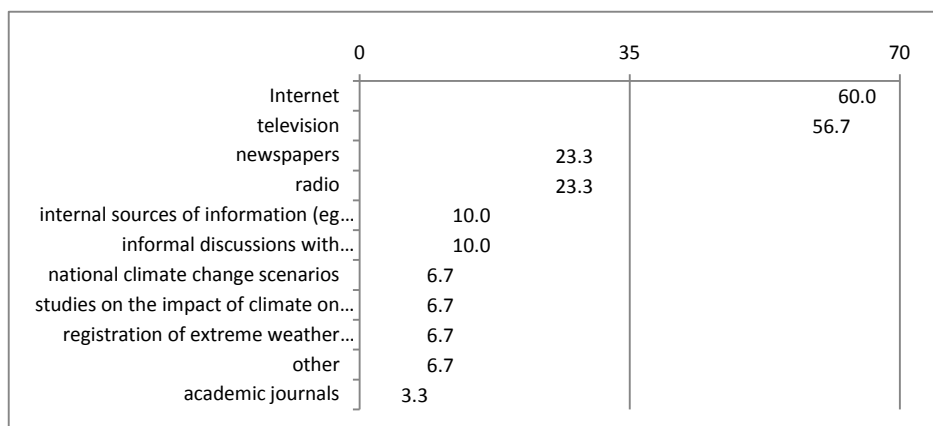
Figure no. 20 Adaptation to climate change implemented in Predeal resort

The key findings of the research conducted in Predeal resort are:

- natural resources are considered the main attraction of the Predeal resort;
- tourism offer of the resort is partly innovative;
- climate change will have effects on various sectors, including tourism; this effects will cause problems in Predeal resort;
- the main effects of climate change estimated in Predeal resort for 2020 - 2050 timeframe are temperature increase during summer, increase in mean annual temperature, temperature rise during winter;
- temperature increase in mountain area in the Prahova Valley - Brasov is an important condition, but not essential to extend the summer tourist season,

while reducing thermal comfort during summer influence the length of stay of tourists in Predeal resort;

- global warming offers opportunities and threats to the tourism business;
- adaptive capacity of Predeal resort is average;
- the stakeholders in tourism gather their information on climate change from television and Internet.



*Source: data processed by the authors*

**Figure no. 21 Sources of information about climate change and possible adaptation strategies and activities**

Adaptation measures to climate change are needed, and these include the development of new tourist attractions in summer, development of spa programs and promoting health tourism packages, development of tourism offers throughout all year round, independent of climate and weather. Therefore, it is needed for adaptation measures to climate change and their implementation at national level, and the coordination of measures locally adopted. Also, the support of local community by providing information and technical assistance tools to incorporate scientific and socio-economic available information, needed for appropriate planning for climate change adaptation and dissemination of appropriate measures, is a prerequisite task.

#### **4. DISCUSSIONS AND RECOMMENDATIONS**

The results of the current research investigating the effects of climate change on Predeal resort showed the need for adaptation and high need for rising awareness between stakeholders in tourism sector. Stakeholders in the development of Predeal resort should be able to understand the phenomenon of climate change. A series of actions should be carried out to inform tourism stakeholders regarding the effects of climate change.

The aim of these actions is to reduce the vulnerability of Predeal resort to climate change effects through specific actions and to inform and to educate the general public and tourism business, tourists through specific awareness actions at the local and national levels. The main objectives of this awareness campaign are to provide specific recommendations on public awareness on climate change and specific effects on

tourism sector and to promote effective communication on climate change effects in the tourism sector and in particular in Predeal resort among all actors at national, regional, local level.

The involvement of **governmental authorities in raising awareness of climate change effects in the tourism sector** should be made through facilitating dialogue with stakeholders in tourism on climate change subjects, in order to establish a consistent collaboration. Permanent, consistent and efficient information of tourism industry on climate change, alternative measures of adaptation, and the vulnerability of the tourist destinations are needed. Therefore it is required to facilitate the exchange of information, knowledge and experiences between the scientific community, policy makers, and practitioners on climate change organizing thematic workshops. In this regard, the governmental authorities should be involved in expanding and updating the database and disseminating information on the effects of the climate change among tourism stakeholders. This could be finished by creating an official website containing relevant information to climate change in the tourism sector in Romania. Furthermore, establishing partnerships with the scientific community for the collection and dissemination of research results on climate change effects is necessary. On the other hand, the ministry of environment should get involved in the creation and development of meteorological centers, providing equipment in order to further disseminate information about regional climate and adapted to tourism sector.

Proactive measures are also supported, through the communication efforts in reducing greenhouse gases (GHG) emissions from the transport and tourism sector, offering good practice guidelines on the management of GHG emissions for businesses, tourism destinations. On the other hand, the local and central authorities should support alternative forms of tourism (e.g. ecotourism, rural tourism), with minimal environmental impact and low volume of emissions of GHG in the tourism sector. They should also inform travel actors on the instruments to reduce the specific vulnerability of destinations to climate change.

It is necessary to **educate tourists about climate change effects** in order to induce a behavioral change of tourists and specific consumption. Consequently, tourists can change their travel preferences and patterns as long as adverse weather conditions can be avoided, seeking best opportunities of tourist areas. Education and awareness action should start from tourists and general public, which are most concerned in this regard. It is necessary the awareness of the entire phenomenon and understanding the potential effects of climate change on tourism and anticipate these effects that could provide a possible rethinking and reorganization of tourism in Predeal resort to prevent a tourist's crisis.

First, tourist should be inform about climate change effects and the economic, social and environmental impact in a tourism destination using various media channels (press release, television, radio, social media). A dedicated educational guide for visitors and local population ("Consequences of climate change for tourism") seeking a better understanding of the climate in relation to tourism could be developed and disseminated. Also, tourists should get information about adaptation actions undertaken by the tourism sector. Interactive exhibitions and scientific events will be organized to make the local population and tourists aware of the consequences of climate change and the solutions that are necessary to be taken. Misperceptions of tourists regarding



negative impacts of climate change presented by the media should be better managed, by developing an effective communication plan.

Positive marketing message to tourists on climate change effects, adaptation and mitigation alternatives should be disseminated, offering also useful information on how should dress comfortably in hot periods, what to eat and drink during these periods etc. It is also necessary to change tourist's behavior on environmental issues, and tourists should gather more information about the benefits of practicing green, pro-active holiday, providing educational programs that encourage the contribution to the conservation of the natural and cultural environment. Special programs could be launched and promoted through which tourists can participate in carbon offsets - a quantity of GHG equal to that generated by an activity to be reduced elsewhere. Also, tourists will be encouraged to take into account climate change effects in the choice of holiday destinations. On the other hand, specific environmental issues, tourism, environmental protection, climate change presented in an easily assimilated manner should be included in the school curricula.

## 5. CONCLUSIONS

For tourism, environmental issues and natural resource protection, and not only, raise different approaches. Individuals have become increasingly concerned about the environment and its protection and understood the need to protect as a pre-condition for a decent future. Landscape, in all its diversity, is the basic element, the main ingredient, the essence of its strength for tourism. Landscape attractiveness among tourists is given by the contrast in comparison with their usual living environment and European travellers increasingly want as the nature to be more prominent in their vacations (Poon, 1993).

In mountain tourism is noted especially visible negative effects of lack of demand or reduction of snow cover. Length, thickness and quality of snow remains very important for the profitability of ski resorts, the effects of climate variability induced by restricting liquid precipitation or dominant rainfall in some parts of the winter sports season, leading to fluctuations in demand and thus to lower income, requiring additional investment in snow making equipment and other measures to support the ski industry and even shift to other tourism and economic activities. The altitude certainly plays a very important role. For example altitudes below 1500 m for the ski area are proving not to be viable in the long term, leading to changes in local economic profile and transfer to other economic sectors. For summer mountain tourism a positive consequence of global warming might be extending it to the end of the season to spring and especially autumn.

The analysis of bioclimatic parameters, on the one hand, and socio-economic environment and its internal sensitivity, on the other hand, and the study and modeling of the relationship climate – tourism indicators at local and regional level could provide a real and objective response and medium and long term signals to be integrated into viable strategies towards economic sensitivity and exposure to the variability of natural external factor.

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A RESEARCH ON EMPLOYEES' PERCEPTION OF ORGANIZATIONAL JUSTICE AND THEIR PROPENSITY TO LEAVE: CASE STUDY OF 4 AND 5 STAR HOTELS IN THE PROVINCE OF ANTALYA

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**Abstract:** The justice is a perceptual concept, and therefore it has been interpreted in various ways either in social or in work environments. This study aims to identify the employees' perceptions of justice and its relation to their propensity to leave. The scope of the study includes the employees of four and five star hotels (all departments) located in the province of Antalya. A quantitative survey method has been used during the research; the questions and statements had been prepared in a manner that they will not lead the interviewed towards a certain answer in anyway. The data were collected through face to face interviews, online survey portal and e-mail communications. Research findings suggest that, the propensity to leave effects interactional justice, although on a low-scale. It can be said that employees with a tendency to leave develop a higher perception of interactional justice. However, propensity to leave does not have an effect on procedural or distributive justice.

**JEL classification:** C01, K49

**Keywords :** Organizational justice, propensity to leave, hotel establishments, employee, Antalya

## INTRODUCTION

Distribution of gains of organizational justice can be described with the operations used during decision-making and rules and social norms developed during the interactions between people. First studies, which started with Adams' Equity Theory, examine the employees' perception of fairness of organizational benefits. However the recent studies focus on perception of justice of interpersonal relationships (with supervisors and colleagues) within the organization. Theoreticians describe the organizational justice as a classification based on fairness of the gains (distributive justice), procedures (procedural justice) and relations of the people (interactional justice) (Eker, 2006).

Distributive justice indicates the fairness of the person's gains (tasks, goods, services, opportunities, penalties / rewards, roles, statuses, rates, promotions, etc.), on the other hand procedural justice indicates the fairness of the procedures and methods used during the decision making process. While the studies continue to examine distributive justice and procedural justice; researchers has started to study the

interactional justice, which deals with organizational practices associated with interpersonal behaviors and interaction between management and the employees. Interactional justice is a concept that indicates the characteristics of interpersonal practices between people. Employees perceive the attitude of the organization towards them as an indicator of justice in their organization. (Eker, 2006).

Propensity to leave is one of the destructive actions taken by the employees if they are unsatisfied with the work conditions (Rusbelt et al., 1988); in other words, it is a preliminary indication of the actual absence and brings significant cost to the businesses (Scott et al., 2006). Employees' propensity to leave causes many problems such as loss of skilled staff, need for recruitment of additional staff and increased costs of management. (Gül et al., 2008; 4). Many studies has been completed and many studies has been continuing to suggest solutions to how to eliminate such problems for businesses and also to contribute to the literature about the positive or negative effects of organizational justice on propensity to leave.

In this framework, the purpose of this study is to examine the employees' perspectives of justice at hotel establishments and to determine the relationship between propensity to leave and justice perspectives. In this context, the literature section of this research includes explanations about the concept of organizational justice, the dimensions of organizational justice perceptions, the concept of propensity to leave, reasons for propensity to leave and results of propensity to leave.

In the final part of the study, a survey was conducted to determine to if there is a relationship between organizational justice and propensity to leave and the findings were evaluated accordingly.

## **1. EMPLOYEES' PERCEPTIONS OF ORGANIZATIONAL JUSTICE**

In today's rapidly changing business world, organizational justice is increasingly important for employees (Vahtera et al., 2002). Because, the perception of organizational justice is an important factor that effects employees' commitment to the organization (Tan, 2006).

Organizational justice is a concept that indicates employees 'perceptions of how fair they were treated and how this perception effects the organization (organizational commitment, job satisfaction, propensity to leave etc.). Employees 'perceptions of justice carries an importance in terms of personal and job satisfaction and effective functioning of the organization. In other words, employees' opinions on fairness of the organization reveal the importance of justice (Thibaut et al., 1975).

Organizational justice consists of three types. They are; distributive justice, which is about perceptions of fairness of the results, procedural justice, which is about perceptions of fairness of decision-making procedures and interactional justice, which is the result of the interaction between the individuals in the organization (Söyük, 2007).

Distributive justice is about perceptions of the results and their distribution. The question of "Have I got what I deserve?" is the main foundation of the discussions about distributive justice (Atalay, 2007).

The concept is originated from Adams's "Equity Theory" (Adams, 1965) and according to that, the employees decide if their rewards received within the organization are fair or not in line with "Equality Rule". Employees compare their performance inputs (education, training, experience, work stress and tensions endured,

seniority, etc.) with outputs of rewards (salary, promotion etc.). If they perceive an inequality between inputs and outputs, they think their rewards were not fair enough (Tan, 2006).

A broad definition of distributive justice can be stated as the employees' perceptions of fairness of the distribution of the resources within the organization (Folger and Konovsky 1989).

Procedural justice, points out the individuals' perceptions of their participation in decision-making process and neutrality and objectivity of it (Moon et al., 2008).

This dimension of the organizational justice is not limited to the financial expectations (wages, promotion, bonus, contribution etc.) of the employees. It is related to the level of fairness of the strategies and policies in decisions about working conditions (Jahangir et al., 2006). In this framework, it is acknowledged that source of procedural justice attributed to the managers and the organization. The management dimension of procedural justice emphasis on fairness of the managers, who are implementing the decisions, and their attitudes and behaviors; on the other hand the organizational dimension of procedural justice emphasis on employees' perception of fairness of the principles and the policies adopted by the organization (Kim, 2005).

There are three important factors in employees' perception of procedural justice (Greenberg, 1990):

- Impartial functioning of the decision-making process,
- Level of confidence in decision-making authority,
- Organizational culture based on respect, trust, good intention and cooperation.

Procedural justice carries an importance because it has a significant role in establishing consistent attitudes of the employees towards their employers and organizations (Thibaut et al., 1975). Employees pay attention to how they were treated so, their perceptions of fair treatment structure their relationship with their employers. If the employees believe that the decision-making process was unfair, they become less committed to the organization and it may result in lower performance and higher staff turnover (Folger and Cropanzano, 1998).

Employees' perception of fair treatment does not solely depend on procedural justice, which provides fair rules in the work environment (Greenberg, 1990b). Interpersonal relations with the administration are also very important and described as interactional justice which is sub-dimension of organizational justice (Bies and Moag, 1986).

Interactional justice requires managerial skills such as to treat employees respectfully, to prize their value, to listen with interest, to provide explanation for the decisions made, to show empathy and sensitivity to the others (Skarlicki and Folger, 1997). Interaction perceived as fair can influence employees to have more positive attitudes (Mossholder, 1998).

## **2. EMPLOYEES' PROPENSITY TO LEAVE**

It is important to ensure lower turnover of the employees as to ensure their efficiency in the organization. The level of stability of the employees reflects the employee turnover rate. Higher employee turnover rate in an organization brings some disadvantages (Türker, 1998; 37).

Employee turnover can be defined in many ways.

Employee turnover is defined as resignation or dismissal of the employee for various reasons (Eren, 1993; 176). As a result of vacant position created by an employee, either voluntary or involuntary, new staff needs to be recruited and this situation is described as “employee turnover” (Woods, 1997; 359).

As understood from definitions stated above, employee turnover is formed by the elements of the employees leaving the job either willingly or unwillingly. In short, employee turnover is described as employees’ leaving their job whatever the reason. Employee turnover is not only about the employees to leave their job voluntarily but at the same time, it includes the termination of employment by the businesses. Eren, 2000, 259).

Propensity to leave can be described as conscious and willing approach to leave the organization (Tettye and Meyer, 1993). Propensity to leave is seen as a most important and determining indicator of quitting a job (Ajzen and Fishbein, 1980) and seen as a most important factor in employee turnover rate (Bluedorn, 1982; Shore and Martin, 1989).

### *2.1 THE REASONS OF PROPENSITY TO LEAVE*

Business managers should be aware of the importance of employee turnover. Keeping it at the required level will contribute the solutions of potential problems which may occur in the areas of labor productivity, education, labor costs, communication and management. (Tütüncü and Demir, 2002; 47).

The factors may result in dismissal or resignation can be explained in three dimensions:

#### *2.1.1. EXTERNAL FACTORS*

These factors are generally occurring for the reasons which are not connected to the business or employee and also are difficult to control by the business enterprises (Yilmaz and Halıcı, 2008, 95). External factors that develop outside the business can be listed as follows (Carbone, 1995; Abrahamson, 1997; Harris, 2000):

- Economic Situation
- Technological Developments
- Labor Flow
- Seasonal Characteristic of Tourism Sector
- Excess of Alternative Job Opportunities

#### *2.1.2. INTERNAL FACTORS*

These factors caused by the employee or the employer, can be controlled by them, their reasons and time are known. Most important one is the internal problems caused by managerial practices. (Kılıç, 2004; 69-70).

It is possible to examine the internal factors in two main headings; voluntarily resignation of the employee or dismissal by the employer:

According to Baltas (2005), resignations /dismissals of the employees create a significant problem for hotel enterprises. Businesses can face difficulties if a skilled and experienced staff leaves the job and the newly recruited staff encounters adaptation problems with his/her colleagues.

Employees may resign voluntarily for various reasons. It is possible to examine significant issues effecting employee turnover under the following headings:

- Job Satisfaction
- Salary
- Encouraging and Rewarding
- Promotion opportunities
- Stress
- Physical Working Conditions
- Job Security and Social Security
- General Management of the Business
- Impact of Internal Communication
- Vocational Training Opportunities
- Business Ethics of Managers Towards Employees
- Harassment and Mobbing at the Workplace

## **2.2 RESULTS OF PROPENSITY TO LEAVE**

“Resignation / dismissal of an employee” can cause higher employee turnover and it is important issue in many sectors, as well as hotel management. In this section, results of the propensity to leave will be examined, but it will focus on the negative results in the line with the study.

It is disadvantageous for the businesses to have high and persistent employee turnover rate which can causes various problems and brings additional cost. The negative results of the resignation / dismissal of the employees can be classified as below (Geylan, 2000, 41):

- Difficulties faced in recruiting, time-lost and additional cost occurred during the selection process.
- Increase in the cost of training
- Loss of time and additional cost endured during the period new staff gets accustomed to the work and the business.
- The increase in work-related accidents,
- Reduction in quantity or quality of production,
- Decline in the fair salary system
- The decrease of trust and commitment of employee towards employer

According to a study conducted in hotel businesses, the negative effects of resignations on performance and productivity are listed as follows (Birdir, 2000, 143):

- Insufficiency of new recruits,
- The negative effects of the new recruits on the performance of their co-workers
- The low performance of the leaving employee during the period of resignation
- The effect of the employee who is leaving on his close colleagues, causing their low performance
- Work losses occurred during vacant time until a new staff is recruited.

## **3. THE RELATION BETWEEN EMPLOYEES' PERCEPTIONS OF ORGANIZATIONAL JUSTICE AND THEIR PROPENSITY TO LEAVE**

The concept of organizational justice is based on Adams' "Theory of Justice", and many research were carried out circling this theory with an emphasis on the effect

of perception of justice on employees. The focal point of these researches is that the employees structure their actions comparing to the benefits they have gained with the gains of the others, while considering their contributions to the business.

For example, according to Yeniçeri et al., (2009), the employees' loss of meaning and value towards justice of the business can cause negative reactions in their emotional actions. One of the main emotional actions, which are created as a substitution of employee's negative perceptions of organizational justice, is exhaustion.

A study conducted by Özdevecioğlu (2003) aims to determine the effects of perception of organizational justice on aggressive behavior among individuals. In this study, organizational justice and its effects on aggressive behavior has been examined in three dimensions.

The similarities of physical and psychological symptoms resulting from loss of confidence in organizational justice and exhaustion (Balcioğlu, 2008:100-101) reveal the close relationship between these two cases. According to Greenberg (2004), organizational justice is effective in reducing the stress in the workplace. Findings of Kwak's (2006) study also support the same issues. The studies of Wesolowski and Mossholder (1997) on job satisfaction, exhaustion and procedural justice draw attention to the link and relation between these issues.

In another study, Yürür (2000) examines the relation between the structure and functioning of the reward system and organizational justice. In this regard, employees' justice perceptions on rewards and performance procedures and their opinions on salary, management and organization were related. This research, which is consistent with the other researches carried out at legal and political circles, indicates that the justice perception on salary and rewards (praise, appreciation) is mainly about the evaluation of the award itself rather than the evaluation of the management and organization. On the contrary, justice perception of reward distribution is more about being satisfied with management and organizational commitment rather than the reward itself. In other words, employees' perception of justice has an important impact on the success reward systems of the organization. At the same time, employees' justice perceptions are significantly influenced by the structure of the salary system.

Arnold and Feldman (1986) stated that six main factors effecting employees' job satisfaction; the salary, the work itself, promotion opportunities, management style and working conditions. In this context, perception of organizational justice, which can be described as a reflection of workplace environment, can effect job satisfaction.

Number of researches conducted in the field of organizational behavior shows that there is an important relation between perception of organizational justice and job satisfaction and the high level of perception of justice increase the job satisfaction (Walks, 2008). There are many studies focusing on the relations between these two variables.

For example, the survey conducted by McFarlin and Sweeney (1992), which was participated by 675 bank employees, shows that the perception of procedural and distributive justice and job satisfaction has significant and positive relation. The study also emphasizes that the distributive justice has more effect on job satisfaction than procedural justice.

Martin and Bennett (1996) carried out study at a financial company and had similar results, parallel to the findings of McFarlin and Sweeney; they confirmed that



the distributive justice and procedural justice have a significant and parallel relation with job satisfaction.

The study of Tang and Baldwin (1996) focuses on the impact of distributive and procedural justice on job satisfaction. In this study, it was stated that if managers administrate fair organizational rules and distribute appropriate rewards according to the performances, the employees' perception of distributive and procedural justice will increase and this will bring more job satisfaction and commitment.

Other studies examined in the relevant literature, and noticed that Libby (1999) and Lindquist (1995) studied the concept of organizational justice with the perspective of budgetary contributions. The studies of Siegel, Reinstein and Miller (2001) and Ehlen and Welker (1996), explain the relations between organizational justice and mentoring in accounting companies.

Many other researches conducted in this field; examining the relations between organizational justice and several variables; organizational citizenship, organizational trust, organizational commitment, job satisfaction. However, there are not many studies in the literature focusing on the relation between organizational justice and propensity to leave and therefore, this study gains great importance for its purpose.

A large number of traditional models, which are aiming to determine the employees' propensity to leave, are focus on the behavior of employees towards their work and organizations (Farrell and Rusbult, 1981; Mobley, 1977; Steers and Mowday, 1981). In many of these models, the recognition of propensity to leave as an option starts with hypothesis of low level of job satisfaction and low level organizational commitment (Hom and Griffeth, 1995). One of the most prominent results of the employees' perceptions of justice is propensity to leave.

Parker and Kohlmeyer III (2005) in their study of the people working in accounting companies, aim to determine the organizational commitment, job satisfaction and propensity to leave, using the distributive justice dimension of organizational justice.

Similarly, Colquitt et al., in 2001, in the meta-analysis of results of organizational justice has stated that both distributive justice and procedural justice have high and negative relations with propensity to leave.

When the relation between organizational justice and propensity to leave were examined, it is possible to say that employees with propensity to leave have higher perception of interactional justice. Interactional justice reflects how and which ways the individuals were informed about decision-making process in the work place. Administration of rewards and penalties are part of the decisions made and therefore it can be considered that the rewards and penalties implemented effect employees' perception of interactional justice (Shapiro et al., 1994).

## **METHOD**

This study aims to measure the effect of organizational justice on propensity to leave and seeks answers to the following questions;

I. What are the dimensions of employees' perceptions of organizational justice in their work environment?

1. What is the level of employees' perceptions of interactional justice in hotel business?

2. What is the level of employees' perceptions of procedural justice in hotel business?
3. What is the level of employees' perceptions of distributive justice in hotel business?

II. Is there a relationship between the level of employees' perception of organizational justice and their propensity to leave ?

The scope of the study includes the employees of four and five star hotels (all departments) located in the province of Antalya. The sample was determined with simple random sampling method which is one of the probability sampling methods.

A quantitative survey method has been used during the research; the questions and statements have been prepared as a result of the literature scan. The data were collected to through face to face interviews, "online survey" portal and e-mail communications.

Survey statements were created with a scale which was used in the doctorate thesis of Dilek Dürdane ATALAY (2007) titled "Relation of Perceived Organizational Justice and Organizational Commitment with a Perspective of Equivalence Sensitivity". The scale used by this author was adapted from the organizational justice scale developed by Niehoff and Morman (1993). The scale for the propensity to leave was formed with using the scale developed by Arkoubi, Bishop and Scott (2007) in their study titled "The Determinants of Turnover Intention of An analytics Among Drivers".

These two studies examined and a questionnaire was formed in three sections. The first section includes 20 questions of organizational justice scale, the second section includes 3 questions of propensity to leave scale and the last section includes demographic characteristics consist of 9 independent variables.

Survey forms were delivered to the hotel establishments in the province of Antalya using various methods. 225 survey forms were collected, but 45 of them were excluded due to the large number of missing data, and therefore 180 units were subjected to analysis. Data were analyzed with SPSS Programme; Factor Analysis, Anova and T-tests, correlation and regression analyzes were conducted.

## **FINDINGS**

The survey includes questions about the demographic characteristics of the employees; gender, age, marital status, education level, experience in the sector, the number of companies they work for in the sector, a total number of the companies they worked for, the ownership of the company and their position in the company Furthermore, the findings regarding the effects of organizational justice on propensity to leave is included in this section .

### **DEMOGRAPHIC CHARACTERISTICS OF THE EMPLOYEES**

Demographic characteristics of the employees participated in this research are shown in Table 1.

In this research, %23 (n=42) of the employees were female and %63,3 (n=114) were male. The distribution of the ages as follows; %26,7 (n=48) aged 25-30, %3,9 (n=7) aged 31-35, %21,1 (n=38) aged 36-40, %30,0 (n=54) aged 41-45, %13,9 (n=25) aged 46-50 and %3,3 (n=6) aged 51 plus. Their marital status distributed as; %18,9

(n=34) are married, %68,9 (n=124) are single. Their graduate levels stated as; %0,6 (n=1) primary school, 3,3 % (n=6) secondary school , 42,2 % (n=76) have two years associate degree, %26,7 (n=48 ) bachelor's degree and %23,3 ( n=42) graduate degree.

**Table 1. Distribution of Demographic Characteristics of Employees**

		<b>Number</b>	<b>%Percentage</b>
Gender	Female	42	23,3
	Male	114	63,3
	No answer	24	13,3
Age	25-30	48	26,7
	31-35	7	3,9
	36-40	38	21,1
	41-45	54	30,0
	46-50	25	13,9
	51 ve +	6	3,3
	No answer	2	1,1
Marital Status	Married	34	18,9
	Single	124	68,9
	No answer	22	12,2
Education Level	Primary	1	0,6
	Secondary	6	3,3
	Associate Degree	76	42,2
	Undergraduate	48	26,7
	Graduate	42	23,3
	No answer	7	3,9
Work experience	4-7 Year	10	5,6
	8-11 Year	82	45,6
	12 Year +	88	48,9
Number of Companies	1.Company	88	48,9
	2.Company	92	51,1
Ownership of the company	National	88	48,9
	Foreign	92	51,1
Business Type	4 Star	50	27,8
	5 Star	130	72,2
Position Held	Middle Manager	25	13,9
	Worker	155	86,1
Total		<b>180</b>	<b>100</b>

5,6 % (n=10) of the employees have 4-7 years' experience in the sector, 45,6 % (n=82) 8-11 years, 48,9% (n=88) 12 year and over, respectively.

When we examine the number of companies they worked for in the sector, 48,9 % (n=88) of the employees work for one company and %51,1 (n=92) work for two different companies. When we look at the ownership of the companies, it was stated that 48,9% (n=88) of the employees work for the companies with national/local capital, however 51,1% of them (n=92) work for foreign chain companies. When we examine the business type, it was seen that 27,8 % (n=50) of the employees work for 4 star hotels and %72,2 (n=130) work for 5 star hotels. Regarding the positions held it was distributed as %13,9 (n=25) of them hold a middle manager position and %86,1 (155 people) are workers.

#### *RESULTS OF FACTOR ANALYSIS*

Factors and values obtained from this research shown in the following tables: Results of the Factor Analysis of Organizational Justice are shown in Table 2 and Factor Analysis on Propensity to Leave shown in Table 3.

**Table 2. Factor Analysis of Organizational Justice**

<b>Factors</b>	<b>Factor Loadings</b>	<b>Eigenvalue</b>	<b>% of Total Variance</b>	<b>Alpha</b>
<b>Factor 1: Interactional Justice</b>		<b>4,776</b>	<b>31,837</b>	<b>,808</b>
Managers consider my personal needs during decision-making	,719			
My work responsibilities are fair	,702			
Managers are honest and sincere in their decisions.	,691			
Managers ask the opinions of the employees before decisions were made.	,574			
Managers respect others in their decisions.	,547			
Managers make decisions impartially.	,538			
Managers are kind and considered in their decisions.	,522			
Managers protect my rights in their decisions	,509			
<b>Factor 2: Procedural Justice</b>		<b>1,361</b>	<b>9,077</b>	<b>,697</b>
Managers explain the decisions to the employees and provide additional information.	,776			
Managers make sensible explanations about the decisions.	,671			
Decisions are applied to all the employees.	,619			
Appropriate justifications are made	,607			

Factors	Factor Loadings	Eigenvalue	% of Total Variance	Alpha
for the decisions.				
<b>Factor 3: Distributive Justice</b>		<b>1,255</b>	<b>8,364</b>	<b>,553</b>
My salary is fair.	,798			
My rewards received from the company are fair.	,653			
My work programme is fair.	,601			

Varimax Rotated Principal Components Factor Analysis Kaiser-Meyer-Olkin Sampling Adequacy = 853; Bartlett's Test of Sphericity:  $p < 0,000$  (Chi-Square 689,317,  $df=105$ ) Toplam Variance : 49,278.

Table .3. Factor Analysis on Propensity to leave

Factors	Factor Loadings	Eigenvalue	% of Total Variance	Alpha
<b>Factor 1: Propensity to Leave</b>		<b>1,732</b>	<b>57,745</b>	<b>,633</b>
I think of leaving the job frequently.	,741			
I have an intention to leave the job.	,730			
I am continously searching for a new job.	,706			

**Notes :** Varimax Rotated Principal Components Factor Analysis Kaiser-Meyer-Olkin Sampling Adequacy = , 634; Bartlett's Test of Sphericity:  $p < 0,000$  (Chi-Square 66,654,  $df=3$ ) Toplam Variance : 57,745.

Factor analysis consists of three stages. As a result of the first analysis with 20 items KMO, sampling adequacy coefficient was 0.880 and the significance value was  $p < 0.001$ . These values confirm that the data can be subjected to factor analysis. At first factor analysis, 20 items were listed under total of 3 factors with eigenvalues over 1. However, items 8 and 20 were excluded from the factor analysis as they were overlapping to more than one factor and therefore a second factor analysis were conducted with the remaining 18 factors. The KMO Value of second factor analysis was 0.881 and significance value was  $p < 0.001$ . As a result of the second factor analysis, 18 items were grouped under 3 factors with eigenvalues over 1. However items 3, 11 and 17 were excluded from the analysis due to overlapping to more than one factor. As a result of the repeated factor analysis, the factors were titled as respectively, "Interactional Justice", "Procedural Justice" and "Distributive Justice" .

As a result of the first analysis conducted with item 3 in the scale of propensity to leave, KMO survey adequacy coefficient appeared as 0.634, significance value as  $p < 0.001$ . These values confirm that the data can be subjected to factor analysis. In the

first factor analysis, 3 items were listed under one factor, with eigenvalue over 1 and titled as dimension of “propensity to leave “

***T-TEST FOR THE SIGNIFICANCE OF THE DIFFERENCE FROM THE MEAN VALUE OF 3***

A sample T-test was administrated to examine if dimensions of organizational justice and dimensions of propensity to leave were statistically different from the mean value of 3 in 5- Likert-type scale. Results of the T-test are shown in Table 4.

**Table.4. T-Test for the Difference from the Mean Value of 3 for the Dimensions**

<b>Dimensions</b>	<b>Average</b>	<b>Standard Error</b>	<b>t-value</b>	<b>p-value</b>
<b>IJ</b>	3,51	,75411	9,192	,000
<b>PJ</b>	3,48	,84540	7,626	,000
<b>DJ</b>	3,18	,85673	2,900	,004
<b>PL</b>	3,44	,86425	6,842	,000

*IJ =Interactional Justice, PJ= Procedural Justice, DJ= Distributive Justice, PL = Propensity to Leave*

Accordingly, average of significance level of all the dimensions are  $p < 0.05$  and are higher than the mean value of 3.

Interactional justice has the highest average ( $X = 3,51$ ) within the dimensions of organizational justice. It means, the employees mostly perceive the dimension of interactional justice. Then the employees perceive the dimension of procedural justice ( $X = 3,48$ ). Dimension of distributive justice is perceived at minimum level ( $X = 3,18$ ). Variables of propensity to leave were gathered in one dimension and the average of it is ( $X = 3.44$ ).

***CORRELATION ANALYSIS;***

Correlation values between the factors are shown in Table 5.

**Table.5. Correlation Analysis;**

	<b>Interactional Justice</b>	<b>Procedural Justice</b>	<b>Distributive Justice</b>	<b>Propensity to Leave</b>
<b>IJ</b>	1			
<b>PJ</b>	,556**	1		
<b>DJ</b>	,348**	,308**	1	
<b>PL</b>	,173**	,118**	,016	1

\*\* Correlation has significance value of 0.01 (2-tailed).

Correlation coefficient does not display fully understandable interims, however it indicates the limits can be used frequently during the interpretation: Absolute value of correlation coefficient between 0.70-1.00 shows high level, 0.70-0.30 shows medium level 0:30 to 0:00 shows low level of relation (Buyukozturk, 2006: 32).

When the table was examined, it is seen that dimensions of organization justice have statistically significant relationship with each other. A significant positive relation

is seen at medium level between the interactional justice and procedural justice ( $r = 0.556$ ,  $p < 0.01$ ); a significant positive relation is seen between interactional justice and distributive justice ( $r = .348$ ,  $p < 0.01$ ). According to this finding, when interactional justice increases, procedural justice increases as well, or vice versa, when interactional justice decrease, procedural justice decreases. On the other hand, there is a positive relationship between the interactional distributive justices in the businesses. There is a significant and positive relation between procedural justice and distributive justice ( $r = .308$ ,  $p < 0.01$ ). According to this finding, there is a relation between procedural justice and distributive justice at intermediate level and is an anticipated result.

### Regression Analysis

The dependent variables of the regression model are the dimensions of propensity to leave and the independent variables are the dimensions of organizational justice. Results of the regression analysis are shown in Table 6.

**Table.6. Results of Regression Analysis;**

	<b>Independent Variables</b>	<b>Beta</b>	<b>T value</b>	<b>P value</b>	<b>R<sup>2</sup></b>	<b>F test</b>	<b>VIF</b>
<b>Propensity to Leave</b>	IJ	,173	2,348	,020	,030	5,512	1,000
	PJ	,118	1,579	,116	,014	2,495	1,000
	DJ	,016	,210	,834	,000	,044	1,000

*IJ = Interactional Justice, PJ = Procedural Justice, DJ = Distributive Justice*

The regression model, which specify the dimension of propensity to leave related to interactional justice, is found significant as a whole ( $F = 5.512$ ,  $p < 0.001$ ). VIF values of independent variables were under 10 and therefore it can be said that there is no high correlation between the variables to affect the analysis. According to the results of regression analysis, dimensions of organizational justice can explain the 5% of the total variance in interactional justice. The significant levels of Beta values show that the propensity to leave affects the interactional justice.

The regression model, which aims to determine the dimension of propensity to leave related to dimension of procedural justice, is found significant as a whole ( $F = 2.495$ ,  $p < 0.001$ ). VIF values of the independent variables were under 10 and therefore it can be said that there is no high correlation between the variables to affect the analysis. According to the results of regression analysis, the dimensions of organizational justice explain the 2% of the total variance in procedural justice. Significance levels of the Beta values are examined and it was found that propensity to leave does not effect on the procedural justice.

The regression model which aims to determine the dimension of propensity to leave, related to distributive justice is found significant as a whole ( $F = .044$ ,  $p < 0.001$ ). VIF values of the independent variables are found to be under 10 and therefore it can be said that, no high correlation exists between variables to affect the analysis. According to the results of regression analysis, the dimension of organizational justice does explain distributive justice in a very low level. Significance of the Beta values shows that propensity to leave, does not have an effect on distributive justice.

**CONCLUSION AND RECOMMENDATIONS**

This study aims to examine the employees' perspectives on justice and its relation with propensity to leave at the hotel establishments. The following conclusions were reached after the acquisition of quantitative data;

- OJ (Organizational Justice) scale was subjected to factor analysis. During the analysis, overlapping loadings were occurred in the statements "Administrators collect accurate and complete information before making business decisions." and "Managers clearly explain every work-related decisions." and "Employees can oppose the decisions of the managers or ask for a review by the top management." and "The managers discuss the possible results of the decisions about my work with me". Therefore, these statements excluded from the analysis and OJ scale was grouped under the three factors, titled as "Interactional Justice", "Procedural Justice" and "Distributive Justice". These titles and the results are consistent with the results of the studies had been conducted in this field.
- During the factor analysis of PL (Propensity to Leave), overlapping loads occurred at the statements and therefore the statement "I think my workload is fair" was excluded from the analysis. And the three remaining statement were titled as "Propensity to Leave". These titles and the results are consistent with the results of the studies had been conducted in this area.
- If we look at the averages of OJ (Organizational Justice) dimensions, we could see that the interactional justice dimension has the highest average. Employees of hotel establishments mostly perceive interactional justice dimension. After that, employees perceive procedural justice and distributive justice dimensions, respectively. The average of dimension of propensity to leave is also high. Employees have tendency to leave the job at high level.
- There is interaction between the dimensions of OJ. The increase in interactional justice, at the same time increases the procedural justice, or vice versa, decrease in interactional justice also decreases the procedural justice at the hotel establishments. In the same way, a positive relation is occurs between interactional justice and distributive justice. To increase or decrease in interactional justice also cause increase of decrease in distributive justice.
- The other result is the positive relation that exists between procedural justice and distributive justice. The increase in procedural justice causes rise in distributive justice. There is a positive relation between procedural justice and propensity to leave but at the low level. The increase in the procedural justice perception increases the propensity to leave.
- The increase in the distributive justice perception increases the interactional justice perception.
- Propensity to leave effects interactional justice but at a low level. It is possible to say that the employees' interactional justice perceptions increase if they have propensity to leave. However, propensity to leave does not have an effect on the dimension of procedural and distributive justice.
- According to the results of the research, when we examine the average size of dimensions OJ, we could see that interactional justice has the highest average.



- Employees at hotel establishments mostly perceive the dimension of interactional justice. After that, employees perceive procedural justice, and distributive justice, respectively.
- The average size of the propensity to leave is also high. Employees have tendency to leave their job at a high level.

As a result of the findings, we could draw attention to the matters mentioned below to improve the effects of organizational justice on propensity to leave.

- In a business enterprise, high employee turnover can cause problems such as high costs, low productivity, loss of trained personnel, stress at management level, not to be able to establish corporate culture, weakness to provide continuity of the business, not be able to administer established systems, loss of reputation in professional organizations. To minimize or eliminate these negative factors can be possible with the removal of factors effecting employee turnover and with taking measures to decrease the employee turnover.
- To keep the employee turnover in an appropriate level, firstly we need to determine the reasons. Personal characteristics of the employee, organizational problems, reason of quitting job, their life preferences, environmental reasons and their relations and interactions should be examined and understood. After identifying the reasons, the problematic fields and problems should be determined and measures should be taken accordingly. It is a fact that the measures can vary from business to business.
- Considering the employee turnover at hotel enterprises in the dimensions of “employees, work & working conditions and organization”, the measures stated below can be useful :
  - A good management system should be established,
  - A good human resources planning should be administered,
  - Business analyses should be conducted,
  - Training and personal development opportunities should be provided,
  - A good wage system should be established,.
- This study aimed to determine the employees’ perceptions of organizational justice and its impact on propensity to leave. To be able to generalize the findings and broaden the scope, further research can be conducted for specific destination or for the hotels in Turkey in general.
- In addition, further research can be conducted in a wider dimension, in all the companies of tourism services, not only in hotel establishments.
- In addition to the comparison of hotel enterprises; businesses such as travel agencies, restaurants etc. can be included and which may provide different results.
- Sample scope can be broadening with another survey application.

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## CRITICAL FACTORS OF APPAREL RETAIL SERVICE QUALITY-A CASE STUDY OF SELECT STATE IN INDIA

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**Abstract:** The Indian Retail Industry is transforming and is the fastest growing sector contributing around 10 percent of the country's GDP. Indian retail market is estimated to grow from \$427 billion in 2010 to \$637 billion by 2015. India became the prime destination for the global retailers because of its favorable demographics, high disposable income levels, changing life styles and increased customer awareness. The fast pace of the Indian retail industry presents many companies with a host of daily challenges. In today's competitive environment and with the growing importance of services, delivering high quality services has become the basic retailing strategy. Deficiencies in service delivery certainly cause customer dissatisfaction and also affect profitability in the long run. In order to deliver high quality of services and to outperform the competition it becomes essential to all service managers to measure and manage their service quality. It is evident from the earlier studies that littler research has been done in Indian retail service quality and very litter research was evident in apparel retail service quality. So the present study was focused to identify the critical factors of apparel service quality in Indian context.

The sample consists of 1012 respondents from four major cities having high potential for Retail Growth in the state of Andhra Pradesh in India. A structured questionnaire was administered for data collection. Secondary data was collected from research databases, reports, journal articles etc. SPSS 17.0 was used for statistical analysis. Factor Analysis was applied to know the critical factors of service quality, the study helps the retailers to focus on critical areas of service - where to improve, where to modify and where to cut down and enables them to take effective service strategies. The study helps to understand which Service dimensions are very important at what places, so that the marketer can develop service strategies accordingly.

**JEL classification: M31, M39**

Key words: Apparel retailing, service quality, service quality factors

## **1. INTRODUCTION**

Indian economy is one of the fastest growing economies in the world and is witnessing an unprecedented consumption boom. The economy is growing between seven and nine percent and expected to grow at 12 percent in the next five years (Prahlad, 2007). In the last few years, Indians have gone through a dramatic transformation in lifestyle by moving from traditional spending on food, groceries and clothing to lifestyle categories that deliver better quality and taste. Modern retailing satisfies rising demand for such goods and services with many players entering the bandwagon in an attempt to tap greater opportunities. The drivers for the Retail growth are Double Incomes, Plastic Revolution, Increasing use of credit cards, Urbanization, Demographics, Industry and Structure and focus on Productivity.

The resulting improvements in income dynamics along with the factors like favorable demographics and spending patterns are driving the consumption demand and the Indian retail Industry is ranked tenth among the largest retail markets in the world. The industry is currently estimated to be a US\$ 200 billion industry and organized retailing comprises about seven percent of the retail industry. With a growth over 20 percent per annum over the last five years, organized retailing is projected to reach US\$ 637 billion by 2015.

Retailing is the final step in the distribution of merchandise - the last link in the Supply Chain - Connecting the bulk producers of commodities to the final consumers. Retailing covers diverse products such as shoes, apparels, consumer goods, financial services and leisure. Hence, the value proposition a retailer offers to a consumer is, an easy availability of the desired product in the desired sizes at the desired times, above all offering a quality of service.

The total estimated investment opportunity in the retail sector will be around US\$ 5 to 6 billion in the next five years. With modern retail formats having made their foray into the top cities namely Hyderabad, Coimbatore, Ahmadabad, Mumbai, Chennai, Bangalore, Pune, Delhi, and Nagpur, there exists tremendous potential in Tier II towns over the next five years. Rural Markets are emerging as a huge opportunity for retailers. E-tailing is also contributing to the growth of this sector.

### **1.1 SERVICE QUALITY MEASUREMENT IN INDIAN RETAILING**

Parasuraman et al. (1985) developed a survey research instrument called SERVQUAL to measure various aspects of service quality. Several research studies related to measuring service quality were taken place in different countries like USA, China, Australia, Cyprus, Hong Kong, Korea and South Africa during the period of 12 years from 1995 to 2007 (Riadh Ladhari, 2009) and the scale is widely used in different service industries like Health Care (Carman 1990), Banking (Mels et al, 1997), Tele communications (Van der Wal et al. 2002), and Retail Chains (Parasuraman et al., 1991, 1994), Information systems and also in Library services. Customers who are satisfied with service quality are most likely to remain loyal (Wong and Sohal, 2003); service quality helps in the retention and patronage of existing customers (Yavas et al., 1997).

The SERVQUAL scale was tested in different countries having different cultural contexts. Researchers like Chi Cui et.al (2003) applied SERVQUAL to Korean

banking customers and observed that instead of five dimensions three dimensions (empathy, tangibles, and reliability/responsiveness) were suitable for their data. Later the three dimension structure was tested again by Arasli et.al (2005) at Greek banking sector; they found that dimensionality of the scale will vary according to different cultural contexts. It was also observed that selection of the construct, items and method will play a very important role in order to reduce the bias.

As stated by Gagliano and Hathcote (1994) measuring service quality in retailing differs from other service or product environments, With this a scale was developed to measure retail service quality by Dabholakar, Thrope and Rentz (1996) and coined the name ‘Retail Service Quality Scale- RSQS’ which has a five dimensional structure (Physical aspects, Reliability, Personal interaction, Problem solving and Policy) They have also identified in their extended study that all these five dimensions were valid in the USA. Later the RSQS was tested by Mehta, Lalwani and Han (2000) for measuring the service quality perceptions of supermarket consumers in Singapore and found appropriate. Kim and Jin (2002) tested the RSQS across two cultural contexts of USA and South Korea and identified rather than five dimensions four dimensional structure was suitable to measure service quality. Subhashini Kaul, (2005) applied the RSQS in the Indian Retail setting with a sample of 144 apparel retail customers selected in one of India’s fastest growing cities i.e. Bangalore. She observed that rather than five dimensions of Service Quality four dimensions were appropriate to measure apparel retail service quality. There is a need to extend the study to other cities with a large sample having varied demographics to explore new dimensions of retail service quality scale. So it is evident from the earlier studies that there was no generic scale to measure service quality in Indian Retailing.

### **1.2 NEED FOR THE STUDY**

Indian Retail market is full up with over 12 million outlets operating in the Country. AT Kearney has estimated India’s total market at US\$ 202.6 billion which is expected to grow at a compounded to 30 percent over the next five years and as per a report by KPMG the annual growth of branded apparel stores is estimated as 24 percent. Standing on the threshold of a retail revolution and witnessing a fast changing retail landscape, India is all set to experience the phenomenon of a global village. India presents a grand opportunity to the world at large, to use it as a business hub. Maintaining competitive advantage in the face of increasing competition requires many retailers in India to improve service quality which has effects on consumer purchase intentions, store image, customer relation, store loyalty and brand building. Recent surveys and reports confirmed that retail consumer service is inadequate. In order to deliver superior quality of services it becomes inevitable for the retailers to know what critical factors are affecting service quality and also to measure existing service quality. In this scenario the present study aimed to know critical factors of service quality from customer’s perspective.

### **1.3 OBJECTIVES OF THE STUDY**

To identify the critical factors of service quality from the customer’s perspective



#### 1.4 METHODOLOGY

The study was undertaken in the seven apparel stores namely, Shoppers Stop, Central, GVK One, In Orbit Mall, M&M Store, Kalaniketan, and CMR Grand across four major cities in Andhra Pradesh, India. Purposive sampling technique was used; The Retail stores were selected based on square foot area, average daily customer footfall and also popularity in the city. A sample of 10 apparel retailers/malls were drawn from four selected cities namely Hyderabad (4 stores), Tirupathi (2 stores), Vijayawada (2 stores) and Vishakhapatnam (2 stores), and 1012 customers from the Apparel sector in Andhra Pradesh were selected for the study.

At Hyderabad, Shoppers Stop, GVK One, Hyderabad Central and In Orbit Malls were selected, at Vijayawada Vishakhapatnam and Tirupathi, M&M and Kalaniketan stores and CMR Grand were selected for the study, Respondents were selected using systematic sampling method; every fifth customer coming out of the mall was selected after his/her purchase at the Mall. The total sample consists of a minimum of 100 respondents from each store. Modified RSQS (Retail Service Quality Scale) has been adopted to measure the service quality of Retail Stores, 26 items were taken from the RSQS scale to measure service quality. Customer Satisfaction was measured using 13 items and Customer Purchase behavior was measured using 7 items on a five point Likert scale. The questionnaire was modified after the pilot study and found reliable to measure the variables of study. The data collected was analyzed with SPSS 17.0, statistical techniques like factory analysis, chi-square analysis were applied.

#### 2. RESULTS AND DISCUSSION

To identify the critical factors of service quality, factor Analysis test was conducted to the RSQS scale, the Kaiser-Meyer-Olkin Measure of Sampling values is .835 (above .5 is desirable) and Bartlett's Test of Sphericity is .000 (it should be close to Zero), proves the test was efficient and reliable. The KMO value indicates the pattern of correlations between the variables, higher the KMO value indicates the factors analysis is appropriate. The Bartlett's Test of Sphericity indicates that there are no correlations between the extracted variables, if it is close to Zero, means that the factor analysis is appropriate. A total of six factors namely Physical aspects, Policy, Convenience, Courtesy, Personal Interaction and Reliability were extracted whose eigen values (>1) are above one (Field, 2005). Total variance explained by all factors is 69.074 (table: total variance explained), the communalities tables explains the factor loading of individual item.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.835
Bartlett's Test of Sphericity	Approx. Chi-Square	18076.870
	df	325
	Sig.	.000

Form the above table the Eigen values and the Total variance explained was indicated. The number of factors to be extracted is determined by the Eigen value, the

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most commonly used practice is that those factors whose Eigen values are above 1 will be retained. From the above it is observed that six factors Eigen values are above one.

**Table 2: Total Variance Explained**

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Item 1	9.892	38.046	38.046	9.892	38.046	38.046	5.059	19.456	19.456
Item 2	2.535	9.749	47.795	2.535	9.749	47.795	3.574	13.746	33.202
Item 3	1.678	6.455	54.250	1.678	6.455	54.250	2.941	11.310	44.513
Item 4	1.555	5.983	60.233	1.555	5.983	60.233	2.456	9.448	53.960
Item 5	1.275	4.903	65.136	1.275	4.903	65.136	2.050	7.885	61.846
Item 6	1.024	3.938	69.074	1.024	3.938	69.074	1.879	7.228	69.074
Item 7	.932	3.583	72.657						
Item 8	.860	3.309	75.966						
Item 9	.757	2.913	78.880						
Item 10	.659	2.536	81.416						
Item 11	.584	2.245	83.661						
Item 12	.561	2.156	85.817						
Item 13	.539	2.074	87.892						
Item 14	.450	1.732	89.623						
Item 15	.375	1.444	91.067						
Item 16	.349	1.344	92.411						
Item 17	.320	1.229	93.640						
Item 18	.305	1.172	94.812						
Item 19	.250	.963	95.775						
Item 20	.238	.915	96.690						
Item 21	.187	.720	97.410						
Item 22	.169	.651	98.061						
Item 23	.164	.629	98.690						
Item 24	.140	.540	99.230						
Item 25	.120	.462	99.691						
Item 26	.080	.309	100.000						
Extraction Method: Principal Component Analysis.									

**Table 3: Rotated Component Matrix**

Rotated Component Matrix <sup>a</sup>						
Component						
Items	Physical Aspects	Policy	Convenience	Courtesy	Personal Interaction	Reliability
Item 8	.825					

Rotated Component Matrix <sup>a</sup>						
Component						
Items	Physical Aspects	Policy	Convenience	Courtesy	Personal Interaction	Reliability
Item 14	.767					
Item 6	.762					
Item 9	.715					
Item 15	.668					
Item 3	.576					
Item 11	.512					
Item 25		.750				
Item 26		.672				
Item 17		.624				
Item 23		.663				
Item 22		.580				
Item 20		.498				
Item 2			.865			
Item 1			.595			
Item 10			.577			
Item 4			.570			
Item 5			.482			
Item 19				.813		
Item 24				.753		
Item 21				.602		
Item 18					.702	
Item 16					.665	
Item 12						.777
Item 7						.546
Item 13						.508
<b>Eigen values</b>	<b>9.892</b>	<b>2.535</b>	<b>1.678</b>	<b>1.555</b>	<b>1.275</b>	<b>1.024</b>
<b>Cumulated Variance</b>	<b>19.456</b>	<b>13.746</b>	<b>11.310</b>	<b>9.448</b>	<b>7.885</b>	<b>7.228</b>

## 2.1 FACTOR INTERPRETATION

The above rotated component matrix explains the degree to which variables load into factors. From the above table it is observed that all the items were loaded into six factors, varimax rotation was used to minimize the correlations across the factors, in each item the highest correlated value with the other factors was taken as a basis for grouping the items into factors (Pallant, J, 2005). The first factor was named Physical Aspects, which consists of Item 3, Item 6, Item 8, Item 9, Item 14, Item 15 and Item 11, this factor is explaining 38.04 percent of total variance. The second factor was named

Policy, which consists item 17, Item 20, Item 22, Item 23, Item 25 and Item 26 and this is explaining 9.74 percent of total variance. The third factor was named Convenience, which consists of Item 1, Item 4, Item 5, Item 21 and Item 10 and this is explaining 6.45 percent of total variance. The fourth factor was named Courtesy, which consists of Item 19, Item 21 and Item 24 and this is explaining about 6 percent of total variance. The fifth factor was named Personal Interaction, which consists of Item 16 and Item 18 and this is explaining about 5 percent of the total variance. The sixth and last factor was named as Reliability, which consists of Item 7, Item 12 and Item 13 and is explaining 4 percent of total variance. The factors were used as service quality variables (Independent) for further analysis.

#### **2.1.1 FACTOR 1 PHYSICAL ASPECT**

- Item 3: The store has clean, attractive and convenient physical facilities  
(Restrooms, fitting Rooms)
- Item 6: The store has modern-looking equipment and fixtures (Lighting, Furniture, Displays)
- Item 8: This store performs the service right the first time
- Item 9: This store has merchandise available when the customers want it
- Item 11: Employees in the store have the knowledge to answer customers' questions
- Item 14: This store provides plenty of convenient parking for customers
- Item 15: Employees in this store tell customers exactly when services will be performed

#### **2.1.2 FACTOR 2: POLICY**

- Item 17: This store gives customers individual attention
- Item 20: This store willingly handles returns and exchanges.
- Item 22: Employees of this store are able to handle customer complaints directly and Immediately
- Item 23: This store offers high quality merchandise
- Item 25: This store has operating hours convenient to all their customers
- Item 26: The Store accepts all major credit cards

#### **2.1.3 FACTOR 3: CONVENIENCE**

- Item 1: When this store promises to do something (such as repairs, alterations) by certain Time, it will do so
- Item 2: Materials associated with this store's service (such as shopping bags, loyalty cards and Catalogs) are visually appealing
- Item 4: The store layout at this store makes it easier for customers to find what they need
- Item 5: The store layout at this store makes it easier for customers to move around in the Store
- Item 10: This store insists on error-free sales transactions and records

#### **2.1.4 FACTOR 4: COURTESY**

- Item 19: Employees in this store treat customers courteously on the telephone

Item 21: When a customer has a problem, this store shows a sincere interest in solving it

Item 24: The employees in this store give prompt service to customers

#### **2.1.5 FACTOR 5: PERSONAL INTERACTION:**

Item 16: Employees in this store are never too busy to respond to customer's requests

Item 18: Employees in this store are consistently courteous with customers

#### **2.1.6 FACTOR 6: RELIABILITY**

Item 7: This store provides its services at the time it promises to do so

Item 12: The behavior of employees in this store instills confidence in customers

Item 13: Customers feel safe in their transactions with this store

### **CONCLUSION**

Service quality is the main antecedent for customer satisfaction and customer purchase behavior. The knowledge of factors effecting service quality becomes very important for delivering superior quality of services. The study results indicated that physical aspects, policy, convenience, courtesy, personal interaction and reliability of the store are the most important dimensions of apparel service quality in Andhra Pradesh. It also revealed that out of all physical aspects of the store, policies of the store and convenience with the store affect service quality more. The study helps the retailers to focus on critical areas of service - where to improve, where to modify and where to cut down and enables them to take effective service strategies. The study helps to understand which Service dimensions are most important, so that the marketers can develop service strategies accordingly.

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#### ANNEXURE-1 (MODIFIED QUESTIONNAIRE)

- Item 1: When this store promises to do something (such as repairs, alterations) by certain Time, it will do so
- Item 2: Materials associated with this store’s service (such as shopping bags, loyalty cards And Catalogs) are visually appealing
- Item 3: The store has clean, attractive and convenient physical facilities (restrooms, fitting Rooms
- Item 4: The store layout at this store makes it easier for customers to find what they need
- Item 5: The store layout at this store makes it easier for customers to move around in the Store
- Item 6: The store has modern-looking equipment and fixtures (Lighting, Furniture, Displays)
- Item 7: This store provides its services at the time it promises to do so
- Item 8: This store performs the service right the first time
- Item 9: This store has merchandise available when the customers want it
- Item 10: This store insists on error-free sales transactions and records
- Item 11: Employees in the store have the knowledge to answer customers’ questions

- Item 12: The behavior of employees in this store instills confidence in customers
- Item 13: Customers feel safe in their transactions with this store
- Item 14: This store provides plenty of convenient parking for customers
- Item 15: Employees in this store tell customers exactly when services will be Performed
- Item 16: Employees in this store are never too busy to respond to customer's requests
- Item 17: This store gives customers individual attention
- Item 18: Employees in this store are consistently courteous with customers
- Item 19: Employees in this store treat customers courteously on the telephone
- Item 20: This store willingly handles returns and exchanges.
- Item 21: When a customer has a problem, this store shows a sincere interest in Solving it
- Item 22: Employees of this store are able to handle customer complaints directly and immediately
- Item 23: This store offers high quality merchandise
- Item 24: The employees in this store give prompt service to customers
- Item 25: This store has operating hours convenient to all their customers
- Item 26: The Store accepts all major credit cards

#### ANNEXURE-2: BRIEF PROFILES OF THE SELECTED CITIES

**Hyderabad** is the fifth largest metropolis in Indian and is the capital city of Andhra Pradesh. The city was founded by Muhammad Quli Qutb Shah in the year 1590. Hyderabad is one of India's most important economic centers and is also gaining much importance in the IT sector. The city acts as a shopping center for all varieties of products and services it draws customers from various parts of the state and is main distributing hub. Hyderabad retail space is exploding with single brand retail outlets, multi branded stores, shopping complexes and Malls. The city Apparel export park is the flagship of apparel industry in India exporting garments to EU, USA and UK. The city is the foremost destination for major MNC's. The growth of Hyderabad's economy is largely due to the software services. The city is sometime referred to as "Cyberabad" owing to the presence of large numbers of IT Firms in the city. The government of Andhra Pradesh gives highest priority to the industrial sector on account of the vital role it plays in balanced and sustainable economic growth. It plays a crucial role in the process of economic development by value addition, employment generation, equitable distribution of national income, regional dispersal of industries, and mobilization of capital, entrepreneur skills and contribution to exports. The state's industrial policy is very liberal for huge investment in sectors like IT, Biotechnology and Pharmaceuticals. Traditional sectors such as textiles, leather, minerals, and food processing are also being developed for high value addition. Hyderabad being the capital of the state enjoys highest priority for investment

**Vijayawada**, being the third largest city and Business Center, It attracts customers from various places of Andhra Pradesh. The city is having good transportation facilities connected by Road, Rail and Air. The city is popular for Automobiles, Footwear, Textiles, Apparels, Education, jewellery, and Furniture businesses. In Andhra Pradesh, after Hyderabad, it is the preferred business location for majority of the business firms. The city was located on the bank of Krishna River.

**Vishakhapatnam** has flourishing industrial sector. From being a traditional fishing town to a prime industrial town at present, the city has covered a long distance, and has emerged as a major industrial hub of southern India. In addition to Rail, Road and Air Transportation the city has also International port. Vishakhapatnam is now in the expansion mode with rise of software industries and other manufacturing industries setting up their corporate offices. The city consists of prestigious industries like, Bharat Heavy Plate and Vessels Limited, Coramandel Fertilizers Limited, Rashtriya Ispat Nigam Limited, Hindustan Petroleum Corporation Limited, Hindustan Shipyard Limited etc.

**Tirupati** is a pilgrimage center located in Andhra Pradesh, very popular all over the world; the sacred Lord Venkateswara temple is situated on the top of the Tirumala Hills. It is a popular tourist and business destination in India, lakhs of pilgrims visit Tirupati daily. There exists ample business opportunities in industries like Retail, Hotel, Tourism, Education etc...As the Competition, Cost of real estate in Metropolitan cities is very high, now top MNC's and Indian Retail firms are looking to set up their new ventures in second rung cities which have huge business growth potential.



## QUALITY OF CORPORATE GOVERNANCE AND FINANCIAL STRUCTURE CHOICE IN DEVELOPING COUNTRIES\*

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**Abstract:** A widely debated topic during the last years is represented by the choice of financial structure of companies, especially in developing countries, characterized by economies without a tough and a mature financial system. As well, the researchers' attention is focused mostly on linkage between capital structure and firm performance, only few of them considering the influence of companies' institutional architecture and the main features of their governance in selecting of their financial structure. Using especially data provided from World Bank Enterprise Surveys website, we studied the linkage between corporate governance quality and its ability to influence the financial structure of the companies in a dataset covering a number of 26 developing countries from Central and Eastern Europe, Africa, Asia and Latin America. The main output of the study consists in the fact that the financial structure of the companies in developing countries is considerable influenced by the corporate governance quality.

**JEL classification:** G32, G34

Key words: financial structure, corporate governance quality, developing countries

### 1. INTRODUCTION

Corporate governance represents a topic of considerable interest for academic community and for practitioners. Thus, the concept of corporate governance is a growing area of economic research. In this way, corporate governance has developed rapidly throughout entire world.

The classic papers of Berle & Means (1932) and Jensen & Meckling (1976) discussed firstly about the separation among ownership and control and, also, about the consequences of this thing. Afterwards, Claessens & Yurtoglu (2012) argue that corporate governance definitions vary widely. They grouped the concept of corporate governance in two principal sets of definitions: the first set concerns the normative framework: that is, the rules under which firms are operating - with the rules coming from such sources as the legal system, the judicial system, labor markets and financial

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markets. As well, another set concerns a set of behavioral patterns: that is, the actual behavior of corporations, which measures things like efficiency, performance, growth, financial structure, treatment of shareholders and other stakeholders. In the literature, most of theoretical and empirical papers are mainly focused on the second set of definitions.

However, many of the recent papers are especially focused on the interdependence that exists between corporate governance and firm's performance (Maher & Anderson, 2000; Balck *et. al*, 2006; Bhagat & Bolton, 2008; Brown & Caylor, 2009; Agrawal & Knoeber, 2012). In this regard, we can conclude using the Bollard's (2003) opinion, which sustains that in the financial system, corporate governance represents one of the essential elements that determine the health of the system and its capacity to survive economic shocks. In fact, this relation represents the main argument of our paper.

## 2. LITERATURE REVIEW

A relatively recent direction in the literature is the linkage between corporate governance and capital structure. There are only few papers which are studying this relationship. Thus, we can identify studies which refer to developed countries (Berger *et. al*, 1996), as well as studies which refer to emerging and developing markets (Lefort & Walker, 2000; Hasan & Butt, 2009; Rehman *et. al*, 2010; Zheka, 2010; Hussainey & Aljifri, 2012). However, an alternative direction is growing in corporate governance research area, characterized by the analysis of this linkage in case of small and medium enterprises from developing economies (Gill *et. al*, 2012; Kuo *et. al*, 2012).

All of referred papers show statistically significant and positive associations between capital structure and corporate governance. It must be remark the results of

Abor (2007), who's results show statistically positive and significant associations between capital structure and board of directors' size, CEO duality and board composition. The results generally used a dataset of 22 firms listed at the Ghana Stock Exchange (GSE) for a period of six years (between 1998 and 2003). Unlike Abor (2007), the Godfred and Arko (2009) paper considered a much wider corporate governance index and studied the impact of ownership structure, managerial share ownership and several corporate governance variables on capital structure decisions of companies listed at GSE. It is important to underline that quoted study uses cross-sectional data for a period of six years (between 2002 and 2007). The study highlights that managerial shareholding has a positive and significant influence on the choice of long-term debt over equity. Through the variables of corporate governance, the study revealed that the board size was found positively and statistically significantly connected to capital structure choices.

The well know paper (Nicolo *et. al*, 2006) proposes that corporate governance quality can be expressed and quantified as a simple average of three proxies which represents the main outcome of the enterprise, accounting disclosure and the level of transparency from of the company. Thus, the quoted authors considered that corporate governance quality (CGQ) index is an average of three indicators, called "accounting standards", "earning smoothing" and "stock price synchronicity". Thus, the first one is a "simple measure of the amount of accounting information firm disclosure" (Nicolo *et. al*, 2006: 6), the second one represents a complementary indicator for the first one because a large number of reported accounting items can be senseless if accounts are gravely misrepresented or even manipulated. Thereby, this second indicator express the

correlation between cash flows – before accounting adjustments – and profits – after accounting adjustments – and it shows the way in which managers can conceal the true performance of companies “using accruals to smooth fluctuations of annual profits” (Nicolo *et. al*, 2006: 7). Finally, the third indicator is measuring the stock price synchronicity and includes the results of other studies (Jin & Meyers, 2006) which find a positive relationship between stock price synchronicity and lack of transparency. Thus, the authors assume that if accounting or financial information’s are opaque it will be very difficult for investors to distinguish good performers from bad ones.

The evidences providing by these studies suggests that the improvements in quality of corporate governance have “a positive and significant effect on all measures of macroeconomic outcomes considered. This is true especially in the transparency dimension, as shown by the positive and significant impact of the *stock price synchronicity indicator*, as well as by a similar impact of *earning smoothing* and *accounting standards* indicators in countries with more developed financial sectors” (Nicolo *et. al*, 2006: 20). Furthermore, an important result they found was that enhancements in corporate governance affect positively the performance of the industries which depend on the external finance.

### 3. DATA AND METHODOLOGY

Considering the previous mentioned literature, we adopt the following research hypothesis:

*H: The quality of corporate governance can exercise a significant impact on the choice of companies’ financial structure.*

In order to achieve the aim of this paper, we have selected a considerable number of variables that can be included both in the category of corporate governance variables, as well as financial structure category (Appendix 1A). The data are provided by World Bank Database (WBD, [www.enterprisesurveys.org](http://www.enterprisesurveys.org)), for 26 developing countries from Central and Eastern Europe, Africa, Asia and Latin America (Appendix 1B). The data span cover a 9-year time period between 2002 -2011. Further, in order to obtain the long-run trend, for all of these variables, we calculate averages over the time span.

It must be note that, the financial structure of the companies is described as a proxy by proportion of investments financed by banks and the quality of governance we quantify considering three mechanisms for measuring: ownership structure and management quality, environment and informational transparency. These groups of variables are considered essential for corporate governance quality in several studies. Also, they are provided in various international standards, documents and codes. For example, three chapters of “*The OECD Principles of Corporate Governance*” make reference to some of these issues. Thus, Chapter II and Chapter III entitled “The Rights of Shareholders and Key Ownership Functions”, respectively “The Equitable Treatment of Shareholders” stipulate the respect regarding the rights of the owners and, as well, shows the relevance and importance given to this category of stakeholders. Also, the same international document, in last chapter, named “The Responsibilities of the Board” highlights the importance of the management quality related to the responsibilities and duties of the management board.

The role of the ownership structure – as a constitutive part of the corporate governance quality – represents one of the most debated issues. In this regard, ownership structure presents an important role for the governance in a company,

especially because the owners' rights are considered sovereign to any other right related to a company (Davies, 2006). This thing makes shareholders to hold a higher position in a virtual ranking of the different interest groups. Thus, it is worth mentioning that the corporate behavior – and also, its governance – can be influenced by the type of shareholders: majority shareholders, individuals, sole proprietorships, other companies holding shares or institutional investors.

According to some studies (Gillan & Starks, 2003), changes in corporate governance – including ownership structures – are likely to arise as endogenous responses to environmental factors. Thus, the researchers affirm that “although institutional investors may drive corporate governance changes and financial liberalization in some economies, in others institutional ownership will change in response to governmental actions and changes in the regulatory environment” (Gillan & Starks, 2003)

As well, very often informational transparency is seen as a key element of corporate governance, ensuring a balance of relations between different stakeholders. In this regard, transparency of the companies was considered as an important descriptive issue for corporate governance quality. Its relevance is also provided in Chapter V - “Disclosure and Transparency” - of OECD corporate governance principles. Transparency is an essential aspect because helps those in charge to avoid corruption acts – as fraud – and put measures in place against it. According to the literature, one of the most important mechanisms for ensuring and enhancing the company's transparency is represented by the implementation of International Financial Reporting Standards and other similar types of regulations. Also, according OECD, “a strong disclosure regime that promotes real transparency is a pivotal feature of market-based monitoring of companies and is central to shareholders' ability to exercise their ownership rights on an informed basis” (OECD, 2004: 49). As well, an enhanced disclosure regime can be able to help companies to attract capital from investors. Otherwise, a weak disclosure and opaque practices can determine an unethical behavior and can cause a loss of market integrity at significant costs.

As well, the last considered mechanism which measures the corporate governance quality refers at several environment variables. The intuition hypothesis, behind the inclusion of this set of variables in the study, is represented by the importance of the context, circumstances and the surrounding environment for the development of a business. For example, in this category, some variables refer to taxes and regulations – we know that excessive regulatory burdens can affect the governance system of a company and may hamper business performance, growth and development. Last but not least, at environmental variables we included some references to workforce, because employees are a principal stakeholder's category and because a skilled labor force can be essential for a company's corporate governance system. Also, on this fact are depending on the company abilities to innovate and its ability to adopt some new technologies.

In order to test the linkage between financial structure and corporate governance quality, in this study, was applied two stages. In an initial we apply an exploratory factor analysis (EFA) to a set of variables that refers to corporate governance quality in order to construct a quality of governance index (QGI). Kim & Mueller, (1994) considers that this method determines how many underlying common and unique factors account for the variance and covariance of the given data. Thus, it

assumed that (i) common factors are orthogonal, (ii) unique factors are uncorrelated with each other, and (iii) common factors are uncorrelated with the unique factors .

After applied EFA approach to construct QGI, we call to GMM framework to construct a model which detects the linkage between corporate financial structure and corporate governance quality. It should be mentioned that the explanatory variables are either simultaneously determined with the financial structure of the companies or they can demonstrate a causal relationship in two-ways. As well, to analyze the linkages between financial structure and corporate governance quality is important to address the issue of reverse causality (Knack & Manning 2000; Chong & Gradstein 2004) and the possible existence of unobserved, country-specific effects. Nevertheless, few previous studies have discussed the reverse causality between these two variables. Thus, Black *et al.* (2006) mentioned that firms with high market values may adopt good governance practices. Also, Jiraporn *et al.* (2012) said that “it has been assumed that governance quality affects leverage choices”. In this way, they found some argues in the direction of causality might not be reverse. Thus, they said that reverse argument for the linkage between these two variables is less plausible for several reasons. The first argument refers that in the literature is no theoretical model suggesting that leverage decisions can make some modifications in corporate governance quality. After that, the authors said that it is difficult for managers to modify the firm’s governance, because these changes involve lengthy period of time execution and they are subordinated usually to the shareholders. The quoted article reminded that the most studies find robust empirical evidence showing that the “managers regard governance quality as pre-determined when they make capital structure decisions”.

In spite of these things, we assume that a possible reverse causality can exists, mainly because the financial structure of the companies – trough the costs of different sources of financing - is able to create a significant effect on the stakeholders perceptions and behaviors. As long as ordinary least squares will not produce consistent results for this issue we turn to account the instrumental variable (IV) estimation, which is good approach to resolve this problem.

The main challenge of using instrumental variable (IV) techniques is finding valid instruments, thus, these variables must fulfill two crucial conditions. First, the instruments should be relevant, i.e., the instruments should be highly correlated with the governance index and the second condition supposes that the instruments should be exogenous, i.e., the instruments should not be correlated with proxy of financial structure named as proportion of investments financed by banks. The identification strategy therefore should rely on finding variables that are highly related to our potentially endogenous variable but not directly related to the financial structure variable. In this regard, for the dimensions of *Quality of Governance Index*, we used several instrumental variables as: KOF Index of Globalization, GNI per capita, a post-materialist index (with 4 items), political stability, rule of law, government effectiveness, a corruption index and an indicator named “*Voice and Accountability*” (from the *Worldwide Governance Indicators*).

In the last decades, corporations conducted various activities in order to achieve many objectives, and as a consequence they have extended their presence all over the world. In this context, globalization is one of the factors with the greatest influence on the quality of corporate governance, especially through the development of interconnections between countries, economies and companies. Thus, we expect that a high level of globalization is able to determine a growth of corporate governance

quality, because the close ties between economies requires an improvement and more transparent financial reporting process. Also, increasing of global competition can cause an additional pressure on the process of governance within a company, in order to improve it.

As well, another instrumental variable used is GNI per capita, because it reflects the level of wealth, prosperity and development of a country. In this regard, a high level of this indicator reflects a proper economic situation of that country: can have a direct impact on corporate governance and can improve its quality.

The third instrumental variable used, a post-materialist index was taken from World Values Survey Association website (<http://www.worldvaluessurvey.org>) and it contains 4 items. This index supposed that respondents had to choose two most important items from a total of four, like (i) maintaining order in the nation, (ii) giving the people more say in important government decisions, (iii) fighting rising inflation and (iv) protecting freedom of speech. Thus, the respondents which have chosen (i) and (iii) were classified as materialists and those who have chosen responses (ii) and (iv) were considerate post materialists; the rest of combinations were considerate mixed. In this regard, we can use this index like an instrumental one, because, as we have seen previously, the corporate governance quality is directly influenced by the environmental elements. More specifically, some things as maintaining order in the nation or fighting rising inflation are capable to describe the environmental stability for a company case, and also the economy strength and affairs security in a specific country, these characteristics having a direct and significant influence on a company's governance process. Likewise, from the same main reasons, variables such as rule of law, political stability or government effectiveness were used like instrumentals variables in the model. Thereby, the nature of such external factors can be essential in influencing the corporate governance quality.

The instrumental variable named “*Voice and Accountability*” reflects the population perceptions about their capacities to participate in selection of their government, and also about their freedom of expression and free access to information. Thus, this last variable is able to reflect the level of democracy, human and political rights, civil liberties and mass-media freedom, having a similar meaning like some instrumental variables already presented. Undoubtedly, a high level of this variable can exercise a positive impact on corporate governance quality, in terms of favorable business climate which is created.

Finally, another instrumental variable used is represented by a corruption index. It refers especially to behaviors in relation to giving special gifts or even bribery for some facilities or services. For example, it contains some types of variables referring to “offerings” for different purposes like meetings with tax officials, import of licenses, construction authorizations or also variable which measures the level of bribery depth. We considered these variables referring to corruption, because is known that in some countries - especially developing countries - businesses may require making unofficial payments or gifts to obtain some competitive – and unfair – advantages. Thus, we believe that such practices, specific to a business environment in which a company operates, can influence the quality level of corporate governance.

In order to increase the test stability, we have included certain control variables in our basic model specification. We consider the five-year averages (2005-2009), estimated in the same manner as the measure of pervious financial structure proxy, for the following controls: (a) Proportion of investments financed internally, which have

evident influence for Proportion of investments financed by banks and (b) Consumer price index (2005 = 100), which was used as control variable, following Demirgüç-Kunt & Huizinga (2001), Demirgüç-Kunt et al. (2004) paper, which have shown that banks have greater margins and greater profitability in inflationary environments. Finally the choice of these control variables is designed to reflect several of the exogenous and endogenous shocks.

#### 4. EMPIRICAL RESULTS

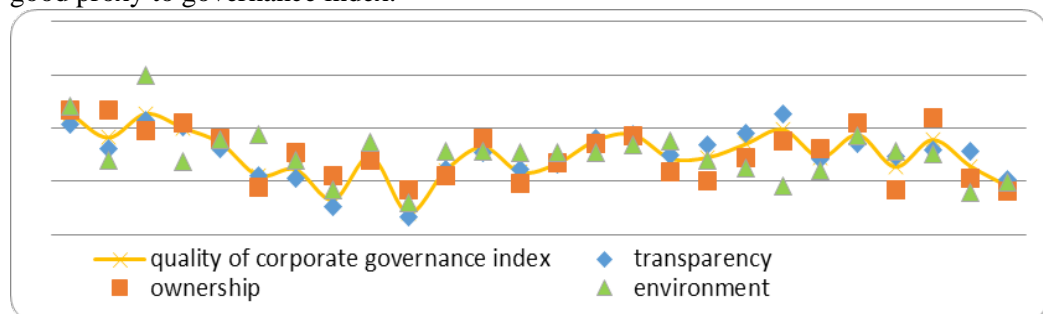
At first step, called EFA framework, we estimate three indicators (environment, ownership, transparency) to represent governance (see Appendix 2). A brief summary of results can suggest that for which of all proxies occurs one dominant factor. Further for each first factor of indexes (environment, ownership and transparency) can be observed the value of loadings and retain more relevant variables. Taking into account all the results obtained we can conclude that all variable used represents good proxies to describe the analyzed indexes.

**Table no. 1. Explanatory factor analyze of quality of corporate governance variables**

Factor analysis/correlation		Number of obs = 26					
Method: iterated principal factors		Retained factors = 1		Factor loadings (pattern matrix) and			
Rotation: (unrotated)		Number of params = 3		unique variances			
Factor	Eigenvalue	Difference	Proportion	Cumulative	Variable	Factor1	Uniqueness
Factor1	1.62877	1.62833	1	1	Transparency	0.85	0.26
Factor2	0.00044	0.00094	0.0003	1.0003	Ownership	0.75	0.42
Factor3	-0.0005	.	-0.0003	1	Environment	0.57	0.67

LR test: independent vs. saturated:  $\chi^2(3) = 20.41$  Prob> $\chi^2 = 0.0001$

In second step, used explanatory factor analyze, we estimate quality of corporate governance (the results are reported in Table 1). Preliminary eigenvalues for the first factor are 1.62 associated with important proportion of the variable variance. Both criteria, Kaiser (1974) and Jolliffe (2002), are satisfied only by first factor, that why we drop the other factors. LR test: independent vs. saturated tested a no-factor (independent) model fits the observed correlation matrix significantly worse than a saturated or perfect fit model. The second part of Table 1 named the factor loadings represent both how the variables are weighted for each factor and the correlation between each variables and the factor. Thus the load variable transparency, ownership and environment submit more relevant in defining the factor's conceptual meaning. Taking into account all the result obtained we can conclude that all variable used are a good proxy to governance index.



**Figure no. 1. Transparency, ownership, environment and quality of corporate governance index**

In Figure 1 are represented those four indicators, for all 26 country separately. Regarding the quality governance index as well as transparency index, the lower value is observed for Indonesia and Ghana. In same manner we can observe maximum variance of choices variables for Argentina and Brazil. It must be note that, in order to catch all variables variance, all time the quality governance index record result between values of index from which consist.

After applied EFA approach to construct QGI, we call GMM framework to construct a model such detects the assumption linkage. For this, we used eight instrumental variables (IV), previously described. The validity of these instruments is given below. Thus endogeneity was analyzed with C-statistic test. The null hypothesis of this test is that the considered variables can be treated as exogenous. Hayashi, (2000) consider that C-statistic (difference-in-Sargan statistic) can tolerate heteroskedasticity in errors. Our results show that these tests reject the null that variables are exogenous at 5% for all the models. For determining the strengths of instruments we used as well as Shea's (1997) the "partial R-squared" diagnostic. The values obtain (0.54) are reasonably high, indicating that co- linearity between instruments is not a problem. It must to note that typically for *weak instruments* is to contain critical values to test if: 1) the instruments are weak based on the bias of the 2SLS estimator relative to the bias of the OLS estimator (Stock and Yogo, 2005); 2) parameters estimated by instrumental-variables estimators suffer from size distortions. This last test is carried out if a Wald test at the 5% level can have an actual rejection rate of no more than a certain threshold (15%). Since the *Minimum eigenvalue* statistics are higher than *2SLS relative bias* (5%), and, respectively, *2SLS Size of nominal 5% Wald test* (15%) and *LIML Size of nominal 5% Wald test* (15%) for all the models, we can reject the null hypothesis of weak instruments. In the same line of thought, we must to detect *Over-identifying restrictions*. Thus the Hansen's J tests are simultaneously trying to check if: 1) whether the instruments are correlated with the error term and 2) if the equation is misspecified and that one or more of the excluded exogenous variables should in fact be included in the structural equation. Since none of these tests are significant ( $p = 0.5822$ ), these two hypotheses can be rejected for all the models: the instruments appear to be uncorrelated with the structural error term and, respectively, there are no evidences of misspecifications.

**Table no. 2. GMM-IV estimation of Quality of corporate governance impact on financial structure**

Variable		
Quality of Governance Index	3.61**	
	(1.47)	
Proportion of investments financed internally (%) V4	-0.51***	
	(0.09)	
Consumer price index (2005 = 100)	0.49***	
	(0.06)	
Adjusted R <sup>2</sup> (first stage)	0.52	
C-statistic (difference-in-Sargan statistic)	3.91	[p=0.04]
Shea's partial R-squared	0.54	
Cragg and Donald <i>Minimum eigenvalue statistic</i> test	1.80	
2SLS relative bias (30%)	4.99	
2SLS Size of nominal 5% Wald test (25%)	10.50	
LIML Size of nominal 5% Wald test (25%)	2.39	
Hansen's J test	4.26	[p=0. 74]
Observations	26	



In Table 3 reports the GMM-System estimates of models that incorporate the Quality of Governance index and control variables. The index of quality of governance appears to be related to the proportion of investments financed by banks in a positive and statistically significant manner at the 5% level. In other hand, control variables have statistically significant value at the 1% level. In the model specified by the global Quality of Governance index, the values of the corresponding coefficients suggest that, compared with the proportion of investments financed internally and consumer price index possesses a larger relative importance to proportion of investments financed by banks. However, the interpretation of these results should account for influences exercised governance knowledge that is associated with capital structure decision.

## 5. CONCLUSIONS AND FURTHER RESEARCH

In the present paper was analyzed the potential impact of corporate governance quality on the financial structure of the companies, based on a cross-sectional dataset covering a number of 26 developing countries from Africa, Asia, Central and Eastern Europe and from Latin America. The main results of this study confirm the intuition that in analyzed developing economies the quality of corporate governance is able to influence the financial structure of the companies.

The appliance of agency theory can represent a possible reason of this linkage and it can explain the influence between these two concepts. According to this theory, the influence among the quality of corporate governance and financial structure may be explained, especially because each stakeholder of the company acts in its own self-interest. Thereby, we can suppose that the different stakeholders' parts (like shareholders/owners, creditors, bond holders, suppliers) may be involved in some important processes inside the company, like the choosing of the financial structure as a possible instrument for maximizing the market value of the company.

In addition to other studies on this topic, the novelty and refinement of the present study is given by the high number of variables that describe the quality of corporate governance and, as well, by their ability to describe this concept. Even in this context, we conclude that this paper can be extended and can support some future improvements, because further papers could consider the analysis of the impact generated by the quality of corporate governance on the financial structure by expanding the number of developing countries which can be included in study.

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#### APPENDIX 1A

Financial variables	Environment
Proportion of investments financed by banks (%)—Average	Percent of firms identifying corruption as a major constraint
Proportion of investments financed internally (%)—Average	Percent of firms identifying the courts system as a major constraint
Consumer price index (2005 = 100)	Percent of firms offering formal training
	Proportion of unskilled workers (out of all production workers) (%)
	Percent of firms identifying labor regulations as a major constraint
Transparency	Percent of firms identifying an inadequately educated workforce as a major constraint
Percent of firms having their own Web site-	Senior management time spent dealing with the

<b>Business Statistics – Economic Informatics</b>	
Average	requirements of government regulation (%)
Percent of firms with an annual financial statement reviewed by external auditors	Number of visits or required meetings with tax officials
Percent of firms using e-mail to interact with clients/suppliers	If there were visits, average number of visits or required meetings with tax officials
	Days to obtain an operating license
	Days to obtain a construction-related permit
	Percent of firms identifying tax rates as a major constraint
<b>Ownership</b>	Percent of firms identifying tax administration as a major constraint
Years of the top manager's experience working in the firm's sector	Percent of firms identifying business licensing and permits as a major constraint
Proportion of private domestic ownership in a firm (%)	Percent of firms identifying access to finance as a major constraint
Percent of firms with legal status of privately held Limited Liability Company	Percent of firms identifying practices of competitors in the informal sector as a major constraint

#### APPENDIX 1B

Low income	Lower middle income		Upper middle income		High income
Ghana	Egypt, Arab Rep.	Moldova	Argentina	Peru	Slovenia
Uruguay	Guatemala	Thailand	Bulgaria	Poland	
Zambia	Indonesia	Ukraine	Brazil	Romania	
	Jordan	Vietnam	Chile	Russian Federation	
	Morocco	Georgia	Colombia	Serbia	
			Mexico	Turkey	

**APPENDIX 2**

Transparency					Environment				
Factor analysis/correlation		Number of obs = 26			Factor analysis/correlation		Number of obs =26		
Method: iterated principal factors		Retained factors = 1			Method: iterated principal factors		Retained factors =1		
Rotation: (unrotated)		Number of params = 3			Rotation: (unrotated)		Number of params =16		
Factor	Eigenvalue	Difference	Proportion	Cumulative	Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	1.45587	1.43018	1.0000	1.0000	Factor1	6.27418	4.62021	1.0000	1.0000
Factor2	0.02569	0.05138	0.0176	1.0176	Factor2	1.65397	0.83709	0.2636	1.2636
Factor3	-0.02569	.	-0.0176	1.0000	Factor3	0.81688	0.28639	0.1302	1.3938
LR test: independent vs. saturated:chi2(3)=18.30Prob>chi2= 0.0004					Factor4	0.53049	0.21587	0.0846	1.4784
Factor loadings (pattern matrix) and unique variances					Factor5	0.31463	0.12673	0.0501	1.5285
Variable	Factor1		Uniqueness		Factor6	0.18789	0.19666	0.0299	1.5585
Percent of firms having their own Web site	0.8503		0.2770		Factor7	-0.00877	0.03904	-0.0014	1.5571
Percent of firms using e-mail to interact with clients/suppliers	0.8560		0.2673		Factor8	-0.04781	0.11846	-0.0076	1.5494
Percent of firms with an annual financial statement reviewed by external auditors	0.0107		0.9999		Factor9	-0.16627	0.10713	-0.0265	1.5229
Ownership					Factor10	-0.27340	0.04121	-0.0436	1.4794
Factor analysis/correlation		Number of obs = 26			Factor11	-0.31460	0.03804	-0.0501	1.4292
Method: iterated principal factors		Retained factors = 1			Factor12	-0.35264	0.01565	-0.0562	1.3730
Rotation: (unrotated)		Number of params =3			Factor13	-0.36829	0.17451	-0.0587	1.3143
Factor	Eigenvalue	Difference	Proportion	Cumulative	Factor14	-0.54279	0.04578	-0.0865	1.2278
Factor1	1.29461	1.16007	1.0188	1.0188	Factor15	-0.58857	0.25217	-0.0938	1.1340
Factor2	0.13455	0.29294	0.1059	1.1246	Factor16	-0.84074	.	-0.1340	1.0000
Factor3	-0.15839	.	-0.1246	1.0000	-----				
LR test: independent vs. saturated: chi2(3) = 11.13 Prob>chi2 = 0.0110					LR test: independent vs. saturated: chi2(120) = 334.30 Prob>chi2 = 0.0000				
Factor loadings (pattern matrix) and unique variances					Factor loadings (pattern matrix) and unique variances				
Variable	Factor1		Uniqueness		-----				
Years of the top manager's experience working in the firm's sector	0.9944		0.0112		Variable	Factor1		Uniqueness	
Percent of firms with legal status of privately held Limited Liability Company	0.4855		0.7642		Percent of firms identifying corruption as a major constraint	0.8662		0.2497	

## Business Statistics – Economic Informatics

Proportion of private domestic ownership in a firm (%)					Percent of firms identifying the courts system as a major constraint				
0.2648  0.9299					0.7359  0.4585				
Corruption index					Percent of firms offering formal training				
Factor analysis/correlation					0.2893  0.9163				
Method: iterated principal factors					Proportion of unskilled workers (out of all production workers) (%)				
Rotation: (unrotated)					0.2823  0.9203				
Number of obs =26					Percent of firms identifying labor regulations as a major constraint				
Retained factors =1					0.8601 0.2601				
Number of params =6					Percent of firms identifying an inadequately educated workforce as a major constraint				
-----					0.8333 0.3056				
Factor	Eigenvalue	Difference	Proportion	Cumulative	Senior management time spent dealing with the requirements of government regulation (%)				
Factor1	3.54754	3.08511	1.0000	1.0000	0.7326  0.4633				
Factor2	0.46244	0.28825	0.1304	1.1304	Number of visits or required meetings with tax Officials				
Factor3	0.17418	0.29543	0.0491	1.1795	0.0972 0.9905				
Factor4	-0.12124	0.08044	-0.0342	1.1453	If there were visits, average number of visits or required meetings with tax officials				
Factor5	-0.20169	0.11201	-0.0569	1.0884	0.2110 0.9555				
Factor6	-0.31369	.	-0.0884	1.0000	Days to obtain an operating license				
-----					0.4920 0.7579				
LR test: independent vs. saturated: chi2(15) = 118.26 Prob>chi2 = 0.0000					Days to obtain a construction-related permit				
Factor loadings (pattern matrix) and unique variances					0.0457 0.9979				
-----					Percent of firms identifying tax rates as a major constraint				
Variable	Factor1		Uniqueness		0.8331 0.3060				
Percent of firms expected to give gifts to public officials "to get things done"	0.8681		0.2463		Percent of firms identifying tax administration as a major constraint				
Percent of firms expected to give gifts in meetings with tax officials	0.7768		0.3966		0.8842 0.2181				
Percent of firms expected to give gifts to secure government contract	0.6117		0.6259		Percent of firms identifying business licensing and permits as a major constraint				
Percent of firms expected to give gifts to get an import license	0.5161		0.7336		0.7061 0.5014				
Percent of firms expected to give gifts to get a construction permit	0.8807		0.2244		Percent of firms identifying access to finance as a major constraint				
Bribery depth (% of public transactions where a gift or informal payment was requested)	0.8800		0.2256		0.4200 0.8236				
					Percent of firms identifying practices of competitors in the informal sector as a major constraint				
					0.6317 0.6010				

## OPTIMIZATION OF THE MANAGERIAL DECISIONS WITH THE HELP OF THE BUSINESS INTELLIGENCE APPLICATIONS AND OF THE ECONOMETRIC MODELS

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**Abstract:** In this article we presented the importance of using a Business Intelligence solution for any company, as well as the implementation of an econometric model in order to obtain a useful correlation for making managerial decisions. The case study was made on a company distributing food products. We developed a number of analysis reports on the sales forecast with the QlikView application, and the analysis of the link between the average price and the quantity of the products sold was made by means of the econometric regression models. The projection of the reports, charts and monitoring tools contributes to the business performance measurement, the analysis of the trends and the measurement of the results.

**JEL classification:** M15, M21, C51

Key words: business intelligence, managerial decisions, analysis reports, correlation chart, ordinary least squares method

### 1. INTRODUCTION

Business Intelligence software includes a support system for decision making, which system is driven by a database. This database provides management persons with access in real time to ad hoc, reports, online tables, dashboards, charts that provide a great deal of information in the form of financial statements, business scorecards and key performance indicators.

The important areas in which a BI solution acts are:

**1. The operational efficiency.** A Business Intelligence solution helps improve the order - collection cycle, to identify weaknesses in the company's cash flows, and to optimize all operations. Thus the flexibility is increases by reducing the time of the response to changes and releases the key information from the company data.

**2. Profitability.** A Business Intelligence solution leads to the identification of non-profitable elements by identifying the product and service cross-selling opportunities, the elimination of lost sales due to the lack of stocks, price optimization by analyzing the direct and indirect costs and real-time monitoring of the achievements against the target. All these lead, through decisions based on accurate information, to the improvement of the profitability.

**3. Cost reductions.** A Business Intelligence solution allows for obtaining accurate information about the costs, in order to identify opportunities to reduce, monitor fixed assets purchase, use and maintenance costs, to reduce costs generated by excerpting and processing information, generated by incorrect or late information.

Financial cost reductions are obtained through the cash-flow analysis, and goods cost reductions are obtained by optimizing stocks.

**4. *Employee productivity.*** With the help of a Business Intelligence solution all information is summarized, so that the employees have more time available to focus on the important aspects of their activity, to make quick decisions, based on correct and actionable information and are more efficient by using multidimensional dynamic analyses instead of bi-dimensional static reports

**5. *Customer satisfaction.*** A Business Intelligence helps provide quick and accurate information to all customers, to adapt the supply to the demand for greater customer retention and the increase of the service levels generates higher income per customer.

In Romania, the market of Business Intelligence solutions, together with that of ERP solutions (Enterprise Resource Planning), experienced an impressive evolution due both to the national economic development and to meet the need of companies to remain competitive on the market.

The increasingly broader use of the econometric models to investigate economic phenomena is due to the progress achieved in the area of the methods of assessing the parameters of the verification models and tests and last, but not least, the use of computers allowing for the effective resolution of econometric models.

Econometrics involves the study of the relationships linking economic phenomena through specific methods such as the regression analysis.

## 2. METHODOLOGY

Business Intelligence solutions are now more necessary than ever, taking into consideration the worldwide economic circumstances. It is essential to make the best business decisions based upon real and exact information. They help to control and diminish costs, to seize opportunities and obtain the profit growth.

In order to design the reports on analysis we used the QlikView application, which is an excellent tool in analyzing the critical information on a business. QlikView is a complex and powerful BI software package and data analysis which offers a better way to work with the data of a business. The graphic interface offers an increasing interaction to the users. With a few clicks on the mouse, they have immediate access to information that goes from the general level to the level of the slightest details. The organizations, thus, succeed in discovering still unsuspected information, in understanding better what is going on in their current activity and, as such, in making the best decisions for their development.

Numerous companies of different branches noticed that even the simplest CVP analysis can be useful in taking decisions related to the strategic planning and also concerning the products features and prices.

For best results in the analysis of the relationship between the average price and quantity of goods sold, we used semi-logarithmic regression model unifactorial:

$$y = a + b * \log(x) + \varepsilon$$

where  $x$  is the independent variable (average selling price),  $y$  is the dependent variable (the amount of goods sold),  $\varepsilon$  is the random variable (representing the action of random factors in relation to the link studied, the dependent variable).

To estimate the parameters of econometric regression model, we used the software package EViews.



### 3. ANALYSES

To give an example we considered a company that deals with food distribution in Romania. The company has got several warehouses situated at different addresses and furnishes food products to several clients from all over the country. The used information refers to:

- Articles characterized through: Product Code, Product Name, Weight, Product Group, Group Type;
- Customers defined through: Customer Code, Customer Name, Location Code, Customer Location Name, Customer Group, Customer Group Type, Department, Town, Invoicing Code;
- Invoice heading which comprises: ID, Invoicing Code, Date, Warehouse Location, Warehouse and Bill
- Invoice lines consisting of: ID, Product Code, Quantity and Price.

#### 3.1. PROJECTION OF THE ANALYSIS REPORTS WITH THE APPLICATION QLIKVIEW

Further, there are presented a few sales analysis reports achieved by the company in different time periods. Each report can be very easily modified by a single click or by modifying the display way (table or graph) or by choosing another option from defined groups (for example for time dimension we defined the „Period” group formed from: year, month, week, current date, weekend).

**1. Four-dimensional sales analyses.** In order to build this report, several groups will be defined that allow us to immediately change the dimensions in the table (see fig. 1).

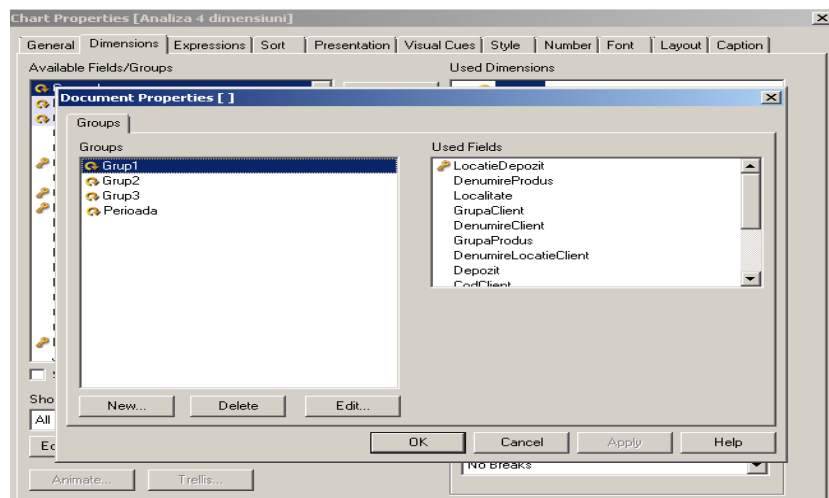


Figure no. 1. Definition of the groups

For example we kept as dimension the product group, the location of the warehouse, the product names and the month. Thus, for each product group the locations where warehouses distributing these products are will be displayed, along with the name of each product in the group, and for a previously selected three-month period, we calculated the quantity sold each month and as a total on the selected months, the value and the average price respectively. We can notice that each defined group is accompanied by a contextual menu from which the dimensions of the table can

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be changed quickly. Thus the information grouped on types of customers, types of customers, places or invoices are displayed.

Analiza 4 dimensiuni													
		Cantitate				Valoare				Pret mediu			
		oct.	sep.	aug.	Total	oct.	sep.	aug.	Total	oct.	sep.	aug.	Total
GrupaProdus	LocatieBucuresti												
MF1	CodClient	3,984	1,264	1,738	6,986	58,640	16,662	22,741	98,043	14,7190	13,1816	13,0843	14,0342
	CodLocatie	8,160	4,780	11,660	24,600	114,632	63,038	147,618	325,288	14,0480	13,1879	12,6802	13,2231
	CodProdus	3,480	37,400	34,160	75,120	40,697	415,861	359,757	816,315	11,6947	11,0955	10,5315	10,8669
	DenumireClient	15,624	43,524	47,558	106,706	213,970	495,560	530,115	1,239,545	13,8950	11,3859	11,1467	11,6174
	DenumireLocatieClient	-	-	20,000	20,000	-	-	179,490	179,490	-	-	8,9745	8,9745
MF2	DenumireProdus	-	-	20,000	20,000	-	-	179,490	179,490	-	-	8,9745	8,9745
	Depozit	284,280	455,715	662,350	1,402,345	3,116,124	4,647,386	6,392,870	14,156,381	10,9615	10,1980	9,6518	10,0948
	GrupaProdus	804,700	609,280	1,174,000	2,588,980	8,965,336	6,350,979	11,328,028	26,644,343	11,1274	10,4237	9,6491	10,2914
	Localitate	6,000	-	-	6,000	71,400	-	-	71,400	11,9000	-	-	11,9000
	TipGrupaClient	55,700	65,520	55,500	176,720	284,044	372,540	308,060	964,644	5,0995	5,6859	5,5506	5,4586
MF3	GrupaProdus	259,880	567,040	664,840	1,491,760	1,516,840	3,324,154	3,976,332	8,817,326	5,8367	5,8623	5,9809	5,9107
	Localitate	1,127,280	1,241,840	1,894,340	4,263,460	10,837,628	10,947,613	15,612,428	36,497,713	9,6140	8,8910	8,2416	8,5606
	TipGrupaClient	74,160	46,360	52,680	173,200	788,768	455,651	487,008	1,711,427	10,3863	9,8295	9,2446	9,8812
	TipGrupaClient	30,650	12,650	57,240	100,540	194,553	82,603	367,066	644,222	6,3476	5,5298	6,4128	6,4076
	TipGrupaClient	249,160	229,760	242,040	720,960	1,222,966	1,175,472	1,385,213	3,783,651	4,9084	5,1161	5,7231	5,2481
MF4	TipGrupaClient	420,500	383,460	327,840	1,131,800	2,254,015	2,113,037	2,035,893	6,402,946	5,3603	5,5104	6,2138	5,6583
	TipGrupaClient	774,470	672,230	679,600	2,126,300	4,440,392	3,826,762	4,275,181	12,542,245	5,7333	5,6926	6,2907	5,8995
	TipGrupaClient	533,720	483,800	752,120	1,769,640	5,777,309	4,807,800	7,180,950	17,766,058	10,8246	9,9376	9,5476	10,0394
	TipGrupaClient	44,300	73,100	-	117,400	239,310	421,580	-	660,890	5,4020	5,7672	-	5,6294
	TipGrupaClient	366,620	283,800	354,900	1,005,320	2,051,773	1,698,066	2,284,868	6,034,707	5,5965	5,9833	6,4381	6,0028
MF5	Total	944,640	840,760	1,107,020	2,892,360	8,068,392	6,927,446	9,465,817	24,461,655	8,5412	8,2401	8,5687	8,4573
	PATE ARDEAL...	21,620	2,940	4,700	29,460	20,416	1,764	2,820	25,000	0,9357	0,8000	0,8000	0,8486
	PATE BUCUGI	1,590,080	23,720	120	1,613,920	16,820,244	241,419	1,140	17,062,803	10,5782	10,1778	9,5000	10,5723
	PATE SIBIU PO...	131,940	-	-	131,940	632,596	-	-	632,596	4,7946	-	-	4,7946
	PATE SIBIU PU...	179,745	-	-	179,745	983,411	-	-	983,411	5,4711	-	-	5,4711
MF6	Total	1,923,585	26,660	4,820	1,955,065	18,456,667	243,183	3,960	18,703,810	9,5948	9,1216	8,8216	9,5668
	PATE ARDEAL...	12,960	15,320	10,040	38,320	6,532	9,192	5,268	20,992	0,5040	0,6000	0,5247	0,5478
	PATE BUCUGI	700,800	689,600	681,920	2,072,320	7,686,566	7,056,957	6,552,880	21,296,403	10,9060	10,2334	9,6095	10,2568
	PATE SIBIU GA...	11,900	28,075	9,350	49,325	78,540	183,288	60,775	322,603	6,6000	6,5285	6,5000	6,5403
	PATE SIBIU PU...	413,110	387,240	311,870	1,112,220	2,085,729	1,994,259	1,796,169	5,856,157	5,0004	5,1499	5,7594	5,2653
MF7	PATE SIBIU PU...	377,000	373,200	317,500	1,067,700	2,057,300	2,126,200	1,920,956	6,104,456	5,4570	5,6972	6,0503	5,7174
	Total	1,519,770	1,493,435	1,339,680	4,343,885	11,894,667	11,369,895	10,336,048	33,609,611	1,7266	7,6133	7,7675	7,7352
	PATE ARDEAL...	56	-	-	56	45	-	-	45	0,8000	-	-	0,8000
	PATE SIBIU PU...	55,820	74,000	87,960	217,780	362,830	479,700	571,140	1,413,670	6,5000	6,4824	6,4932	6,4913
	Total	55,875	74,000	87,960	217,836	362,830	479,700	571,140	1,413,670	6,4943	6,4824	6,4932	6,4913
MF8	IASI	1,923,585	26,660	4,820	1,955,065	18,456,667	243,183	3,960	18,703,810	9,5948	9,1216	8,8216	9,5668
	PATE ARDEAL...	12,960	15,320	10,040	38,320	6,532	9,192	5,268	20,992	0,5040	0,6000	0,5247	0,5478
	PATE BUCUGI	700,800	689,600	681,920	2,072,320	7,686,566	7,056,957	6,552,880	21,296,403	10,9060	10,2334	9,6095	10,2568
	PATE SIBIU PU...	11,900	28,075	9,350	49,325	78,540	183,288	60,775	322,603	6,6000	6,5285	6,5000	6,5403
	PATE SIBIU PU...	413,110	387,240	311,870	1,112,220	2,085,729	1,994,259	1,796,169	5,856,157	5,0004	5,1499	5,7594	5,2653
MF9	PATE SIBIU PU...	377,000	373,200	317,500	1,067,700	2,057,300	2,126,200	1,920,956	6,104,456	5,4570	5,6972	6,0503	5,7174
	Total	1,519,770	1,493,435	1,339,680	4,343,885	11,894,667	11,369,895	10,336,048	33,609,611	1,7266	7,6133	7,7675	7,7352
	PATE ARDEAL...	56	-	-	56	45	-	-	45	0,8000	-	-	0,8000
	PATE SIBIU PU...	55,820	74,000	87,960	217,780	362,830	479,700	571,140	1,413,670	6,5000	6,4824	6,4932	6,4913
	Total	55,875	74,000	87,960	217,836	362,830	479,700	571,140	1,413,670	6,4943	6,4824	6,4932	6,4913

Figure no. 2. Four-dimensional sales analyses

By changing the display period we can get information for each day of the week, weekly, monthly, quarterly, annually, or for a selected period. If we want to obtain the annual projection of the quantity, value and average price we just need to change in the previous report the selected period (see figure 3).

Analiza 4 dimensiuni												
		Cantitate			Valoare			Pret mediu				
GrupaPr...	LocatieB...	YEAR_MONTH	Total	Total	2013 -	Total	Total	2013 -	Total	Total	Total	Total
MF1	BRASOV	MUSCHIELE A...	18,718	218,533	-	218,533	11,8750	-	11,8750	-	11,8750	-
		DATE	86,552	995,010	-	995,010	11,4961	-	11,4961	-	11,4961	-
		WEEK	303,160	2,927,768	-	2,927,768	9,6575	-	9,6575	-	9,6575	-
	IASI	WEEKDAY	100	1,071	-	1,071	10,7115	-	10,7115	-	10,7115	-
		MONTH	20,000	179,490	-	179,490	8,9745	-	8,9745	-	8,9745	-
		QUARTER	20,000	179,490	-	179,490	8,9745	-	8,9745	-	8,9745	-
	TIMISOARA	Total	2,039,365	2,039,365	-	2,039,365	9,4173	-	9,4173	-	9,4173	-
		MUSCHIELE A...	381,320	4,526,677	-	4,526,677	11,8708	-	11,8708	-	11,8708	-
		Total	381,320	4,526,677	-	4,526,677	11,8708	-	11,8708	-	11,8708	-
	BRASOV	PATE BUCUGI	8,735,020	81,654,073	-	81,654,073	9,3479	-	9,3479	-	9,3479	-
PATE DE CALA...		23,940	294,474	-	294,474	12,3005	-	12,3005	-	12,3005	-	
PATE SIBIU PUI		1,140,920	8,155,833	-	8,155,833	5,3955	-	5,3955	-	5,3955	-	
Total		4,903,040	28,267,886	-	28,267,886	5,6720	-	5,6720	-	5,6720	-	
PATE BUCUGI		14,882,920	16,372,246	-	16,372,246	7,8192	-	7,8192	-	7,8192	-	
PATE SIBIU GA...		546,390	5,462,542	-	5,462,542	8,3503	-	8,3503	-	8,3503	-	
PATE SIBIU GA...		214,890	1,347,975	-	1,347,975	6,2729	-	6,2729	-	6,2729	-	
PATE SIBIU PUI		1,809,740	9,757,624	-	9,757,624	5,2107	-	5,2107	-	5,2107	-	
PATE SIBIU PUI		3,571,265	20,655,536	-	20,655,536	5,7806	-	5,7806	-	5,7806	-	
Total		8,202,395	36,323,677	-	36,323,677	5,8565	-	5,8565	-	5,8565	-	
MF2	CRAIOVA	PATE BUCUGI	6,087,240	54,794,755	-	54,794,755	9,0016	-	9,0016	-	9,0016	-
		PATE SIBIU PUI	143,640	796,302	-	796,302	5,5431	-	5,5431	-	5,5431	-
		Total	3,158,620	16,090,045	-	16,090,045	5,1261	-	5,1261	-	5,1261	-
	IASI	PATE ARDEAL...	9,389,600	73,690,302	-	73,690,302	7,8482	-	7,8482	-	7,8482	-
		PATE ARDEAL...	117,420	125,361	-	125,361	1,0676	-	1,0676	-	1,0676	-
		PATE BUCUGI	7,282,200	76,664,099	-	76,664,099	10,5276	-	10,5276	-	10,5276	-
	PITESTI	PATE SIBIU PUI	489,160	2,619,842	-	2,619,842	5,2485	-	5,2485	-	5,2485	-
		PATE SIBIU PUI	1,210,205	7,244,903	-	7,244,903	5,9893	-	5,9893	-	5,9893	-
		Total	9,108,985	86,754,205	-	86,754,205	9,5240	-	9,5240	-	9,5240	-
	TIMISOARA	PITESTI	PATE ARDEAL...	104,875	89,619	-	89,619	0,8632	-	0,8632	-	0,8632
PATE ARDEAL...			24,135	14,403	-	14,403	0,5967	-	0,5967	-	0,5967	-
PATE BUCUGI			6,149,120	67,090,920	-	67,090,920	9,2855	-	9,2855	-	9,2855	-
TIMISOARA		PATE SIBIU GA...	285,800	1,705,610	-	1,705,610	5,9720	-	5,9720	-	5,9720	-
		PATE SIBIU PUI	3,522,420	18,687,605	-	18,687,605	5,3055	-	5,3055	-	5,3055	-
		PATE SIBIU PUI	3,794,220	20,824,406	-	20,824,406	5,4888	-	5,4888	-	5,4888	-
TIMISOARA		PATE SIBIU VITA...	13,989	78,743	-	78,743	5,6206	-	5,6206	-	5,6206	-
		Total	13,894,460	13,894,460	-	13,894,460	7,0878	-	7,0878	-	7,0878	-
		PATE ARDEAL...	56	45	-	45	0,8000	-	0,8000	-	0,8000	-

Analiza 4 dimensiuni - personalizat															
			Cantitate				Valoare				Pret mediu				
			Q1 - MONTH												
TipGrupa	GrupaClient	LocatieDepozit	oct.	sep.	aug.	Total	oct.	sep.	aug.	Total	oct.	sep.	aug.	Total	
Cafea	ALT	IASI	440	13,072	13,720	27,232	500	13,243	8,232	21,975	1.1364	1.0131	0.6000	0.8070	
		TIMISOARA	1,268	5,906	9,239	16,413	1,014	4,725	7,391	13,130	0.8000	0.8000	0.8000	0.8000	
		DET	13,630	42,680	40,400	96,710	74,690	243,072	247,680	565,442	5.4798	5.6952	6.1307	5.8468	
	DIS	TIMISOARA	220	-	-	220	176	-	-	176	0.8000	-	-	0.8000	
		IASI	6,200	3,000	26,620	35,820	37,940	18,000	163,322	219,262	6.1194	6.0000	6.1353	6.1212	
	ENG	IASI	6,000	31,900	11,000	48,900	36,000	191,400	68,200	295,600	6.0000	6.0000	6.2000	6.0450	
		PITESTI	-	43,455	-	43,455	-	204,801	-	204,801	-	4.7129	-	4.7129	
	IND	BUCURESTI	-	-	80,760	80,760	-	-	726,840	726,840	-	-	9.0000	9.0000	
		IASI	11,820	95,500	113,600	220,920	82,836	533,696	745,432	1,361,964	7.0081	5.5884	6.5619	6.1650	
		PITESTI	40	-	400	440	480	-	3,720	4,200	12.0000	-	9.3000	9.5455	
	INS	VALCEA	1,940	1,440	1,700	5,080	22,220	16,480	53,270	91,970	11.4536	11.4444	31.3353	18.1043	
		IASI	3,040	-	3,675	6,715	4,560	-	22,850	27,410	1.5000	-	6.2177	4.0819	
	PAR2	IASI	15,405	51,665	77,730	144,800	148,918	469,420	655,198	1,273,536	9.6668	9.0858	8.4291	8.7951	
		VALCEA	80	20	40	140	23,253	226	420	23,899	290.6580	11.3000	10.5000	170.7046	
	PAR3	IASI	14,960	35,800	7,500	58,260	86,768	219,540	47,250	353,558	5.8000	6.1324	6.3000	6.0686	
		PITESTI	5	-	-	5	53	-	-	53	10.6150	-	-	10.6150	
Carne pasare	ALT	BRASOV	3,529,600	3,229,077	5,117,609	11,876,286	36,768,610	31,781,354	49,298,346	17,848,310	10.4172	9.8422	9.6331	9.9230	
		TIMISOARA	80	1,720	1,600	3,400	968	20,080	17,120	38,168	12.1000	11.6744	10.7000	11.2259	
		DET	-	15	50	65	-	150	500	650	-	10.0000	10.0000	10.0000	
	DIS	TIMISOARA	17,700	11,350	36,450	65,500	194,610	119,100	359,750	673,460	10.9949	10.4934	9.8697	10.2818	
		BRASOV	-	26,000	24,120	52,120	-	308,000	254,280	562,280	-	11.0000	10.5423	10.7882	
	HRC	BRASOV	-	3,000	3,680	6,680	-	36,000	38,640	74,640	-	12.0000	10.5000	11.1737	
		TIMISOARA	200	-	-	200	2,300	-	-	2,300	11.5000	-	-	11.5000	
	IND	BRASOV	2,000	1,120	2,640	5,760	24,000	12,320	26,560	64,880	12.0000	11.0000	10.8182	11.2639	
		TIMISOARA	225,880	309,100	428,900	963,880	2,506,300	3,205,850	4,276,100	9,988,250	11.0957	10.3716	9.9699	10.3625	
	PAR2	BRASOV	12,944	9,564	15,318	37,826	182,266	117,898	189,682	489,846	14.0811	12.3273	12.3829	12.9500	
		IASI	-	-	20,000	20,000	-	179,490	-	179,490	-	-	8.9745	8.9745	
	PAR3	TIMISOARA	40,500	135,250	196,950	372,700	412,914	1,322,286	1,756,520	3,491,721	10.1954	9.7766	8.9186	9.3687	
BRASOV		600	120	200	920	6,736	1,262	1,834	9,831	11.2262	10.5185	9.1675	10.6863		

Figure no. 4. Custom Sales Analysis

2. *Analysis of the sales per warehouse locations.* This chart presents both the quantities sold by each warehouse (as dots), and the average price obtained for each warehouse. The information in the chart can be easily modified by choosing the following options from a menu: value – as percentage, sales value, as quantity+ as percentage. By placing the cursor over a certain point Certain detailed information is displayed about the data contained in the chart (for example, by placing the mouse on Pitesti additional information is displayed about the quantity sold and the average price obtained by that warehouse)(see fig 5).

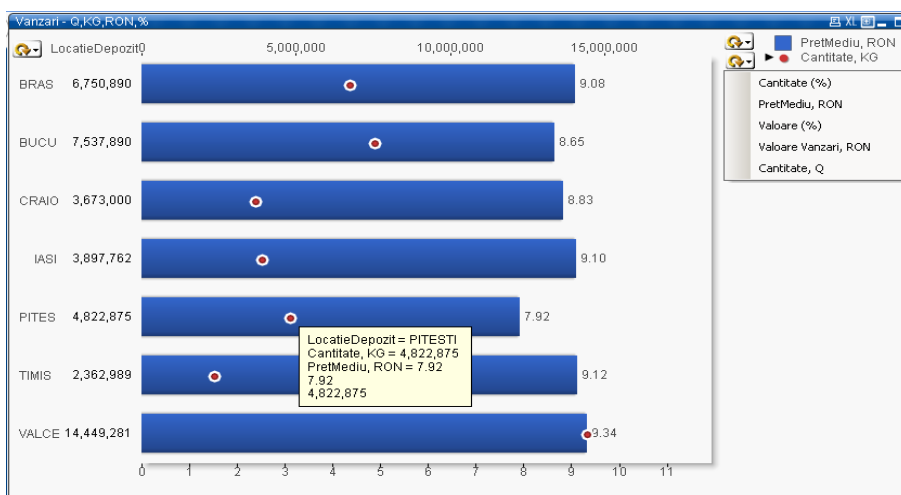


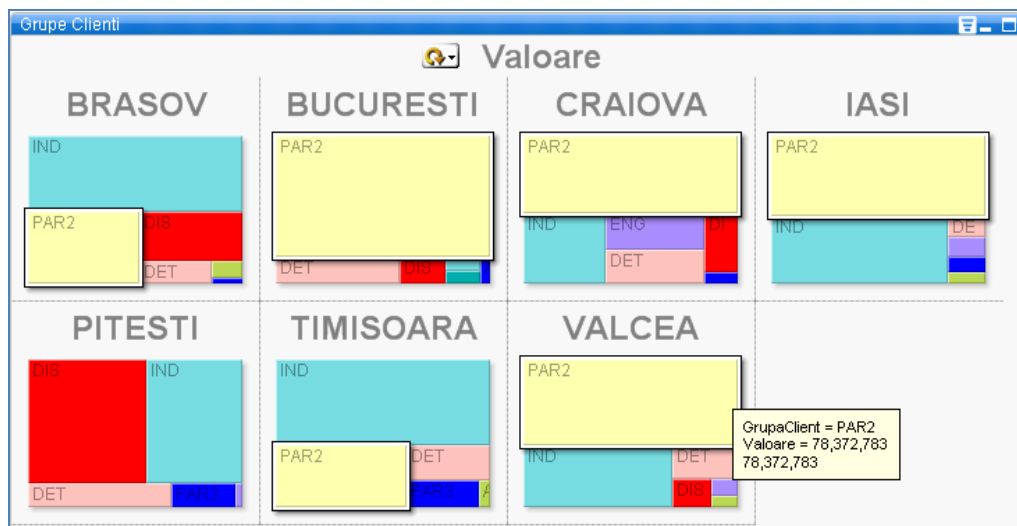
Figure no. 5. Analysis of the sales per warehouse locations

3. *Client groups.* In this report, there are emphasized the clients from each location, per groups of client. We can notice for each group of clients the value corresponding to quantity sold and by changing the option from menu, it is displayed

the total quantity purchased. This report is used to determine the way of distribution of products to clients on each location. We can notice that for example on Bucharest location, the best group of clients is “PAR2”, fact which doesn’t happen in other locations(see figure 6).

By using simple or multiple selection, we can have a clear image of the quantity sold or value obtained for each group of clients :

- on a certain time period (on each day, week, month or year separately, on several months);
- for a certain group of products or for a certain product;
- for a specific type of clients (partners or non-partners);
- for a certain point of sale.



**Figure no. 6. Sales per client groups**

For example if we select a certain product we can visualize information about the name, the customer’s type and location to whom the product was distributed, about the group of product to which the particular product belongs, the warehouse, the delivered quantity and the price of the product.

### **3.2. CORRELATION BETWEEN THE AVERAGE SELLING PRICE AND THE QUANTITY SOLD**

As can be seen from the correlation chart shown below, the regression model that describes the correlation between the average selling price (the independent variable) and the quantity of goods sold (the dependent variable in the econometric model) is:

$$\text{quantity} = a + b \cdot \log(\text{price}) + \varepsilon$$

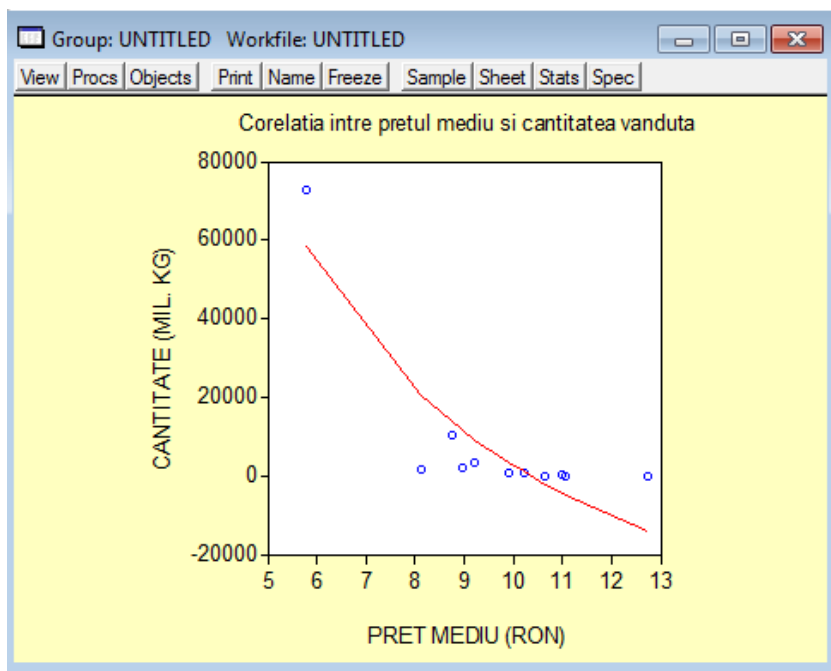


Figure no. 7. Correlation between the average selling price and the quantity sold (per product)

The assessment of the two parameters is made with the help of the ordinary least squares method (OLS) whose results are shown in table no. 1

Table no. 1. The assessment of the parameters of the econometric model that describes the relationship between the average selling price and the quantity of products sold obtained with the help of the ordinary least squares method (OLS)

The dependent variable: quantity				
quantity = a + b*log(price) $\Rightarrow$ quantity = 202613,8131 – 86281,81843*(@LOG(price))				
	Coefficients	Standard error	t-Statistic	Probability
a	202613,8	43983,13	4,606626	0,0013
b	-86281,82	19464,04	-4,432882	0,0016
R Square	0,562274	The average value of the quantity		8390,772
Multiple R	-0,74985	F-statistic		19,65045
		Probability		0,001640
		Durbin – Watson		1,952668

By analyzing the results shown in table no. 1 we can see that the two estimators are significantly different from zero because the calculated values of the test t ( $t_a = 4.61$  and respectively  $t_b = 4.43$ ) are higher compared to the table value ( $t_{0,05;9} = 2.26$ ) and the probabilities that the parameters are not correctly assessed ( $p_a = 0.0013$  and respectively  $p_b = 0.0016$ ) are low compared to the significance threshold ( $\alpha = 0.05$ ). The validity of the regression model is given by the test value F ( $F_c = 19.65$ ), which is a

value higher than the table value ( $F_{0,05;1;9} = 5,12$ ) so we can say that the average selling price is an important variable influencing the quantity of products sold.

The calculated Durbin -Watson test value is high compared to the table values of the test ( $d_L = 1,08$  and  $d_U = 1,36$ ), so the econometric regression model is statistically correct. In this respect, we can say that the random variable values are independent of each other and data concerning the average price and the quantity of products sold are independent.

The relationship obtained between the average selling price and the quantity of products has a high intensity and describes an inverse relationship between the two variables ( $R = -0.74985$ ). The increase in the average selling price by one unit determines the decrease of the quantity of products sold by 86281.82 kg. The positive and high value of the estimator  $a$  highlights a positive and significant influence of the random variable on the quantity of products sold.

## 5. CONCLUSIONS

The implementation of BI solution enables the provision of relevant information, allowing managers to make strategic decisions and to establish, modify or harmonize business processes in order to obtain competitive advantages. The projected analysis reports lead to the improvement of the activity and profitability of a business, and to achieve the set objectives. The BI applications allow users to find answers in the data they have and support the decision-making process concerning the business in a form easily followed and understood (charts, tables, maps, or a combination thereof).

Combining the information derived with the help of the BI applications with the results obtained by building econometric regression models leads to top-quality, fast managerial decisions, made in a very short time, ensuring the success of a business on the current economic market.

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THE CONCEPTUAL MODEL OF HEALTH CARE PRODUCTIVITY\*

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**Abstract:** The study aims at providing actual answers to some questions on the health care productivity evaluation, regarding both material resources and human resources, as key components in the provision of the intellect-intensive services such as direct effects and complexes derived from their conduct. In this empirical research we had considered several objectives: (i) establishing the influence of the health care productivity on the populations' health, (ii) assessing the impact of government decisions on the functionality of the medical system, (iii) identifying the influence of human resource in the effective exercise of medical services and (iv) examining the extent to which the common action of the factorial variables affects productivity of medical services. The research results reveal a useful mathematical device for health care productivity research at a macroeconomical level, that may be true for the extension of the econometric analysis at the micro level.

**JEL classification: C12, C30**

Key words: model, productivity, health care, intellect-intensive services

## 1. INTRODUCTION

Since the nineteenth century there were concerns for the immaterial aspect. Economist Frédéric Bastiat elaborated the value-service theory (Bastiat, 1982), the economist Henri Storch brought some visionary ideas about intellect-intensive services, especially through his expressions on the separation between productive and unproductive nature of the work performed on the value of which produces and what it consumes every kind of work, whatever the branch of activity. (Storch, 1823) In the same period with Bastiat and Storch, the German economist Friedrich List enriches ideational intellect-intensive services, noting the creative power of the human intellect by developing the principle work division and the combination of productive forces. (List, 1973) In the twentieth century, the work of French economists warned us first by developing formulas and expressions of productivity (Fourastié 1952) in a remarkable analysis of productivity in industry (Vincent, 1968) as well as numerous research on the difficulty and superficial accounts regarding services, developed works by researchers in large immaterial field. (De Bandt, 1991; Gadrey, 1996 Djellal&Gallouj, 2012).

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Currently, in the specialty literature we find numerous articles and mathematical models through which current issues are treated differently with respect to the link between health and economic growth or innovation etc. Among these we note the significant contributions of the models developed by Aghion and Howitt (economic model of growth based on the Schumpeter's creative destruction), Bloom, Canning and Sevilla (production function model that includes two human capital variables: work experience and health), Grossman (model of demand for goods "good health"), Karnon, Mackay and Mills (various models through which mathematical modeling is used to improve the distribution of health care).

## **2. OBJECTIVES**

In the empirical research we had several objectives in our mind: (i) establishing the productivity influence of health services (in this case, human and material components related to service quality) on the health of the population, (ii) assessing the impact of government decisions (both management of material and human resources to manage) the medical system functionality, (iii) identification through an econometric analysis, the major influence exerted by the human resource in the effective exercise of medical services and (iv) examine the extent to which productivity health services is influenced by the common action of the human factor, financial factors and some other factors related to the medical system operationalizing.

## **3. METHODOLOGY**

This paper consists of three parts: the first part presents the conceptual model of productivity in health care, in the second part presents econometric tests multifactorial which are underlying the conceptual model and on the third party are mentioned results and economic interpretations of the econometric multifactorial models used.

Databases were used in empirical research: National Institute of Statistics, Eurostat, World Bank and the National Health Insurance. The statistic data were taken as dependent variables: life expectancy at birth, overall fertility rates and new health problems cases - NIS mortality rate per 1,000 residents - the World Bank. The statistical data for selected factorial variables were taken as follows: (i) for human factors: number of practicing doctors per 100,000 residents - Eurostat, population on 1 environmental health framework and researchers in medical sciences - NIS, (ii) for financial factors: GDP per habitant and expenditure on research and development - World Bank, allocated funds to health units with beds (National Health Insurance) and (iii) for health care operationalizing system factors: number of inpatient days and outpatient numbers - Eurostat.

## **4. INTRODUCING THE PRODUCTIVITY CONCEPT IN HEALTH CARE**

In the empirical research design, the established research hypotheses are formulated as a grouped set, either by reference to material resources (generally material factors) or immaterial factors (in general and with special reference to human resources).

The first hypothesis concerning material resources presented in the empirical research is the assumption that increasing the share of highly qualified medical personnel expenses (doctors, researchers and nurses in medical sciences) leads to reorganization of the funds allocated to health (in order to ensure proper distribution of these resources and their report points manifestation of the health needs of the



population and the organization of functionality using these resources in the system) and the compound effect of improving overall population (the generally consisting effect is formed by combining four long-term effects, namely: life expectancy at birth, mortality rate per 1,000 population, new cases of disease and general fertility rate). The GDP percentage allocated to health is relatively constant from year to year; even in the absence of additional funding can improve their equitable distribution of health facilities by health units type, by category of expenditure (salaries for staff, medicines, medical and technical equipment, appliances and equipment, etc). The results of the material nature refer to the territorial reorganization capacity (referring to all categories of health facilities) and modernization of hospitals, clinics and general practitioners and thus improving the efficiency of Romanian public health. Regarding this, we note the opinion of Romanian doctors who consider that if general practitioners should be equipped with advanced medical devices if they would get multiple competences and responsibilities and an adequate remuneration, most diseases could be detected, treated and followed by the family doctors more efficient financially and difficult medical cases where become within the jurisdiction of hospitals. (1) The effects resulting of socio-human and relational nature, refers to the territorial reorganization of human resources, which means to cover geographical areas (with a well thought territorial distribution of the health units or facilities location and therefore, specialists in various fields for improving the access at medical care of diseases such as cancer; for example, patients of various parts of the country are going to Cluj-Napoca for a biopsy through establishing or disproving cancer (1).

A second hypothesis concerning material resources and which is presented in the empirical research, is the assumption that improved component materials related to health service quality leads to improved general the generally consisting effect. The material components understand technical equipment related to infrastructure (buildings, systems and computer software, medical equipment, etc..) and medical logistics (ambulances to transport patients, machines for intervention in cases of disasters and helicopters). (Toth, Jivan, 2013) In terms of a material issue, there is a long-term effect on the financial performance of Romanian medical system and competitiveness internationally; the socio-human, relational and image effects are felt by improving the image of medical units in terms of existing facilities in the country.

The last hypothesis regarding material resources shown in the empirical research, is the assumption that government decisions on resource allocation and management of material resources in the health system affects functional balance in the system, and changes to be made on them after impact studies, the public debate and adequate consultation of experts (representatives of the domain) and civil society. The effects of material nature refer to patient size expenditure on health (including on trips to other cities or abroad and so on). Closely related to the size of the monetary costs incurred by patients for their own health and more time are spent traveling to other medical centers than residence. Hence the lack of patients for a longer period of work (although, for example, the problem is not major medical issue, but in their locality there is no qualified medical personnel for certain diseases) and loss of productivity remaining colleagues at that work (by adding to the usual duties of work and tasks missing from the unit for medical reasons). In terms of socio-human, relational and image effects refer to fairness among different

population groups on access to health services and, in general, grasping adequate medical treatment.

Regarding human resources, the first hypothesis about the empirical research, as shown is assumption: the increase of highly qualified medical staff (doctors, researchers and nurses in medical sciences) leads to overall improvement of the economy and quality of life through acquisition or conservation health. The effects of material nature arising from this assumption refer to long-term quality of labor, affecting activities of the people treated in terms of healthcare therefore those individuals income as well and including the business they operate, with impact on the national economy. In terms of socio-human and image, very long-term effects on the health of the population, such as the genetic condition, immune and general physical force transmitted to future generations.

A second hypothesis about human resources presented in the conceptual model involves improving all the components related to human nature (motivation, work habits, workplace climate, management style, etc) that contribute to the health service quality which leads to improve overall the generally consisting effect. The effects of material nature arising from this assumption is to give a decent remuneration of medical personnel with long-term effect on individual and collective performance (eg, teams of specialists) and of the health units or facilities location stability. The effects of socio-human, relational nature, and image are confidence in the national health system in terms of dedication and skill of medical personnel (including the ability in use advanced medical equipment and interpretation of results) and quality of communication between doctor and patient.

The last hypothesis concerning the human resource presented in the conceptual model refers to government a decision in human resource management (eg new employment decisions or redundancy in the system, etc..) is in the overall functionality of the medical system. By here on the material level, under the following effects: favorable context in terms of scientific research useful to improving health services, the scientific and technical level of the Romanian health system and international competitiveness (in general and including its medical units in country). On the socio-human and relational long-term effect is related to the international image of the Romanian health system and the visibility of Romanian research in the field. If the image is positive, then foreign patients could be attracted to treatment in our hospitals, for example, currently provided dental services in the country are popular with foreigners because of its low cost towards the European average.

Related effects intellect-intensive services productivity research - in this case the medical ones - are highly complex given the intellectual investment expenditure of these activities and thus their impact on a broad influence on different time horizons. The effects have been formulated based on those observed in the economic and social Romanias' development, referring to different aspects of the health system, especially in recent years, and, specifically, to productivity of health services, in particular, this productivity being found as a result of research in economics, society, and the prospects in this nation. Summarizing from the above during the previous researches, we list in Figure no. 1 the most important effects that we have retained for the conceptual model, as specified for each type of case in part. We have grouped these effects worthy of note as possible for Romanian healthcare productivity, in turn, on two categories: (i) the material nature, which allowed a

greater quantification of income pertaining to entities considered (and related, category of effects that are commonly considered in the economic analysis of productivity), and (ii) intangible effects (of socio-human nature, relational nature, image, etc.) that cannot be quantified: most may be made judgments about them. Of the quantifiable we retained these, as outcome of changes in the productivity of health care, to verify their validity through data analysis: first of all, the simultaneous action of the human factor, financial factors and operational factors related to the health system on the dependent variables in econometric analysis considered multifactorial (life expectancy at birth, general fertility rate, mortality rate for every 1,000 inhabitants and new disease cases) is very strong; secondly, the separate action of each factor on the dependent variables, in the intensity order and results of econometric multifactorial analysis for the compound effects (see *infra* section 2.), presents itself as follows: operational factors related to the health system, human factor and financial factors. Regarding the operational factors related to the health system in the databases registration of indicators that make up these factors (number of hospitalization days and outpatient numbers) there is no assurance that the discharge patients are healthy or have been improved, health or were discharged in the final stage of a disease.

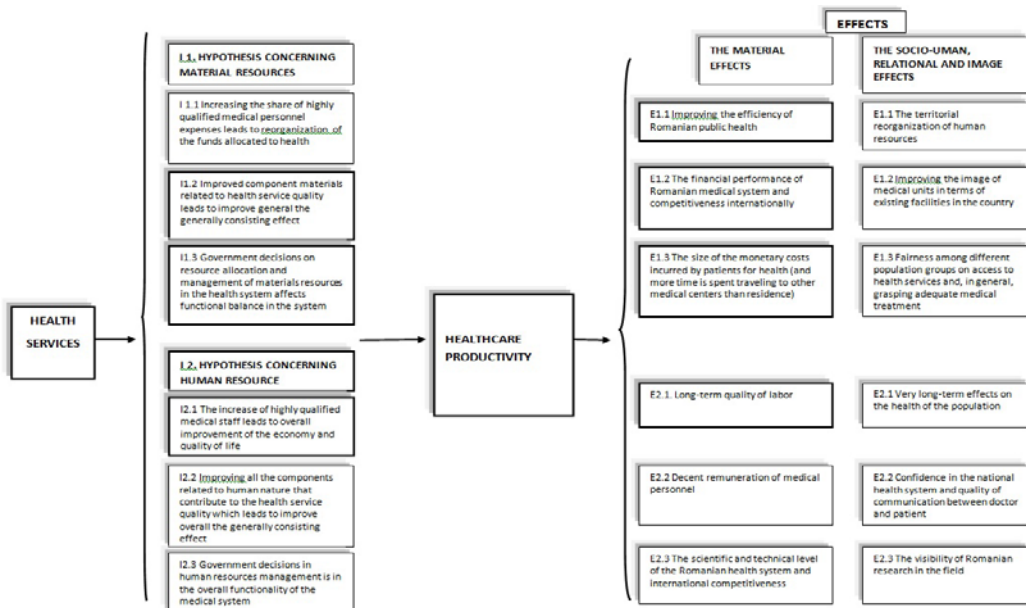


Figure no. 1 The conceptual model of healthcare productivity

## 5. ECONOMETRIC MULTIFACTORIAL ANALYSIS

The econometric multifactorial analysis is based on the combination of effects and influence factors on the following criteria:

Long-term effects were divided in two groups, as follow:

- compound effect 1 consists of the positive long-term effects (life expectancy and general fertility rate). In the conceptual model were chosen the two effects for estimating population health : the average life expectancy of the population (although criticism that may be made of such correlations) and general fertility rate as a

component showing the vigor and ability of procreation population and the gene to be passed on to future generations.

- compound effect 2 formed on long-term adverse effects (mortality rate per 1,000 inhabitants and new cases of disease). The two long-term adverse have been selected to show the frequency and intensity of the event in case of sickness and death; in our model we considered those two negative effects just the opposite of the two positive effects which combine the compound effect 1.

- the general compound effect consists of the combination of the two described above.

Influencing factors were divided into 3 groups to which is added the influence indication type (positive or negative) of each independent variable, as follows:

- human factors, consisting of: number of practicing doctors per 100,000 (+) inhabitants, habitants at 1 health medium framework (-), researchers in the medical sciences (+);

- financial factors, consisting of: GDP per habitant (+), research and development expenditure (+) and allocated funds for health units with beds (+);

- operational factors related to the health system, consisting of: total hospitalization days (-) and the total patients discharged (+).

Because each individual indicator was expressed in another unit (eg, dollars, days, number of people, lei etc.) to form the compound effects and composite factors was performed reconciliation of the data (see table no. 1.).All correlations are based on compound factors on their annual variations.

**Table no. 1 Database standardization according to effects and policy**

	<b>Compound effect 1</b>	<b>Compound effect 2</b>	<b>General compound effect</b>	<b>Human factors</b>	<b>Financial factors</b>	<b>Operational factors related to the health system</b>
<b>2003</b>	1.005592582	0.969824073	1.036881441	1.083682278	1.972933957	0.978325563
<b>2004</b>	1.020307893	1.015480804	1.004753501	1.509954003	1.421346769	1.003704085
<b>2005</b>	1.032371705	1.013920385	1.018197997	1.08327668	1.703285227	0.924880034
<b>2006</b>	1.008964597	0.940488605	1.072808954	0.861744889	1.343218937	1.142291809
<b>2007</b>	0.990128265	0.909020164	1.089225854	1.103992481	1.991549432	0.959771193
<b>2008</b>	1.049738912	1.030924653	1.018249888	1.259519439	1.768015072	1.056978466
<b>2009</b>	1.01400059	1.072866036	0.945132528	1.184810395	0.659500536	1.113567307
<b>2010</b>	0.962810283	1.060494148	0.907888351	0.839167562	1.20151201	0.962808191

The logic by which tests were performed is the following: Each compound effect is tested econometric correlated to each mentioned influence factor in table no 1. Each shown items in this table are based on different econometric unifactorial analysis developed in our previous researches.

Econometric multifactor test results are shown in the tables below.

As can be seen in table no. 2 primarily the correlation ratio is in the range 0.8 to 1 for every econometric link (between the compound effect 1 and the influencing factors). Secondly, the coefficient of determination is in the range of 0.8 to 1 for each of econometric link and shows the extent to which variation of subjects (effect) is influenced by the variation of influence (human, financial and operationalization health system); as it can be seen, for each correlation over 93% of the variation in the compound effect 1 can be explained by the influence on factors variation to be seen. In the third place, we note that for each *F* econometric correlation test result shows a very high value, and *critical F* spreadsheet for these correlations is 3.43.From all these observations results that there are intense econometric links between the dependent

variable (compound effect 1) and influencing factors (human factors, financial factors and operational factors related to the health system), as tested econometric models are correct.

**Table no. 2 Multifactorial econometric tests for the compound effect 1**

Multifactorial model	Multiple R	R Square	F
<b>Compound effect 1 – Human factors</b>	0,986	0,972	250,90
<b>Econometric model for the period 2003-2010 is presented in the folowing form: Compound effect 1 = 0,87- human factors</b>			
<b>Compound effect 1 – Financial factors</b>	0,967	0,936	103,38
<b>Compound effect 1 = 0,64- financial factors</b>			
<b>Compound effect 1 – Operational factors related to the health system</b>	0,997	0,995	1421,14
<b>Compound effect 1 = 0,98- operational factors related to the health system</b>			
<b>Compound effect 1 – Human factors + Financial factors + Operational factors related to the health system</b>	0,999	0,998	1001,31
<b>Compound effect 1 = 0,12- Human factors + 0,09- Financial factors + 0,71- Operational factors related to the health system</b>			

**Table no. 3 Multifactorial econometrical tests for the compound effect 2**

Multifactorial model	Multiple R	R Square	F
<b>Compound effect 2 – Human factors</b>	0,984	0,969	219,34
<b>Econometric model for the period 2003-2010 is presented in the folowing form: Compound effect 2 = 0,87- Human factors</b>			
<b>Compound effect 2 – Financial factors</b>	0,955	0,912	73,42
<b>Compound effect 2 = 0,63- Financial factors</b>			
<b>Compound effect 2 – Operational factors related to the health system</b>	0,996	0,992	935,86
<b>Compound effect 2 = 0,97- Operational factors related to the health system</b>			
<b>Compound effect 2 – Human factors + Financial factors + Operational factors related to the health system</b>	0,996	0,993	271,16
<b>Compound effect 2 = 0,1613- Human factors + 0,006- Financial factors + 0,7939- Operational factors related to the health system</b>			

As can be seen in table no. 3 primarily the correlation ratio is in the range 0.8 to 1 for each of econometric link (between the compound effect 2 and influence factors). Secondly, the coefficient of determination is in the range of 0.8 to 1 for each of econometric link and shows the extent to which the variation is influenced by the studied variation of influencing factors. Thirdly, we note that for each econometric correlation test result shows a very high value for *F*, and *critical F* spreadsheet for these correlations is 3.43. From all these observations outcome that there are intense econometric links between the compound effect 2 and influence factors mentioned in table no. 3, so the econometric models tested are correct.

As it can be observed in table no. 4, first of all, correlation ratio is in the range 0.8 to 1 for each of econometrical tested link. Secondly, the coefficient of determination is in the range of 0.8 to 1 for each of econometric link and shows the extent proportion to which the studied variation of the general compound effect is influenced by the studied variation of influencing factors mentioned in table no. 4; as it can be seen, for each correlation above 95%, the general compound effect of the studied variation tends to be explained by the influence exerted by factors variation. In the third place, we note that for each *F* econometric tested correlation shows a very high value and *critical F* for

these correlations is 3.43. From all these observations that intense econometric there are links between general compound effect and influence factors (human factors, financial factors and operational factors related to the health system), as tested econometric models are correct.

**Table no. 4 Multifactorial econometric tests for the general compound effect**

Multifactorial model	<i>Multiple R</i>	<i>R Square</i>	<i>F</i>
<b>Compound general effect – Human factors</b>	0,983	0,966	201,92
<b>Econometric model for the period 2003-2010 is presented in the following form: Compound general effect = 0,87- Human factors</b>			
<b>Compound general effect – Financial factors</b>	0,976	0,953	142,19
<b>Compound general effect = 0,65- Financial factors</b>			
<b>Compound general effect – Operational factors related to the health system</b>	0,995	0,992	869,42
<b>Compound general effect = 0,98- Operational factors related to the health system</b>			
<b>Compound general effect – Human factors + Financial factors + Operational factors related to the health system</b>	0,999	0,999	1869,35
<b>Compound general effect = 0,03- Human factors + 0,18- Financial factors + 0,68- Operational factors related to the health system</b>			

## 5. CONCLUSIONS

Human factors decisively put their mark on all composite effects (as shown in the econometric analysis carried out at this point), the stock of knowledge (medical, technical, etc.) and professionalism. This culture (quality of the human factor in general) is recovered in diagnoses, treatments, and performs various operations and curative procedures (case of medical personnel); this intervenes in achieving scientific research leading to improved processes, innovative medicine (intellectual labor of research in medical sciences). But culture is not enough for performance: technical knowledge must be combined with personal skills with desire that work performed by the system on which they act directly will change the overall situation for the better. The physician quality is not a simple job that can be done by anyone: there are a few personal skills you need to make presence felt every moment of medical services, such as: responsibility, strength of character, professionalism, courtesy, punctuality, charisma desire to heal (even though most of the time, money satisfactions appear only after many years of work), persuasion, spiritual care and proximity to the patient (not in order to commit emotionally, subjectively (2) each medical case and losing sense of reality, but in the sense of proving a certain sympathy for suffering of a patient, that is, the desire to be concerned about it, and even with him in the healing process as moral support doctor healing the promoter). Unfortunately, in our country, for the average number of inhabitants of a doctor is quite large, and each patient's time is increasingly limited. In most cases, fatigue and stress make their presence felt and they intervene with material deprivation; not to mention that migration of Romanian doctors to developed countries has become a widespread phenomenon, whose effects on the population will see more painful.

According to the econometric analysis and financial resources have a strong correlation with long-term of compound effects considered, but the influence of human resources is prevalent. Compared with other countries, Romania really spend less cash funds both as a share of GDP and as absolute amounts, but no certainty that these



limited financial resources are used effectively always there. From unifactorial econometrical analysis developed in our previous researches emerged relevance of the impact and relevance of hospitals funds allocated to research and development expenses of outcome effects, and the percentage of GDP allocated to health does not present a strong long-term correlation. These financial and budgetary aspects of fineness can be developed in future researches.

The positive effects of the carried work by doctors and researchers, in conjunction with the financial resources allocated to health are reflected indirectly in the economic life, especially by patients treated. Basically due to new medical breakthroughs and beyond, faster diagnosis is made, treatment takes effect in less time and the patient can return to the workforce in the timely and fully physical and mental health.

Operationalization of the health system factors has also considered a strong impact on long-term effects. Thus, it is desirable that the number of hospitalization days to decrease the number of patients discharged in good health to grow (3) to increase the probability of living in a better state of health. To acquire a better health status, in addition to such operational factors must influence their toll while both the financial and the human factors though the exercise of such influence is under a management that is required to be defined at national level (a coordination of actions of the Ministry of Health) at the local level (by county and local governments) and at public or private hospital unit. At the same time, improving the management style is not always possible when changes occur in the system origin policy every change of government (4). Medical and health system is one of strategic importance in the nations` life. For this requires complex teams of experts to provide management, developing the best strategies and decisions properly under the current situation of Romania's real national interest. Such teams should only be supervised by members of government, nongovernmental organizations and other experts in medicine and economics, with wide consultation of the public, including civil society, various professional organizations in the field including the opposing forces in terms of politically. To improve the current state of Romanian medical scene and related areas is required the active cooperation of all stakeholders in the system. Reported research was not limited to a mathematical apparatus of the most sophisticated and was not turned to the development of very complex designs with more variables and the qualitative indicators were not subject to estimates and judgments by placing in such large models (based on ranking or appropriate coefficients). This is a limitation of research in econometric plan. However, we believe that the used methods have responded as a method / technical apparatus verifying hypotheses accordingly, allowing revealing satisfactory results in relation to the proposed goals.

**Notes:**

(1) Dr. Nicolae Rednic, *Cele zece motive pentru care nu plec din România*, [http://www.hotnews.ro/stiri-de\\_profesie\\_medic\\_in\\_romania-15235258-cele-zece-motive-pentru-care-nu-plec-din-romania.htm?cfnl=](http://www.hotnews.ro/stiri-de_profesie_medic_in_romania-15235258-cele-zece-motive-pentru-care-nu-plec-din-romania.htm?cfnl=), accessed 22.07.2013;

(2) This would be a very positive energy consumer, the action not being good for the mental health of medical staff, especially those involved in treating difficult cases of disease with unfavorable prognosis or detained.

(3) Currently there is no guarantee that at discharge (as they are currently in domestic and international database records), these patients are in a state of fully health.

(4) How it was developed in Romanian society.

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## OPTIMIZATION MODEL FOR WEB APPLICATIONS DATABASES

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**Abstract:** This article presents a case study on the implementation of an optimization model to the web databases, as part of the complex process of optimizing web applications. Along with the content's quality of course, the website page loading speed is an important determinant of a quality site performance. To get a response time as low as possible upon access, the optimization must be performed in terms of configuration, verification and optimization of databases but also of structuring, standardization and simplification of the actual code of a web page.

Following the study, we demonstrated that the application of appropriate optimization techniques, from the simplest to the most complex, on the web application database can improve the application's performance. These techniques provide an overview on the wide optimization methods only in relation to websites optimization techniques applied by the source code and their actual content .

**JEL classification: M15, M19**

Key words: web databases optimization, web applications, response time, optimizing tools, site performances measurement

### 1. INTRODUCTION

This work addresses the problem of optimizing the web applications. In this category of applications, the optimization concept can refer to different aspects. Web applications can also be of different types, so the optimization problems become even more varied.

The optimization of web applications is a complex process that requires configuration, setting and measuring the performance on many levels. The most important factor to make a quick system is the basic design. Also should be taken into account the processing and the response delay times of the system. In most cases, delays in the system may have different sources: data searches, reading and writing processes, tasks level on a processor, memory allocation etc.

It is necessary to distinguish between search engine optimization, known in the literature as the Search Engine Optimization (SEO) and web application optimization.

SEO refers to optimizing the website content, as a process of improving the visibility of web pages to ensure their best possible position in the list of results provided by the search engines.

On the web applications, optimization is a complex process aimed at optimizing the code, the images, the scripts, the database. The basic methods applied in

optimizing the web applications refer to optimizing the HTML, PHP, CSS, JavaScript, Ajax etc. code; optimizing the images (reducing their size - one of the most used tools for optimizing their size is Photoshop, belonging to Adobe system), avoiding redirects which substantially increase the loading time of web pages.

We can speak also about advanced methods to optimize the web applications that take into account techniques related to: combining files such as PHP, CSS and JavaScript, in order to reduce the number of HTTP requests, reducing the number of requests for background images, by CSS Sprites method, combining images into one by Image maps, smart positioning in developing a script by placing the CSS in the header and the JavaScript in the footer, using the cache as a way to provide still images of web pages, reducing the SQL queries, reducing the transfer time by compressing the HTTP resources; avoiding the combined CSS expressions, optimizing the database, which reduces the loading time of the website.

The main goal pursued by these optimization methods is to decrease the loading time of the web site and to reduce the resource consumption.

Periodic optimization and verification of the database reduce the response time of the system because the loading speed of a website is the main impediment to retaining visitors.

The internal code optimization is one of the key techniques to increase the database performance, starting from the database design phase, when searching for the best approach to meet the needs of web applications. In the design phase, the technique used is the normalization of the database structure that will always ensure a controlled data redundancy to increase the speed of access to the system data.

In the database development and implementation phase, the optimization can be done at the level of the individual SQL statements (SQL statements), of the full application, of a single database server, or across multiple database servers in network. Sometimes it can be pro-active also a website design oriented towards performance while others might troubleshoot a setup problem or code only when a problem occurs. Optimizing the CPU and using the memory may also improve scalability, allowing the database to respond to multiple tasks simultaneously without affecting the response time.

Therefore, in this paper we propose a model for optimizing the web databases which will be presented through a case study that develops a web application.

## **2. FUNCTIONAL ARCHITECTURE - SUPPORT FOR IMPLEMENTATION OF THE OPTIMIZATION MODEL**

To illustrate the optimization process discussed above, in the following we will present it as a case study of a middle-sized website, its original structure, methods and techniques used to optimize the database and the page loading speed.

The site in question is primarily a news site and an online community with social networking features.

The site's development was done using a Drupal content management system (CMS), and various adjacent modules, developed by Drupal community, but also modules developed in-house. This requires a well-defined structure of files, modularization, standardization and structuring the code.

Drupal CMS provides flexibility, functionality and extensibility to develop a web application, for which he was elected as a solution to perform the application for our study. Drupal is developed in PHP, running directly on the server and creating pages and documents management in real time. It is a stable platform, secure and highly

flexible due to numerous extensions that benefit. Drupal is an open source solution that provides building dynamic web sites offering a wide range of services, including user management, chat opportunities, news, metadata functionalities using controlled vocabularies and XML publishing for content sharing purposes. This system is equipped with powerful features and different configurations so that it can support a wide range of web applications from personal diaries to large community websites. The most famous facilities of this system are: friendly URLs, modules, online help, open source, customization, users privileges administration system, search, surveys, use of templates, control version, reports, chat forums, interface to implement the blog components, analysis, tracking and visitor access statistics.

Drupal solution uses as database management system - MySQL server (PostgreSQL system can also be used). MySQL is the most popular database open source that offers high performance, scalability and reliability in data management. It is based on a client-server architecture which includes on the one hand, browser-server Apache based applications, and on the other hand, MySQL database server.

MySQL is a server application capable of running a large number of SQL commands - standard commands for creating, querying, updating and managing databases.

Among the facilities at the MySQL server, we review the use of stored procedures, which have the advantage that the tables should not be processed directly, the views - which represent the highest level of abstraction of the database, at this level being made the data inquiries of the users; the availability for all character sets and a large number of interfaces for server administration, the multiplication - which allows you to copy the contents of the database on several computers; the support of transactions running, the adaptability for GIS (Geographic Information System) applications by storing and processing bidimensional geographic data; the support for ODBC interface; it runs on a wide variety of operating systems.

### **3. CASE STUDY - IMPLEMENTATION OF THE OPTIMIZATION MODEL**

From the point of view of the database, the application uses a database structured on many interrelated tables. The structure, the definition and the interdependencies of the tables is done automatically when you install Drupal system, having initially a total of 48 tables. Depending on Drupal modules or own developed modules, the necessary tables will be created automatically upon installation.

The web application, in terms of content and functionality is divided into several sections according to the area of interest and the types of data included: the main section consists of news type articles, which in turn are divided into several categories; the second section, as importance, consists of the remaining articles in the site categorized under different domains, such as law, real estate, jobs, leisure and so on; the third section consists of system ads and banners; the social networking section integrates the facebook profile and the possibility of creating an internal profile with functionality for uploading files (photo and video), private messaging system, adding ads, creating user groups, in addition to basic functions such as contact, newsletters, advanced search, system reviews, forum, and liking possibilities and referring to articles, the site also offers some specific features such as horoscopes, weather, currency, dictionary, games, recipes, programs television.

Considering that Drupal is a constantly growing community, to which constantly contribute a large number of developers to enhance and optimize the system, we will only give importance just to optimize the tables issued from their own modules.

Based on this idea, the optimization process will not include basic steps, performed normally upon the database creation: normalization, indexing, cache setup and configuration, monitoring and effective management, hardware selection, optimal server configurations etc. Thus, one can take the following steps, for tables created after installing the system:

1. *"Profile first, Optimize last"*. In software engineering, profile is a form of dynamic program analysis that measures, for example, the memory usage, the special instructions usage, or frequency and duration of function calls. The most common use of profile information is to assist the program optimization.

The basic rule of optimization is to not ever assume anything, but always check using real data. The collection of performance indicators and determination of performance problems is called profiling.

2. *Setting the primary index of a table to a size as small as possible for faster identification of rows.*

Using Unsigned INT allows storing 4,294,967,295 records. Even if this number is desirable, meaning a large technical and economic performance, not very often a site reaches this performance. It is therefore recommended to use MEDIUMINT, using about 25% less space.

Drupal uses a single table for all items (called nodes), and another 5 tables for dispersion the nodes data, depending on the usage or types of information provided.

The nodes table is the only one from the system that could reach a large number of records. Since the site is still not much developed (with, currently, around 1000 articles) MEDIUMINT will be used and in the future if needed, will be moves to unsigned INT. For other larger tables and their dependencies (users, taxonomy, vocabulary, teaser) MEDIUMINT will also be used, and for the remaining tables (permissions, blocks, views) that do not require a large amount of data SMALLINT will be used.

For "it\_role" table, where user roles are defined (admin, registered user or anonymous, editor) TINYINT (1) will be used, since there will never be more than 9 types of roles, and TINYINT (1) is the smallest size possible.

3. *Choosing the right type of data.*

For string values, CHAR will be chosen for fixed strings of characters (e.g., for storing phone number: CHAR (10)), and S VARCHAR for strings with variable size. However bear in mind that VARCHAR requires an extra byte (e.g., VARCHAR (5) will have 6 bytes instead of 5).

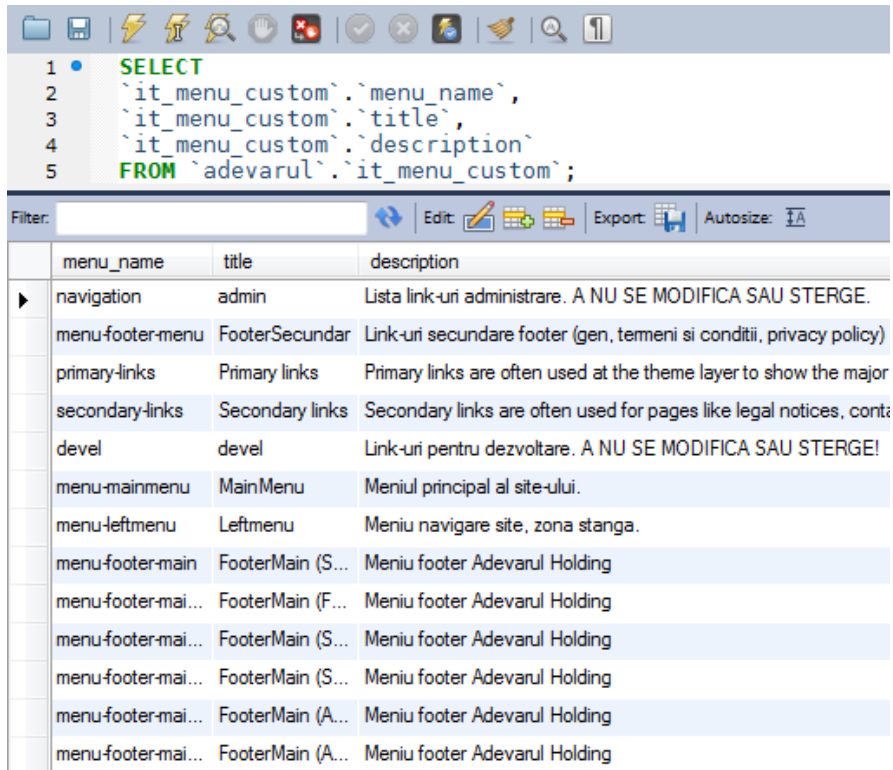
For date / time values is recommended to use a Unix timestamp stored as MEDIUMINT as, DATETIME is the most expensive data type using 8 bytes of space.

For columns that have not a default value, NOT NULL will be declared because NULL columns require one additional byte per column.

For analyzing the correct choice of data type the default MySQL procedure can be used for queries analyzing and suggesting optimal data types for each column. This procedure is called "procedure analyse" (Procedure Analyse). The procedure will analyze the existing data in a table and try to determine the optimal data type for each column based on the distinct values present in the table.

For example, the table (fig. no.1.) will be used for the types of navigation menus on this site:

```
SELECT `it_menu_custom`.`menu_name`, `it_menu_custom`.`title`,
`it_menu_custom`.`description` FROM `adevarul`.`it_menu_custom`
PROCEDURE ANALYSE();
```



menu_name	title	description
navigation	admin	Lista link-uri administrare. A NU SE MODIFICA SAU STERGE.
menu-footer-menu	FooterSecundar	Link-uri secundare footer (gen, termeni si conditii, privacy policy)
primary-links	Primary links	Primary links are often used at the theme layer to show the major
secondary-links	Secondary links	Secondary links are often used for pages like legal notices, conta
devel	devel	Link-uri pentru dezvoltare. A NU SE MODIFICA SAU STERGE!
menu-mainmenu	MainMenu	Meniul principal al site-ului.
menu-leftmenu	Leftmenu	Meniu navigare site, zona stanga.
menu-footer-main	FooterMain (S...	Meniu footer Adevarul Holding
menu-footer-mai...	FooterMain (F...	Meniu footer Adevarul Holding
menu-footer-mai...	FooterMain (S...	Meniu footer Adevarul Holding
menu-footer-mai...	FooterMain (S...	Meniu footer Adevarul Holding
menu-footer-mai...	FooterMain (A...	Meniu footer Adevarul Holding
menu-footer-mai...	FooterMain (A...	Meniu footer Adevarul Holding

Figure no. 1 Table it\_menu\_custom

Procedure analyze returns the following results (fig. no.2).

Field_name	Min_value	Max_value	Min_length	Max_length	Empties_or_zeros	Nulls	Avg_value_or_avg_length	Std	Optimal_fieldtype
adevarul.it_menu_custom.menu_name	devel	secondary-links	5	17	0	0	14.3077	NULL	ENUM('devel','menu-footer-main','menu
adevarul.it_menu_custom.title	admin	Secondary links	5	31	0	0	15.7692	NULL	ENUM('admin','devel','FooterMain ('fac
adevarul.it_menu_custom.description	Link-uri p...	Secondary link...	29	157	0	0	56.3077	NULL	ENUM('Link-uri pentru dezvoltare. A NL

Figure no. 2 Results of the procedure ANALYSE

4. Using EXPLAIN (fig. no.3)

```
EXPLAIN SELECT
    it_menu_custom.menu_name,
    it_menu_custom.title,
    it_menu_custom.description
FROM adevarul.it_menu_custom;
```

id	select_type	table	type	possible_keys	key	key_len	ref	rows	Extra
1	SIMPLE	it_menu_custom	ALL	NULL	NULL	NULL	NULL	13	

Figure no. 3 Results of the procedure EXPLAIN

*table* = selected table (useful if unions)  
*type* = type of used union (from the most suitable to the most expensive, they are: *system*, *const*, *eq\_ref*, *ref*, *range*, *index*, *all*)  
*possible\_keys* = potential index applied to table  
*key* = index used  
*key\_len* = length of the index used (the smaller the better)  
*rows* = number of row that MySQL must examine to provide data  
*extra* = extra information ("where used", "order by used" etc.); worst results are "using temporary" and "using filesort"

#### 5. Using triggers instead of JOINS

In fact, using queries union can be resource intensive. When the circumstances permit, instead of a union of 2 tables to find the calculated value of records in the second table based on the id of the first:

- add a new field in the first table containing the calculated value.
- new field will be automatically updated by a trigger after each upgrading / changing the entries values in the second table.

A particular case in our study can be: avoiding union of articles and comments table, when you want to find out the number of comments on an article, or union of users and comments tables for finding the number of ratings given by a user. Comments do not change per second, so it is less expensive to keep their selection to be made from a single table, but through a join upon each selection.

#### 6. Using the option Optimize Table.

If tables' administration is done through phpMyAdmin, the default option can be used for optimization from the default management interface. After selecting the tables to be optimized or by clicking [Check All] to select all tables, from the drop-down menu [With selected:] the option Optimize Table is selected. This option will automatically optimize tables, delete empty rows, reset the indexes resulting from a DELETE operation. The optimize option is recommended to be used following a full database backup to avoid possible data loss.

**OPTIMIZE TABLE** [*table\_name*] command has the same result.

#### 7. Checking and automatically optimizing database.

If the database is on a Linux / Unix system (and CentOS / FreeBSD similar systems) periodic verification and optimization process can be done automatically via crontab function. Cron job is a job scheduler based on scheduler for Unix operating systems. It allows users to schedule jobs (commands or shell scripts) to run periodically at certain times or dates. It is commonly used to automate the maintenance or administration system and at the same time is to verify and optimize the database by mysqlcheck client utility, provided with the MySQL installation. Mysqlcheck can check, repair, optimize and analyze tables in a MySQL database.

#### 8. Looping queries.

One of the most common errors is to query in a loop without being necessary. Most likely, the SELECT queries from a loop can be rewritten with a JOIN. Instead of using PHP for each (x I y) {[query]} structure, one can use a queries union as the following example (fig. no. 4).

```

401  /**
402   * Selecteaza articole din aceeasi categorie
403   */
404  function news_db_articles_author($tid, $exclude = 0)
405  {
406      $limit = variable_get("news_articles_author_limit", 5);
407
408      $query = "SELECT n.nid, n.title FROM {node} n INNER JOIN
409              {node_revisions} r ON n.vid = r.vid INNER JOIN {term_data} d ON
410              d.vid = n.vid WHERE n.status = 1 AND d.tid = %d AND type = 'news'
411              AND n.nid != %d ORDER BY n.created DESC LIMIT %d";
412
413      $articles = array();
414
415      $result = db_query(db_rewrite_sql($query), $tid, $exclude, $limit);
416      while($row = db_fetch_object($result))
417      {
418          $articles[] = $row;
419      }
420
421      return $articles;
422  }

```

Figure no. 4 Example of using a JOIN

#### 9. Selecting only the needed columns.

It is very common to use a wildcard to select all columns from a table ("SELECT \* FROM ..."). This, however, is inefficient. Depending on the number of columns participating and their type (especially large types such as text versions) through such SELECT more data can be selected in the database than is actually needed. The query will take longer to process because it has to transfer more data and it will allocate more memory doing this. Choosing only the needed columns is a good general practice to avoid these problems.

#### 10. Proper filtering of rows.

It is not advisable to use a SELECT to return all rows from a table or a complete scan of a table. The main goal is to select the smallest amount of rows and do it in the fastest way possible. This is achieved by filtering the rows using indexes and correct and concise definition of WHERE conditions.

### 4. STUDY RESULTS BASED ON WEB APPLICATION PERFORMANCE MONITORING

There are many ways to analyze a page loading speed such as Mozilla add-ons for Firebug: YSlow, Page Speed or others. There are also sites created specifically for this purpose: analysing the loading speed on a link given. These include Pingdom Tools, Internet Supervision, Website Speed Check and more.

All offer enough relevant information about the loading speed or Google Speed, and a comprehensive statistics of the resource page (HTML, CSS, JavaScript, Flash, or other items) with a particularly importance during the loading of the page. Page loading time is influenced also by other items related to the server or the net (distance from the servers, Internet speed).

Some applications provide a static measurement, i.e. the speed of your computer's place (YSlow, Pingdom Tools), and others can provide the loading speed

measurement from multiple locations simultaneously (Internet Supervision) or on different internet connections (Website Speed Check).

Depending on the techniques used and the type of statistics available, they can be grouped into three main categories:

1. *Testing procedures and functions inside pages.*

They can be developed using PHP language and MySQL functions and procedures for testing the page loading speed. In the following example, the developed function will measure each query running time (fig. no. 5).

```

3 function StartTimer ($what='') {
4     global $MYTIMER; $MYTIMER=0; //variabila globala pentru stocarea timpului
5
6     echo "<p>Test rulare <i>$what</i>. </p>"; flush(); //afisarea in browser
7
8     list ($usec, $sec) = explode (' ', microtime());
9     $MYTIMER = ((float) $usec + (float) $sec); //set the timer
10 }
11
12 function StopTimer() {
13     global $MYTIMER; if (!$MYTIMER) return; //timer-ul nu a fost pornit
14
15     list ($usec, $sec) = explode (' ', microtime()); //ia timpul curent
16     $MYTIMER = ((float) $usec + (float) $sec) - $MYTIMER; //timpul necesar in milliseconde
17
18     echo '<p>Au fost necesare ' . number_format ($MYTIMER, 4) . ' seconunde.</p>'; flush();
19 }
    
```

**Figure no. 5 Functions for measuring the query running time**

2. *Local testing methods.*

Both Google Chrome and Mozilla Firefox offer possibilities for testing the code validation, items statistics, speed and page loading performance.

Mozilla Firefox has Firebug addon (fig. no. 6), which in turn can be extended with addons from Yahoo!Slow or Google Speed, both to test the page loading speed (fig. no.8).



**Figure no. 6 Firebug with Yahoo and Google extensions**

Page Speed evaluates the page compliance with a number of different rules (fig. no.7). These rules are general practices of front-end that can be applied at any stage of web development. These rules include avoiding inoperable applications, avoiding using CSS @ import; avoiding CSS expressions; avoiding document.write() function; combining external CSS, combining external JavaScript, combining images; using CSS sprites, delaying JavaScript loading, delaying JavaScript parsing, compressor activation, browser caching, proxy caching, redirection of homepage caches, minimizing CSS, minimizing HTML, minimizing JavaScript, minimizing queries size, minimizing DNS searches, minimizing redirections, optimizing images, optimizing the order of styles and scripts; parallel downloading from multiple hosts, using Ajax, removing unused CSS, URLs consistent and correct; non-scaled images, taking the static content from a domain without cookies; specifying a character set, specifying images size, using efficient CSS selectors.



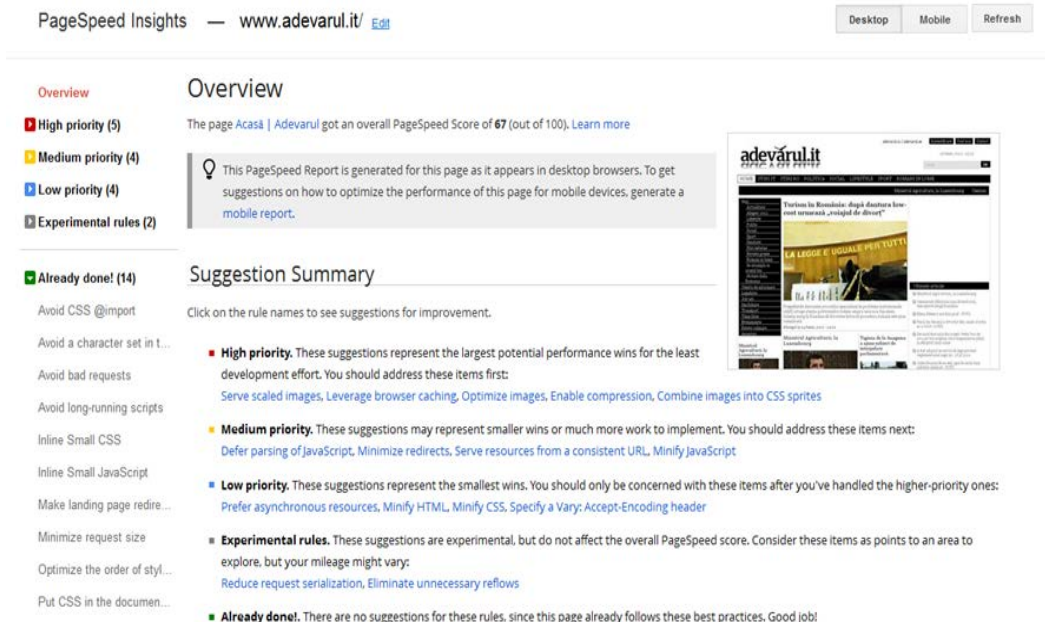


Figure no. 7 Testing using PageSpeed

URL	Status	Domain	Size	Remote IP	Timeline
GET www.adevarul.it	200 OK	adevarul.it	147.8 KB	86.124.112.55:80	734ms
GET redot.gif?d=Acobw...rej/sarg	200 OK	ro.hit.gemius.pl	43 B	85.9.22.139:80	7ms
GET redot.gif?d=Acobw...slgij/sar	200 OK	ro.hit.gemius.pl	43 B	85.9.22.139:80	7ms
GET css_fb4d8062f749e8f744bca8d	304 Not Modified	adevarul.it	70.4 KB	86.124.112.55:80	10ms
GET js_cfb2c2162e0f6ccc3a1808d3	304 Not Modified	adevarul.it	127.5 KB	86.124.112.55:80	10ms
GET flashcom.js	301 Moved Permanently	adevarul.es	339 B	86.124.112.55:80	11ms
GET ado.js	304 Not Modified	mediapointro.adocan.pl	18.6 KB	85.9.22.140:80	9ms
GET survey.js	200 OK	adevarul.count.brat.online.ro	505 B	80.86.106.153:80	11ms
GET traffic.js	200 OK	storage.traffic.ro	201 B	195.246.242.120:80	13ms
GET flashcom.js	304 Not Modified	adevarul.es	12.8 KB	86.124.112.55:80	2ms
GET ad.js?d=9o_nnmHOL_HB11Yn	302 Found	mediapointro.adocan.pl	0	85.9.22.140:80	3ms
GET ad.js?d=9o_nnmHOL_HB11Yn	200 OK	mediapointro.adocan.pl	783 B	85.9.22.140:80	4ms
GET sarg-NC	200 OK	adocan.ro-hit.gemius.pl	0	85.9.22.213:80	4ms
GET ad.js?d=Wauc.U687...lash%2	302 Found	mediapointro.adocan.pl	0	85.9.22.140:80	3ms
GET ad.js?d=Wauc.U687...lash%2	200 OK	mediapointro.adocan.pl	9.3 KB	85.9.22.140:80	16ms
GET 89754-0-fr.jpg	304 Not Modified	mediaserver.adevarul.it	23.9 KB	86.124.112.56:80	11ms
GET 89753-0-116.jpg	304 Not Modified	mediaserver.adevarul.it	58.7 KB	86.124.112.56:80	13ms
GET 89703-0-bre.jpg	304 Not Modified	mediaserver.adevarul.it	32 KB	86.124.112.56:80	13ms
GET 89718-0-tbenu_dinu_4.jpg	304 Not Modified	mediaserver.adevarul.it	22.9 KB	86.124.112.56:80	13ms
GET 89672-0-crolli_terremoto_fro	304 Not Modified	mediaserver.adevarul.it	92.8 KB	86.124.112.56:80	13ms
GET 89711-4-0006752rl.jpg	304 Not Modified	mediaserver.adevarul.it	10.9 KB	86.124.112.56:80	15ms
GET 89710-4-89343_0_25...carabi	304 Not Modified	mediaserver.adevarul.it	10.4 KB	86.124.112.56:80	23ms
GET 89708-4-dj_harra_8_682x102	304 Not Modified	mediaserver.adevarul.it	8 KB	86.124.112.56:80	29ms
GET 89677-4-daniel_raduta_4.jpg	304 Not Modified	mediaserver.adevarul.it	9.6 KB	86.124.112.56:80	30ms



Figure no. 8 Testing using Firebug

### 3. World-wide testing methods.

It is very important to check the loading speed and other servers to see if the site acts in the same way on different types of net bandwidth. There are a number of websites that are developed as a web loading speed testing other sites application. Among them:

- <https://developers.google.com/speed/pagespeed/insights>
- <http://tools.pingdom.com> (fig. no. 9 and Fig. No.10)
- <http://www.websiteoptimization.com/services/analyze/>
- [http://www.iwebtool.com/speed\\_test](http://www.iwebtool.com/speed_test)
- <http://www.webpagetest.org/>
- <http://webwait.com/>
- <https://browsermob.com/free-website-performance-test>
- <http://www.websitegoodies.com/tools/speed-test.php>
- <http://www.vertain.com/?sst>



Figure no.9 Testing tools.pingdom before optimization



Figure no. 10 Testing tools.pingdom after optimization

## 5. CONCLUSIONS

No matter how complex the architecture of a relational database and no matter how many technologies are used to develop a web application, it comes finally to a set of SQL statements. Writing efficient in SQL requires: a good knowledge of the physical structure of the database, mastering all the functionality that the database is capable, understanding how the database runs SQL and has access to data, knowledge of the latest versions of the database servers that bring functionality and new optimizations, correct understanding of the purpose and application logic to even rewrite sections of code.

By implementing the optimization model presented in the paper it can be seen (by comparing Fig. No. 9 with fig. No. 10), the obtaining of improved performance measurement parameters: number of queries requests increases from 181 to 184, the loading time decreases from 8.38 seconds to 3.36 seconds increasing the page size from 1.6 MB to 2.1 MB.

In Fig. no. 11, it is graphically represented the comparative analysis of these indicators before and after the optimization model.

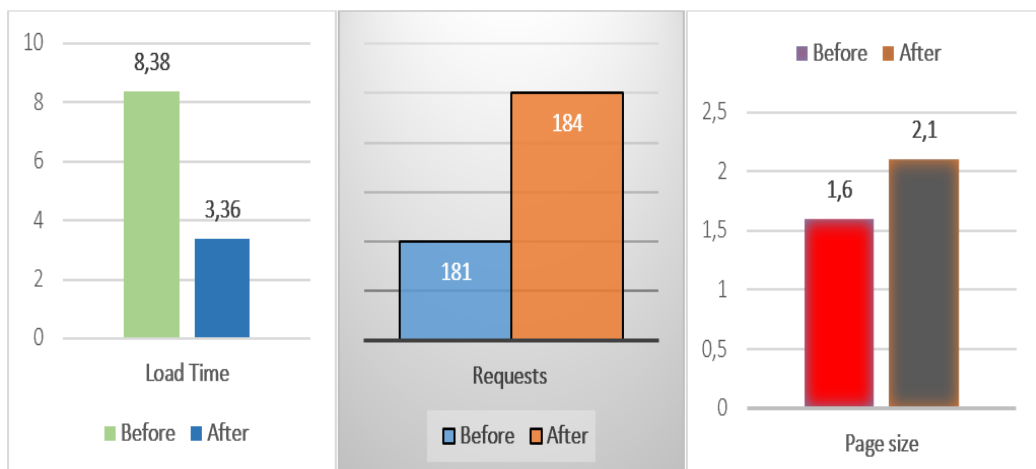


Figure no. 11 Comparative analysis of performance indicators

In this article we have shown that applying techniques to optimization, from the simplest to the most complex, on the database of a Web application can improve the

application's performance. These techniques provide an overview of optimization methods of the entire application if they are correlated with the optimization techniques applied to Web pages through the source code and their actual content.

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13. \* \* \* <http://www.webpagetest.org/>
14. \* \* \* <http://www.websitegoodies.com/tools/speed-test.php>
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16. \* \* \* <https://browsermob.com/free-website-performance-test>
17. \* \* \* <https://developers.google.com/speed/pagespeed/insights>

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