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FROM PRICE STABILITY TO FINANCIAL STABILITY

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Abstract: Until the outbreak of the crisis in 2008, central banks have relayed the monetary strategies on the assumption that monetary stability leads the economy to financial stability. However, a large number of economists admit that the current crisis has emphasized the overcoming of the limits of mainstream economics and its implications in the field of financial regulation and the sphere of monetary policy that should focus not only on price stability, but also on financial stability. In the first place, it is required to define a new operational objective - financial stability. The genesis of the crisis in 2008 had as a major contagion generating factor the credit, namely the maturity mismatch between the asset maturities and the liabilities maturity (on short term). In other words, the banks, the financial institutions must be obliged to hold a minimal countercyclical capital and mandatory reserves.

JEL classification: E52, E44

Keywords: Monetary Policy, Financial Stability, Currency Policy, Macro-prudential Policy, Financial Markets.

1. INTRODUCTION

Emerging market countries have had as objective the pursuit and stability of the exchange rate in as much as it influences inflation. But in reality they paid much more attention to it, as some developed countries have done, too, as part of an export-based growth strategy by the depreciation of the national currency. On the contrary, if a country leads a low interest policy to relaunch domestic demand, the investors will borrow (due to globalization) from the country where the credit cost is low and will invest in the countries that provide higher yields, which determines the appreciation of the currencies of those countries.

But it will be required a greater flexibility of the currency. The trilemma of the international economy dictates it: when the capital is mobile, the inflexibility of the currency will eventually lead to the assets bubble and to inflation. The pressure of capital flows will depend on the prospects of rich economies, especially those of America. Increasing the availability of emerging economies to allow the exchange rate to move will depend on what China does, which is currently staying the background of the dollar.

Therefore, the problem which the world economy is currently facing is triple. In the first place, the USA and Europe don't have a substantial economic recovery, the developed countries are still threatened by deflation, rather than by inflation. In the second place, there is still a large volume of liquidity fueled by emerging economies at international level, which generates a high risk of financial instability in the form of bubbles in financial asset prices and the fragility of banks and financial intermediaries. In the third place, the macroeconomic and financial imbalances that haven't been yet

absorbed, risk to reverberate on the exchange rates, generating a generalized monetary instability. [2]. The central banks are then trying to reduce the interest rates, or (since 2008), to buy assets directly. This leads to the temporary cessation of the crisis, but each cycle seems to lead to even higher levels of debt and asset prices.

2. REDEFINING THE MONETARY POLICY OBJECTIVES

Historically speaking, the monetary policy objectives have changed in time. In accordance with the gold standard and its successor, the Bretton Woods system, essentially characterized by fixed exchange rates, the credit volume of the economy was limited. The monetary policy of most countries has given priority to the stabilization of economic growth.

In the 1970's, 1980's, the economic policies in Western countries were usually of Neo- Keynesian type, relying on what it was called in that period the "active monetary policy". Within this "active" policy represented by notable economists such as: I Fisher, J. M. Keynes and M. Friedman, the main objective of the monetary policy was the price stability. The conviction of the neo-classics was that the stability of economic growth was closely connected to the neutralization of price movements. The result is that the main public service is that the central bank makes available a quality currency, a currency whose value doesn't change in time. The role of the central bank is to provide the required liquidities to relaunch the economic activities, and the main instrument used was the refinancing of commercial banks.

The main objective was to stimulate the economic growth, although some central banks have started to pay more attention to price stability. The effect has been that the countries have expanded their money supply too fast and suffered a trade deficit and an additional pressure on the currency exchange rate. However, under these circumstances, it was harder for the financial bubbles to swell.

After the 1980's, this policy was replaced by a "new monetary policy" or the consecrated name - "Inflation targeting" characterized by the increase in the importance of the objective of ensuring price stability. The main factors that determined the revision of the priorities were:

- Globalization of markets
- Development of non-banking financial intermediation
- Financial innovation
- Triumph of the idea that inflation is a monetary phenomenon.

The period until the outbreak of the financial crisis in 2007, also known as the "Great Moderation" [3], was characterized by a low and constant global inflation (approximately 2%) that remained until the emergence of the first turmoil on the financial markets.

But, since the early of the 1970's, several countries have moved into a floating exchange rate system. This offers the governments the flexibility to cope with an economic crisis. It has also created a trend towards a greater trade imbalance.

Similarly, the public debt has constantly increased as a percentage of the GDP since the mid-1970's. In the developed world, the consumers and companies have also taken over even more debt.

The debt is used to finance the purchase of assets, and the higher credit availability pushes the asset prices to become higher. The result was a cycle of credit expansion and collapse.

The recent financial crisis has generated an ample debate on the reconsideration of the action framework of central banks. The limitations of the monetary policy have been emphasized since the crisis previous period.

N. Roubini (2006) showed that the central banks face the effects of financial globalization, but without having the cooperation mechanisms required to prevent the consequences of this process.

Fischer (2011) considers that the central banks should use the leverage of macro-prudential supervision (credit terms for mortgages, capital adequacy ratios and of counter-cyclical liquidity) to prevent the increase of dangerous asset prices for the financial stability.

Stiglitz (2011) considers that the deficiencies of these standard macroeconomic models require their fundamental review and a reassertion of the lessons of modern theory of general equilibrium, which were apparently forgotten in the years preceding the latest global crisis. Thus, the new macroeconomic framework should include an analysis of existing risks, information and institutions in a context characterized by inequality, globalization and structural transformation. In terms of macroeconomic policy, the focus should be not only on price stability but also on financial stability. [3]

3. CONCEPTS ON THE STRATEGIES OF MONETARY POLICY AND CURRENCY

The opinions regarding the currency are dominated by diametrically opposed concepts. In accordance with some authors, the currency is outside of the production process (outside money) because it doesn't exert lasting effects on the relative prices of goods and services; its offer is an exogenous size.

Under these conditions, the quality of the currency doesn't depend on the economic policy but on the monetary policy. The role of the currency is that of "instrument' [4]

For the other conception, the currency is created by the credits that banks grant to non-banking sectors. So, it is inside economy (inside money [5]), its offer is endogenous. The currency is therefore intrinsically connected to the financing of economic activity.

In monetary economies, the process of creating the currency required for making expenditures is the engine of the economy. This process is more and more complex, as the financial markets develop, but continues to give a greater power to banks, which makes banks remain the main actors of the financial scene. The special position of the banks comes from the fact that their liabilities (passives) are considered and really liquid real assets (currency) for non-banking agents.

Therefore, banks must be subject to some liquidity restrictions that would limit their power to create currency (scriptural).

Therefore, the banks have a dual nature: in terms of assets, banks grant loans as private companies that seek to obtain profit; in terms of liabilities, banks are part of the monetary system and ensure the conversion of the currency they create (scriptural currency) into the currency of the central bank (primary currency). It results that banks face risks that they can't assume on their own. In the concept of the *endogenous* currency, the responsibility of maintaining the liquidity of the banking system lies with the central bank.

However, since the power to create currency belongs both to the central bank and commercial banks, maintaining the liquidity of the banking system is not possible without regulatory constraints and without prudential supervision.

In the opinion of the monetarists represented by M. M. Friedman, A. Schwartz, Ph. Cagan, E. Phelps, K. Brunner, Al. Meltzer, D. Laidler, H. Johnson, R. Lucas, the central bank should not be concerned about what is going on outside the banking field, and the situation of non-bank financial intermediaries.

Its sole task is to ensure price stability. The triumph of the idea that inflation is an exclusively monetary phenomenon has taken place since the 1980s, being characterized by an unprecedented rise in inflation.

P. Volcker and the *Fed* management *operated* vigorously, raising the guiding interest rate from 11.2% in 1979 to 20% in June 1983, fact that reduced the inflation from 13.5% in 1981 to 3.2% in 1983. [6]

This policy was then imitated by various other central banks, which in that period adopted the strategy called monetary targeting.

The generalized adoption of the monetary aggregates targeting generated a 30-year period of price stability, a reduction in inflation that favored financial globalization, paved the way for financial innovations, and facilitated the assumption of high risk by investors in the period called "the Great Moderation"

During this period, together with the liquidity created by banks (deposits), the volume of liquidity created by non-bank financial intermediaries (titles capable of providing immediate access to payment methods and derivative contracts which transfer the risk factors embedded in these titles) .

As a result, the control of currency by central banks has significantly lost importance.

Thus, in the late 1980s, central banks changed their strategy.

Their goal was no longer the direct limitation of the growth of money supply according to a certain limit (monetary aggregate targeting), but the maintenance of the growth of the general price index within a narrow margin - *inflation targeting.*

Also, in the middle of the 1990s, some central banks adopted - often informally - the so-called Taylor rule, which indicates to the monetary authorities the short-term interest rate level which is to be adjusted according to the production and/or inflation deviations towards the target. [7]

An example for an informal application of the Taylor rule is *Fed*, which, under the leadership of A. Greenspan, has adopted a pragmatic approach, according to which the issue of inflation expectations, namely of the trust in the value of the currency, can be performed in a channel with narrow foreshores.

This framework was theoretically codified and presented as a new monetary policy strategy: *flexible inflation targeting* [8]

4. THE CONCEPT OF FINANCIAL STABILITY

4.1 FINANCIAL INSTABILITY

In the last decades of the 20th century, the financial industry assimilated a radical innovation that combined three elements in order to allow credit spread risk. These elements are:

- Derivative operations referring to events that can occur in the credit process (credit default swaps or CDS)
- Value-at-risk models (Using the data provided by VAR modeling, financial institutions can determine whether they have sufficient capital buffers to cover

losses, or whether higher risks than the acceptable ones require a reduction in exposures)

- Keeping of the Accountancy on Market Value of assets (Mark to Market).

This innovation has given rise to huge enthusiasm and an extraordinary development of credits with an increased diversification of the financial assets range through the phenomenon called securisation.[9]

The central banks and financial regulating authorities have considered that these vehicles determine the development of financial markets and risk reduction through dissemination, thus leading to a more solid and efficient financial system [10]. Consequently, the central banks and the regulating authorities decided not to intervene without considering the systemic risk and fragility of the credit system.

These innovative practices have spread until they become common not only for banks and financial institutions but also for each market participant. The enthusiasm went further seeing that the others did the same and that they were successful, and therefore, everyone tried to imitate the behavior of others.

Regarding things retrospectively, most economists agree that monetary stability doesn't mean financial stability, because it has stimulated the economic agents (banks, regulating authorities) to take increased risks. [11]

This "paradox of credibility" overlaps another one emphasized on the 1990's by H. Minsky - the "paradox of peace". "The debt crisis arises precisely when things go well and the economic agents take advantage of the economic growth and low interest rates not only to borrow, which is rational from an individual point of view, but also to borrow a lot in a contagious manner" [12].

But this setting of expectations didn't mean stabilization. Once with the sensible decline in real estate and securities prices, the banks have started to be concerned about their risky portfolios and have ceased to grant loans to companies and natural persons.

Considering the enthusiasm created by the derivative financial products, a strong, well-thought system is required, a large-scale and long-term system that would incite banks to manage their liquidity in accordance with the maturity of their assets. In other words, the banks must be constraint to hold liquid reserves as much as their investments are less liquid, and the connection between the central banks and the bank supervisory bodies needs to be strengthened. The macro-prudential policy should also include the "shadow banking system" (investment banks, hedge funds, private equity funds).

Another important objective is the cooperation of central banks with the other categories of supervisors, namely various bodies for the coordination of systemic risk management: Financial Stability Oversight Council-FSOC (USA), European Systemic Risk Board-ESRB (EU), Financial Policy Committee-FPC (Great Britain), National Committee for Financial Stability-CNSF (Romania).[13]

4.2 APPLICATION OF MACRO-PRUDENTIAL POLICY

Macro-prudential policy is a *top-down* type approach, according to which the central bank determines an aggregate level of the minimum capital, which then distributes on banks according to their predisposition to systemic risk. Practically, it is about establishing a certain level of the minimum capital, which is to be imposed on the financial institutions of systemic importance depending on the cumulative overcome of the volume of granted credits compared to the level that would be obtained by complying with the long-term trend. [14]. The prudential regulation briefly described above is a

precautionary one. Its objective is to reduce the oscillations of the financial cycle so that these fluctuations don't cause crises, and if, however, the crises appear, they are less serious.

But those provisions are not enough to make banks resist to the shocks caused by the possible decrease in the assets price. The reason is that the banks which don't manage carefully how to finance their investments undergo what is called the "liquidity paradox". The liquidity of the market is nothing but the belief of each participant that he will anytime find a partner willing to buy his assets at a cover price. Considering that this collective belief is ruining, no one will want to buy assets whose future value can't estimate. [15]

The solution adopted by the US in 1994 by the law called the Federal Deposit Insurance Corporation Improvement Act (FDCIA) proved to be effective. But the problem is with the Mark to Market-type asset portfolios. Such assessments encourage the maturity mismatch by financing the non-liquid assets with immediate resources. Thereby, a portfolio of assets is assessed at the same price (market price) regardless of whether it is guaranteed by T years rated bonds or short-term maturity bonds. Or between the two cases, the liquidity risk is completely different.

It is suggested to use a process called Mark to funding which consists of the registration of the portfolio of assets guaranteed with T years rated bonds at the updated value of the T years anticipated prices. [16]. However, it is required that this calculation to be made by the supervisor in order not to mask the possible lack of liquidity of the financial institution.

The central banks must also impose the establishment of compulsory reserves for the portfolios of assets which have a high risk of liquidity.

5. CONCLUSIONS

In the current international monetary system, the emerging and transition countries have imported the US monetary policy by anchoring the national currency against the dollar, and henceforth the explosive growth of the foreign exchange reserves of several dollar-denominated countries.

The disputes between the monetary policies of the major economic powers are manifested by an additional pressure on the exchange rate. Therefore, if a country has a low interest policy, in order to relaunch domestic demand, investors will borrow in the country where the cost of the loan is low will invest in the countries where the asset yields are higher, which determines the appreciation of the currencies of those countries. The appreciation of the currency stimulates consumption and can cause either financial instability (asset bubbles) or inflationary tensions, depending on the type of asset on which the speculations are concentrated.

Among the emerging economies, China plays by far the most influential role in the world monetary system. It is the largest of them, and its currency is actually linked to the dollar. The yuan is considered to be undervalued. Considering the conditions of coming out of the crisis, the external position to relaunch the weak economic growth, amplified by the huge increase in public debt, causes the dollar to weaken. A possible solution would be that the SDR to become a true global reserve asset to replace the dollar.

But the dollar is supported by the most liquid capital markets in the world. Few countries have the opportunity to use the SDR when there aren't powerful private markets to trade assets denominated in SDR. The possible transformation of the international

monetary system into a polycentric system will transfer major imbalances in the exchange rates.

On the other hand, the use of the guiding interest rate as a monetary policy instrument must be made more flexible to become more sensitive to the credit slippage and for the increase of the financial asset prices. This instrument must be complemented by the specific instruments of macro-prudential policy, which are mainly based on the minimal counter-cyclical capital (to prevent systemic risk) and compulsory reserves (to make banks able to cover the potential liquidity shortage).

The monetary policy cooperation is indispensable in a globalized and unstable financial system. It supposes that the body created by the G20 and the IMF (Financial Stability Board - FSB) to work together with the other international and national supervisory institutions to report the global risks and to encourage central banks to adopt the same macro-prudential policy principles.

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EFFECTS OF INFLATION ON LABOR FORCE MOBILITY

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Abstract: Inflation has become a persistent phenomenon being identified in a multilateral economic and social process, with negative effects on consumer purchasing power and hence his living standards. When exceeding a certain threshold, inflation is a dangerous phenomenon, disrupting the economy and having repercussions both socially and economically, thus affecting directly or indirectly the whole society and global economy. The much discussed dilemma inflation-unemployment, which was first analyzed during 1960-1970 by J.M. Keynes and A.W. Phillips, emphasizes the fact that inflation generates enough causative factors for the occurrence of unemployment phenomenon, the two phenomena causing serious disturbances on the labor market, particularly on labor mobility. The massive migration of labor is a net loss of human capital, which could be exploited in another manner. This is why a strategy for the inclusion of human capital on labor market would be more profitable and would bring higher value added to the economy and society than the present export of manpower produces.

JEL classification: E2, E24, E31.

Key words: Social inclusion, mobility, migration, labor surplus, inflation.

1. INTRODUCTION

Inflation occurs as a result of a combination of economic and behavioral phenomena in so far as they are shaped by individuals' desire to react against the effects and not its causes. In order to understand inflation must be identified its triggering mechanism and its progress, and then found those measures capable to remove the generating causes. The starting point is represented by the imbalance that inflation marks, in other words the money supply in excess relative to the volume of goods and services. Whatever the generating causes of inflation, the money supplies in excess, which is held by economic agents, can be identified in an unsatisfied demand for goods and services.

Labor market has also an important role in the economy reflecting changes in the economic environment and inducing, in turn, certain influences on it.

The conditions on labor market have generally been stable and better than in previous years but employment rate falls, unfortunately, under the targeted levels.

2. OBJECTIVES

A satisfactory explanation of inflation in Romania must combine the classical monetary source of this phenomenon with its structural roots and, last but not least, with the strong inflationary expectations.

In every country there should be a national policy based on scenarios that responds simultaneously to both the product restructuring of economy and the

regeneration level of jobs. The impact of fiscal, financial, monetary and wage policies shall be borne by each individual as well as by microeconomic spaces.

The existence of a correct correlation between profits, investment, wages and employment can facilitate the development of corporate strategies and some territorial strategies at both regional and national level. The local administration and the state play the role of collector and distributor of sources needed to achieve social corrections for the economic phenomena taking place under objective laws.

The labor market proved rather resilient to periods of crisis and employment in subsistence agriculture acted as a buffer in times of economic downturns. The largest share of employment is concentrated in sectors with high added value, particularly in the field of scientific, technical and professional activities, as IT ones.

Labor mobility is a form of migration movement of individuals from one city to another, from one country to another in relation to the needs they have. To understand this phenomenon, we must consider the forms of mobility which quite different from one persons to another, each individual being a permanent state of mobility.

3. METHODOLOGY

Unfortunately, in Romania, there was no coherent and constructive economic policy, based on daily reality that would know and appreciate the true value of the relationship between economic potential and social system.

The market economy could function alone if a certain consumer level could be met, or an offer of goods, but in reality the gap between supply and demand is high; supply is missing, physical and value correlations are damaged and all these issues can be rectified only by economic austerity policies and government interventions.

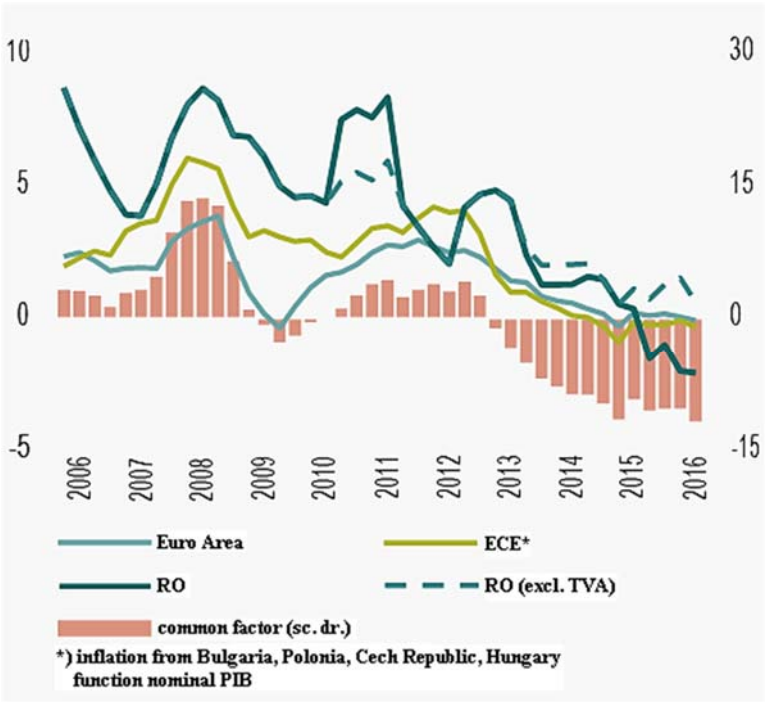
The introduction and operation of the mechanism specific for a market economy involves shifting the focus towards the evolution of internal demand and supply of goods, capital and labor. It is necessary to know, first of all, the sizes of demand for indispensable consumer goods (energy, raw materials) so that subsequently to approximate the pace of restructuring and the demand for investment capital, thus clearly establishing the size of both internal and external market. If all these issues are not known and understood, it cannot be estimated and projected the prices which will balance the supply and demand on individual segments and will not be established the directions and relationships that can provide economic stability and sustainability, at least on the short term.

An ideal economy is the economy where there is neither inflation nor unemployment, which is impossible due to existing disturbances and the fact that full flexibility of wage-price report is not possible, which means that instantaneous achievement of full employment in conditions of stable prices cannot be achieved.

For a more detailed view on the analysis of inflation, production and economic growth, economic policies must consider strengthening the trends aimed at improving the structural balance between aggregate/global demand and supply, which alone is able to provide a positive impact on economic growth and development, on medium and long term, as well as to explain and predict fluctuations in the price level.

In the last decade, in the specialized literature, there is a new concept of inflation called "global inflation", since globalization makes global factors exert a powerful influence over these controversial phenomenon. The literature proves that the inflationary phenomenon, wherever it propagates, is influenced by common external factors and Romania is no exception.

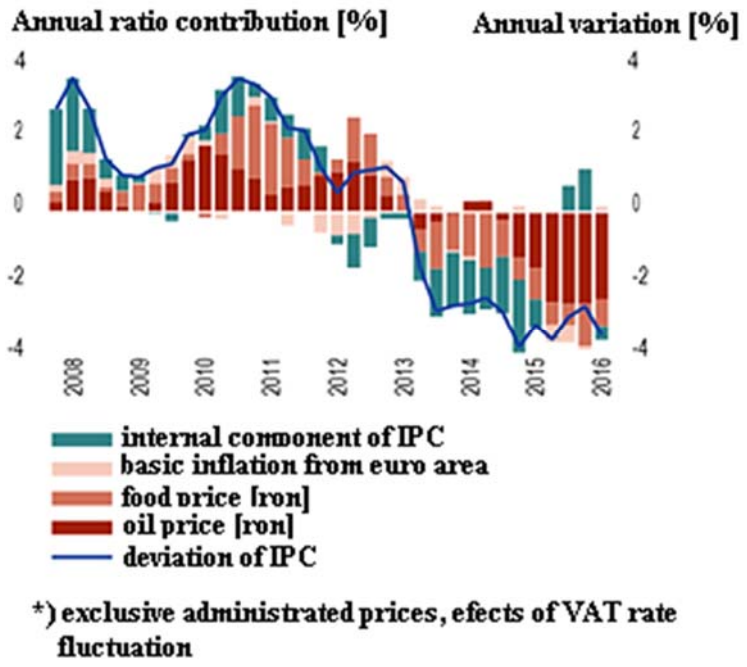
Looking at the Graphic below, we find that the external shocks from recent years have not affected only the referred countries but also Romania. Compared with the euro area countries, in our country, the annual inflation rate has been low, with all direct and indirect influences, as can be seen in Figure no. 1.



Source: Eurostat, calculus from BNR estimation

Figure no.1 The common factor and HICP IAPC inflation from the euro zone and some UE states

The inflation trajectory in our country, euro zone, member states included in the analysis like Bulgaria, Poland, Czech Republic, Hungary, has a common starting point linked to fluctuations in raw materials listings, primarily that of oil. The evolution of main raw materials and oil listings inhibited the growth of prices internally, but the effects were felt both directly, through fuel price due to the international change of oil price, and indirectly through costs, Figure no. 2.



Source: Eurostat, FMI, INS, estimated by BNR

Figure no. 2 Historical decomposition of IPC annual dynamics

4. ANALYSES

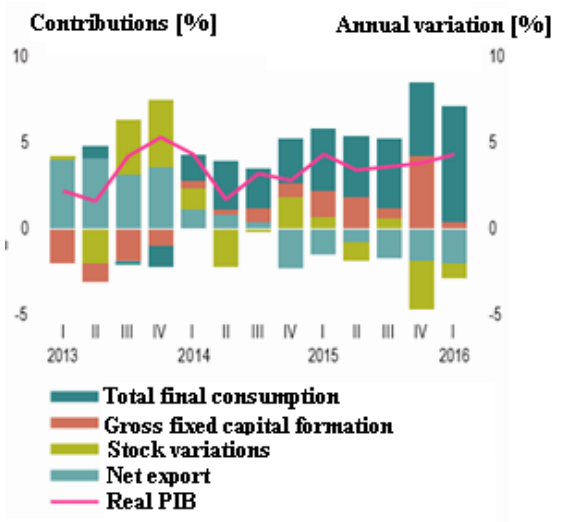
Increased competitiveness of Romanian economy, amid higher internationalization and globalization process of the world economy, requires a flexible approach to the structural balance between the external components of global supply and demand.

For a more accurate understanding of the relationship between inflation and the factors that influence were used recursive estimations of Phillips curve of neo-Keynesian nature adapted to an open economy. Alternative measures were used in order to approximate the inflationary pressures coming from internal aggregate demand.

Knowledge of real GDP, unemployment rate, cost of labor, the dynamics of unit value index of imports of consumer goods and other indicators allow us to draw some reasonable conclusions regarding the influence they have in identifying the causes of inflation.

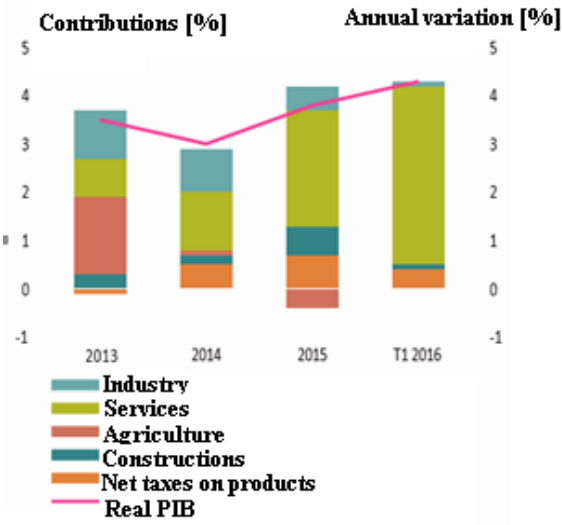
In the first part of this year (2016), an economic growth of 4.3% was registered compared to the end of previous year (2015), which was generated internal absorption. Analyzing the graphs below one can see that in the period 2013 – 2016 there were changes in terms of aggregate demand and supply, (Figure no. 3 and Figure no. 4) as follows:

- in the first half of 2016 there is a growth of 4.3% compared to the end of 2015 due to the increase internal absorption caused mainly by consumption of the population.



Source: INS, BNR calculus

Figure no. 3 Aggregate demand



Source: INS, BNR calculus

Figure no. 4 Aggregate supply

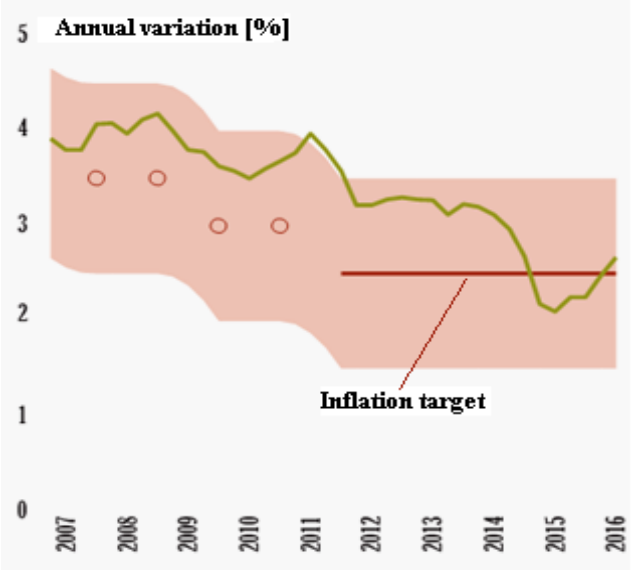
- there are significant increases in consumer demand in the segment of food and durable goods as a result of salary increases and recovery of residential investment. (Figure no. 3)

- because of the increase in consumer demand, there is a revival of exports and imports, the service sector becoming the most dynamic component due to intensification commercial and transport activity, in terms of supply (Figure no. 4)

- reduction of VAT rate (June 2015 and January 2016), wage growth(2015) and other measures taken by commercial operators caused significant increases in the population consumption

- the segment of consumer goods registered a decrease due to the limited capacity of local producers to capitalize on the advance of aggregate demand against the background of competitiveness deficit amplification through price / cost.

Increased competitiveness of Romanian economy, amid higher internationalization and globalization process of the world economy, requires a flexible approach to the structural balance between the external components of global supply and demand. Repeated supply shocks, here we consider the drop in of raw materials, oil, metals and agro-food commodity listings, have disrupted the expectations of economic agents regarding inflation, especially on short term as reflected in the graphic from Figure no. 5.



Source: BNR view

Figure no. 5 Inflation expectations on 2 years' time horizon

This evolution has put pressure along the production chain, reflected in consumer prices from the current year (2016). According to internal estimates, 75% of the variations in producer prices of consumer goods are transferred to core inflation within a year.

The end of 2015 brought some positive changes in the national economy, as follows:

- economic growth determined a reduction of the gap in relation to potential GDP and the current account deficit has stabilized around 1% of GDP as a result of the increased export competitiveness;

-the difference between the interest rate for credits and the interest rate for deposits was reduced, which consequently determined the decrease of interest rate;

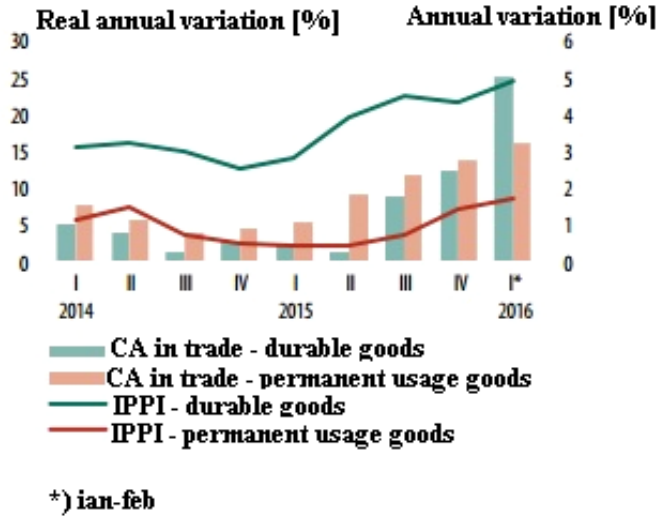
- the population's indebtedness level for loans in lei with variable interest rate have decreased;

- deflationary impact exercised by external prices has stabilized at the end of 2015 so that the unit value index (IVU) of imports rose to 97.9%;

- the negative influence of external prices was partly offset by the attenuation of national currency depreciation against the dollar;

- the favorable harvest at global level determined the decrease of wheat and corn listings, while vegetable products and fats recorded increases due to the deficient production of certain crops in Europe;

- increases were reported for consumer goods from 0.6% to 1.6%, especially non-durables one and consumer durables, which rose from 3.5% in 2015 to 4.9 % in 2016, as seen in the graphic from Figure no. 6.



Source: INS, BNR calculus

Figure no. 6 Annual variation of inflation

The annual rate of CPI inflation will record the following values:

- negative values (-0.4%) until the end of 2016;

- positive values, but inferior to the central inflation target (2.5 %) throughout 2017,

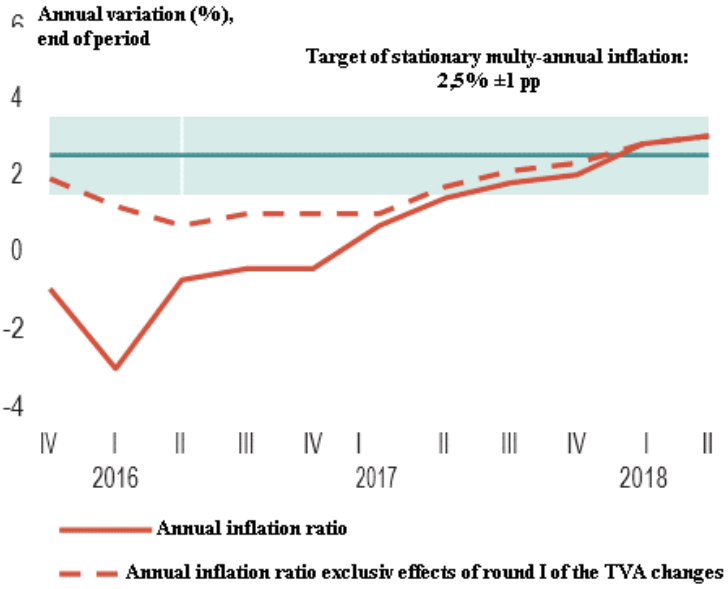
- positive values (3%) throughout 2018, emphasized in the Table no. 1.

Table no. 1: Inflation annual rate in the basic scenario

	Annual rate of inflation in base scenario							
	Annual variation (%); end of period							
	2016		2017				2018	
	T3	T4	T1	T2	T3	T4	T1	T2
Target (central value)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
IPC Projection	-0.4	-0.4	0.7	1.4	1.8	2.0	2.8	3.0
IPC* Projection	1.0	1.0	1.0	1.7	2.1	2.3	2.8	3.0
*) exclusive first round effects of changing of TVA rate								

The annual inflation rate will still be affected by the expected effects of the implementation of Law on commissioning payment, the fiscal relaxation measures, the policies for revenue growth, internally, and the outcome of the referendum held in the UK, externally. For 2018, inflation is expected to increase due to the reduction in indirect taxes expected to be realized in January 2017. This measure of inflation highlights the

accumulation in time of aggregate demand pressures, fueled by the growth of wages, which was bigger than labor productivity growth, Figure no. 7.



Source: INS, BNR projection

Figure no. 7 Inflation rate prognosis

In the current international context the proliferation of risk sources, events focused on the outcome of UK referendum on its membership in the European Union, the political situation in Turkey, the uncertainties regarding the evolution of economic activity in China, Brazil and Russian Federation that are in crisis, other emerging economies distressed as a result of the reorientation of investment capital towards advanced economies, maintaining the level of commodity prices low, issues related to the economic crisis affecting Greece and all the difficulties recorded in the Italian banking system can amplify Romania's vulnerabilities to shocks, with adverse effects on internal macroeconomic balances.

The overlap of these additional sources of risk to the internal situation of the local banking system, i.e. the stimulating fiscal policy, the depreciation of national currency since the beginning of this year at some categories of goods, the electoral events that have been and will be in the absence of agreements with international financial institutions, the uncertainties regarding the implementation of a macroeconomic policy mix able to ensure sustainable economic growth and maintain a stable macroeconomic framework, all these mean that the risks to inflation and thus the entire economy are real, Romania being at risk in the absence of a sound macroeconomic policy mix implementation able to ensure sustainable economic growth and maintain a stable macroeconomic framework.

It is therefore necessary to consolidate the progress made in recent years in terms of elimination of major macroeconomic imbalances and growth of national economy's resilience to shocks through an appropriate consistency of macroeconomic policies.

Economic policies must consider strengthening the trends for the improvement of structural balance between global supply and demand, which is the only one able to provide a positive impact on economic growth and development on medium and long term.

4.1. LABOR MOBILITY IN THE CONTEXT OF PRESENT ECONOMIC CRISIS

In the current circumstances when relations between countries are intensifying, the interactions between the economy and labor market are multiplying and diversifying in an obvious way. From the data analyzed by European Commission, it is expected that the share of people with high qualifications to increase by 44% until 2025, by 30% in 2030 and by 50% in 2050. The neglected sectors are still the same: agriculture with a percentage of 29% and industry with 21% of employment, which at have dropped in recent years.

Integration of young people into the labor market remains a challenge so that the proportion of young people who cannot be integrated into the labor market and are not in education or training programs is much higher, over 17%, compared to the EU average which is 12%.

The employment potential of the long-term unemployed, the elderly, the persons with disabilities and Roma is unexploited and therefore provokes the phenomenon of mobility or migration of labor. The European labor market is facing this phenomenon that is considered to be one of the most effective ways to meet all challenges the globalization and development process implies.

The ones that gain from mobility are the host countries which offer temporary solutions related to the demographic issues of destination countries.

The effects of mobility on host countries are insignificant, since it does not increase unemployment rate and affects slightly the wage level of local workers.

The effects of mobility on the countries of origin are either short-term positive or long-term negative effects. Among the positive effects of mobility can be mentioned:

- absorption of labor force surplus;
- unemployment reduction due to the fact that individuals can find employment in another country;
- increased remittances that are a source of income;
- repatriation of the know-how accumulated by migrant workers.

The negative effects of labor force mobility are:

- A shortage of human capital or a brain drain;
- Loss of added value that might be realized by the mobile workforce;
- Early aging of the population;
- The necessity to integrate those repatriated into the labor market.

Migration of Romanians abroad was manifested immediately after 1989, initially having an ethnic component due to the massive departures of Hungarians and Germans. In order to find a job, the favorite destinations were Turkey and Israel. Visa-free travel granted by the European Union in 2002 led to a tripling of the number of Romanian citizens looking for a job in Western Europe.

5. CONCLUSIONS

Romania is facing in recent years an increase of disproportions in terms of the occupational structures of workforce and a massive migration of the active population to EU countries. Romanian citizens have managed to represent the largest foreign minority in Italy and Spain, estimating their number to be between 2.5 and 3.5 million people in the year 2013. Much of the emigrants come from rural areas and are low-skilled, but there are many people who are qualified and leaving the country for better conditions and a decent living.

After analyzing all statistics, it made was concluded that Romanians represent the largest foreign minority in Italy and Spain and the total number of Romanians is estimated at about 3.5 million people. In the period 2007-2009 there were massive leavings, 7.3% of the population emigrating to the EU so that Romania was the country most affected by labor mobility.

Intensification or stagnation of migration flows are determined, in most cases, by economic and socio-cultural factors rather than legal ones, as demonstrated by the increased number of Romanians who were residents before elimination of the restrictions on the labor market on the 1st of January 2014 than after this date. If in 2010 the number of Romanians who had left to the two favorite destinations was 968.576 in Italy and 840.682 in Spain in 2013, their number grew reaching 1 million in Italy and 925 140 in Spain.

Establishing a causal link between migration, wages and positive or negative evolution of employment rate is doable because movements on the labor market are influenced by economic and structural factors, the impact of labor mobility being insignificant since the shortage of workforce is not fully confirmed.

Given that the labor market in our country is not able to absorb the available workforce, mobility of workers is the most effective and simplest solution in the short term, but a strategy of inclusion and retention of human capital would be preferable because it would bring far greater value added to the economy than the present export of manpower. In the long term, labor mobility has negative effects because it puts pressure on the demographic structure, public finances and social system.

Eurostat projections indicate that in Romania the dependency ratio will remain below the European average until 2045, after which it will increase as can be seen in the graphic from Figure no. 8.

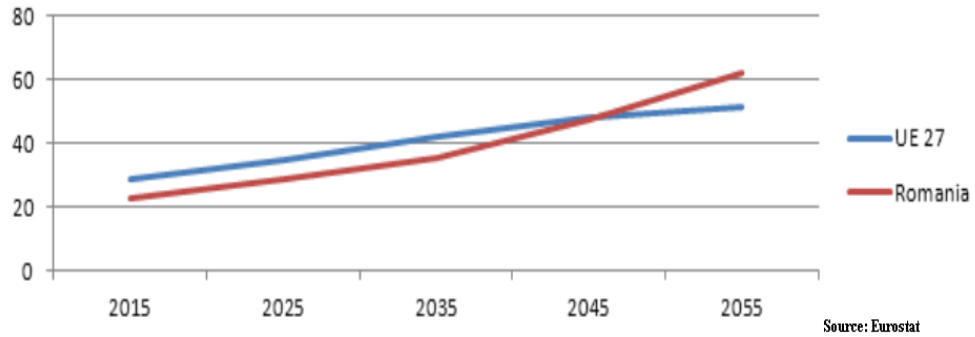


Figure no. 8 Projections of the dependency ratio evolution during 2015 – 2025

In perspective, the Romanian economy can be affected both directly, the effects being transmitted through the commercial and financial channel of labor migration and remittances, and indirectly by the possible spillover effects stemming from the worsening political and economic situation in the European Union. European Commission has the task to conduct a rigorous examination of the acquis in the field of legal migration, to identify gaps and manage better the legal migration flows.

An effective migration policy will prevail if it is supported by effective integration policies promoting dialogue and continuous evaluation at European level so as to maximize the benefits of migration for both the European economy and migrants.

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THE ROADMAP OF INDUSTRIAL CLUSTERING IN COMPETITIVENESS

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Abstract: Clustering approach, one of the most significant strategical management applications, is a process which strengthens competitiveness of industrial companies and their regions. It is also regarded as a sustainable co-operation of companies in the same geography.
In this study, it is aimed to analyze fundamental phases of clustering process. The first step of that is to create awareness of clustering advantages. After the first step, the actors of cluster are determined. With the actors, lines of value chains within the cluster are supposed to be drawn. To raise competitiveness by utilizing the strategical tool "clustering", other training and practical phases, which are the crucial ones in the process, should be effectively performed. Clustering process is a sophisticated and tough way; therefore, all stakeholders in cluster should be equally active for a regional competitiveness. There are two main aspects of clustering: building structure of cluster and ensuring sustainability of cluster. This study aims to analyze and detail the former part.

JEL classification: L10,O10,M00

Key words: cluster, competitiveness; strategical management; clustering process; regional development; clustering

1. INTRODUCTION

The more technology advances and science develops, the harder companies are able to gain a place in the competitive market. When considering the conditions of the 21st century in competitiveness, companies need to have specific tools or policies, one of which is clustering approach. Clustering approach, one of the most significant strategical management applications, is a process which strengthens competitiveness of industrial companies and their regions regardless of their sectors. It is also regarded as sustainable co-operation of related companies which are active in the same geography.

Although it is natural that every potential cluster differs by its geography or its culture, there are some major phases to found a cluster which are essential. In this study, it is aimed to clarify them for an industrial cluster step by step.

2. WHAT IS CLUSTERING?

Clusters are geographically cooperation of value chains where firms, public institutions and universities do business with each other. Rather than being same sectors, it should be called same value chain since complementary companies from different sectors can be in the same value chain. Clusters are defined as collaboration of not only companies but also governmental organizations and education institutions, which are in

the same geography. Suppliers, related other sectors, educational institutions, non-governmental organizations have significant roles in clustering process apart from main actors such as private sector representatives. This was also stated by Porter in the following way that clusters are defined as geographical concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example universities, standards agencies and trade associations) that compete but also co-operate [12]. Delgado, Porter, Stern also define a cluster as geographic concentrations of industries related by knowledge, skills, inputs, demand and/or other linkages[3].

Clustering formation can be natural; however, governments can but also encourage the development of emerging clusters by supporting efforts that a group of companies can do to achieve the full potential merger[6]. This means that the companies of clusters can come together by themselves or they can be formed by strategic plans of local authorities. Bathelt, Malmberg and Maskell suggest that while much of the literature about clustering focuses on network relations between firms, it is more important to start out by considering the learning process that takes place within the firm, before turning to the role of interfirm interaction[1]. This can happen with learning organizations. Having stronger communication network through clustering, managers are able to reach information faster and use it on time to take action in their companies.

Thanks to the synergy which is created in a cluster system, the members of companies build a data network to transfer them to each other within the companies and in this way they contribute to their regional and national economy by increasing their competitiveness.

The main idea of clusters is “working together.” Sometimes, the managers of companies in clusters believe mistakenly that working with their opponents in same value chain would be inaccurate for the sake of their companies. However, they would work together not to take share of their current market; but to expand their market shares; to find new markets. Gereffi and Lee also state that collaboration of companies within cluster is complicated since they are in competitiveness with each other[5].

On the other hand, clusters are not always for new markets. By cooperation in clusters, companies could lower their costs, meet their need for personnel, or increase their capacity. Clustering can help overcome a scarcity of financial, organizational, human and other resources by enhancing mutual support among firms and service providers, stimulating local creativity, increasing the capacity for new product development and/or product specialization and diversification, and by increasing the efficiency and effectiveness of innovation processes through collaboration[10]. A cluster is a network of companies, their customers and suppliers of all the relevant factors, including materials and components, equipment, training, finance and so on. It extends to educational establishment and research institutes which provide a large part of their human and technological capital[8].

One of the most essential necessities for clusters, as mentioned in most of cluster definitions, is geographical concentration which enables cluster companies to create synergy and to collaborate each other within this atmosphere. Once a specialized industry cluster has been established, the firms of this cluster develop a demand for specialized services and supplies. This creates an incentive for suppliers to be near these firms in that they form important markets. In locating close to these markets, the suppliers can gain economies of scale and distribute large parts of their production at low costs (i.e., transaction and transportation costs)[1].

3. CLUSTERING PHASES

"Best practice suggests that cities and regions are seeking to build industrial clusters, as they provide fertile ground for innovations, competitiveness economies of scale, rapid rates of technology transfer and efficiencies through resource leveraging."[7]. For this reason, public institutions need to lead clustering process with a proper strategical plan. It is important that a clustering process should begin with a strategic plan. Moreover, it is also necessity to build data network which should be comprised of accurate information. Thanks to access to database within the cluster, member companies of the cluster can reach results of analyzes such as market analyze and determine their market strategies by taking these results into consideration. Rival companies come together for a common goal and it improves social capital. On the other side, domestic and foreign fair economic supports, and training and certification programs in accordance with necessities enhance competence and competitiveness of the companies[4]. There are several factors traced to infrastructure deficiencies, absence of capital and experienced work force, lack of organizational structures and absence of information network and its channels; however, one of the most significant challenges faced by several firms is the limited use of the new technology[11]. In order to deal with these negative aspects, the clustering process ought to be managed in a correct way. There are certain facilitators which can be utilized by cluster management for the clustering process. Environmentally friendly strategy, leadership, stakeholder collaboration, and communication and information are among the most essential facilitators in the process. This can be also observed in Table 1, which is the formation of a food cluster.

Table no. 1: The Formation of a Food Cluster

Inputs →	Facilitators →	Outputs I →	Outputs II →	Outcomes
Cultural sector (creative industry) Primary sector (agriculture) Tertiary sector (service industry)	Environmentally friendly strategy Leadership Stakeholder collaboration Communication and information flows	Food products Other cultural products	Development of a food cluster Place marketing and branding	Creative economy development Enhanced attractiveness (place identity & image)

Source: Lee, Anne, and Geoffrey Wall. " Food Clusters: Towards a Creative Rural Economy". Martin Prosperity Institute, Rotman School of Management, University of Toronto, 2012. Page 4.

Public institutions that are the most strategical ones to utilize these above-mentioned facilitators are of capital importance to set private sector in motion. Development Agency, for instance, is expected to analyze, develop and support economic sectors in the region. In order to provide private sector representatives with cluster advantages, they first need to have knowledge about the current situation through strategical regional action plans; then they determine need and deficiency to be remedied. In the end, they make a report in accordance with the findings. These reports can be carried out by various public institutions such as chamber of commerce, chamber of industry, commodity exchange, municipality, governorate, city council which are all territorially active in the region.

To make up the deficiencies and to make companies more competitive in the sector, the applicant institution determines the clustering approach as its policy tool. First action taken by the applicant is to hold introductory meetings about the cluster for related actors such as private sector, public and educational representatives that all are essential for a cluster. Participation of university representatives is a must for a successful cluster through effective university-industry interaction. Having organized first opening meetings, the applicant institution is supposed to bring company representatives together on sectoral basis so that they can gather around the same table, discuss their similar issues in detail, exchange ideas on them, and brainstorm about possible solutions. However, the main aim is to make them understand that they can collaborate with each other within the scope of regional competitiveness. This gives an idea about the sector to the applicant for the next step of a cluster project, which is stakeholder analysis.

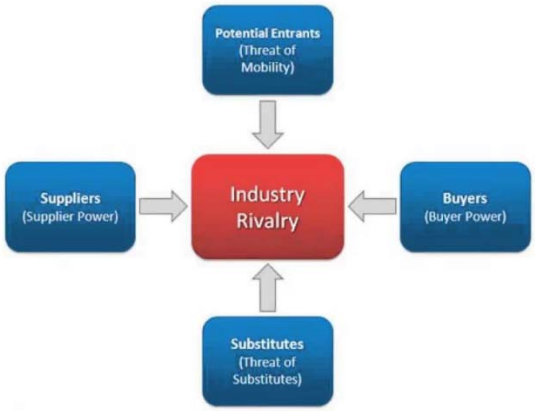
In stakeholder analysis, the applicant itself or an experienced consulting company, which is hired for the step by the applicant, visits all possible companies in the region that are ready for co-operation within a cluster. Company representatives, who are visited on site, are expected to answer approximately 70-80 questions categorized under several headings such as definition of business, value chain, product and service, marketing activities, competitors, distribution channels, networking tools, relationship with supplier and buyers, value chain, payments etc.

Having gathered practical information about the companies in the field, the applicant starts to draw the lines of value chains which exist within the cluster. One of the most significant parts of these analyzes is the Porter's Five Forces Analysis, which are as followed:

1. Competitive rivalry
2. Supplier power
3. Buyer power
4. Threat of substitution
5. Threat of new entry

The analysis is also performed during company visits to demonstrate how competitive companies are. With the Porter's Five Forces Analysis which is performed for each company in the cluster, it is aimed to reveal the competitiveness level among cluster members, general features of suppliers and buyers, situation of current substitutions, the possible effect of new companies entering the market.

Table 2: Porter's Five Forces

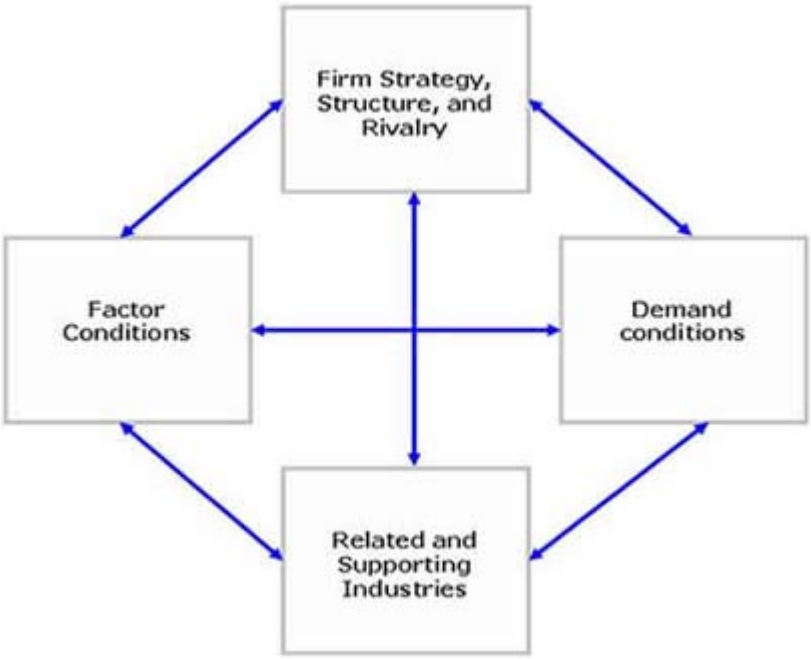


Source: Porter, M. E., & Porter, M. E. (1979). How competitive forces shape strategy.

Other significant analysis is social network analysis which demonstrates us the relationship between companies and their suppliers/buyers. In this part, relationship with customers and buyers, supporter institutions and stakeholders with which companies co-operate are analyzed respectively to observe the network power of companies.

The next analysis is Porter's Dynamic Diamond Model which reveals the competitiveness of the cluster firms(Firm Strategy,Structure and Rivaly), determining the demand for product or service of cluster members (Demand Conditions), competencies and technological features of cluster companies (Factor Conditions), and supplier and supportive institutions (Related and Supported Industries)[15]. Data of this analysis constitutes the background of a cluster. Main and complementary companies in the cluster, the structure of market and firm-based structures are detailed in this analysis as seen in Table 3.

Table 3: Porter's Dynamic Diamond Model



Source: Towards a dynamic theory of strategy. Strategy Management Journal, 1991

The other analysis is needs analysis. In this analysis, inadequacies about design, quality, costs of products/services, and marketing channels are supposed to be detected and a need scale is developed for each of cluster companies.

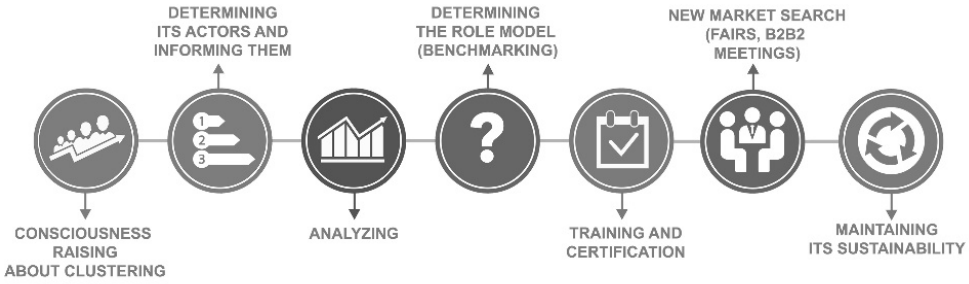
Value chain analysis is the next analysis. There are two main headings under value chain analysis: primary activities and support activities. In primary activities, companies are analysed in terms of inbound logistics, operations, outbound logistics, marketing and sales, and service. In the support activities, they are analyzed in terms of firm infrastructure, human resource management, technology development, and procurement.

Another important point for the success of cluster is benchmarking method. At the establishment phase of clustering process, the applicant institution seeks for another cluster which has similar characteristics and has already obtained success in the clustering process. It is essential to keep in touch with this "role-model" cluster and come together with its representatives, especially during the establishment phase of the cluster since they have already went through same difficulties and they could give the cluster a lead.

After cluster companies have been analyzed through different methods, their deficiencies and aspects to be improved come to light. The next step is to make up these ones for a better place in regional competitiveness; therefore, the applicant organizes training and certification programs in accordance with necessities and demands of cluster companies. These can be foreign trade training, target market analysis, certification programs for foreign trade, training programs for personnel of cluster companies etc. This is a complicated and tough process which should be properly performed since the success of the regional competitiveness depends on this training and certification phase. The applicant generally carries out these training programs with help of universities or professional consulting companies.

In the meanwhile, it is important to build or to maintain the social interaction among cluster companies. That's why the applicant regularly organizes brainstorm meetings in semi-official environments so that private sector representative can break taboos, identify their suppliers, clients; and in this way, they can start acting together in their business, or even start doing new business together. One of the most favorable advantages in a cluster is to control or decrease costs by acting together. This could be a great advantage for them even when they don't start doing new business.

Table 4: Phases of Clustering



After training and certification phases, cluster companies should be ready for national or international areas: new markets. They participate in national or international fairs, B2B meetings or even organize their own fairs. In this point, the "role-model" cluster is strategical for the cluster because it has already experiences in participating in such meetings and fairs. This phase is always open to new developments in that strategies of worldwide companies change always as the technology and science improve. Cluster companies are supposed to observe national or international area very carefully and develop themselves so that they can be as competitive as their rivals.

To make the cluster sustainable, the support of public institutions and universities is as essential as that of the "role-model" cluster. They ought to be always reachable for cluster members and give their best for regional competitiveness. Main clustering phases can be seen in Table 4; however, it is possible that these can vary according to characteristics of cluster members, its geography, its sector, and laws of its country.

4. DISCUSSIONS

Clusters are geographical concentrations of companies and other related actors that are interrelated with each other. Companies in a cluster should follow not only their own strategies but also the strategy of the cluster they belong to in that clustering means growing together, even in a competitive environment. For this reason, drawing the road map of a cluster is crucial. The first step of clustering process is to raise consciousness about clustering in the region. This should be carried out with help of the public institutions and educational centers of the region. The second step is to determine cluster's actors and informing them. In this phase, it is essential to gather the companies, public institutions and educational centers around the same table and make them brainstorm about the potential advantages of cluster. The third phase is to analyses the cluster members. They are supposed to be analyzed from different points of view. The fourth phase is to determine the "role model" of the cluster through benchmarking method. Since it is possible that there is no ideal "role model" for every cluster, this phase couldn't be obligatory for every cluster roadmap. The fifth phase is to organize trainings and certification programs. This phase is where the cluster members make up their deficiency and improve themselves; therefore, this is significant to constitute cluster standards. The sixth phase is to internationalize cluster companies through fairs, B2B meetings etc. Clusters in some sectors operate nationally due to their sector features; however, acting.

The last and the most critical phase is to make a cluster sustainable. In this phase, it is started with a precise strategical plan by making companies work together for common values and determining real necessities of them. For this aim, there should be a long process of trainings and meetings. It is significant to complete this process successfully in order to be enough competitive when they participate in national or international fairs or B2B meetings. This is tough and complicated process; synergy among cluster actors should be maintained for success of cluster.

It is also essential to determine the common goals of these actors by identifying their individual and regional purposes. In this way, they can be complementary and compensatory to each other in spite of their competition with each other.

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A QUANTITATIVE ANALYSIS OF TRANSILVANIA BANK

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Abstract: Analyzing the main trends from the Romanian economy and the importance of using market analysis to predict in which direction a company is headed.

JEL classification:**G15, E44**

Key words: stock exchange, beta, market risk premium, ddm model, capm model

1. INTRODUCTION

When talking about stocks, fundamental analysis is a technique that attempts to determine a stock`s value by focusing on underlying factors that affect a company`s actual business and its future prospects. One can perform fundamental analysis on a company, an industry or on the whole economy.

Being a quantitative analysis, this technique involves looking at revenue, expenses, assets, liabilities and all the other financial aspects of a company. Fundamental analysts look at this information to gain insight on a company`s future performance. In this article we shall apply basic models using balance sheets, income statements, cash flow statements, market statements and show how they all fit together.

There is more than just number crunching when it comes to analyzing a company. This is where qualitative analysis comes in to help us estimate difficult-to-measure aspects of a company. Neither qualitative nor quantitative analysis is inherently better than the other. Instead, many analysts consider qualitative factors in association with the hard, quantitative factors.

Take a company, for example. When examining a company's stock`s, an analyst might look at the stock`s annual dividend payout, earnings per share, price earnings ratio and many other quantitative factors. However, no analysis of a company would be complete without taking into account its brand recognition.

In this paper we will focus more on the quantitative factors with reference to what has been said above.

2. OBJECTIVES

The objective of this paper is to test to what extent the accuracy of the economic analysis methods can indicate the direction in which a company listed on the stock exchange is headed. Also, a goal of this article is to provide an understanding of how fundamental and technical analysis are applied in the Romanian capital market.

1. THE GENERAL CONTEXT OF THE ROMANIAN ECONOMY

We will start by presenting some data that will outline the image of Romanian economy. Romania`s population is 19.6 million, the Growth Domestic Product is 187

billion dollars at the current exchange rate and also the life expectancy at birth is 75.1 years.

Although Romania has significantly reduced its macro-fiscal imbalances since the 2008 crisis and achieved one of the fastest growth rates in the EU in 2016, the challenge faced by the government is to support growth by removing the structural obstacles in the economy and ensure that the benefits of prosperity reach all citizens, especially the poor and vulnerable.

Romania has one of the highest poverty rates in the European Union. The percentage of Romanians at risk of poverty due to social transfers increased from 22.9% in 2012 to 25.4% in 2015. However, the percentage of the population at risk of poverty and social exclusion decreased from 43, 2% in 2012 to 37.4% in 2015.

The Romanian economy registered an increase of 4.8% in 2016, representing the largest increase since 2008 and the third fastest growing growth in the European Union. The increase was generated by private consumption (up to 6.8% over the previous year), which was encouraged by a reduction in the standard rate of value added tax (VAT) from 24 to 20% in January 2016 and increases in minimum wages and pensions.

Inflation dropped to a record low in 2016 and remains low, backing an accommodative monetary policy. Annual global inflation passed to the positive area in February 2017 (0.2%), with the disappearance of the base effect of the VAT reduction. The National Bank of Romania (BNR) maintained the monetary policy rate at 1.75% in February against a background of a negative growth in corporate loans and concerns growing in terms of the continued relaxation of fiscal measures. Household loans increased by 4.6% over the previous year in January 2017, supported by fiscal stimulus, labor market improvements and low interest rates.

1.1 Macroeconomic analysis

Table no.1

Year	2011	2012	2013	2014	2015	2016
GDP (million USD)	185.3	171.6	191.5	199.4	177.9	186.6
Interest rate – monetary policy	6.25	6.25	4.00	3.25	2.25	1.75

Source: www.bnr.ro; www.insse.ro.

Analyzing the main trends from the Romanian economy, we can see an increase of GDP in 2014 as compared to 2012 and 2013 as a result of economic expansion, consumption and private capital growth. Romania is becoming more attractive to investments. In 2015, based on the VAT reduction, consumer prices were falling and Gross Domestic Product was slightly declining. Also, the significant reduction of the monetary policy interest rate as well as the facilitated interest rate on deposit determines the orientation of the population's savings towards investments in the capital market, making them more attractive.

In another train of thoughts, the bank surpluses are directed to issuers of financial instruments that need capital for investments to develop their business.

In terms of inflation dynamics, it is expected to register around 2.5% in 2017, driven by rising prices and consumption, but also by rising wages. Therefore, the

economic growth is projected on the background of improved funding in the economy, with an annual average rate of 7%.

In conclusion, it is estimated that the investments will increase as a result of the increase in the available income. Thus, those with surplus resources decide to invest in financial instruments, making them more attractive in addition to the value they generate, compared to deposits and other classical saving methods.

1.2 Analysis of the financial sector

Market shares of the main companies from the financial sector:

Table no.2

Company	BRD	TLV	BVB	FP	SIF1	SIF2	SIF3	SIF4	SIF5	BRK
Market shares 2016 (%)	33.07	35.37	0.26	24.6	1.34	1.54	1.17	0.77	1.78	0.13

Source: www.capital.ro

The Romanian banking sector consists of 36 credit institutions: two banks with Romanian majority capital, 4 credit institutions with private capital, 23 banks with foreign capital and 7 foreign banks.

Almost 90.2% of the bank's assets are held by the institutions with foreign capital. Austrian-owned banks have a market share of 33.3%, and French-owned banks have a market share of 13.5% and those with Greek capital 10.6%. Banks have adjusted their number of employees in the sector to nearly 55,900 people, while branches have diminished lately.

The Romanian banking sector has demonstrated its structural ability as one of the few banking sectors in the European Union that does not require state support during financial crises.

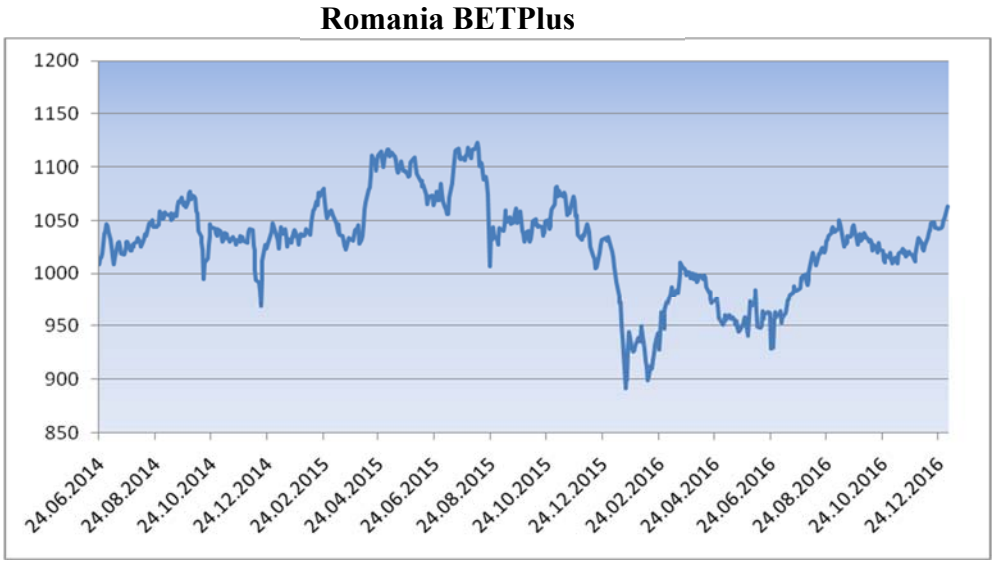
The priorities of the financial industry are to maintain the role of the banking system as the main source of funding for the Romanian economy, including actions to strengthen financial discipline. In Romania, banks provide almost 90% of the financing of the economy.

In 2016, Transylvania Bank (TLV) recorded the highest market share, which was 35,378%, with a turnover of 2,823,392,000.00 lei, followed closely by BRD with a market share of 33,007 % and a turnover of 2,634,172,000.00. It is expected that in the coming years the total turnover will increase, the BRD market share will decrease, while the TLV market share will increase.

At the same time, companies will have to make an effort to get informed, to identify the opportunities offered by the financial sector to be able to build their own market strategies and to determine the level of tolerated risk.

Due to the spectacular evolution of the Transylvania Bank, we will use all analysis methods specific to the capital market to check it`s real capital growth.

1.3 Analysis of market evolution



Source: Own processing, Bloomberg platform

Figure no. 1

Starting with the first trade exchanges set up around 1939, stock market activity has been affected throughout its existence by the social and political events of the time. Founded in 1995, after nearly 50 years in which stock market activity was suspended following the inauguration of the communist regime, the Bucharest Stock Exchange has continued to grow, being the main Romanian stock market.

The Bucharest Stock Exchange (BVB) is a stock exchange in Bucharest, Romania. The total capitalization was 29 billion euros in April 2016. Currently, 83 companies are listed on the BSE. In 2013, BSE's main index BET grew by 26.1%, making it the 15th highest performing in the global ranking of markets.

In April 2016, the five most traded shares were: Romgaz (SNG), Fondul Proprietatea (FP), Transilvania Bank (TLV), OMV Petrom (SNP) and Electrica (EL) with a total value of over 950 million lei. Types of financial instruments traded on BSE are: shares, bonds, units, indices, derivatives. The trading hours of the stock exchange are between 9:30 and 18:30.

The BETPlus index is formed of the 37 most liquid companies. The index was inaugurated on 24.06.2014 as a renewal of the BET-C index. From the chart above, we can see that the index reached the level of resistance close to the 1150 value, and at the end of 2015 it will enter a downward trend until February 2016. During 2016, the Romanian market represented by the BETPlus index maintained a steady increase, recovering close to the level of resistance reached in 2015.

2. ANALYSIS OF A SUCCESSFUL COMPANY FROM THE ROMANIAN CAPITAL MARKET

Based on the analysis of the economy presented, we chose Transylvania Bank for applying the analysis methods specific to capital markets in order to verify the real evolution of the company. We will start with a short presentation of the company, to give us an idea about the evolution on the market.

Transylvania Bank is one of the largest banks in Romania, the bank was founded in 1993 in Cluj-Napoca on the initiative of some businessmen. The company has 6,000 employees, 1.4 million customers and 500 branches.

It is the first bank listed on the Bucharest Stock Exchange (TLV symbol). Also, the number of shares in circulation of Transylvania Bank is 3.646.047.792 with a free float of 3.07 billion.

2.1 Analysis of profitability, risk and liquidity

Table no. 3

Performance indicators	Average daily yield	0.12%
	Annualized average daily yield	29.17%
Volatility indicators	Standard deviation of daily yield	1.67%
	Volatility	26.42%
Market risk indicators	Beta (β)	1.32
	VaR, p=95%	-2.11%
Liquidity indicators	Total traded shares/Total existing shares	73.34%
	Total traded shares/Free float	82.84%

Source: Own processing, Bloomberg platform 2014-2016

Following the analysis of the indicators, it can be seen that this company represented a very good investment opportunity, because the average daily and annual returns are high and the annualized average daily yield is approximately 30% per year. Transylvania Bank reacted more strongly than the market, rising more than this, which is indicated by the value of the Beta indicator that is 1.32 which means that the slope between the company and the market is also positive.

The company's Value at Risk indicator is low, indicating with a 95% probability that we cannot lose more than 2.11% of our investment during a trading day. From the liquidity point of view, Transylvania Bank is a very liquid one, given that the total traded shares on free float is 82.84%, specific to the banking sector. The shares seem to be traded strongly on the capital market.

The only indicator that means our investment could be at risk is the volatility indicator that shows us that the investment is better to be a long term one, because on short term we have to assume the risk of losing a good amount of our own capital.

2.2 Fundamental analysis

Table no. 3

Period		2015	2016
Profitability indicators	Earnings per share (EPS)	0.6631	0.3382
	Return on Assets (ROA)	5.1186%	2.6109%
	Return on Equity (ROE)	40.1911%	20.5945%
	Dividend Performance (DIVY)	59.80%	59.80%
	Dividend Distribution Rate (d)	49.63%	49.63%
Financial risk indicators	Rotation duration of current assets	3888 days	4211 days
	Financial leverage	6.8519	7.6446
Price Multiples	Price/BookValue (P/BV)	1.2071	1.6376
	Price Earnings Ratio P/E	3.0034	5.9416
	Price to Sales Ratio (P/S)	2.4012	2.5931
	EnterpriseValue/EBITDA	32.2604	40.5801

Source: Own processing, Bloomberg platform 2015, 2016

From the point of view of the profitability indicators, we noticed that economic profitability and financial return declined significantly in 2016 compared to the previous year amid a lower profit of about 50%.

Also, the EPS indicator has decreased, meaning that the investor will have a lower earnings per share.

By analyzing the financial risk indicators, the values of the rotation time of the circulating assets show better efficiency in the use of these type of assets.

The financial leverage indicates a higher degree of appreciation in 2016 and a lower solvency ratio.

Price/BookValue in 2015, also in 2016, has a value between 1 and 2 which means that the company's shares are fairly valued by the market. Paradoxal, taking into account the Price Earnings Ratio, index shows us that in 2015 the shares are strongly underestimated, and in the year 2016 the Price Earnings index increases, the shares becoming better evaluated from the perspective of this index.

Considering that the Price/BookValue indicator is much more relevant in companies like banks because they are companies with a larger share of liquid assets, we will consider that the shares are correctly valued.

2.3 Technical analysis

We can notice that starting with 2015 a resistance and local support is formed, the price of the shares varied slightly. At the beginning of 2015 the value exceeds the resistance level through a growth trend. This growth trend continues until the beginning of 2016. At that moment, the company was at a historic high, more precisely at the 2,720 where a new level of resistance, a global strength has formed.

Source: www.investing.com

Figure no. 2

Source: www.investing.com

Figure no. 3

In this graph we identified two types of price formations: rectangular price formations that indicates the price is in a stagnation period, and the head and shoulder formation that appears between 2015 and 2016, these formations have signaled at that time a short-term fall in the share price. Because there is a rectangular price formation, but it is expected that the value of the action will drop to the local support level, more precisely to the value of 2.231. This type of formations show us that the technical analysis is strongly correlated with the fundamental analysis through the volatility indicator.

2.4 Company valuation through the Dividend discount model

Table no. 4

Data Extracted	Risk-free interest rate: $\boldsymbol{R_f}$	4.15%
	The last dividend given: $\boldsymbol{D_0}$	0.3965
	Market risk premium: $\boldsymbol{E[R_m] - R_f}$	8.82%
CAPM Model	Profitability demanded by the shareholders: $\boldsymbol{k = E[R_i] = R_f + \beta(E[R_m] - R_f)}$	15.79%
	Expected growth rate of the dividends: $\boldsymbol{g = ROE(1 - d)}$	10.37%
DDM Model	$\boldsymbol{V_0 = \frac{D_0(1+g_1)}{1+k} + \frac{D_1(1+g_1)}{(1+k)^2} + \frac{\frac{D_2(1+g_2)}{k-g_2}}{(1+k)^2}}$	4.3119
Degree of under or over evaluation	$\boldsymbol{Dgr.\frac{under}{over} = \frac{P - V_0}{V_0}}$	-37.27%

Source: Own processing, Bloomberg platform 2016

In order to evaluate the company through the DDM Model we first extracted the risk-free interest rate, the value of the last dividend given by the company and the market risk premium.

Then, we applied the CAPM Model to estimate the profitability demanded by the shareholders using the market risk premium, β and risk-free interest rate.

Using the DDM model we determined the intrinsic value of an action as 4.3119. Transylvania Bank`s multiple Price/BookValue is equal to 1.62 and Price Earnings Ratio 5.30 and also the industry averages are Price/BookValue 1.13 and Price Earnings Ratio 12.69. What led to the choice of using a DDM model with two growth periods, the company being in an intermediate stage of her development according to the price multiplier analysis with the average from the financial sector?

We also estimated the expected growth rate of dividends g_1 for the first two years as $g_1 = 10.37\%$ and after two years we estimated g_2 to be $g_2 = 5.18\%$. In the pre-application steps, we have ensured that the profitability required by the shareholders (k) is greater than the expected growth rate of dividends (g) so that the model has both economic and mathematical sense.

In conclusion, the current market value of an action is 2.705 and is underestimated because the intrinsic value of an action is 4.311 so we have an under-valuation degree of 37.27%.

3. CONCLUSIONS

Through this analysis we found that Transilvania Bank 'shares were moving in the same way as the market. In the synthesis table we showed that Transilvania Bank has an annualized average yield of 29.17% which is pretty high for such a stable bank as this one. Also, the beta index shows us that the company`s shares are moving even faster than the market with 32% in difference. At the same time, the value of the VaR indicator is roughly equal to almost all values of the companies from the financial sector.

But, if we relate to equity efficiency, ROE shows us an increased efficiency with which Transilvania Bank employs the shareholders' equity in business, and the fact that

the entity's ability to pay better dividends is measured at 20.59% backs up this increase. Moreover, this is reinforced by the value of the CAPM, which shows us a high profitability demanded by investor.

If we report dividend distribution, we are dealing with an average which shows us, on the one hand, the capability of the company to generate high profits and, on the other hand, they reinvest 50% of profit, with the desire to generate higher future earnings, so higher dividends are also expected.

Transilvania Bank represents a very good investing opportunity because it is less subject to risk, efficiently manages its own capital, distributes dividends with a high yield and offers strong signs of permanent growth.

In conclusion, the long-term recommendation for this company is to "BUY" and trough this analysis it seems Transilvania Bank has a high chance to grow for the next 2 years.

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ALEXITHYMIA AND ITS EVALUATION WITH REGARD TO THE ORGANIZATIONAL COMMITMENT IN TOURISM INDUSTRY

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Abstract. In the tourism industry in which human relations are intense, the treatments of employers and directors to their employees affect their attitudes towards the institution, their work and the sector they have been working for, in a positive or negative way. That tourism employees, driven into loneliness due to ignorance of feelings, to increase the alexithymia (emotional deafness) as well as negatively affect organizational commitment and human relations. Thus, the alexithymic characteristics of the tourism employees, not being able to establish healthy and proper relationships in the organization, make it impossible for employees to be productive and serve in such a way to satisfy customer. The aim of this study is to evaluate the alexithymia concept with regard to the tourism industry, reveal the relationship between the organizational commitment of the tourism employees and alexithymic characteristics.

JEL classification: D23, Z32

Key Words: Alexithymia, emotional deafness, organizational commitment, organizational behavior, tourism industry

1. INTRODUCTION

Tourism institutions, where employees providing service and service pending customers meet up, have a significant role by means of employee's showing positive behavior as high performance, high motivation, loyalty and creating customer satisfaction and achieving organizational success (Aslan, Ozkoc ve Caliskan, 2015. Likewise, the fact that customers have positive feelings and views towards tourist destination and institution, makes it possible to favor and promote the institution or destination. In this respect, the tourism industry in which human relations are intense, individuals feelings have importance that may affect the development of attitudes and behaviors in work life.

Due to the fact that feeling is an integral element of healthy and balanced relations, it has become more important for individuals to be aware of their feelings and express their feelings. However, along with the rapidly growing population and developing technology, individuals are driven into loniness; along with the increase in computer and internet usage, alexithymia increases and these effect human relations negatively (Kocak, 2002). In this context, alexithymia, which exists in the field of tourism, may lead to desensitization and negative feelings, and therefore negative behaviors (anger, empathy, aggression, etc.) may increase and dissatisfaction may occur.

In this frame, because feelings have a significant role in tourism industry and alexithymic characteristics based on desensitization are the leading motivation of this study.

There is very few research about alexithymia which become widespread nowadays and affect community health, and communication adversely. From this point of view, it is believed that scientific studies are required related to alexithymia and organizational commitment in tourism industry. In this study, It was aimed to examine the concept of the alexithymia in the context of organization in the light of the literature. Within this scope, the concept of alexithymia was referred and the relation between alexityhmic characteristics and organizational commitment in tourism industry was included.

2. ALEXITHYMIA

The concept of alexithymia was used, by Sifneos, in a sense that feelings *cannot be spoken* in a conference in 1972. This concept is composed of *a= no , lexis=word, thymos=emotion* in Greek and been expressed as "lack of word for emotions" (Dereboy, 1990). Sahin(1992) emphasized that the concept of alexithymia could not only be limited as "loss of words for emotions", in other words, *"mute"* toward emotions, but also alexityhmic people *'deaf'* towards their own emotions. Dokmen (2000) recommends the concept of *"slavery of thought"* for alexithymia as an equivalent. The concept of alexithymia, which is translated as "emotional deafness" (Sayar, 2005; Aydin, 2015) in colloquial, is described as difficulty of realizing, recognizing, distinguishing and expressing emotions of one's own and the others'(Sifneos, 1988). Besides being a psychological personality feature it is also related to socio-cultural factors that the people, who cannot explain themselves, have difficulty in understanding others' feelings (Sayar, 2005). Hence, it is emphasized that it is also frequently seen in healthy individuals today (Taylor, Ryan ve Bagby, 1985; Jacob ve Hautekeete, 1999). For alexithymic personality traits, which has been studied for over 40 years by making different interpretations and definitions, experts seem to be focusing 4 main topics: the difficulty in recognizing, distinguishing and communicating emotions, limitations on imagination, operational thinking and cognitive structure to achieve eccentric adaptation (Lesser, 1981; Taylor, 1984; Sifneos, 1988). According to Taylor(1984) this four main topics defined as follows:

- *Difficulty in recognizing, distinguishing and communicating emotions:* These individuals can not recognize their own emotions in a specific way. They can express their feelings very simply with simple words like "relaxation" and "disturbance". When they are asked their emotions, it seems as if they do not know the meaning of this word. They often talk about their somatic complaints.

- Limitations on imagination: Individuals with alexithymic traits are rather weak in imagination. The dreams they set are poor and colorless fantasies in which passion and longing reflected fadedly in limits of reality. It is even claimed that they have never been able to imagine their adult life.

- Tendency of operational thinking: Alexityhmic individuals tend to find concrete and short-cut solutions to the problems they face. They prefer to take care of superficial causes rather than root of the problems.

- Cognitive structure to achieve eccentric adaptation: The attitudes and behaviors towards relationship with the environment are mainly influenced by the

internal factors rather than the internal factors and emotions attached to them. Alexityhmic individuals pay much attention to environmental anticipation and detail when they encounter any incident in daily life.

It is seen that many studies on the international scale have been made in the theoretical and experimental framework related to alexithymia for healthy individuals (Borke, 1971; Blanchard, Arena ve Pallmeyer, 1981; Parker, Taylor ve Bagdy, 1989; Berenbaum, 1993; Kokkonen Karvonen ve Veijola, 2001; Zimmermann, Rossier, Stadelhefen ve Gaillard, 2005). In Turkey, however, a limited number of studies have been carried out on a clinical basis (Yemez, 1991; Turk, 1992; Varol, 1998; Kocak, 2002; Motan ve Gencoz, 2007). There is a limited number of studies, which is based on different theories and methods, on the concept of alexithymia and commitment, sense of self, the way of interpersonal relationship, anger, burnout syndrome, etc., frequently encountered in the organizational setting (Martin ve Pihl 1986; Karlidag, 1998; Hexel, 2003; Wearden, Cook ve Vaughan, 2003; Montebarocci, Codispoti, Baldaro ve Rossi, 2004; Oktay ve Batigun, 2014). When studies on alexithymia are examined, the relationship between alexithymia and socio-demographic features such as gender, age and education level is discussed. In these studies, it is emphasized that individuals with low education level have more alexithymic characteristics (Faryna, Roenhauser ve Torem 1986; Yemez, 1991; Kauhanen, Kaplan ve Julkunen 1993; Batigun ve Buyuksahin, 2008), whereas in some studies, more alexithymia is seen in men (Blanchard at all, 1981; Smith, 1983; Feiguine, Jones ve Kassel, 1988; Parker, Bagby ve Taylor, 1993; Mattila, Ahola ve Honkonen 2007).

Freyberger (1977) indicated that the alexithymic characteristics could be permanent or temporary as a result of his researches and observations. One is a long-term personality trait that lead to somatic disorders, while the other is a kind of defense mechanism that can be temporary and permanent, occurring in traumatized individuals who are working under heavy stress. Zimmermann at all. (2005) emphasize that alexithymia is an externally guided cognitive thought with emotional variability due to inability to cope with stressful situations.

3. ORGANIZATIONAL COMMITMENT

Commitment can be defined as identification in the simplest sense. Organizational commitment refers to psychological organization commitment of the worker as the belief in organizational values, loyalty and participation in work organization (Karcioglu ve Celik, 2012).

The life of organization depends on the synchronized movement of certain norms in itself, just like the life of a person. In this context, the existence of the worker in the organization and the continuity of this existence are important norms for life of the organization. The organization needs to engage in a variety of incentive activities, such as raising wages and replacing positions with upper positions in order to ensure continuity of workers (Bayram, 2005). When people are asked what m1akes them happy, they often talk about relationships they have established with other people (Myers, 2015). While ranking the precious things in their lives, people rank their profession, personal accomplishment, and material wealth after their loved ones. These precious things bring happiness and success (Burger, 2016). It shows that the incentive activities which is applied by organizations to enchain workers will bring success to their selves. The worker will ask for continuity in the organization that mediates the possession of the values, and will identify with the organization.

Organizational commitment is divided into multiple classes in different studies on organizational commitment. Based on these different classifications, Allen ve Meyer (1990), divides it into three main headings: emotional, rational and normative. In literature, factors in the organization affecting organizational commitment level of worker compiled in Table no. 1.

Table no. 1 Factors in the Organization Affecting Organizational Commitment Level of Worker

PERSONAL FACTORS	Jr, Aven, Parker, ve McEvoy, 1993	**DEMOGRAPHIC FAKTORS**	**FAKTORS REGARDING WORKING LIFE AND WORK**
		Age	Will to Succed
		Sex	
		Educational Level	
		Seniority	Participative Values
	Rosin ve Korabik, 1995	Psycho-Social Characteristics	
		Achievement Motivation	
		Focus of Control	
		Internal Motivation	Utilitarian Values
		Working Morals	
		Central Life Interest	
FAKTORS REGARDING WORK AND ROLE	Lydon, Pierce, ve O'Regan, 1997	Content of the Job	Monetary Reward Systems
		Scope of the Job	Excessive Workload
		Role Conflict	Work Stress
	Gilbert ve Ivancevich, 1999	Uniqueness of Role	Group Consciousness
		Participative Management	Delegation and Autonomy Systems
		Learning Opportunity	
FAKTORS RELATED TO WORK EXPERIENCE AND WORKING ENVIRONMENT	Gilbert A. C., 1996	Socialization	Customer Oriented Organization Atmosphere
	Meyer ve Allen, 1997	Relation between Employees and Manager	Reliability Level of the Organization
	Rosa, Salanova, ve Peiro, 2001	Organizational Climate	Job Satisfaction
FAKTORS RELATED TO ORGANIZATIONAL STRUCTURE	Snape, Redman, ve Chen, 2000	Dimension of Organization	Total Quality Management Applications
	Mathieu ve Zajac, 1990	Formalization Degree	Flexible Working Hours
	Scandura ve Lankau, 1997	Control Degree	Wage System
	Hartline, Maxham, ve Mckee, 2000	Unionization Rate	Career Opportunities
	Cakir, 2001	Image of Organization	Organizational Ethics Perceptions
	Schwepker, 2001		

4. ALEXITHYMIA AND ORGANIZATIONAL COMMITMENT

Some studies have emphasized that individuals with lower levels of education shows more alexithymic characteristics(Faryna, Roenhauser ve Torem 1986; Yemez, 1991; Kauhanen, Kaplan ve Julkunen 1993; Batigun ve Buyuksahin, 2008). Similarly, studies on the relationship between organizational commitment and level of education have resulted in that organizational commitment of individuals with low levels of education is higher than those with high levels of education (Tayfun, Palavar, ve Cop, 2010). Nakajima, who said "people who cannot share their emotions only react" about alexithymia, indicated that decrease in direct communication in human relations and the demand for material wealth compared to spiritual-internal enrichment lead to an increase in alexithymic behaviors (Nakajima, 2016). Organizational commitment refers to the strength of the bond that the worker feels about his or her work (Guney, 2015). Yet, sense is to perceive an emotional reaction which is not highly intense, to anything that occurs in the mind or body (Sahinkaya, 2006). Based on this definitions, it can be said that organizational commitment is the feeling of emotional closeness of worker to the organization. In the light of this information, it can be said that the worker who has high organizational commitment is far more to alexithymic personality than the worker who has low organizational commitment.

5. ALEXITHYMIA IN TOURISM INDUSTRY

The strongest being and the intellectual capital of organizations are individuals and power, which dynamize individuals in organizations, is communication. Communication is a bridge between people, groups and institutions because we are in the age of communication and information (Sabuncuoglu ve Gumus, 2008). Consequently, communication is important for the employees of the tourism industry can create positive emotions with each other and with the guests. However, despite all technological support, individuals cannot easily get along with each other (Sabuncuoglu ve Gumus, 2008). Due to the nature of the tourism industry, the relationship between the employee's health and the working environment is bi-directional, so efforts to communicate with an individual with an alexithymic personality may fail. This is because these individuals have difficulties in both identifying and describing their own emotions and understanding feelings of others.

The working environment in tourism institutions can affect the health of the employees, and the health of the employees can also affect the working environment. Especially in labor-intensive enterprises, quality of service is directly related to performance of employees. Therefore, providing quality service in tourism institutions depends on the efficiency of the employees and it depends on their physical and psychological health (Tukelturk, Sahin ve Yilmaz, 2014). From this point of view, it is unrealistic to expect that an alexithymic individual, who is lack of creativity, passive, aggressive or passive-dependent, nonsusceptible, impetuous, bullheaded; prefers a strict and poor life as a robot and to keep away from people; cannot develop empathy; has tense and rigid rules, speaks insistent and repetitive on the same subject, is productive (Sifneos, 1988; Sayar, 2005). However, being in the same environment with an alexithymic co-worker, manager or tourist / guest may affect worker’s psychology negatively as well as may prevent worker being productive. Because the less interaction between employees, the higher the alexithymia rate can be.

Due to alexithymic individuals expect to be understood without saying anything, people who contact with them need to read their mind (Sayar, 2005). Consequently,

problems based on misunderstandings can occur in such communications. The individuals in the same environment, at the same time, are insensitive to each other's attitudes and behaviors. Besides, the behavior of business owners or managers against employees constitutes their attitudes towards the work, the institution, or the sector they work with. Therefore, the bad behavior of the managers causes the negative attitude of the employees towards the sector. Employees, who become insensitive, become addicted to the internet and unresponsive to the damage given to touristic products and unable to act collectively. The fact that working hours are intense, the physical environment is not suitable, the uneven distribution of work among the employees can cause individuals be alienated from work so it can be effective for the employees to be unresponsive, to desire away from the institution and sector they are working and to discredit to them.

6. RESULTS AND SUGGESTIONS

The ability of tourism institutions maintain their presence depends on workers to concentrate their knowledge and skills on their jobs, and their growth depends on the employees' strong emotions. Therefore, it is necessary for employees related to work and working environment to have positive attitudes as well as the knowledge and skills the tourism institution require. The more the employees exhibit positive attitude towards the organization, the stronger the organization will be. In this respect, organizational commitment is an important concept for tourism institutions. Organizational commitment is influenced by many factors as well as it influence many factors. These are listed as factors such as past work experiences, situational factors, socio-demographic characteristics, working conditions, personal characteristics, role conflict and role uncertainty, stress, customer relations, management, intra-organizational communication (Mowday, Peter ve Steers, 1979; Schwenk,1986; Guclu, 2006). In addition, behaviors of alexithymic personality featured individuals with socially incompatible, indifferent / reckless, introvert and uncaring reactions also negatively affect the commitment of other individuals.

It should not be forgotten that emotions have an important role in tourism industry where human relations are intense. Although the emotions in Turkey live a little more collectively than in the west, knowing or recognizing the emotions may not seem very important. Therefore, ignoring the emotions or throwing them in the background will indirectly affect tourism development negatively. Because, it is not possible for the tourism workers who cannot establish healthy and balanced relationships to be productive, to provide services at a satisfactory level to the customer and to show high performance. This, in turn, will lead to a decrease in the organizational commitment of the employee and it will be spread from employees to tourism managers and to their employees, tourists, touristic products and destinations in series. This shows that emotional deafness in the tourism industry is not only a characteristic of employees but also of all managers who are attendant in tourism. Because some managers are also insensitive to how employees feel, to their personal characteristics, to their views about work, to the destruction of their touristic products or to their improper restoration. Therefore, a manager who expects harmony, coordination, solidarity among employees, positive emotions, organizational productivity, or success of an organization should not be insensitive to the emotional situations of the employees state of mind and the goings-on in the industry. For this reason, prevention of emotional deafness in the tourism industry has a great importance with regard to the development of tourism.

It is seen that tourism industry develops densely where natural equilibrium is sensitive and when it is not taken into consideration, the natural equilibrium is deteriorated easily. Nevertheless, the lack of a direct protectionist approach to the tourism industry threatens the natural equilibrium along with destroying the historical texture by rapid building. The occurrence of emotional deafness against this type of destruction causes the surrounding and historical texture to be damaged. This situation negatively affects the sustainability of tourism.

This research has importance because there is not any study in the tourism industry related to the alexithymia. In this respect, it is important to evaluate conceptually alexithymia in terms of tourism industry. A comprehensive scale and structural model can be developed for future studies and studies may be conducted related to influence of alexithymia over other variables.

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THE IMPACT OF THE CULTURAL DIMENSION "INDIVIDUALISM / COLLECTIVISM" ON MANAGERIAL PRACTICES IN ORGANIZATIONS IN THE NORTH EAST REGION

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Abstract: This work reveals the main conclusions drawn from the analysis of the cultural dimension "individualism - collectivism" in economic organizations in counties North East Region is defined using 9 variables organizational behavior investigated by value judgments expressed by 763 respondents, through 43 questions. For final results are conclusive and making use of comparison, the analysis focused on two aspects situational: current practice and desirable practice. Thus respondents contribute actively to the future behavior of managers from their organizations, their responses are reflected in the draft conclusions and ideas, ways of improvement suggested by experts of the research team, as well as ways and means to improve management practices suggested by the experts of the research team in order to create and strengthen an organizational climate conducive to continued growth in economic performance.

JEL classification: M10, M12, M14, M50, M54

Key words: organizational culture, cultural dimension, individualism, collectivism, variables of organizational behavior, managerial behavior

1. INTRODUCTION

Analysis of the impact that organizational culture exerts on the behavior of employees in general and managers in particular and its correlation with long-term performance organizations, attracted the interest of a growing number of specialists.

According to Geert Hofstede's approach, cultural dimension individualism - collectivism means relations between the individual and other human beings (Nicolescu, 1997). Being located in diametrically opposite positions, collectivism and individualism coexist in different proportions within the same social entities (family, organization, community, territory, region) exists without a strict delimitation likely to convert them into antagonistic contradictions. Thus, organizations can be dominant individualist or collectivist dominant and some individuals within them, in some cases, are individualists and collectivists in others (Goleman, 2005).

Within the organization, the event individualism and collectivism is reflected in the behavior of individuals and groups work, the intensity of these relationships printing Special type of management, motivation and involvement, communication and labor relations, with the direct consequence of the results of activities.

As specific features of this cultural dimensions, independence and interdependence manifests itself in an extremely complex for individuals (Goleman,

2005), making their interests be marked either egocentrism (where individualism) or generosity and altruism (for collectivism).

Organizational behavior variables characterize the cultural dimension That individualism-collectivism has: *aspirations, attachment to people*, *managers' attitude*, *demeanor of managers, motivating employees*, *freedom of opinion*, *privileges*, *managerial components*, *obedience.*

The large number of variables of organizational behavior, as the diversity of their manifestations, demonstrate the complexity and implications of individualism-collectivism multiple management organizations.

2. BASIC PREMISES OF THE COMOR PROJECT

The best-known model for analyzing the dimensions of organizational culture was conducted by Professor Geert Hofstede (1980) from Netherlands, was published in 1980 in "*The Consequences of Culture*". His model is based on the study of four cultural dimensions, which were calculated *cultural indicator,* defined "*by interaction of two complementary features and effects simultaneously*" (Nicolescu, 1997), as follows: individualism-collectivism; masculinity/femininity; uncertainty avoidance (intensive/low); power distance (low / high); uncertainty avoidance (intensity / low). Subsequently, further research with Canadian Michael Bond, was identified fifth cultural dimension - the future orientation (short / long), originally called "*Confucian dynamism*" (Hofstede, 1980). Its development was considered a relationship between variations measurable indices cultural and conduct of the management processes within organizations.

Hofstede's research was based on the views expressed by a number of 116.000 employees within IBM's subsidiaries located in 50 countries. The study revealed that employees generate cultural particularities of bridging the philosophy of structuring managerial hierarchies and functional components between the respective subsidiaries.

For a complete and comprehensive characterization of the cultural and managerial behavior in organizations in Romania, The Scientific Management Society of Romania (SSMAR) has conducted laborious national organizations in all fields of economic activity, known treasure - managerial behavior in organizations from Romania in all the levels of economic activity known as *COMOR - Managerial Behavior in Romanian Companies*.

3. RESEARCH METHODOLOGY

To ensure the best conditions necessary to achieve the objectives of the research complex, it was designed a highly laborious research methodology based on statistical sampling method. A rigorous compliance requirement for scientific sampling, data collection, processing, analysis and interpretation of results, the COMOR Project was conducted during the next stages:

- *Phase I: Defining the Sample;*
- *Phase II: The Development of Questionnaires;*
- *Phase III: Collection of Data;*
- *Phase IV: Processing Information;*
- *Phase V: Analysis and interpretation of results.*

Given the complexity and scale of research, its conduct was based on a logic model, shown graphically in Figure 1 (Roșca, et al.,2011):

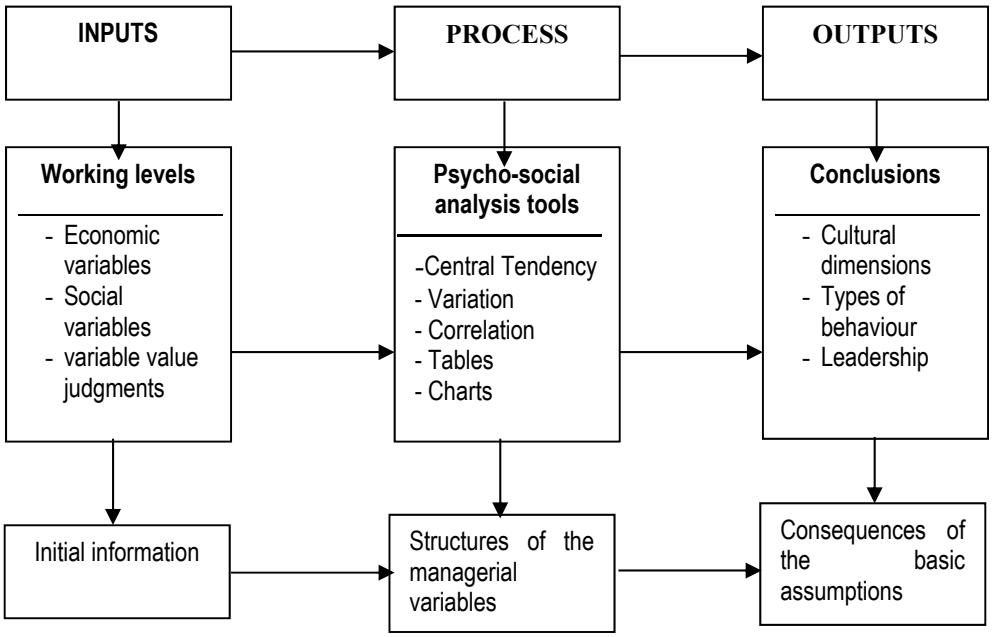


Figure no. 1: The systemic structure of the econometric model

Phase V: Analysis and interpretation of results took into account the significance of the following: the opinions expressed in response to the questions, opinions not expressed by abstentions / indecision and average scores obtained by processing the value judgments of respondents scale Likert type with the following five levels: 1- strongly disagree - *dt*; 2 - partially disagreed - *dp*; 3 - indecision - *i*; 4 - partial agreement - *ap*; 5 - strongly agree - *at*).

According to the COMOR research methodology, the average score is calculated as a weighted arithmetic mean ($\overline{x}$), based on the relationship (Roșca, et al., 2011):

$$\overline{x} = \frac{\sum xifi}{fi}$$

where:

$\overline{x}$ – average value

x_i – the spectrum of opinions on the scale of values from 1 to 5

f_i – the number of respondents

In this study were calculated, analyzed and interpreted the average scores that define individualism – collectivist organizations in the North-East region. This was done based on the responses of meaning and significance to every question and not globally, because there is always a great value score has a positive meaning and vice versa.

4. RESULT OF RESEARCH

Research carried out in economic organizations in counties North East Region (Bacau, Botosani, Iasi, Neamt, Suceava, Vaslui) was based on the views expressed by a number of 763 respondents (10% of those investigated in the national economy) from 51

companies (8.7% of the total), whose distribution areas economic activity is presented in Table no. 1.

Table no.1: Structure of economic activity's domains, the number of units investigated and the number of respondents in North-East Region

No. crt.	Economic activity's domains	Units of observation (economic organizations)		Units of survey (respondents)	
		Number	Percentage - % -	Number	Percentage - % -
1.	Agriculture and forestry	4	7,9	60	7,9
2.	Industry	18	35,3	270	35,3
3.	Building	9	17,7	135	17,7
4.	Commerce	12	23,5	178	23,5
5.	Tourism	2	3,9	30	3,9
6.	Services	6	11,7	90	11,7
	Total	**51**	**100,0**	**763**	**100,0**

The degree of participation of respondents to define the characteristics effects of individualism - collectivism and share refraining from expressing an opinion for or against, is presented in Table. 2.

It should be noted that the fields ratings for assessing respondents' participation in defining organizational culture index established under the COMOR project methodology are excellent, with a degree of participation between 90-100%; *very good*, between 80 to 89.9%; g*ood*, between 65 to 79.9%; *satisfactory* between 51 to 64.9%.

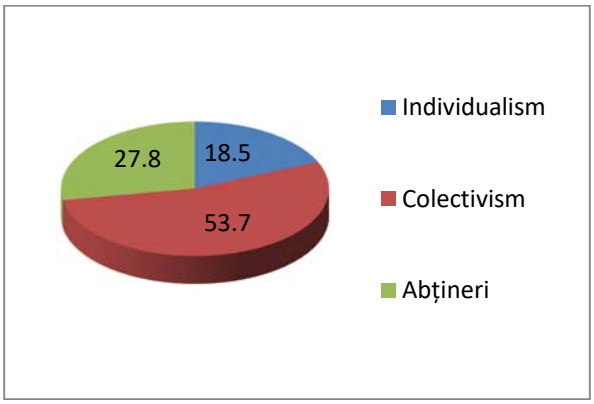
Table no. 2: the participation of individualism-collectivism respondents to define the economic organizations of counties in North-East Region

No. crt.	Counties	Number of respondents							The degree of participation in percentage	
		Total number, from which were pro:	Pro individualism		Pro collectivism		Abstentions			
			Pa	Pd	Pa	Pd	Pa	Pd	Pa	Pd
1	Bacău	75	24	19	34	41	17	15	77,3	80,0
2	Botoşani	75	22	13	42	53	11	9	85,3	88,0
3	Iaşi	241	36	55	104	134	101	51	58,1	78,8
4	Neamţ	75	18	16	45	48	12	11	84,0	85,3
5	Suceava	222	27	38	135	169	60	15	73,0	93,2
6	Vaslui	75	14	15	50	53	11	7	85,3	90,7
7	**North-East Region**	**763**	**141**	**156**	**410**	**498**	**212**	**109**	**72,2**	**85,7**

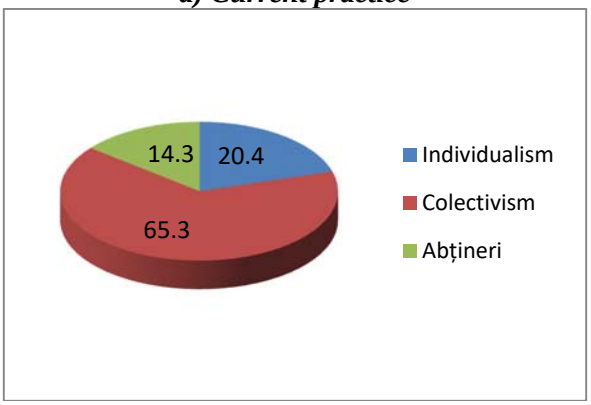
Analysis of data from Table 2 reveals that the individualism-collectivism defining cultural dimension in economic organizations of the North-East development, to assess current practice, a total of 551 people (representing 72.2% of those who were questioned), and for assessing the situation required, their number increased to 654, representing 85.7% of the total (13.5 percentage points more than the existing practice evaluation). At the same time, the proportion of those who did not attend the

individualism-collectivism index definition (those undecided) decreased from 27.8% in the position existing practice (212 people) to 14.3% in the desired project (109 people).

These structural changes are given the option suggestive respondents in the graphs in Figure no.2.



a) Current practice



b) Wishful projection

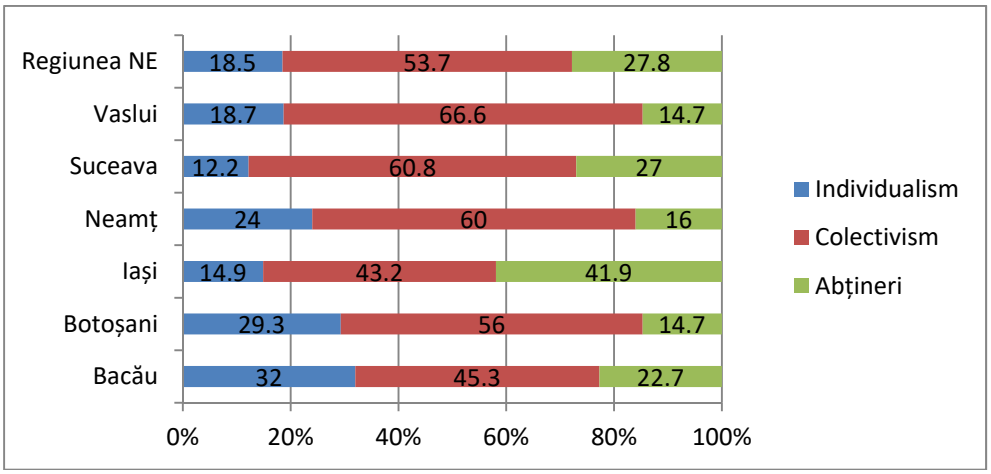
Figure no.2: Structure options for individualism - collectivism in North-East Region (in percentage)

The percentage of respondents who participated in the definition of individualism-collectivism lies North-East Region and the counties in the following fields: the adjective good participation to participation satisfactory evaluation hypostasis current or the rating of excellent participation to participate better in the assessment the wishful projection.

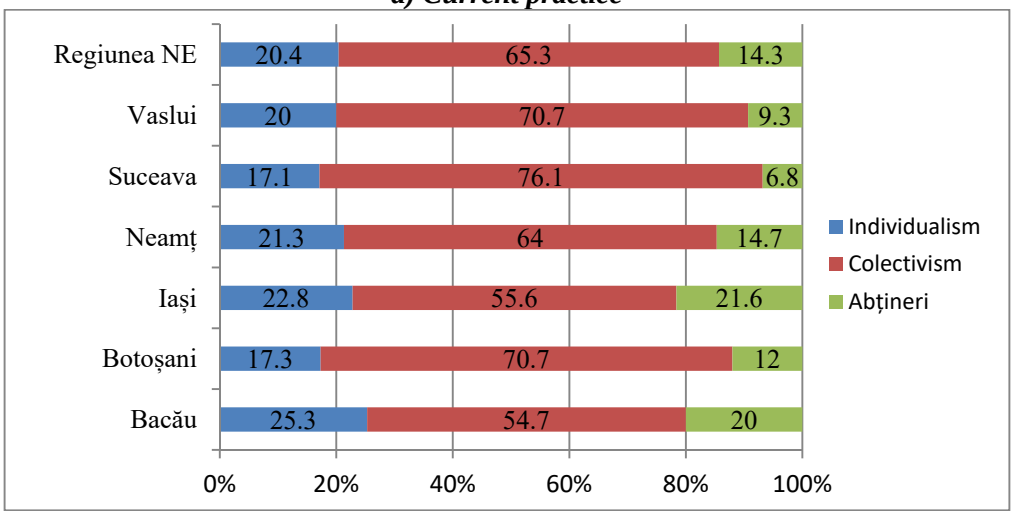
Thus, to assess current practice, participation is appreciated as respondents: *very good* in Botosani, Vaslui (by 85.3% each), Neamt (84,0%); *good* for the region (72.2%), Bacau (77.3%) and Suceava (73.0%); *satisfactory* in Iasi, with a participation of only 58.1%.

Participating respondents evaluating the desired projection is estimated to be: *excellent* in Suceava County 93,2%) and Vaslui (90,7%);; *very good* for the region (85,7%), Botosani (88,0%), Neamt (85,3%)and Bacau (80,0%); *good* in Iasi County (78.8%).

The graphs in Figure 3 shows both the actual structure suggestive (Figure 3.a) and the desired (Figure 3.b) participation individualism-collectivism respondents characterize the North East and in the counties.



a) Current practice



b) Wishful projection

Figure 3: Distribution option individualism-collectivism respondents characterize the counties of North-East Region (in percentage)

To define individualism-collectivism in the counties of North-East Region, they were investigated following ***variables of organizational behavior***: the affirmation and aspirations of people, their attachment, the attitude and conduct of managers, employee motivation and freedom of expression of opinion, which privileges to practice in the organization, obedience to the hierarchy of employees, how the management bodies exercise their powers stated. In Table 3 we can see the number of items and scores of organizational behavior variables of individualism or collectivism in the two hypostases of situational investigated.

Table no. 3: Behavioral variables' scores of individualism-collectivism dimension in the North-East Region

No. crt.	Organizational behavioral variables' scores	Individualism				Collectivism			
		Current practice		Wishful projection		Current practice		Wishful projection	
		no. of items	average score	no. of items	average score	no. of items	average score	no. of items	average score
1	Aspiration	-	-	-	-	2	4,15	2	4,38
2	Attachment	-	-	-	-	5	4,04	4	4,14
3	Attitude	1	1,50	1	1,95	4	3,81	6	3,52
4	Demeanor		3,81	1	4,23	3	3,76	4	4,06
5	Motivation	2	3,57	3	3,89	6	3,67	5	4,26
6	Latitude	-	-	-	-	2	4,03	2	4,45
7	Privileges	-	-	-	-	1	3,57	2	2,70
8	Structures of decision	-	-	-	-	1	3,82	1	4,26
9	Subordination	-	-	-	-	-	-	3	2,69
Total		**4**	**3,11**	**5**	**3,57**	**24**	**3,84**	**29**	**3,81**

Analysis of these indicators for economic organizations in North-East Region, reveals that the average scores of collectivism them ahead of those of individualism in eight variables of organizational behavior (aspiration, attachment, attitude, motivation, latitude, privileges, decision-making structures and subordination). This confirms the absolute supremacy of collectivism versus individualism. One variable of organizational behavior - conduct of managers (both current practice and the desired project), records that by the average scores individualism ahead of collectivism, which means that, in general, managers mobilize their resources and devote their entire competence driving overcome the obstacles that arise during the course of activities, taking responsibility for inconsistent results with assumed targets.

5. CONCLUSIONS

Research conducted at the North East organizations point out that, of the two adverse features of the cultural dimension analyzed, "***collectivism" is the dominant feature in both situations situational*** (the current practice or desired projection), which is required by:

- number of options-respondents: 24 of 43 in actual practice (55.8% of total); 29 of 43 in the desired project (67.4% of total);
- the number of respondents who rallied this option (410 respondents pro collectivism versus individualism pro 141 respondents in actual practice; 408 respondents pro collectivism versus individualism pro only 156 respondents in the desired project);
- the intensity of beliefs that have made value judgments expressed by the average score (pro collectivism: the current practice score of 3.84, 3.81 respectively in the desired project; pro individualism: 3.11 in current practice and 3 57 in your project).

The analysis also all the specific indicators calculated (number of respondents and their percentage, the number of items and the average score) reveals that, at the county level, collectivism is the dominant feature in the organizational behavior of people in organizations studied.

Taking as a criterion for order intensity value judgments (the average score of those), the most important **variable of organizational behavior that define collectivism organizations in North-East Region**, grouped by fields of consent given by respondents in relation to specific aspects investigated are:

a) ***Behavioral variables assessed in total agreement field*** (with values between 4.20 and the average score 5.00).

The actual valuation for **current practice**, no variable of organizational behavior no specific field lies within total agreement.

For **wishful projection** depiction value judgments placed in this field, one of four behavioral variables: freedom of expression of opinions (average score of 4.45); aspirations (4.38); motivation (4.26); decision-making structures (4.26).

Among the most significant behavioral expressions of collectivism desired by respondents, are retained:

- need for encouragement and support organization through continuous training and financial forms in a far more employees generally and young people in particular, to continuously improve their professional level and competence;
- the need for innovations that enhance organizational performance, to be recognized and rewarded at a higher level in a far more stimulating;
- promoting dignified, respectful and considerate of employees, respecting the right to opinion and freedom of expression, combating both the attitude of shyness, lack of courage, the citizenship of some, but also discouraging aggressive language, arrogance and obedience to others in solving work tasks and strongly encouraging employees to participate more actively solve problems more effectively, expressing unreserved points personal view
- employee concerns affirmation of their professional competence, along with the willingness to collaborate and cooperate in team accountable for the results of the work group;
- conscious orientation goals that they propose employees to be compatible with the objectives of the organization, the achievement of which are and feel responsible;
- respondents' belief that decisions important for the existence and ongoing evolution of the company should be handled by the deliberative bodies (general meeting of shareholders, board of directors) and not by the executive.

b) ***Behavioral variables assessed in a partial agreement*** (with values between 3.40 and the average score 4.19).

Average scores obtained by the value judgments of respondents expressed to define **current practice** collectivism in place in all variables of partial agreement organizational behavior of these cultural characteristics, marked in particular by:

- a healthy compatibility between their established purposes that the employees pursue on the one hand and the organization's long-term objectives on the other hand;
- human solidarity that urges people to get involved, to care about team-mates, to be with them, to be their moral support in difficult situations of employment and / or personal life, strengthening and nurturing behaviors friendship, communication, kindness and generosity, work group cohesion;

- inclination of people to work together, showing their willingness to exploit the knowledge, skills and professional skills through positive group;
- concern of employees to make compatible their own aspirations with the organization's objectives;
- people's attachment to the family (children's achievements represent major satisfaction of parents, just as children are proud of the achievements of parents);
- fair and considerate conduct of managers - how to share their professional accomplishments proud members of the group I lead;
- modesty managers, positive character trait, the ability to self-expressed by the business performance and personal behavior, measured in honest behavior and lack of vanity;
- constant concern of the organization's management to ensure the future of business by the time training successors, and motivating employees, promoting group interests;
- encouraging people to listen to and respect the opinions of others as an expression of the belief that the correct decisions / solutions can occur only under conditions of open confrontation of views / opinions of those involved with bringing them out;
- concern company management to promote policies consistent: maximization of group interests, the way it is designed remuneration system, encouraging teamwork; training successors at various levels of the organizational hierarchy; encouragement of employees in general and youth in particular, continue to fight to improve their professional performance as the main way to increase their competence in the performance of their duties, including increasing opportunities for career advancement.

The main value judgments in the **desired projection**, average scores remain in the range partial agreement refers to:

- human solidarity attitude that urges people to get involved, to care about team-mates, sharing the joys and sorrows to them;
- moral-spiritual link between managers and the group he leads, sharing its joy with members of accomplishments / achievements / personal performance in the exercise undertaken;
- higher ranking priority that managers should rather consider to the accomplishment of the organization’s objectives besides personal interests;
- cordial behavior of mutual affection and social people that allows them to enter easily connect with each other etc.

Conclusions drawn from many interesting this study demonstrates, once again, the utility of knowledge and understanding by managers and the role of organizational culture and cultural dimensions implications on managers’ behavior and thus on performance management.

Identifying cultural specificities of organizations from North-East Region and harnessing their multiple valences means to help improve management practices, starting from the very concrete reality and taking into account the views expressed by respondents in the wishful project. The study also provides the possibility of comparison with other regions of the country or abroad, emphasizing the particularities of Romanian management that emerge just from the local cultural context.

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GENERATION Z – AN EDUCATIONAL AND MANAGERIAL PERSPECTIVE

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Abstract: The paper establishes some guidelines for the educational and career management of youngsters belonging to Generation Z. The main objectives of the research are: identifying the most important features for GenZ, highlighting the main differences between the former generations and the nowadays one in terms of expectations in education and career, offering recommendations for managers of the educational institutions, teachers and specialists from Human Resources departments. The research methodology is based on a survey conducted in July 2016 and the results are useful for improving the educational and career management of Generation Z, taking into account the evolution of technology.

JEL classification: I21, M54

Key words: generation Z; educational management; career management; youngsters; teaching

1. GENERATION Z – BETWEEN EDUCATION AND CAREER

Seemiller and Grace (2015) mention some of the most important characteristics of Generation Z: loyal, compassionate, thoughtful, open minded, responsible, determined. Sladek and Grabinger (2014) also describes some of the features of GenZ: financially conscious, global minded, having little experience or no experience at all, tech savvy. These changes led to what Koulopoulos and Keldsen (2014) named as GenZ Effect. The attitudes changed as we enter the GenZ era, like we can see in table 1.

Table no. 1 Attitudes before and after GenZ

	Before GenZ	Transition to GenZ
Internet access	A privilege	A human right
Influence	Purchased	Earned
IP/Patents	Value creators	Barriers
Failure	Avoided	Embraced
Gaming	Non-value-add play	Foundation for engagement
Uncertainty	Prepared for	Predicted
Retirement	A destination	A journey
Connectivity	A luxury	A necessity

Source: Koulopoulos and Keldsen (2014), The Gen Z Effect: The Six Forces Shaping the Future of Business, Bibliomotion, Inc.

We can see that youngsters of GenZ are perceived as more confident, fighting for what they want and focusing more on the personal development. Things like the Internet or connectivity are not luxuries anymore, but a necessity and a recognition of their rights. Grail Research (2011) also mentions the next generation after GenZ is Generation Alpha or the Google Kids (born after 2010), „expected to be more tech-savvy" than representatives of Generation Z. Researchers from Grail Research also

mention two Generation Z: GenZ1 (born between the middle of 90's or 2000 and 2005) and GenZ2 (born between 2005 and 2010), the latter being more close to Generation Alpha. A very important difference between Generation Y and Generation Z is beautifully expressed by Sladek and Grabinger (2014): "Gen Y is full of dreamers, Gen Z is full of realists". It is also very impressive how the authors analyzed these generations through some parenting lessons. Baby Boomers are the parents of Generation Y and Generation Xers are the parents of Generation Z. So, Generation Y and Z were raised differently, by parents living in different economical context. If Baby Boomers faced an economic growth, Generation X faced an economical and financial crisis at the time they became parents. Perception of Generation Z regarding education is different than that of the previous generations. They are self-learners and "have access to resources that Gen Y didn't at that age" (Singh, 2014). They are more present online and have many programs and courses available for learning what they want, when they want, in their own rhythm. Generation sees "more value in a college education than the one before" (Barnes & Noble College, 2015). The difference is that they mostly seek information online than in printed materials like the previous generations, as an obvious consequence of the technology progress. Researchers from Robert Half International (2015) also summarized some differences between the four generation types, as we see in table 2.

Table no. 2 The differences between the four generations

	Baby Boomers (1946-1964)	Generation X (1965-1977)	Generation Y (1978-1989)	Generation Z (1990-1999)
Behavior	Challenge the rules	Change the rules	Create the rules	Customize the rules
Training	Preferred in moderation	Required to keep me	Continuous and expected	Ongoing and essential
Learning style	Facilitated	Independent	Collaborative and networked	Technology-based
Communication style	Guarded	Hub and spoke	Collaborative	Face to face
Problem-solving	Horizontal	Independent	Collaborative	Entrepreneurial
Decision-making	Team informed	Team included	Team decided	Team persuaded
Leadership style	Unilateral	Coach	Partner	Teaching
Feedback	Once per year, during the annual review	Weekly/daily	On demand	Consistent and frequent
Change management	Change= caution	Change= opportunity	Change= improvement	Change= expected

Source: Kristy (2007), The Changing Workforce: Urgent Challenges and Strategies & Tulgan, founder of RainmakerThinking are cited by Robert Half International (2015), Get Ready for GenZ, p. 4

We see on how many levels there are differences between generations. The economic, social and technological context of one person influence his/her behavior and way of thinking or making decisions. Regarding the education, this is more based on technology than before for Gen Z. The last feature in table 2 refer to the change

management and we see that Generation Z perceives change as being expected, because they are already used to it and to the dynamics of things all around.

Seemiller and Grace (2013) mention as characteristics for Generation Z frequent communication rather than lengthy communication and the fact that they spend most of the time online. These facts also influence the way they learn and want to be taught in schools. They adore to communicate and to receive feed-back. So, education management should take into account all these aspects and changes in order to maximize the efficiency of the educational process for Generation Z.

Another important difference highlighted by the authors is that GenZ prefer to learn using YouTube (so through image/video/audio) and not through text, like the Millennials who prefer to search their information on Google. These also could help the educational institutions in better organizing the teaching activities.

Career and work are two other aspects of life that are perceived differently by generations. Singh (2014) identifies seven characteristics related to career of GenZ:

1. Freedom. Youngsters nowadays prefer to work without having a fixed schedule and a fixed location, they want to be more flexible and be able to work even online, whenever they want and from wherever they want.
2. Unconventional. They tend to identify unusual or unconventional opportunities in conventional professions.
3. Materialism. Focus on a „good life", meaning tangible things.
4. Global. The desire to go abroad for studies and work and do something influential is also a feature of Generation Z.
5. Professional commitment. This is related to the loyally of these youngsters for the companies they work for.
6. Experimental. This generations is more willing to try different jobs till they find the right one, the one that will make them happy and satisfied.
7. Beyond technology. Technology is already an important part of their life so many of them seek a job in a different area, maybe in science.

In 2015, Adecco made public the results of a survey in which they tried to express the most important differences between Millennials and GenZ in order to help specialists in human resources better understand the specifics of each generation, because GenZ „will make up over 20% of the workforce" by 2019.

Carrier management is important for both parties – the workforce and the companies, and the way GenZ communicate is also influencing the way human resources specialists decide to recruit. So, social media and other online channels should be taken into account in posting jobs. Not only universities but companies too have to come closer to those from Generation Z.

These youngsters look for opportunities and have a great potential to learn and to work and recruiters should use this. Maybe lots of them are not so experienced but they are definitely more creative. Adecco also highlights that salary and non-traditional benefits are very important and GenZers are more likely to negotiate these comparing to Millennials. They are self-confident and optimistic and that make them more willing to take some risks in life.

Recruiters should understand that this generation is more dynamic and probably they will not have one job for their whole life, so they will have to create an equilibrium between what they can offer for the company in terms of energy, potential and creativity and what the company itself can provide for these GenZers. Solutions would be creating new challenges, opportunities, offering rewards and other incentives for these youngsters

in order to make them stay there longer and integrate them into the organizational culture of the company. Investment in GenZ refers also to trainings in order to strengthen this relationship between the employer and the employee and make them feel valued.

In a study conducted by Barnes & Noble College (2015), they show that Generation Z is more driven my financial fulfillment and when they choose a college, they seek one that will help them find a better job. So, education is only the path to the right job. Of course, these all results are limited because I believe all people are unique and the year we are born is not the only factor that shapes us. So, many studies are contradictory, some of them state that GenZ are dreamy, want to make an impact on others, meanwhile other studies reveal that they are more practical, realistic and are not preoccupied about volunteering, for example (Barnes & Noble College, 2015, p. 9).

In my opinion, these differences are the consequence of more than one factor. These can be the country, the culture, the level of the economic, financial, social and technological development in a country, the openness of a country and many other factors. Humans are complex and age is only a variable that could influence us, but it does not define us. I believe that Generation Z effect mentioned by Koulopoulos and Keldsen (2014) is real and the differences between generations are not so well drawn anymore.

Robert Half International (2015) describes GenZ as "entrepreneurial, innovative and passionate". So, many youngster want to work for themselves, being entrepreneurs, they are self-confident and braver and are not afraid to take some risks. So, a proper career management should take into account these characteristics and create a proper environment for developing them. Bev Graham, vice-president of Enactus USA programs, said that employers will have to train GenZ in terms of communication because these youngsters did not develop their writing skills, being used to a shortened communication on social media, with lots of abbreviations.

Tulgan (2015) mentions five aspects considered by employers as missing in nowadays youngsters: rigorous self-evaluation, taking personal responsibility, maintaining a positive attitude, taking care of their health, self-presentation (initiative, productivity, organization). Generation Z has many strengths (creativity, passion, innovation, energy), but also has weaknesses. Specialists in human resources should create an equilibrium between these in order to make the right choice for the company. Tulgan, cited by Robert Half International (2015), considers that the question that GenZers have in mind is related to the place of the hiring company in their lives and not vice versa.

Because these youngsters are more dynamic, companies should try to apply some strategies for retaining them after recruiting. Older employees have families and sometime are difficult to relocate but GenZers are more willing to travel and get new experiences, so this is an aspect that could be used in the favor of the employer. Another aspect mentioned by the report of Robert Half International (2015) is the situation of having different generations in your company, from Baby Boomers to GenZ. Conflicts and divergent opinions could occur so a management of conflict and some trainings could make things easier and increase productivity at work. If change is easier accepted by youngsters, older employees may find it difficult to accept the way of thinking and doing things of GenZers. So, it is also important for recruiters to apply some strategies inspired by a management of change.

2. RESEARCH OBJECTIVES

The research aims to reach the following objectives:

1. Identify the main features of Generation Z

2. Establishing the most important differences between GenZ and the previous generations

3. Offering some guidelines for managers of educational institutions and those in human resources departments because youngsters belonging to this generation are different in the way they learn or work

3. THE RESEARCH METHODOLOGY

The methodology is based on a survey conducted on a number of 111 youngsters in July 2016. They all were Generation Z, but still having different ages and opinions. As we have shown, the literature is contradictory regarding the beginning of the Generation Z, so I chose an extended period, including those youngsters born between 1990 and 2000.

The survey can offer some guidelines for building a better educational and career management for GenZ but we all should understand that each person is unique and generalization of the info gathered from this research is not desired. The study was conducted online, mainly on social media, because there is the place where we can find most youngsters from GenZ. Google Docs was the tool used for creating the questionnaire and sharing it to the target. Because I know from theory and my practice that youngsters need to be challenged, my questionnaire also included some questions not related with the theme, like a movie they want to recommend me. This open questions was answered by 63.96% of the respondents, a great percentage compared to the average.

4. RESULTS

The questions were grouped on sub-themes, like education or career. We start the analysis of answers with those related with the process of learning, because they offer a ground for career development and also dome useful guidelines for recruiters.

Education: the learning process

The way students learn and accumulate information is important when building an educational strategy in an institution. So, the educational management should be adjusted to the needs of this new generation, which is very dynamic and more present online than previous generations. Asked about the way they prefer to learn, alone or with friends, most of them said they prefer learning alone (94.6%). We can see that learning at your own pace, in your own manner is something important for them and schools should adjust to these changes. Some people learn by reading, other by listening and others by making something practical.

Most of the respondents (66.7%) said they learn mainly by doing something practical, some exercises or something similar, so this is very useful for managers of the educational system, because at least in many countries, the practical part is still maintained at a minimum level. It is also useful for teachers in order to create more attractive courses for GenZ. For example, a video presentation might not be so interesting for these youngsters, because they want to do something, to create, to interact, to be active not passive anymore. There were also students preferring to learn by reading (27%) and listening (only 6.3%).

Another question referred to the tools used in the process of learning and the respondents could choose up to three options. We notice in table 3 that solving problems

and exercises is preferred by 50.5%, followed by debates in the class (45%), working in a team (39.6%) or case studies (33.3%). We can correlate the percentage of those preferring solving exercises with that of those who said they prefer learning by doing. An educational management should take into account these particularities and adjust the way GenZ are taught in schools.

Table no. 3 Tools preferred by GenZ when learning

Tools used in learning	Percentage (%)
Debates in class	45
Solving problems/exercises	50.5
Case studies	33.3
Handbook	15.3
Periodical tests	7.2
Working in a team	39.6
Homework	8.1
Audio-video online sources	20.7
Written online sources	9.9
Apps on a mobile device	7.2
Written sources, other than the handbook	9
Free online courses	9.9
Paid online courses	2.7
Simulations	29.7
Professional journals	5.4

We can see that Generation Z prefer a practical part of a course, like solving exercises, case studies, working in a team, debating on a subject during the class, but they are also attracted by online sources and simulations and least attracted by tests, homework, paid online courses or professional journals. These can help teachers in teaching and communication with this generation. The preferred tools for learning should become preferred tools for teaching, too.

The low percentages for periodical tests and homework reminds us about the educational system in Finland where students do not receive any homework because the focus is on stimulating creativity not creating a routine and an homogenous thinking. Being different should be encouraged by the system, starting with teachers and ending with those responsible with the strategies in the educational system and with the educational management. Written sources and professional journals are not preferred by students, meanwhile audio-video sources, simulations, case studies are. This lead us to the conclusion that students in Generation Z are more dynamic, but at the same time more dependent on the technology to learn or solve some exercises. Previous generations spent more time finding answers in books than this one who finds answers on the Internet. And on the Internet, they prefer audio-video sources to written ones, because they offer a more rapid way to find what they want. Asked if the school prepares them for the labor market, most of them said that school failed in offering them the practical skills required on the market (59.5%) and 15.3% even said that school failed in offering an adequate theoretical background for what it is needed. Only 33.3% appreciate that school prepared them accordingly, so this reveals another problem of the educational system, at least in Romania.

The educational system should be correlated with the labor market, otherwise there appears an unqualified workforce on the market. Asked about the intersection of

school and work, most of them tend to agree that a job during faculty is helpful, as we see in table 4, where we centralized three questions for which we used Likert Scale. Most of the respondents agreed that it is important to have a job during faculty (70.29% in agreement), because it is easier to get a better job after graduation (82%). Still, most of them also understand the importance of focusing on studies (63.06%). We see that these opinions do not exclude one to another, because studies and experience are both important when you want a good job.

Related to these questions, the respondents were asked about the period that passed or think it will pass between graduation and the first job after that. Most of those who graduated said that they worked during their studies and after graduation they continued to have the same job (45.2%), followed by those who got a job in the first 3 months (16.1%). It is worrying that 12.9% of them said that it passed more than one year till they found a job.

Table no. 4 To work or not to work during school

Statements	Likert Scale	%
It is important to have a job during faculty	Total agreement	24.33
	Partial agreement	45.96
	No opinion	16.21
	Total disagreement	9
	Partial agreement	4.5
It is more important to study and postpone working after graduation	Total agreement	30.63
	Partial agreement	32.43
	No opinion	11.72
	Total disagreement	20.72
	Partial disagreement	4.5
A job during faculty make it easier to get a better job after graduation	Total agreement	45.96
	Partial agreement	36.04
	No opinion	12.6
	Total disagreement	4.5
	Partial disagreement	0.9

These youngsters could be called NEET (not in employment, education or training) and this is a real problem of many EU countries. Those still being in faculty answered that they think it will pass between 3 and 6 months (36%), less than 3 months (27.9%), between 6 months and a year (18.6%), right after graduation (9.3%) and only 8.1% more than a year. We could say that they are neither optimistic, nor pessimistic, but realistic. 61.3% of them described themselves as optimistic regarding the perspective of finding a job after graduation, 27% neither optimistic nor pessimistic and only 11.7% of them as pessimistic. Probably those who have a job in faculty are advantaged because they already have some experience to write about in their resumes. A similar optimism was shown when they were asked about their net wage expectations. Most of them (44.1%) would expect to a salary between 1000 and 1500 lei (224-336 euros), 27.9% between 1500 and 2000 lei (336-448 euros), 20.7% the minimum wage in Romania (207 euros). In Romania, the minimum wage is 1250 lei as a gross income and 925 lei as a net income and the exchange rate is 1 euro = 4.4568 lei (28th August 2016). We can talk about an optimism because the minimum salary in Romania is very low and most companies hire employees offering them this minimum income. The rest of 7.2% of the

respondents expect to gain more than 2000 lei (448 euros). Asked about how much time they would want to stay at their first job, 55.9% of the respondents said between one and three years, 16.2% more than three years, 15.3% less than a year and 10.8% would want a permanent job. This is important for recruiters in order to be prepared for these youngsters that are more flexible than their parents, have bigger expectations and are not afraid to leave a job and find another one that is more challenging and where they are better paid. Finding a job and developing themselves professionally are important and represent a real preoccupation for Generation Z, as we see in table 5. It is surprising that health and finding a place to stay are not a priority for many of them, probably because lots of them still stay with their parents and their health is not a problem at this age.

Table no. 5 Priorities for the future

Priorities	%
Finding a job	53.2
Health and associated costs	14.4
Finding a place to stay	9.9
Graduation	30.6
Building a family	24.3
Personal development	37.8
Professional development	41.4
Other	0.9

The respondents could choose maximum two answers, so the first five priorities are: finding a job (53.2%), professional development (41.4%), personal development (37.8%), graduation (30.6%) because most of them are still in school and building a family (24.3%).

The place where Generation Z is looking for a job is also very important for recruiters in order to maximize job advertisements. Most of the respondents (72.6%) used specialized websites for recruitment, local papers (23.6%), companies' websites (23.6%), acquaintances (22.6%), recruitment agencies (13.2%), professors for offering a direction (11.3%), LinkedIn (6.6%).

We see that the online environment is more and more used in recruitment so companies should be present there in order to find the best candidates for a job. Still, recruiters should not ignore other opportunities, like creating a partnership with academic institutions to recommend them the best students. Offering some scholarships is also a great idea for companies to be sure they will have access to the best minds in the field.

The optimism of Generation Z is also noticed in the way they anticipate their future related to work. Most of them (36.9%) see themselves as employees in a private company, followed by those seeing themselves as managers for their own companies (24.3%) or managers in a private company (18%). If we sum the percentages for those seeing as managers with the one representing managers in a public institution (2.7%), we get 45% of youngsters that want to be managers. This is encouraging, but these expectations should reflect exceptional skills and knowledge. So, educational management should be prepared for these aspects and make the system more adequate for the needs and desires of these youngsters.

Recruiters also should understand that Generation Z is not as obedient as the previous generations and dares more. This generation is not afraid of dreaming and assuming responsibilities. If they do not get what they want they tend to switch jobs more often than their parents till they will reach their goals. An important percentage of the

respondents (12.6%) see themselves as working in the public sector. According to the reports of Transparency International Organization, corruption in this sector is very high so if youngsters still want to work here is a good sign but school has the duty to change obsolete mentalities and encourage ethical behaviors and proactive ones.

A new generation can become the solution for many problems in a society if there is a strong educational and career management that efficiently uses the characteristics of this generation and valorize the differences between generations. It is important that most of the respondents (77.5%) consider that they will need to work harder than previous generations in order to reach their goals. This is probably true because their expectations are also higher and bigger dreams require more effort. The fact they are aware of this situation proves maturity from their part.

Asked about the way they would want to work, most of the respondents (33.3%) answered they would prefer to work in a small team in an office, 27.9% in a large team in an office, 19.8% would prefer working online or on the field, 16.2% alone in their own office, 2.7% in a virtual team, from outside the office.

Surprisingly, not many of them chose the online part of work, maybe because it is uncommon though more and more companies, especially multinationals, offer this advantage of a flexible work. A lot of studies reveal that the freedom felt by employees can increase productivity at work and in Sweden there are some experiments with companies adopting six-hour workdays. The results showed a decrease of the absenteeism and an increase of productivity and health of employees (BBC, 2015; NY Times, 2016).

In table 6, the respondents chose the first three reasons for wanting a certain job. We see that opportunities for development and promotion (72.1%), a generous salary (58.6%) and the job stability (55.9%) were the most important factors.

Table no. 6 Reasons for choosing a job

Reasons	%
Opportunities for development and promotion	72.1
A generous salary	58.6
The job stability	55.9
Flexible working hours and place	43.2
I could be useful for the society working there	24.3
Having a manager from whom I could learn many things	22.5
Holidays and spare time	18.9
Benefits (phone, social security, car)	13.5
Working for a notorious company	12.6

Flexible working hours and a flexible place where they could work are also important, being chosen by 43.2% of the respondents. These are not in top three reasons, but their importance is more and more recognized by both the employees and employers. These reasons can help recruiters in writing job ads and in building the package of bonuses they offer with the job.

The manager they would work for is also important because he or she has to have some qualities in order to be likeable by Generation Z. Intelligence was mentioned by 59.5% of the respondents, followed by integrity and honesty (55.9%), mentorship abilities (43.2%), passion shown at work (39.6%), humor (33.3%), creativity (27%), vision (25.2%), flexibility (14.4%) and compassion / empathy (13.5%). The respondents were able to choose maximum three qualities for the managers. We see that intelligence,

integrity and being a mentor for his/her employees are the most important qualities in the opinion of Generation Z.

We could extend these qualities to the manager they aspire to become, like in the mirror principle but we also can correlate this question with the one in which an important part of the respondents said they see themselves as managers in the future. So, Generation Z wants to be seen as an intelligent, integer and passionate force in the society.

5. CONCLUSIONS

Educational management and career management can have two perspectives, one of the person who wants to build his or her education and career but also the perspective of the managers in educational institutions or those in different private or public companies. These managers can create adequate strategies only if they take into account the specifics of each generation.

Students require different techniques in the process of teaching and learning which have to consider the technology as an important part of the system, not an impediment but something useful. It is easy to blame youngsters for staying too much online, we have to find out a way to include technology in the system and use it efficiently and in a more attractive way.

Digitalization is not something we can prevent or we should fight against. It is a reality, we have to accept it and integrate it in a smart manner. This is real also when we talk about the labor market. For a manager or a recruiter, it is very important or we may even say crucial to know where they can find the best employees.

There are lots of studies and research related to Generation Z. I also tried to identify some of the characteristics of this generation, but we cannot extend research to all youngsters. This is wrong and a manager should know that it is very risky to consider that youngsters are all the same. They are different, versatile, flexible, complex and dynamic. A study like mine is useful because it gives a direction, offer some guidelines, but definitely it cannot offer all the answers.

Being open to them is the only way a relation between the generations can stand and resist over time. Managers, professors, recruiters, co-workers should understand that being different does not mean this is bad. Each generation can learn and should learn from the previous and from the ones coming after them.

In education but also at work, flexibility in terms of hours spent in one place or the place from where someone can learn or work is important. Countries like Sweden or Finland implemented some changes in this regard that proved useful for all parties. A system should focus on quality not on quantity. So, why work eight hours if someone can be more productive in six hours? The difference of two hours can be used for taking care of someone's health, investing in time with the family, in personal development and so on. And all these will have an impact at work, because a happier and healthier person is more productive and efficient.

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EVALUATION OF REAL ESTATE TRADING PRICE USING HEDONIC REGRESSION. CASE STUDY: MUNTENIA REGION.

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Abstract: In Romania there is not an unique real estate market. There are instead several regional markets, each different from the others. Differences exist between real estate markets in counties within the same region. The trading price of real estate is influenced by these differences. The estimation of a single regression model to assess the trading price of the property would allow greater freedom of action for all entities operating in these markets, but this is impossible because of the substantial differences between regions /counties. It is possible to estimate the regression models based on the same set of variables that capture characteristics of the properties and compare them in order to highlight specificity at the level of regions /counties. This paper focuses on estimating models for valuation of trading price using hedonic regression in the counties within the region Muntenia and identification of differences between them.

JEL classification: C01, C19, L85

Keywords: hedonic regression, real estate, price model

1. INTRODUCTION

In Romania does not exist only one real estate market, instead exists many regional markets, each different than other. Each regional real estate market presents inside differences at the level of counties and inside the counties presents differences between localities (Bischoff and Maennig, 2011; Helbich et al., 2013). The trading price of real estate is influenced by the specific which exists at these levels. For this reason the estimation of a single regression model to assess the trading price of the property, although it would allow greater freedom of action of entities operating on these markets, it is impossible due to the substantial existing differences indicated above.

It is possible to estimate the regression models based on the same set of initial variables, measured under the same conditions which capture the characteristics of real estate and subsequently by comparison highlight the regional/county specific..

Even when the opportunities regarding data allow to use the panel regression analysis, this type of analysis is possible to use only at the level of real estate groups, and those groups can be characterized only by aggregate variables. The fact that the exactly the same property cannot be put up for sale again with a certain periodicity is the main cause. Another disadvantage of the analysis in panel, in this particular case is that: aggregating the individual characteristics of group (neighborhood, city, county etc.), some of them are lost in the process of aggregation, complete, because not all features can be aggregated, and some partially because the aggregation limit they into a single synthetic level.

A comparative analysis of models resulted at the real estate county markets level could highlight either different particularities of the influences generated by their specific through the independent variables on the trading price, or the existence in fact of real estate markets which includes many counties. A preliminary analysis across the country shows that the vast majority of traded real estate contains apartments up to four-rooms existing in the urban area. A similar situation is in the area on which this study is focused.

This paper is focused on determining the dependency model of the trading price of the apartments with up to four rooms and its influencing factors at the level of each county from Muntenia region and the identification of the differences between them. The proposed study hypothesis is:

H_0: *There are no significant differences between the ways of the apartments trading price formation in each county.*

with the alternative hypothesis

H_1: *There are at least two counties presenting significant differences between the ways of apartments trading price formation.*

If the hypothesis H_0 will be rejected the study will continue with the identification of possible counties where an equivalent way of forming the apartments trading price exists.

2. A REVIEW OF THE LITERATURE

Today there are several methods that can be used to assess the value of real estate. One of those is the hedonic regression method (MRA).The roots of modeling value using hedonic regression lies in consumer behavior theory of Lancaster 1966. According to this not the good itself creates utility but its features. In determining the value of a real estate always a great importance is given to relative position which facilitate the access to the utilities and services in the locality. One such example is the distance from the locality center (Anas et al. 1998), where usually those services can be find, which have a strong influence even today. In the case of MRA it is trying to build a model for determining the value - the dependent variable - based on determinants characteristics of the property (useful area, number of bedrooms, number of bathrooms, relative location inside of localities etc.) - as independent variables - and their influence on the value. The independent variables are associated with a set of parameters (Adair and McGreal, 1988). The method permits to calculate these parameters with the smallest possible error (Benjamin *et al*., 2004) using ordinary least squares method (OLS) or other variants of its like generalized weighted least squares methods (GWLS) (Ambrose, 1990). OLS is based on the idea of minimizing the sum of squared errors. Although it generates in the end a model with sufficiently good quality level which can be easily interpreted, the method can be applied only if a set of fairly restrictive assumptions are respected. Some of these assumptions suppose for example the lack of multicoliniarity phenomenon of regressors, or a phenomenon of spatial autocorrelation of the errors or their heteroskedasticity, which usual contaminates the real estate data (Mark and Goldberg, 1988; Fletcher et al., 2000). For solving these problems it can use spatial regression methods like: spatial autoregressive models (SAR), geographically weighted models or moving window regression models (MWR). Each of these methods use a set of coordinates which allow precise localization of real estate inside of the analyzed area. Not always these kind of data are available.

Into an immature real estate market, with an irregular dynamics, in conditions of accelerated increasing size of localities in new areas, without the extension with the same speed of the services and utilities associated with these new areas, like in the case of Romania, the influence of relative position of the property inside the locality on its value, for example, suffer a series of distortions. Determining the value of property using a well-defined set of characteristics in these conditions, it can still do well enough using MRA.

3. USED DATA

The analysis is based on the following set of variables:

- price - the traded price of real estate
- zone - the relative location of the apartments inside of the price areas from each localities (values: 1-the lowest price area, max – the highest price area). Its values were determined using the rapport generated by the assessment of a same standard apartment in each urban area inside of the analyzed counties.
- size - the size of the apartment (m^2)
- year - the year when was finalized the building where the apartment is located
- floor - the floor where the apartment is located inside the building (values: -1, 0, 1..20)
- no_flrs - the number of floors from the building where the apartment is located

The values of all variables were standardized because the resulted regression models will be compared.

The data were collected in June 2015 through a dedicated study based on a representative sample at the level of each county from Muntenia region: Argeș (AG), Brăila (BR), Buzău (BZ), Călărași (CL), Dâmbovița (DB), Giurgiu (GR), Ilfov (IF), Ialomița (IL), Prahova (PH) and Teleorman (TL). The used sample structure is presented in table no. 1.

Table nr. 1 Sample structure

County	AG	BR	BZ	CL	DB	GR	IF	IL	PH	TL	Total
No. of apartments	128	85	84	55	40	50	126	74	116	69	827

4. METHODOLOGY

The use of MRA suppose use a linear model:

$$y = f(x_1, x_2, \dots, x_m) = x_1\beta_1 + x_2\beta_2 + \cdots + x_m\beta_m + \varepsilon \quad (1)$$

where

$y - price$ - dependent variable

$x_1, x_2, \dots, x_m$ - independent variables, the characteristics of the apartaments presented above

$\beta_1, \beta_2, \dots, \beta_m$ - regression model parameters

ε - the error of the model.

The model can be written using matrices also:

- at the level of the population

$$y = X \cdot \beta + \varepsilon \quad (2)$$

- at the level of the sample

$$y = X \cdot b + e \qquad (3)$$

where X - the matrix of independent variables
β - the vector of the model's parameters at the level of the population
b - the vector of the model's parameters at the level of the sample
ε - the vector of the errors at the level of the population
e - the vector of the residuals at the level of the sample

The model is based on a set of assumptions:

i1. linearity of the model – the model specify a linear relation between the dependent variable and the independent variables

i2. the error terms $\boldsymbol{\varepsilon}$ are random variables with 0 mathematical expectancy: $E[\varepsilon] = 0$

i3. the covariance matrix of the errors vector has the following shape*:*

$\mathrm{Cov}(\varepsilon) = E(\varepsilon \cdot \varepsilon') = \sigma^2 \cdot I.$

i4. X_i variables must be non-stochastic

i5. no multicoliniarity – none of the independent variables can be determined as a linear combination based on any set containing the remaining independent variables.

i6. the errors follow a normal distribution with the following parameters: $\varepsilon \sim N(0, \sigma^2 \cdot I)$

The use of MRA requires the following steps:

a) the specification of the model
b) data collection
c) the estimation of model parameters. In the case of all assumptions validation on which the MRA is based, the OLS method allows us to estimate the vector of regression model parameters:

$$b = (X'X)^{-1}X'y \qquad (4)$$

d) verification of all assumptions underlying the model. The homoscedasticity of the errors can be tested using White test (Green, 2012 p.315), the autocorrelation of the errors can be tested using Durbin-Watson test (Green, 2012 p.963), and the normality of the errors can be tested using Jarque-Bera test (Carter, 2011 p.148).
    a. in the case of rejecting the hypotheses regarding the errors, another variants of least squares can be used (like generalized least squares GLS for example) which allow us to resume the steps c)-d) under the new conditions.
    b. in the case of not fulfilling the assumptions regarding regressors, the opportunity of using all the regressor vectors will be analyzed and the steps c)-d) will be resumed under the new conditions.
e) testing the significance of the regression parameters - is based on the following set of hypotheses:
$H_0: \beta_j = 0, j=1..m$
$H_1: \beta_j \neq 0$
Can be done using *t* test:

$$t_j = \frac{|b_j|}{s_{b_j}} \quad \beta_j \in [b_j - t_{\alpha/2,(n-k)} \cdot s_{b_j}; b_j + t_{\alpha/2,(n-k)} \cdot s_{b_j}] \qquad (5)$$

If $t_j > t_{\alpha/2;(n-k)}$ then b_j coefficient is significantly different than 0 and its associated variable will be used in the model, otherwise the variables will be removed from the model.

In this way all non-significant variables will be removed from the model and resumed the steps c)-d) using the remaining variables.

f) testing the global significance of the model - is based on the following set of hypotheses:

$H_0: \beta_1 = \beta_2 = \cdots = \beta_j = 0$, $j=1..m$

$H_1: \exists \beta_j \neq 0$

Can be done using F test:

$$F_{calc} = \frac{(b'X'Xb - n\bar{y}^2)/m}{(y'y - b'X'y)/(n-k)} \sim F_{m,(n-k)} \quad (6)$$

In the case of significant model ($F_{calc} > F_{m,(n-k)}$) we go to the next step, otherwise the choice of the model is reanalyzed.

g) evaluation of the model quality - can be measured using the determination coefficient

$$R^2 = \frac{b'X'Xb - n\bar{y}^2}{y'y - n\bar{y}^2}, \quad (7)$$

the adjusted determination coefficient

$$Adj\ R^2 = 1 - (1 - R^2) \cdot \frac{n-1}{n-k}, \quad (8)$$

and using the correlation rapport

$$R = \sqrt{1 - \frac{y'y - b'X'y}{y'y - n\bar{y}^2}} \quad (9)$$

These indicators must have values near to 1 in order to obtain a good quality regression model.

After obtaining all the regression models associated to each county and the selection only of the models which contains exactly the same independent variables we must verify the equality of their parameters by testing them in pairs. This can be done using generalized Wald test.

For calculus was used Stata software. The estimation of models parameters was realized using stepwise regression. In the case of detected heteroskedasticity the Stata *robust* option can be used to control it.

Testing the hypotheses underlying the model was realized using specialized command from Stata software like:

- *whitetst* (White test) command for verification of homoscedasticity
- *estat dwatson* (Durbin-Watson test) command for verification of non-autocorrelation of the errors
- *jb* (Jarque-Bera test) command for verification of errors normality
- *vif* for verification colliniarity.

The testing of resulted regression models parameters equivalence for all the counties was realized using *suest* and *test* commands.

4. CASE STUDY

The data presented above were subjected to preliminary analyze in order to clean the outliers and to check all the assumptions underlying the MRA. After the analysis was found that all assumptions underlying the MRA were fulfilled. MRA was then applied to all the counties from the region. The obtained results are detailed in appendix 1 and in the following table:

Table no. 2

Counties	AG	BR	BZ	CL	DB	GR	IF	IL	PH	TL
Variables	regression coefficients									
size_z	0,340	0,345	0,394	0,448	0,223	0,345	0,588	0,382	0,549	0,533
zone_z	0,299	0,170	0,318	0,346	0,412	0,347	0,647	0,459	0,421	0,317
floor_z	-0,058	-	-	-	-	-	-	-	-0,077	-
year_z	0,102	-	-	-	-	-	-	-	0,114	-
no_flrs_z	-	-	-	-	-0,168	-	-	-	0,123	-
_cons	-123943,000	-109637,000	-107365,000	-0,473	-0,899	-0,865	0,671	-0,754	-0,378	-0,571
Quality of the model										
R^2	0,855	0,877	0,942	0,906	0,936	0,874	0,941	0,910	0,910	0,986
Adj R^2	0,850	0,874	0,941	0,901	0,930	0,869	0,939	0,907	0,905	0,985
RootMSE	0,185	0,086	0,077	0,132	0,094	0,128	0,113	0,113	0,171	0,058

Source: Author's calculations

Testing the hypothesis according to which there are no differences between the way of apartments trading price is formed by comparing the resulted models at the levels of counties was realized using suest command. From all 10 resulted models, one for each county from Muntenia region, only 7 contained the same set of independent variables. In the case of the remaining three counties the resulted regression models contained unique sets of independent variables. In order to compare as pairs the resulted models in the case of the 7 counties with the same set of independent variables, the calculus provided a number of 21 pairs to compare. Taking into consideration the fact that is expected to find similar specific influences at the level of geographically adjacent counties because usually common influence factors are found in nearest geographic areas, the numbers of counties pairs which must be tested can be reduced from 21 to 8.

Applying the test at the level of all the remaining pairs, the results showed that the proposed study hypothesis, which affirm that there are no differences in the way of forming the trading price of the apartments at the levels of the counties, was rejected. In other words there are significant differences between the ways of forming the trading price of the apartment at the level of the counties from Muntenia region meaning that each county has its own unique model.

5. CONCLUSIONS

The realized analysis permits us to obtain significant multiple linear regression models (the F test supply a value for p-value higher than 0.05) at the level of each county from Muntenia region, with a good quality level (the values for Adj R^2 in the case of every model are between 0.8499 and 0,9850 – table no. 13, chart no.1).

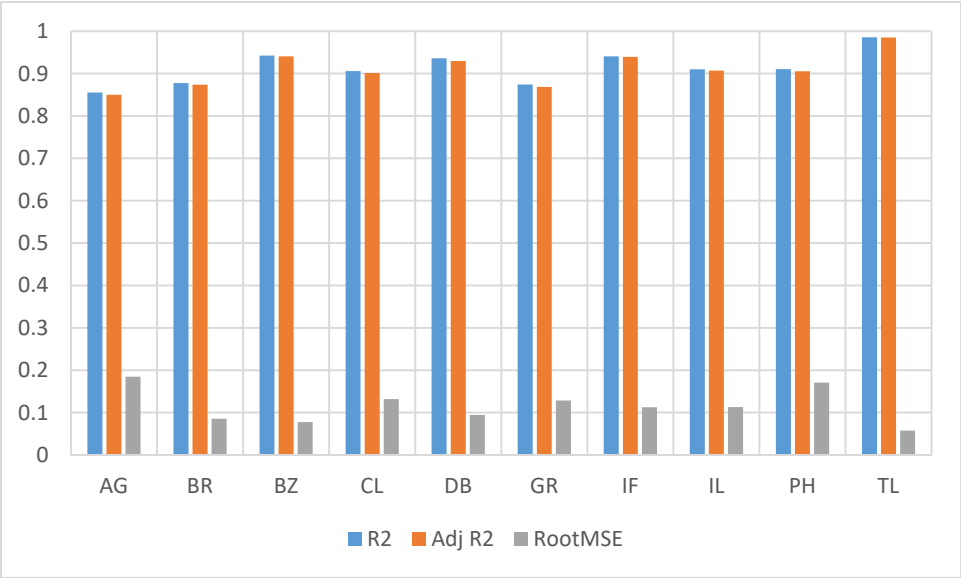

Figure no. 1 The quality of regression models at the level of each county

The smallest value for the determination coefficient was obtained at the level of AG county and the highest one at the level of TL county.

The most significant variables for the models at the level of counties are *size_z* and *zone_z* followed by the *year_z* and *no_flrs_z*.

The sense of the influence for each independent variable on the apartment trading price was the same (chart no. 2) at the level of each county with only one exception - the variable *no_flrs_z* which was selected in the case of the following counties:

- DB where the variable *no_flrs_z* has a negative influence on the trading price
- PH where the variable *no_flrs_z* has a positive influence on the trading price

In case of 7 counties from all 10, the resulted regression models included only two independent variables (*size_z* and *zone_z*) and in the case of the remaining three counties (AG, DB and PH) the resulted models included other independent variables together with the previous enumerated two variables.

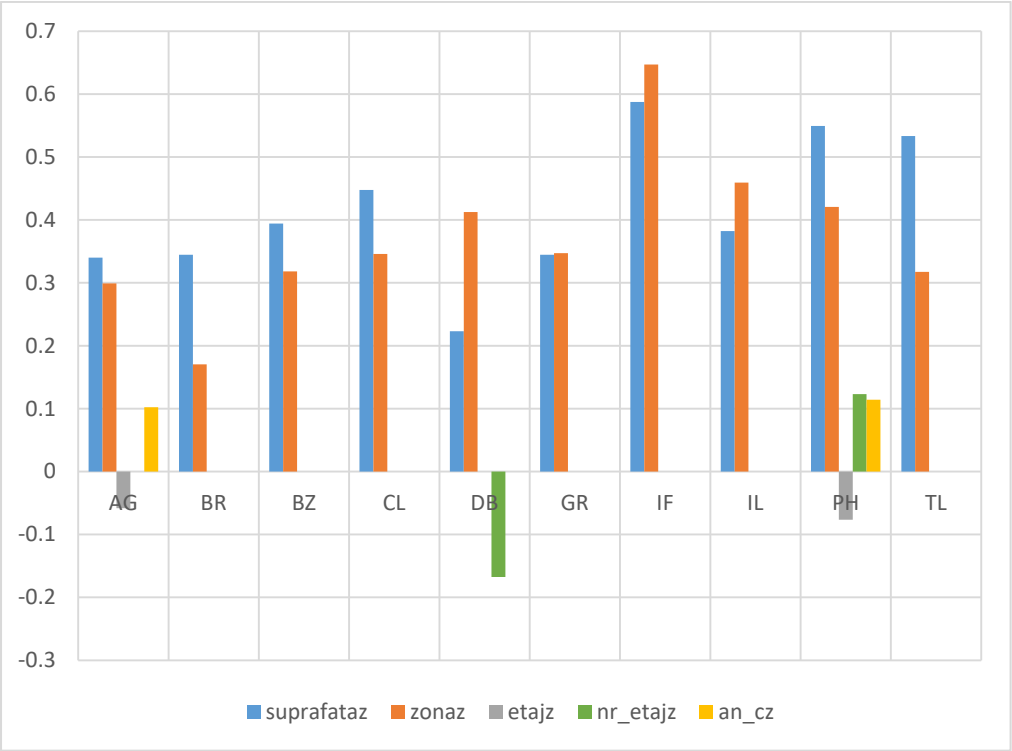

Figure no. 2. The structure of the regression models resulted at the level of each county

After the analysis for estimating the regression models and after the testing of their equivalence resulted that each county has its own unique model so the proposed study hypothesis H_0 was rejected. The conclusion is that there are significant differences in the way of forming the trading price of the apartments at the level of each county generated by specific factors. A logical step for continuing the analysis would be the study the factors types which influence the trading price for the apartments like:

- factors that evaluate the economic opportunities as attraction factors for a county/localities
- factors which evaluate the regional/local cultural differences
- other factors which have influence on the apartments trading price.

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APPENDIX 1

AG

Source	SS	df	MS	Number of obs =	110
Model	21.1985322	4	5.29963304	F(4, 105) =	155.26
Residual	3.58394896	105	.034132847	Prob > F =	0.0000
Total	24.7824811	109	.227362212	R-squared =	0.8554
				Adj R-squared =	0.8499
				Root MSE =	.18475

price_z	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
size_z	.3401352	.0198122	17.17	0.000	.3008514	.3794191
zone_z	.2991036	.0171272	17.46	0.000	.2651436	.3330636
floor_z	-.0581543	.02794	-2.08	0.040	-.1135542	-.0027543
year_z	.1021886	.031047	3.29	0.001	.0406281	.1637492
_cons	-1.239427	.0383172	-32.35	0.000	-1.315403	-1.163451

Source: Author's calculations

BR

Source	SS	df	MS	Number of obs =	69
Model	3.46019819	2	1.73009909	F(2, 66) =	236.23
Residual	.483379191	66	.007323927	Prob > F =	0.0000
Total	3.94357738	68	.057993785	R-squared =	0.8774
				Adj R-squared =	0.8737
				Root MSE =	.08558

price_z	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
size_z	.3446226	.0160062	21.53	0.000	.3126652	.3765801
zone_z	.1703318	.0301555	5.65	0.000	.1101244	.2305392
_cons	-1.096372	.0333985	-32.83	0.000	-1.163055	-1.02969

Source: Author's calculations

BZ

Source	SS	df	MS	Number of obs =	71
Model	6.66096111	2	3.33048056	F(2, 68) =	555.30
Residual	.407838158	68	.00599762	Prob > F =	0.0000
Total	7.06879927	70	.100982847	R-squared =	0.9423
				Adj R-squared =	0.9406
				Root MSE =	.07744

price_z	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
size_z	.3942533	.0134443	29.33	0.000	.3674258	.4210809
zone_z	.3180957	.0187466	16.97	0.000	.2806875	.355504
_cons	-1.073653	.0200324	-53.60	0.000	-1.113627	-1.033678

Source: Author's calculations

CL				Number of obs	=	46
Source	SS	df	MS	F(2, 43)	=	206.41
Model	7.17276289	2	3.58638144	Prob > F	=	0.0000
Residual	.747123508	43	.017374965	R-squared	=	0.9057
Total	7.9198864	45	.175997475	Adj R-squared	=	0.9013
				Root MSE	=	.13181

price_z	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
size_z	.4475923	.0284754	15.72	0.000	.3901661	.5050184
zone_z	.3459508	.0256882	13.47	0.000	.2941456	.397756
_cons	-.4734905	.0224945	-21.05	0.000	-.5188549	-.428126

Source: Author's calculations

DB				Number of obs	=	33
Source	SS	df	MS	F(3, 29)	=	141.59
Model	3.78615849	3	1.26205283	Prob > F	=	0.0000
Residual	.258485639	29	.008913298	R-squared	=	0.9361
Total	4.04464413	32	.126395129	Adj R-squared	=	0.9295
				Root MSE	=	.09441

price_z	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
size_z	.2231197	.028163	7.92	0.000	.1655198	.2807196
zone_z	.4124905	.0258974	15.93	0.000	.3595244	.4654566
no_flrs_z	-.1676795	.0396105	-4.23	0.000	-.2486921	-.0866669
_cons	-.8988913	.0238117	-37.75	0.000	-.9475917	-.8501909

Source: Author's calculations

GR				Number of obs	=	50
Source	SS	df	MS	F(3, 40)	=	162.94
Model	5.37532025	2	268766013	Prob > F	=	0.0000
Residual	.775252815	47	.016494741	R-squared	=	0.8740
Total	6.15057307	49	.125521899	Adj R-squared	=	0.8686
				Root MSE	=	.12843

price_z	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
size_z	.3446595	.0198728	17.34	0.000	.3046806	.3846385
zone_z	.3470842	.0614078	5.65	0.000	.2235477	.4706208
_cons	-.8647719	.0257407	-33.60	0.000	-.9165554	-.8129884

Source: Author's calculations

IF				Number of obs	=	111
Source	SS	df	MS	F(2, 108)	=	853.98
Model	21.6919453	2	10.8459727	Prob > F	=	0.0000
Residual	1.37165053	108	.012700468	R-squared	=	0.9405
Total	23.0635958	110	.209669053	Adj R-squared	=	0.9394
				Root MSE	=	.1127

price_z	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
size_z	.5875518	.0142394	41.26	0.000	.5593269	.6157768
zone_z	.6470492	.0564671	11.46	0.000	.5351216	.7589768
_cons	.6706936	.0572229	11.72	0.000	.5572679	.7841194

Source: Author's calculations

IL				Number of obs	=	62
Source	SS	df	MS	F(2, 59)	=	298.42
Model	7.6356684	2	3.8178342	Prob > F	=	0.0000
Residual	.754807571	59	.012793349	R-squared	=	0.9100
Total	8.39047598	61	.137548786	Adj R-squared	=	0.9070
				Root MSE	=	.11311

price_z	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
size_z	.3822492	.0163296	23.41	0.000	.3495737	.4149246
zone_z	.4592379	.0441079	10.41	0.000	.3709783	.5474976
_cons	-.7538112	.0235029	-32.07	0.000	-.8008403	-.706782

Source: Author's calculations

PH				Number of obs	=	99
Source	SS	df	MS	F(5, 93)	=	188.43
Model	27.4988535	5	5.4997707	Prob > F	=	0.0000
Residual	2.71445157	93	.029187651	R-squared	=	0.9102
Total	30.2133051	98	.308299031	Adj R-squared	=	0.9053
				Root MSE	=	.17084

price_z	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
size_z	.549261	.0270438	20.31	0.000	.4955573	.6029647
zone_z	.420532	.0232644	18.08	0.000	.3743336	.4667305
floor_z	-.0765034	.0307294	-2.49	0.015	-.1375258	-.0154809
no_flrs_z	.1230641	.0341987	3.60	0.001	.0551523	.1909759
year_z	.1141793	.041433	2.76	0.007	.0319017	.196457
_cons	-.3780035	.0292083	-12.94	0.000	-.4360054	-.3200016

Source: Author's calculations

TL				Number of obs	=	56
Source	SS	df	MS	F(2, 53)	=	1804.11
Model	11.9629245	2	5.98146225	Prob > F	=	0.0000
Residual	.17572002	53	.003315472	R-squared	=	0.9855
Total	12.1386445	55	.220702628	Adj R-squared	=	0.9850
				Root MSE	=	.05758

price_z	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
size_z	.5333822	.0125272	42.58	0.000	.5082559	.5585084
zone_z	.3173906	.0182664	17.38	0.000	.2807529	.3540283
_cons	-.5709836	.0161028	-35.46	0.000	-.6032818	-.5386854

Source: Author's calculations

HYBRID METAHEURISTICS FOR OPTIMIZATION

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Abstract: Metaheuristics algorithms give good approximate solutions for real-world applications of large size. They also include a set of effective methods for difficult optimization problems. These methods are generally classified into two categories: methods for local search that are based on the intensification strategy and methods for global search that rely on diversification. In order to have relevant results, must try to achieve a balance between these two strategies. The hybridization methods can be used to find an improvement so the advantages and disadvantages of each method are compensated. If an appropriate hybridization technique is chosen, the resulting hybrid metaheuristic is an attempt to over perform both the original metaheuristics, by designing a new better optimization tool. This paper is a survey of some concepts and methods that are involved in the hybridization of metaheuristics and discuses some taxonomies proposed in the literature.

JEL classification: C10, C18, C61

Key words: global optimization; evolutionary algorithms; heuristics; metaheuristics; hybridization

1. INTRODUCTION

The classical optimization algorithms are based on exact solution methods, such as branch and bound, linear and integer programming, dynamic programming, etc. Algorithms of this kind are supposed to be complete and accurate, to provide a guarantee of finding the optimal solution for a finite size instance in a limited time (Puchinger and Raidl, [41]). However, when facing complex real-world applications, such as high-dimensional, hardly constrained, multimodal and/or time-varying problems, exact resolution methods encounter difficulties and are often extremely time-consuming. This has led researchers to develop optimization methods technique that are common in Operations Research (OR) but also techniques that are specific to Artificial Intelligence (AI).

In some situations, alternative approaches to difficult optimization problems, based on approximate solutions, are preferable. For instance, one can look for good solutions with no guarantee of optimality, but with the benefit of a reduced calculation time. There are two categories of approximate methods that have successfully tackled difficult problems and proved to be good enough for practical purposes: heuristics and metaheuristics. They provide powerful and flexible search strategies oriented to produce good-quality solutions in reasonable computation times.

Heuristics or meta-heuristics generally exploit random processes in the exploration of the search space to deal with the combinatorial explosion caused by the use of exact methods. In addition to be stochastic, meta-heuristics are often iterative, so the same search process is repeated until approaching the solution. A main interest comes

from their ability to avoid local minima admitting deterioration of the objective function during their progression.

The use of a heuristic is efficient to calculate an approximate solution of a problem and thus to accelerate the exact resolution process. Usually, a heuristic is designed for a particular problem, relying on its own structure, without offering any guarantees as to the quality of the calculated solution.

Given the difficulties encountered by the heuristics for a workable good solution when dealing with difficult optimization problems, metaheuristics have emerged. These algorithms are more comprehensive and complex than a simple heuristic, and usually give a very good solution for difficult problems where effective methods for treating them are not known, or where the resolution of the problem requires a large amount of time or storage memory.

Most metaheuristics use random and iterative processes to gather information, to explore the search space and to cope with problems such as combinatorial explosion. A metaheuristic can be adapted to different types of problems, while a heuristic is used to a given problem. Metaheuristics are often inspired by natural systems such as biological (evolutionary and genetic algorithms), physical (simulated annealing), ethological systems (ant colony algorithm) and so on.

2. OBJECTIVES

One of the challenges of designing metaheuristics is to facilitate the choice of method and parameter settings to suit a particular problem.

Metaheuristics can be classified in many ways. I can distinguish those that work with a population of solutions from those that handle only one solution at a time. Methods that attempt to iteratively improve a solution are called local search methods or trajectory methods. These methods construct a trajectory in the space of solutions by attempting to move towards optimal solutions. The best known examples of these methods are Tabu Search and Simulated Annealing. Genetic algorithms, particle swarm optimization and ant colony algorithms represent the best known examples of population-based methods.

The objectives of this paper are to define some concepts and methods that are involved in the hybridization of metaheuristics and discuses some taxonomies proposed in the literature.

3. METHODOLOGY

Hybridization consists in combining the characteristics of two different methods to get the advantages of both methods [49]. The origins of hybrid metaheuristics algorithms go back to the work of Glover [18], J. J. Grefenstette [19] and Mühlenbein et al. [38]. Each of them has introduced a simple method of hill climbing to enhance an evolutionary search. But at that time, most researchers have paid little interest to method. Currently, hybrid metaheuristics have become more popular as they provided the best results for several combinatorial optimization problems.

4. ANALYSES

Hybridization of metaheuristics can be divided into two major parts: hybridization of metaheuristics with metaheuristics and hybridization of metaheuristics with exact methods.

4.1 HYBRIDIZATION OF METAHEURISTICS WITH METAHEURISTICS

According to the taxonomy proposed in [49] hybridization of metaheuristics with themselves involves two main classifications: a hierarchical classification and a flat classification.

The hierarchical classification of metaheuristics is characterized by the level and method of hybridization. The hybridization may be low-level or high-level. In the low-level hybridization, a metaheuristic replaces one operator of another method that encompasses. By contrary, in the high-level hybridization, each metaheuristic preserves his property during hybridization. Each level of hybridization generates two types of cooperation namely, the relay mode and the co-evolutionary mode. In the relay mode, the methods are performed sequentially, that is to say the output of the first method is the input of the next method. When the different methods work in parallel to explore the search space, this mode is called co-evolutionary. So, the combination of modes and levels gives four classes of hybridizations: low-level relay hybridization, low-level co-evolutionary hybridization, high-level relay hybridization and high-level co-evolutionary hybridization.

The flat classification of metaheuristics is characterized by the type of hybridized methods, their scope and the nature of their duties. Depending on the type of hybridization, there are homogeneous hybridized methods where the algorithms are based on the same metaheuristic as the insular model and heterogeneous hybridized methods where the metaheuristics are different. The model proposed in [21] is a high-level heterogeneous co-evolutionary hybrid. The application field of hybridized metaheuristics is to distinguish between two major classes of hybridization, global hybridizations and partial hybridizations. The global hybridization occurs when all hybridized methods are applied to the entire search space. By contrast, the partial hybridization decomposes a problem into sub-problems where each has its own research area. In this context, Taillard [48] proposes a decomposition of vehicle routing problem by applying Tabu Search. The idea is to divide all the cities to visit in independent sectors, each of which is a search space. In a different article, Taillard and Voss [47] suggested a method to create sub-problems from the initial problem and solve them using a metaheuristic or exact method. According to the problem of interest, Talbi distinguishes two types of hybridization, general hybridization and specialist hybridization. We talk about general hybridization when all hybridized metaheuristics treat the same optimization problem. All hybridizations we have cited in the hierarchical classification fall into this category. Conversely, specialist hybridizations occur when each metaheuristic addresses a different problem. An example of this type is the use of a metaheuristic to initialize the parameters of another metaheuristic. Krueger [34] optimizes the parameters of a Simulated Annealing using a Genetic Algorithm. Abbattista [1] optimizes the parameters of an Ant Colony Algorithm using a Genetic Algorithm and Shahookar and Mazumder [45] optimize the parameters of a Genetic Algorithm using another Genetic Algorithm.

4.2 HYBRIDIZATION OF METAHEURISTICS WITH EXACT METHODS

Hybridization of metaheuristics with exact methods is less usual than hybridization of metaheuristics with metaheuristics because most researchers considered it quite unnecessary. In recent times, this hybridization begins to spread and a large number of articles were published about this topic. In [49], Talbi has generalized its

taxonomy to exact methods so that the hierarchical classification can be applicable to this kind of hybridization.

Must be noted that a class of low-level relay hybrids (LRH) is more effective when a metaheuristic is hybridized with an exact method.

The class of low-level co-evolutionary (teamwork) hybrids (LTH) encompasses population-based metaheuristics, in which an operator is replaced by an exact method. The LTH class also covers all metaheuristics based on the neighborhood exploration, where an exact method intervenes to find best solution(s) in the neighborhood. Bent and Van use this idea to solve the traveling salesman problem. In the class of high-level relay hybrids (HRH), the hybridized metaheuristics and exact methods are performed sequentially keeping their property.

The high-level co-evolutionary (teamwork) hybrids (HTH) are difficult to achieve between an exact method and a metaheuristic because each approach solves a different problem, and an exchange of information between them is vital.

For the flat classification, Talbi believes that the same steps as hybridization of metaheuristics with metaheuristics are applicable to hybridization of metaheuristics with exact methods.

Another hybridization between metaheuristics and exact methods was proposed by Stützle and Dumitrescu [15]. Dumitrescu and Stützle propose the following classification (according to the objective of the method used for hybridization):

- Using an exact method in a local search for an intensive exploration of the neighborhood;
- Using good quality approximate solutions to reduce the search space of an exact method.
- Using bounds of an exact method for a population-based metaheuristic.
- Using information collected by an exact method to guide a local or global search algorithm.
- Using an exact method for a specific function of the metaheuristic.

4.3 Some remarks on the classifications of hybrid methods and examples of hybrid methods

The taxonomy proposed by Talbi is the most general; this regroups hybridizations of various types, such as metaheuristics with metaheuristics and metaheuristics with exact methods, so becomes easy to include new hybridization patterns. The classification proposed by Stützle and Dumitrescu examines the hybridization of exact methods with metaheuristics, but the studied cases use only local search metaheuristics. The classification proposed by Puchinger is wider, as it includes all types of metaheuristics, despite orientation towards the hybridization between metaheuristics and exact methods. Puchinger strategy is much like the one proposed by Talbi and both classifications follow the same hybridization classes. To integrate an algorithm in another algorithm, Talbi applies low-level (relay or co-evolutionary) hybridization, while Puchinger apply integrative hybridization. For the sequential execution of methods, Talbi opted for the high-level relay hybridization, while Puchinger for the sequential collaborative hybridization. In parallel execution of algorithms, one can find high-level co-evolutionary hybridization in Talbi and the parallel collaborative hybridization in Puchinger. Talbi deepens his research by studying the nature of different algorithms such as: homogeneous/heterogeneous, global/partial, general/specialist. All

works cited above have shown that hybrid methods offer better results than non-hybrid algorithms, for both practical and theoretical problems [13].

The evolution of a population-based search algorithm can be performed by integrating highly effective methods for solving complex problems. Many researchers improved the performance of Particle Swarm algorithm incorporating it into other optimization approaches. In what follows, we will present some of hybridization versions of the Particle Swarm Optimization algorithm (PSO) with evolutionary algorithms.

The first hybridization of Particle Swarms with evolutionary algorithms has been developed by Angeline P. [3]. The idea was to introduce the selection operator in the PSO algorithm in order to select the right particles that will mutate and to eliminate the bad particles. In their article, Miranda et al. [36] use hybridization between PSO and evolutionary strategies. The parameters c_1 and c_2, and pg, are disrupted using a strategy based on the selection process. In 2002, Robinson et al. [42] proposed two hybrid PSO algorithms with Genetic Algorithms (GA) GA-PSO and PSO-GA. In GA-PSO, the Genetic Algorithm has the roll of generating the initial population of the PSO algorithm, while in the PSO-GA hybridization, PSO generates the initial population of GA. Their results have dismantled that PSO-GA hybridization outperforms GA-PSO.

PSO has more favorable results in the diversification phase, while Genetic Algorithms are more effective in the intensification phase. In the same year, T.Krink et al. [33] hybridized PSO with GA and the hill climbing method for solving global optimization problems without constraints. Each of these methods can be applied to a subpopulation of individuals where each individual is dynamically used according to certain rules. Grimaldi et al. [20] proposed a technique of hybridization between GA and PSO, called Genetical Swarm Optimization (GSO) to solve a problem of electromagnetic optimization. GSO is based on dividing the population into two sub-populations that will be evolved following the steps of GA and PSO for each iteration. Then they come together to update the initial population, which will be again randomly divided into two sub-populations in the next iteration for another application of GA or PSO. Grimaldi et al. have introduced a new parameter called hybridization constant that indicates the percentage of participation of the population in a Genetic Algorithm for each iteration. If HC = 0, the population is updated using the Particle Swarm algorithm and if HC = 1, only the Genetic Algorithm is applied. If 0 < HC <1, this means that HC% of the population is grown by the Genetic Algorithm and the rest by the Particle Swarm. The application of GSO has been used by Gandelli in 2005 [16] and in 2006 [17]. Settles and Soule [44] hybridized the Genetic Algorithm with a specific Particle Swarm algorithm in order to form a hybrid called Breeding Swarm. This algorithm combines the update rule of velocity and position for PSO with operator selection, crossover and mutation for GA. In another article, another hybridization between PSO and GA is proposed by Kao and Zahara [30] to solve a problem in D dimensions. Initially, $4D$ individuals are randomly generated, which are chromosomes in the case of a Genetic Algorithm and particles in the case of Particle Swarm. These 4D individuals are classified by the fitness function of the problem and then the operators of the Genetic Algorithm are applied on the best 2D individuals to create $2D$ new individuals. At the end, PSO is applied on the remaining individuals, unselected through fitness. Table no. 1 gives some hybridizations between PSO and GA.

Table no. 1 Some hybridizations between PSO and GA

Authors	Year	Hybridization method
Robinson et al [42]	2002	GA-PSO and PSO-GA
Grimaldi et al [20]	2004	GSO
Juang [28]	2004	GAPSO
Settles and Soule [44]	2005	Reproduction in Swarm
Jiang and Chen [26]	2006	PSO-RDL
Kim [32]	2006	GA-PSO
Mohammadi and Jazaeri [37]	2007	PSO-GA
Kao and Zahara[30]	2008	GA-PSO
Ru and Jianhua[43]	2008	HGAPSO
Shanmugalatha and Slochanal [46]	2008	HPSO
Jeong et al [25]	2009	GA\PSO
Valdez et al [52]	2009	GA+PSO
Abdelkader [2]	2010	GAI-PSO

Table no. 2 Some hybridizations between the Particle Swarm algorithm and the Differential Evolution algorithm

Authors	Year	Hybridization method
Hendtlass [24]	2001	SDEA
Zang and Xie [54]	2003	DEPSO
Kannan et al [29]	2004	-
Talbi and Batauche [50]	2004	DEPSO
Hao et al [22]	2007	DEPSO
Das et al. [14]	2008	PSO-DV
Omran et al. [39]	2008	BBDE
Jose et al [27]	2009	DEPSO
Zhang et al. [53]	2009	DE-PSO
Liu et al. [35]	2009	PSO-DE
Caponio et al. [12]	2009	SFMDE
Xu and Gu [52]	2009	PSOPDE
Pant et al [40]	2009	DE-PSO
Khamsawang et al [31]	2010	PSO-DE

Several hybridizations have been performed between *Particle Swarms* and *Differential Evolution*. Hendtlass [23] has introduced a hybridization of the Differential Evolution (DE) to select the best positions of the PSO algorithm. This hybridization is called SDEA. Kannan et al. [29] applied DE to each particle of PSO in a finite number of iterations and they replaced the particle by the best individual obtained by DE. Talbi and Batauche [50] used this hybridization to solve the problems of medical imagery; they applied the operators of the Differential Evolution only to the best particles calculated by the Particle Swarms algorithm. Table no. 2 presents some hybridizations between the Particle Swarm algorithm and the Differential Evolution algorithm.

The list of hybridizations between PSO and various algorithms can continue with many other examples.

5. CONCLUSIONS

In this paper I have presented the various hybridization techniques for metaheuristics. I could see that the taxonomy proposed by Talbi is very simple and more general, given that it includes all types of hybrids that are adaptable to a large number of combinatorial optimization problems. At the end, I exposed some hybridizations of the Particle Swarm algorithm with other optimization methods, which are successfully applied to solve different problems in different fields.

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THE SPECIFIC HIERARCHY OF THE KEY SUCCESS CRITERIA (KSF) IN THE EDUCATIONAL PROJECTS FUNDED BY THE EUROPEAN UNION IN ROMANIA

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Abstract: Every process of reform has an outset related to knowledge or education phenomenon and any profound reform starts from real education. The unexpected evolution and dynamics of the key success criteria (KSC) of a project represent the dominant analysis of the literature review section, which is described by the necessary references to human personalities who have delineated through key performance indicators (KPIs) the success or the failure of a modern project. The investigative approach and the methodology of the paper are structured in terms of characteristic survey applied on a small volume sample (extracted from the intersected populations of project managers and teachers). Through its questionnaire, the article seeks to identify the views of a relatively small group of experts, member of the team of educational projects or who have managed at least one educational project, funded by the European Union (EU) in Romania, about the hierarchy of current KSC and their expectations of the extension through the vision of a new project management guide (PM). A careful analysis of these criteria identifies statistical elements of distributive abnormality resulting from the opinions of educational project managers in Romania, concerning the human team or human resource. Some correlations or logical associations are also identified either directly between the scope of the project and its acquisitions or indirect correlations between the deadlines or time and team or human resources of the project.

JEL classification: O22; H43; C46

Key words: Key critical; Success Criteria (KSC), Performance Key Indicators (PKIs), Project Management (PM), Matrix of Correlation

1. INTRODUCTION

The modern project distinguishes adaptability, or suitability to the omnipresent reality in its life cycle, as a major principle of success. Thus, from the three lifecycle cycles officially accepted by the predictive type, or with a focus on planning and programming, iteratively with a gradual or step-by-step approach and adaptive, focusing on new technologies and their exploitation through the most modern applications [14].

Success becomes a permanent and multi-phase requirement, with any project avoiding failure from both initiation, and in planning and implementation, until its completion, each of the four major phases becoming adaptively a collection of logically and functionally correlated activities with the support of the key success criteria (KSC), materialized in Key Performance Indicators (KPIs) [13].

Among the general aspects that delimit, in terms of time, success from failure in project management, are its internal goals throughout the project, the short-term customer

satisfaction and benefits, the current medium-term contribution and long-term opportunities [16,17] , also including the relationship with the stakeholders [11], but also the realism, capacity, flexibility, ease of use and cost of the project [7].

The last five years have validated a genuine theory of the major dimensions of a project's success, implicitly of those funded by the EU: i) the efficiency and effectiveness of the project, both as efficiency of the activities, and as managerial effectiveness; ii) impact on customers (stakeholders); iii) success of the business, product, project services; iv) the strategic potential of the project or the consistency of the future for the products, markets and technologies of the project [8].

A retrospective approach of the theoretical and practical delimitation of successful projects distinguishes several periods of completely different significance and impact [15] : i) the 1970s, when the success of the project coincided with emphasizing the importance of time, costs and activities; ii) the 1980s, when the conceptualization was expanded by quality; iii) the 1990s, when the customers (stakeholders) were the notional determinants; iv) the first decade of the 21st century, in which the project suppliers-project team interaction redefined success in the project; v) multiplying and excess nuancing of success in keeping with the project typology (industry, constructions, technology, agriculture, energy, cultural, educational, research, etc.).

Starting from the premise of education as an essential factor of knowledge, change and adaptation, this paper analyzes the views of managers and experts of EU-funded educational projects in Romania, regarding the hierarchy of success criteria in relation to the already existing theory in the field. This introductory section is followed by a brief history of KSC materialized in KPIs, then by an equally necessary methodology that describes the sample of experts and the questionnaire of the statistical survey conducted, and finally the presentation of the specificity of the results of the opinion research, complemented by discussions of a predominantly statistical nature, and ends with some final remarks.

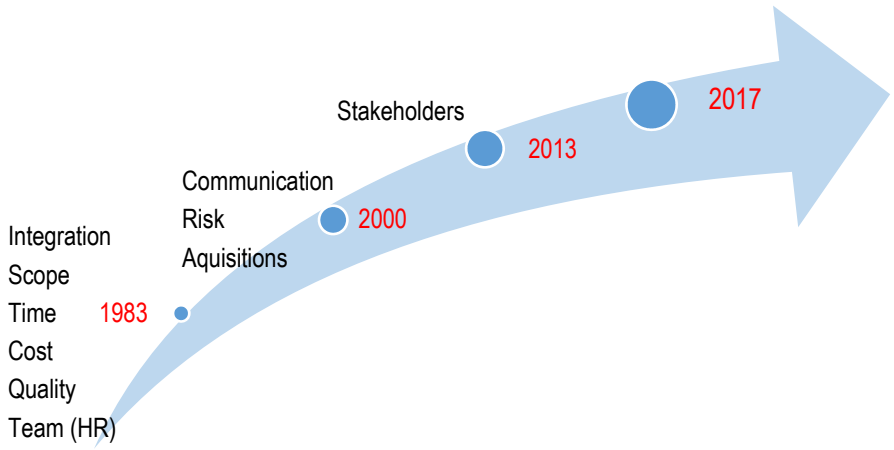
2. A BRIEF LITERATURE REVIEW OF THE KEY SUCCESS CRITERIA (KSC)

Econometric conceptualization, historical analysis and statistical hierarchy, along with some characteristic inter-criterial associations of EU-funded educational projects in Romania, represent the major objectives of the literature review and the research or investigation in this paper.

A project can be statistically and mathematically modeled by means of a function yij = f(xij), which can describe its success, starting from two defining variables, through a set of results of performance measurements yij (KPIs), which are explained through a complex of independent xij explanations, known as critical critical factors (CSFs). This essentialization characterizes a strictly econometric approach, where the key criteria (KSCs) are endogenous variables, and have a significant R2 determination coefficient relative to the critical factors (CSFs), which become exogenous variables xij. [15, 19].

In the practice of the project manager, KSCs has to be identified and ranked in point of importance, as they ultimately become the standards by means of which the success of a project is judged, in the sense that it is validated / invalidated, being subsequently concretized by KPIs and transformed into project constraints. A brief historical picture is given by the evolution of the project standards (Figure 1) in parallel with the graphic description – or the description by means of synthetic figures – of the imbalance-generating constraints in situations when their role is neglected (Figures 2 and 3).

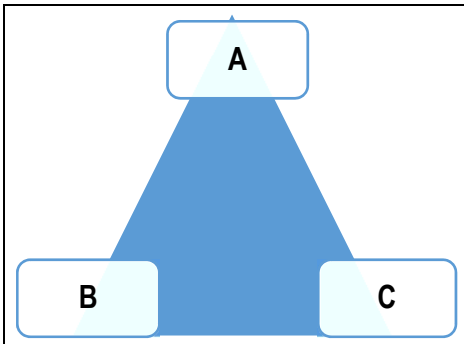
KSCs are established before conducting the project in its drafting stage, through the common agreement of the partners and the project team members, without resorting to alternative criteria, and they become the basics of monitoring and control, under the impact of continuous standardization aimed at increasing the success rate of projects in this manner.



Source: Realized by authors based on PMBOK® guide, 1983, 2000 and 2013 editions.

Figure no. 1. KSCs evolution as project standards from PMBOK® guide, 1983, 2000 and 2013 editions

Each single KSC has gradually become a standard in successive project management guidelines (PM), and has been detailed for each activity and stage, with distinctive stress according to the specificity, resources and objectives of each project. In essence, or in the most simplified version of a successful project, the *what* and *how* questions are answered through its life cycle. A successful project will basically be the project whose manager first identifies KSCs, which he/she replaces with the question *what*, then monitors and focuses on those KPI-type indicators that reflect the key project performance evaluations delimited with question *how*. [20]. Graphical descriptions or descriptive figures, especially triangles, resulted, as in the wake of the occurrence of a fourth dimension, to pyramids resulting from placing those triangles in the tridimensional space, and these pyramids, as the authors call them, were meant to reveal the constraints generating imbalances. When imbalances are neglected in project management, the whole project is exposed to failure. The graphical descriptive process centered on geometric figures of great simplicity began in 1969, with Martin Barne's iron triangle. He originally synthesized a threefold *time-cost-output* constraint (the correct scope at the correct quality), only to declare his preference for the *time-cost-scope-performance* solution, after several decades, by substituting the quality criterion for that of performance. The models focused on the iron triangle or defined by constraints related to project management, together with those derived from them, were so named (i.e. *iron*) because it became increasingly clear that a constraint could not be changed without affecting all the others (Figure no. 2).

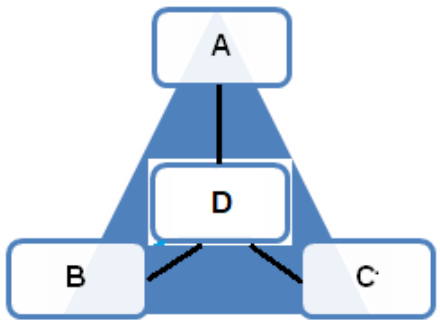


Barnes, 1969	Barnes, 2013	PMBOK® guide, 2013
TRIPLE CONSTRAINT A-Time B-Cost C-Output (Scope and Quality)	IRON TRIANGLE A-Time B-Cost C-Scope and Performance	IRON TRIANGLE A-Time B-Resources (Budget or Cost and Team or HR) C-Scope/Quality/ Stakeholder

Source: Realized by authors based on PMBOK® guide, 1983, 2000 and 2013 editions.

Figure no. 2. KSCs evolution as project standards from PMBOK® guide, 1983, 2000 and 2013 editions

The three-dimensional solution has capitalized on the compromise of Martin Barnes's original triangular patterns, by extending the criteria from three to four, and has generated a first criterion-related pyramid, where *schedule – cost – quality – people* was an optimized solution, plus some variants that occurred in established PM courses, respectively PCTS pyramid and SCTP pyramid, described by specific acronyms (Figure 3).



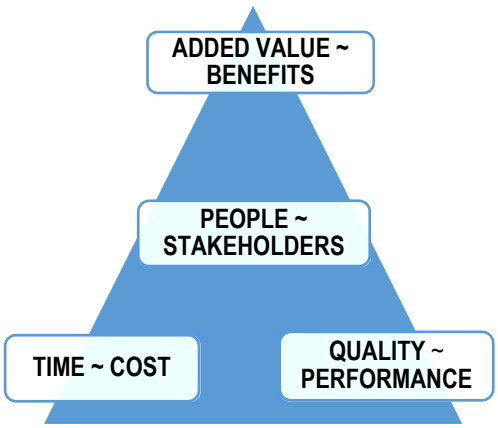
Kliem, Ludin, Robertson, 1997	Lewis, 2005 (Lock, 2007)	Atkinson, 1999
SCQP pyramid A- Schedule B-Cost C-Quality D-People	PCTS pyramid (SCTP pyramid) A- Performance (Specification) B-Cost C-Time D-Scope (People)	Square Route A-Time, Cost, Quality B-Information System (IS) C-Benefits (Stakeholder)- D-Benefits (Organization)

Source: Realized by authors based on [1, 4, 5, 6]

Figure no. 3. The pyramid of the major criteria in Project Management (PM), based on mentioned sources

As can be noticed in the previous figure, in 1999, Roger Atkinson added new aggregate criteria to the complex *time-quality-cost* criterion; these criteria had the capacity to redefine a successful project, going beyond the boundaries of Barnes's iron triangle, or its triple constraint, by configuring a standard route, or a *Square Route*. Referring to the KSC-dedicated literature over the past three decades, Roger Atkinson's quadratic route represents a first synthesis of the KSC, which has *time-quality-cost* as its initial milestone, passing then through the maintainability, reliability and validity of the *Information System* (IS) to subsequently reach the *benefits* (of the stakeholders, defined as a community of all stakeholders) and ultimately ensure efficiency and profit, along with the achievement of the strategic goals and the organization's education, all representing *benefits* (i.e. *the benefits of the organization*). The square route performance

differences start from KSC and quantify five discrepancies between the desired result and: i) the outcome described by the customer; ii) the result perceived by the project team; iii) the specific project draft developed by the project team; iv) the actual outcome of the project perceived/delivered to the client; v) the outcome as perceived by stakeholders [1]. Two recent computational pyramid models make use of the synthetic form of the specifications, which is unambiguously called *deliverable* in a successful modern project (*Office.microsoft.com*, 2014 and *Stakeholdermap.com*, 2016). In the concise language of the PM, the *deliverables* concept, initially meaning items that are deliverable, became *specifications*, and is naturally included in these new models. The pyramidal model of key success criteria of *office.microsoft.com* (2014) places quality in the center, making a much clearer separation between scope and quality, the latter according to the nodal character, thus proving that it remains the fundamental objective of a successful project. It is not by accident that the *office.microsoft.com* model has become the most widely used set of successful criteria in a contemporary project or program, and the essential reason for that is placing the specifications on a common surface, or in other words within a common goal [9,18]. By addressing the criteria according to the principle of relative similarity, we propose an original model focused on the duality of the criteria. The model is a triangular one (with pyramidal development potential), and its first premise of the criterial duality the fact that time is assimilated to the cost of time management (time ~ cost), with any delay representing a significant cause of additional costs. A second premise identifies, through quality, the reality able to generate performance (quality ~ quantified performance), and the third one identifies that the people interested in the project come from among the stakeholders, or, recently, from their own groups, or even from the stakeholder community (people ~ stakeholders). The fourth premise of the criterion duality starts from the finding that the PM's aim is to increase the value added, or to match the anticipated medium- or long-term benefits. The complex solution of the dual key criteria of the successful project has broader coverage and outlines a criterial pyramid, which brings together eight criteria on the principle of equivalences (Figure 4):



Source Realized by authors

Figure no. 4. The triangle of the dual criteria in Project Management (PM)

In the context of an assimilation of the KSC with the evolution of PMI standards or areas of expertise relating to project management developed after 1980, we can identify, according to the PMBOK® Guide – Fifth Edition. 2013: I) the *criterial rectangle*, which combines the complex *time-cost-quality* criterion with the team criterion (HR, i.e. human resources), the scope and integration criteria; II) the *criterion heptagon*, where the communication, risk and acquisitions criteria are added in comparison with the previous quadrilateral; III) the *criterial octagon*, which adds the stakeholder criterion to the heptagon.

3. METHODOLOGY AND HYPOTHESES

This article investigates some specific aspects of the KSC in Romania, analyzing the views of a number of experts, team members or EU-funded project managers. The statistical sampling method is centered on a guided selection, and was done through the respondents' volunteering, focusing on a questionnaire that provided a database resulting from a limited sample of only 31 respondents. These final respondents held, in at least one project, the position of project manager, or were part of the management team, or else were conferred, by the educational establishment, the task to write and manage an educational project conducted by an educational institution (high school or university), alone, in partnership, consortium or federation, from EU funds. The survey base consisted of a broader e-mail list of 138 potential respondents, namely experts who participated in management projects, or educational project managers (also or managers of projects having an educational impact), and was stratified in relation to the experience gained in two groups. Methodologically, two subpopulations in the sample, or two groups of experts, members or respondent managers, were distinguished: 1) some of them participated in less than five educational projects (the layer of the final respondents with a relatively limited experience bringing together 16 respondents with a mode value of four projects), and others who participated in over five educational projects (the latter stratum or layer consisting of 15 respondents with a dominant role of eight projects in which they took part). In the methodological logic of the research, the participants sought to identify both the common views of the sample of the 31 respondents, and the major differences in relation to the common opinion, or through confrontation with the layer of alternatives caused by the experience of participation in educational projects.

The first non-homogeneous variable with an abnormality tendency is SER01, anticipated and generated by the stratification in two groups, according to the experience gained by the number of projects involving the respondents (JB = 8.671732, close to the 9.21 limit), and the second one is SER07, which refers to the Team (HR) standard hierarchy, where JB = 8.092611.

The main hypotheses of the research refer to:

H1 : the project's (educational) specificity generates a distinct hierarchy in relation to the historical hierarchy of the standards according to the PMBOK® Guide;

H2 : there is a unique or distinctive criterion triangle or pyramid of the educational projects conducted in Romania from EU funds, according to the hierarchy of the first 3 or 4 KSCs;

H3 : the experience in educational projects generates significant differences in assessing the importance of each KSC (capitalizing on the Student test, and the final statistical decision related to it);

H4 : there are some associations between KSC that relatively define some categories of projects (industrial, transport, educational, etc.);

H5 : experience constantly generates new associations and correlations in educational projects, as well;

H6 : the constitution of the KSCs is dynamic and requires periodic supplements, adding new criteria that may become further standards or areas of expertise in PM.

The questionnaire aimed to ensure greater access to respondents by ensuring the simplicity of the wording, and, implicitly, of the pre-established replies to four of the five major questions, leaving a single significant open-ended question.

Distributed both on the Internet, to the people in the base of the survey, and personally, the questionnaire capitalized a 10-point scaling extracted from the reality of standards, i.e. equivalent to as many PMI expertise fields currently available, and enabled to collect final scores that facilitate specific hierarchy. The excess volatility of the responses was anticipated and resolved by capitalizing several central trend indicators beyond the usual average of individual scores, such as the modal value (or simply mode). The methodology and the hypotheses adapted to the specificity of the KSC investigation in relation to the hierarchy in the literature, being oriented in relation to the researches published after 1971, which concerned the subject investigated, and thus acquire a character of originality through observation and statistical processing of opinions from a so-far-uninvestigated space.

4. Results and Discussion

In an authoritative paper, starting from the history of nearly five decades of KSC investigations, which analyzes 173 papers devoted to these criteria over a period of nearly 40 years out of the last 45, and, implicitly, the KSC hierarchies, it was found, with frequency arguments, that Martin Barnes's iron triangle, or triple constraint, maintains its priority only apparently [10]. The rank of the three standards, or the complex *time-cost-quality* criterion that dominates the reality of the PM (with absolute frequency values of 91, 91, 84 compared to a maximum of 173), is however exceeded by the stakeholders criterion, which is conceptually extended to customers (66), other users (58) and other stakeholders (27), and their combined frequencies are ranked first in the value of 151). The research conducted in this article, distinctly on the category of EU-funded educational projects carried out in Romania, comes with the following final rankings according to the respondents (Table 1):

Table no. 1. Ranks and hierarchy of KSC (total sample and subgroups)

KSC	Code	Score and rank			Parsanejad et al. 2013
		Sample (31)	Subgroup 1 (16)	Subgroup 2 (15)	
Integration	SER02	5.68=IV	6.13=IV	5.20=V	-
Scope	SER03	4.29=VIII	4.00=X	4.60=VII	-
Time	SER04	4.32=VII	4.38=IX	4.27=X	91/173=II
Cost	SER05	5.26=V	5.06=V	5.47=IV	91/173=II
Quality	SER06	7.32=II	7.19=II	7.47=II	84/173=IV
Team (HR)	**SER07**	**7.74=I**	**7.38=I**	**8.13=I**	38/173=V
Communication	SER08	7.13=III	7.06=III	7.2=III	*
Risk	SER09	4.13=X	4.50=VIII	3.73=VIII	*
Acquisitions	SER10	4.26=IX	4.75=VI	3.73=VIII	28/173=VI
Stakeholders	SER11	4.81=VI	4.56=VII	5.07=VI	**151/173=I**

**Note: PM organization would be similar or equivalent with communication and risk but only together (53/117).*

Source: realized by the authors based on research and from Parsanejad et al. 2013 (last column)

According to the respondents' opinions, the KSC hierarchy is changed in relation to that of the classical literature of the last four decades, and the single iron triangle of the EU-funded educational projects in Romania is distinctly shaped by dint of the specificity of the activity of these projects and their managers, by an aggregated *team-quality-communication* KSC, and *integration* is added to delineate the pyramid trend. The H_1 and H_2 hypotheses are therefore validated, and the tendencies of the international researches concerning KSC multiplication and nuancing in keeping with project typology (industry, construction, technology, agriculture, energy, cultural services, education, research, etc.) are objective at least in terms of the hierarchies and the main restrictions that delineate, triangularly or pyramidally, projects that are increasingly different. The veracity or relative overall objectivity of PMI standards is revealed by the fact that, in the *criterial quadrilateral* (the hierarchy of the first seven KSCs) there are no significant differences in structure or composition between the literature and the results of the respondents' opinions, except *integration*. Educational projects in Romania have priority elements which are related to *team* (HR) or human resources, due to the rarity and precariousness of the existing ones, under the impact of their emigration from Romania to the EU space, also emphasizing the importance of *quality*, along with communication and *integration*, while in the whole class of the KSCs, transformed into PMI standards or expertise fields in international projects, the major priority lies in the complex concept through the significance and multidimensionality of the *stakeholders*. As far as the H_3 hypothesis is concerned, within the low-volume sample, layered in subgroups, the analysis in relation to the respondents' experience does not identify significant differences, both between subgroups (sub-samples) and when confronted with their general sample. To exemplify the validation of the H_3 hypothesis in the case of KSC, the apparently largest differences, in absolute and relative magnitude, were made use of, which exceeded 1 point in the score or 20% relative to the average of the hierarchical or ranking scores. The *t-test* values calculated for *integration* and *acquisitions* among the subgroups *discriminated by the experience of the number of projects* are 0.837 and 1.197, respectively, and do not validate the existence of a significant difference, being lower than the *t-test* values tabulated for the Student test, for samples of small volume (n=15) following the application of the Test for Equality of Means Between Series. The identification and analysis of the intensity of the associations between the values of the KSC individual scores transposed by the respondents' opinions was done using the *EViews* program package, materialized in a correlation matrix. According to the latter, it is found that in the general sample, between the scores given by the respondents there coexist correlations marked by values of the correlation ratio (R) that are higher than $\left|0.5\right|$ in Table no. 2.

There appear indirect associations between *scope and acquisitions* (-0.535), which allow the expansion of *scope* to be compensated by an aggregation-type simplification of *acquisitions*, specific to education and educational processes, but also between *time and team* (-0.558), which is valid in all types of projects, which logically points out that, even in educational projects, the option for extended multidisciplinary teams can offset the time needed for the project to be achieved. In subgroups, which bring together more homogeneous populations of respondents in relation to their age and seniority, the multiplication is noticed of associations through the emergence of indirect average correlations between *integration and communication*, as well as that between *scope and team* or between *cost and stakeholders*, and the increase of the intensity of

some of them (*scope and acquisitions*), in parallel with increasing the experience of experts or project managers through the realization of a larger number of projects.

Table no. 2. Matrix of correlation between opinions about KSC

	SER02	SER03	SER04	SER05	SER06	SER07	SER08	SER09	SER10	SER11
SER02	1.000									
SER03	-0.018	1.000								
SER04	-0.197	-0.113	1.000							
SER05	-0.187	-0.112	0.392	1.000						
SER06	0.081	0.094	-0.281	-0.134	1.000					
SER07	-0.062	-0.051	-0.558	-0.243	0.066	1.000				
SER08	-0.470	-0.198	-0.195	-0.198	-0.057	0.246	1.000			
SER09	-0.299	-0.326	-0.053	-0.017	-0.424	-0.173	0.337	1.000		
SER10	0.035	-0.535	0.156	-0.187	-0.459	-0.195	-0.022	0.317	1.000	
SER11	-0.197	-0.066	-0.282	-0.385	-0.081	0.230	-0.017	-0.066	0.088	1.000

Software used: EViews

The opinions of less experienced experts or managers emphasize risk-aversion in educational projects that generate, in their sub-group, correlations between risk and quality, risk and quality, risk and acquisitions, as well as acquisitions and quality (Appendix 1)

The research conducted on the small sample also highlighted the need to complete the current structure of the criteria with new KSC categories, extracted from the experience of educational projects carried out in Romania and funded by the EU, which, at the same time, are able to synthesize key issues derived from the behavior of project teams in consortia, partnerships and education federations, incentives and sanctions related to the behavior of project team members, which can reduce the actual time of the project and may increase added value, or criteria that describe the social need for sustainable education and lifelong learning..

5. CONCLUSIONS

Criterial nuancing or relativization remain valid in the KSC analysis, too. The theoretical impact of key success criteria confronted with their real impact over time through KPIs can help to transform a seemingly failed project into a successful one. The Sydney Opera project was declared a failure according to the complex *time-cost-scope* criterion, since it exceeded the deadline by eight years, multiplying the initial cost almost 16 times, and significantly expanding the original field, but in an apparently surprising manner, it turned into a successful project in post-project evaluations after several decades, through the newly created value, which has since reached a size that is hard to imagine. The partial nature of the impact of the criterion, the time-relation of the criterial essence, the need to rank the priorities described through criteria and derived performance indicators, and, in particular, the existence of objective situations in some projects, where the success defined by a well-defined criterion cannot be managed, emphasize the continued need for improvement of KSC in projects. The KPIs that allow success to be identified are also exposed to too much pressure, from the requirements to measure the impact on stakeholders, continually defined by more and more destinations (manager, partnership, team, customer, stakeholder, etc.) and much too varied characteristic features (budget, program, organizational efficiency, etc.).

Five of the six research hypotheses in this article, which lay behind the questionnaire, were validated according to the analysis of the database resulting from the analysis of the respondents' opinions. A general conclusion of the present paper shows that the educational specificity of the project generates a distinct KSC ranking, a single triangle and a distinct priority pyramid, associations of the KSC that exclusively define the educational project, where the experience of the project experts or project managers diversifies and intensifies certain correlations, which makes any KSC membership dynamic and requiring regular additions.

The only invalid hypothesis shows that experience in educational projects does not generate significant differences in assessing the importance of each KSC, in other words to rank hierarchically, in a relatively adequate manner, the priorities in terms of KSC, the experience based on the number of projects cannot be invoked as an essential argument (educational programs are made by teams of teachers who have previously had a certain teaching and didactic experience, acquired in educational processes). In the limited space of the questionnaire and the research in this paper could not be included other aspects, which will certainly represent the object of further investigations. Future research can analyze the success of a project in relation to different time periods of the project execution, and especially in post-project completion. The errors, ambiguities and the failure risks of EU-funded projects in Romania need to be more clearly, more specifically and more closely connected with the absorption of European funds. The authors of the present article consider that the results of their research should be, first and foremost, reconfirmed quantitatively and qualitatively, by new researches on larger samples in the near future, and identify, as the main deficiency, the relatively objective character of the respondents' opinions, even when they belong to experts or important project managers, who are unfortunately limited to the specific reality of the Romanian educational space. Sadly, the experience of the project managers in Romania is not comparable to that of those working in the developed EU countries, which is also felt in the partial and late absorption of European funds, with intense efforts, in many areas, and the difficult monitoring of the operationalization of the programs in the Romanian economy.

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APPENDIX 1

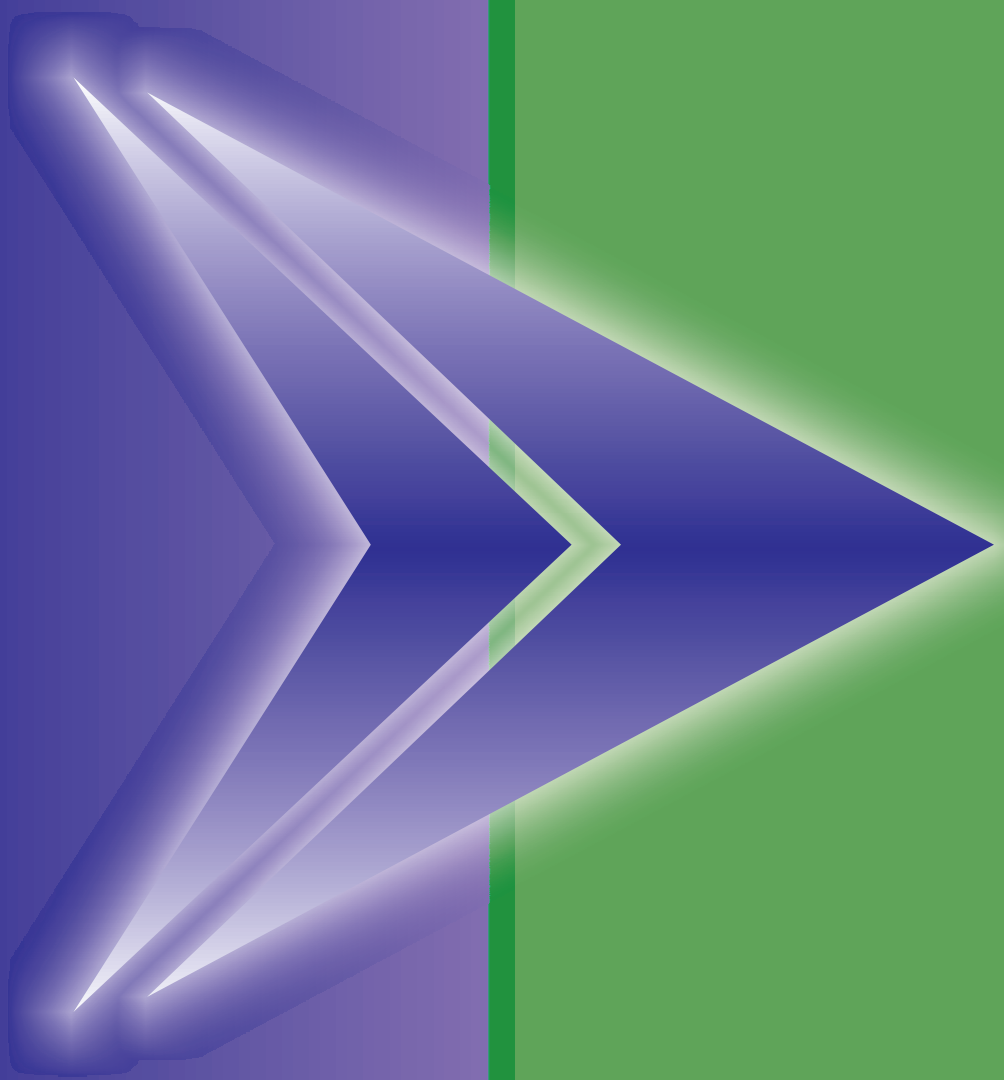
Table no. 3. Matrix of correlation between opinions about KSG in subgroup 1

	SER02	SER03	SER04	SER05	SER06	SER07	SER08	SER09	SER10	SER11
SER02	1.000									
SER03	-0.091	1.000								
SER04	-0.154	0.074	1.000							
SER05	-0.155	0.096	0.240	1.000						
SER06	-0.208	0.140	-0.139	-0.360	1.000					
SER07	-0.005	-0.511	-0.427	-0.318	-0.143	1.000				
SER08	-0.570	-0.328	-0.105	0.008	-0.282	0.289	1.000			
SER09	-0.298	-0.349	-0.220	0.143	-0.135	-0.184	0.406	1.000		
SER10	0.389	-0.704	-0.145	-0.302	-0.014	0.440	-0.019	-0.082	1.000	
SER11	-0.132	0.224	-0.235	-0.582	0.069	0.446	-0.003	-0.252	-0.264	1.000

Table no. 4. Matrix of correlation between opinions about KSG in subgroup 2

	SER02	SER03	SER04	SER05	SER06	SER07	SER08	SER09	SER10	SER11
SER02	1.000									
SER03	0.085	1.000								
SER04	-0.245	-0.254	1.000							
SER05	-0.201	-0.343	0.527	1.000						
SER06	0.324	0.053	-0.364	0.034	1.000					
SER07	-0.058	0.214	-0.636	-0.235	0.160	1.000				
SER08	-0.360	-0.071	-0.276	-0.440	0.124	0.224	1.000			
SER09	-0.377	-0.279	0.096	-0.193	-0.717	-0.134	0.269	1.000		
SER10	-0.349	-0.379	0.361	-0.055	-0.761	-0.520	-0.011	0.712	1.000	
SER11	-0.232	-0.342	-0.315	-0.229	-0.195	0.081	-0.039	0.175	0.416	1.000

RTE



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