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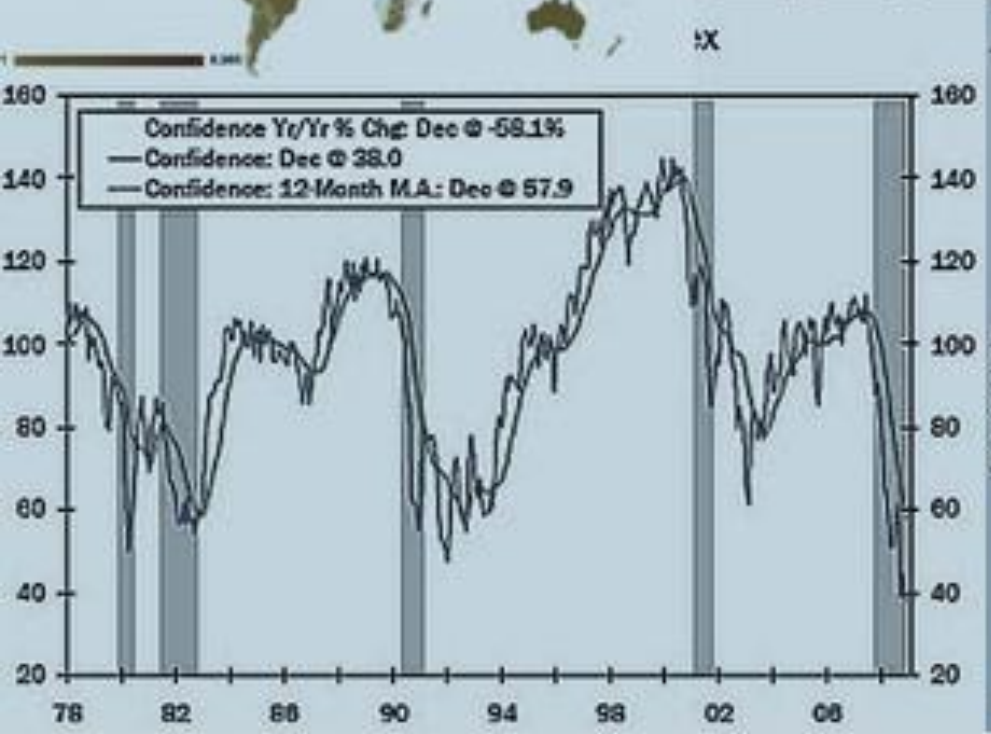

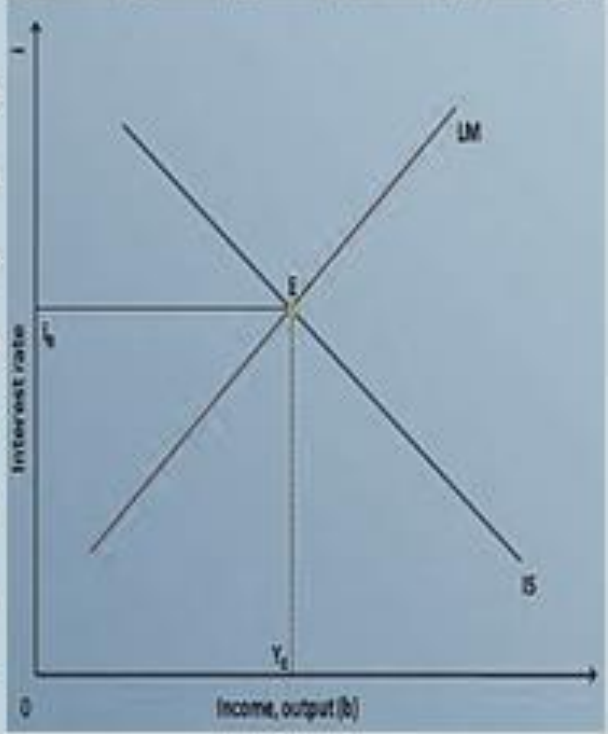

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ANALYSIS OF MACROECONOMIC EVENTS IMPACT USING THE EVENT STUDY METHODOLOGY

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Abstract:

This article examines the impact of the most important macroeconomic events form Eurozone on the returns of financial assets such as exchange rates, stock market indexes, swap and futures contracts. By applying the event study methodology, we computed the abnormal square returns. Results have demonstrated that events with the highest impact were macroeconomic indicator announcements like consumer price index, unemployment rate and interest rate communication by the European Central Bank.

Keywords: event study, macroeconomic events, high frequency data

JEL classification: G14, E44

Introduction

During the past several decades we have witnessed rapid advances in the quantification of risk related to financial investments. Reducing uncertainty has been a very important part in financial management. In their activity, investors should take into account not only the expected return on investment, but also an inventory of the risks that an investment is facing and a measure of the exposure to each risk.

In order to manage risk, first it is necessary to understand the types of risk that an investment is exposed to. This requires also an examination of the information available on the market, since this is immediately reflected in the behavior and dynamics of financial markets. A fundamental source of available information is the publication of macroeconomic data by statistical offices. The effects of these announcements on financial assets prices has received increased attention in the academic literature.

To measure this impact, a frequently used approach is the event study methodology. Assuming that economic agents act rationally, the utility of this methodology comes from the fact that the effects of an event will be immediately reflected in financial assets prices. Thus a measure of a macroeconomic event impact can be built using prices for a short period of time. This approach, intensively used in economic and financial research, is popular for testing the effects of a wide range of events. Examples include takeovers, mergers and acquisitions, earning announcements, securities issues, bankruptcy and financial distress and news regarding macroeconomic variables such as GDP, unemployment, inflation rate.

The motivation behind this study lies on the necessity to determine those specific indicators which can have a significant impact on the market. Macroeconomic news can cause immediate reactions

in financial instruments prices. Until the moment they are published, the investors are waiting patiently, and respond immediately after they are released. Reactions can be very strong, based on the released values of the indicators and how much they deviated from the expected ones. Thus, in this study we investigate the events which influenced the most the evolutions of financial asset prices.

Moreover, since the globalization is an essential characteristic of world economy, economic agents must bear in mind not only domestic information, but also news that come from markets around the world. Therefore, economic situation in one country can affect the decisions of investors from other countries. Macroeconomic data influence investors 'perceptions not only about current economic situation, but also future evolution and causing therefore price changes.

Literature review

There is a wide coverage in the academic literature of event studies and it probably started with the research conducted by James Dolley (1933) who used the methodology to examine the returns effect of stock splits. The complexity level of this method increased in the following years. Certain important contributors include John H. Myers and Archie Bakay (1984), C. Austin Baker (1956, 1957 and 1958) and John Ashley (1962). The most significant improvements they brought were the removal of general stock market price variations and the separation of events which may cause confusion and increase the difficulty of ascertaining the impact of one event, such as contemporaneous events. By the end of the 1960, important papers published by Ball and Brown (1968) and Fama et al. (1969) have introduced the methodology which is very similar to one used today. Ball and Brown have focused on the informational content of quarterly earnings per share, while Fama et al. have studied the effects of stock splits after eliminating the confounding events like simultaneous dividends increase.

In a more recent study, Krueger (1996) states that starting with the year 1983, the New York Times Journal is publishing an article about the release of nonfarm payroll indicator by the Bureau of Labor Statistics and its impact on the bond or stock market.

A similar set of literature has focused on the analysis of macroeconomic news surprises' impact on financial asset prices. The surprise of an event is computed as a difference between the predicted level and the observed level of its released value. In this category can be included the contributions brought by Fleming and Remolona (1997), Bollerslev et al. (2000), Furfine (2001), Balduzzi et al. (2001) and Green (2004) who proved that surprises of macroeconomic events such as GDP, inflation rate, unemployment rate or consumer confidence index are the main drivers of changes in Treasury yields, especially at the moment when they are released.

In an effort to perform a more in depth analysis, following studies have used high frequency data. Based on 5 minutes frequency data, Andersen et al. (2007) investigated the impact of 22 US macroeconomic indicators on stock, bond and foreign exchange markets not only from the US, but also from Great Britain and Germany during July 1998 and December 2002. They demonstrated that the release of indicators 'values affect the European markets.

Also, Ederington and Lee (1993) conducted an event study analysis in order to determine whether US macroeconomic indicators are impacting financial instruments like Treasury bonds (T-bonds) and Eurodollar. The results have shown that indicators with the highest impact were consumer and producer price indexes, trade deficit, employment report, durable goods orders and retail sales. Moreover, prices tend to adjust to this new information very rapidly, usually in the first minute after the publication, they show a higher level of volatility for another 15 minutes and a slightly high level in the next few hours.

In the framework of their study, Conrad and Lamla (2010) used the event study methodology in order to investigate the impact of monthly speeches given by European Central Bank's governor following the Governing Council's monetary policy meeting and the announcement of interest rate. The

financial instrument used in the analysis was the EUR-USD exchange rate. Between 1999 and 2006 there were 89 Governing Council meetings. Their results proved that an unexpected decision regarding contractionary/expansionary monetary policy leads to an immediate appreciation/depreciation of EUR. Also, both positive and negative surprises related to interest rate level (according or not to the market expectations) are causing prolonged increased volatility in the exchange rate. In addition, the following speeches or statements are playing an important role in setting the expectations of economic agents about the future evolution of the economy. If the speech includes statements concerning risks to price stability, the EUR is appreciating. The reason for this behavior lies in the investors' beliefs that the Central Bank will react immediately and adopt measures to address the risk of price stability by raising interest rates.

The structure of an event study

Even though it doesn't have a unique structure, generally, the structure of an event study is following the bellow steps (Campbell, Lo, MacKinlay, 1997):

- *Identify the event*. The initial step in the event study methodology is to choose the event whose impact we are analyzing and the *event window,* which is the total time interval relevant for the analysis. For example, if we want to study the effect of earnings announcements on share prices, the event would be the announcement and the event window could be the day of the announcement.
- *Selection criteria*. The second step in the event study methodology requires the identification of selection criteria based on which we include data series in the analysis. In case of macroeconomic indicators' impact this step involves financial instruments selection.
- *Normal and abnormal returns.* The impact of an event on returns must be measured, and the measurement is the abnormal part of the return. In other words, the abnormal return is the ex-post return of the financial instrument, obtained in the event window, from which we extract the normal return, in the event window. The normal return is defined as the return that would have been obtained if the event hadn't happened. For each asset *i* and event *τ*, the abnormal return is computed with the bellow formula:
    - $\varepsilon_{it}^{*} = R_{it} - E\left[R_{it} / X_{t}\right]$
    - Where ε_{it}^{*}, R_{it} şi $E[R_{it}]$ are abnormal, actual and normal returns for period t. X_t is the conditional information in the absence of the event. Through modelling the expected return based on this information we can obtain an estimation of the normal return. There are two approaches used to determine normal returns: *Constant Mean Return Model* in which X_t is a constant and the *Market Model* which assumes that X_t is the market return. The Constant Mean Model, like the name suggests, assumes that the mean of a given asset is constant in time, while the Market Model is based on a linear, stable relationship between market return and asset return. However, these classical models were improved during the last years, and the modern literature is dominated by many other normal returns modelling techniques, in the absence of the event.
- *Estimation technique.* Once the model has been chosen, the following step is the parameters estimation in the *estimation window,* which will serve as the time frame under which data is gathered in order to estimate the return in the event window (MacKinley, 1997). For example, for an analysis based on daily data and market model technique, the parameters can be estimated using a time frame of 120 days before the event. Generally, the estimation period does not overlap with the event window in order to avoid biases that the event could have over the estimation procedure.

- *Testing procedure*. With the estimated parameters, we determine the normal returns and a methodology of testing these abnormal returns.
- *Empirical results.* The econometric analysis is followed by the presentation of empirical results and of diagnostics, especially when the event observations are limited.
- *Interpretation and conclusions.* The results of the analysis should offer answers regarding the ways through which the event is affecting the price of a financial instrument.

Data selection

The first step in the event study process is deciding what type of event is of interest. With this done, we need to specify the selection criteria based on which we determine whether a certain instrument should be included in the sample of analysis or not. The data used for the purpose of this paper consists of five-minute returns for different types of financial instruments such as: exchange rates, swap contracts, stock indexes and a stock market index future. Tables 1 lists all the instruments used in this analysis. We took into account a period of approximately 8 months, starting from 2nd of June 2014 until the 30th of January 2015. Price data was obtained through Bloomberg platform, and the analysis was performed in Matlab.

Table 1. Analyzed financial assets

Symbol	Name
EURCHF Curncy	Euro to Swiss Franc currency exchange rate
EURGBP Curncy	Euro to British Pound currency exchange rate
EURHUF Curncy	Euro to Hungarian Forint currency exchange rate
EURNOK Curncy	Euro to Norwegian Krone currency exchange rate
EURPLN Curncy	Euro to Polish Zloty currency exchange rate
EURRUB Curncy	Euro to Russian Ruble currency exchange rate
EURSEK Curncy	Euro to Swedish Krona currency exchange rate
EURUSD Curncy	Euro to US Dollar currency exchange rate
EUSA10 Curncy	Euro swap annual 10 years
EUSA5 Curncy	Euro swap annual 5 years
SXXP Index	Stoxx Europe 600 Index
SX5E Index	Euro Stoxx 50 Index
VGA Index	Euro Stoxx 50 Index Futures

Source: Bloomberg database

Also, we used different types of macroeconomic events in order to build an exhaustive analysis of the impact that different statistical information releases regarding the Eurozone might have on the financial market. There were considered only regular, scheduled communicates. Therefore, the repeatability is an essential characteristic of the events used for this study. Table 2 contains a complete list of macroeconomic indicators for Eurozone, released regularly.

Table 2. Macroeconomic events

Macroeconomic events
Consumer Price Index (CPI)
Producer Price Index (PPI)
European Central Bank interest rate decision (Rd)

Gross Domestic Product (GDP)
Industrial Production (IP)
M3 Money Supply (M3)
Retail Sales (RS)
Balance of Trade (BT)
Unemployment rate (U)
Markit Eurozone Composite PMI (PMIc)
Markit Eurozone Manufacturing PMI (PMIm)
Business Confidence Index (BCI)
Consumer Confidence Index (CCI)
Economic Confidence Index (ECI)

The methodology

The purpose of this event study is to measure the impact in the volatility of above mentioned financial instruments when information regarding Eurozone's main financial indicators is released.

The applied methodology is based on data series for each financial asset used to measure volatility changes during periods after each event. Thus, we applied a volatility estimation technique for a 500 period sample (log-returns of 5 minutes frequency data series) before the event. We considered that the most important price reactions occur in the period prior to the event, which in case of this analysis is a 25 period sample. The mentioned reactions refer to the fact that moments before the publication of some important events, the volatility of financial assets is relatively low compared to volatilities recorded in the same moments, but during different trading days. In this interval, we can say that the market is waiting and after the release of macroeconomic indicators we can expect significant volatility movements that depend on the nature of the data and their values, in line with investor expectations or not.

In the time frame preceding the event release, we measure the amount of fitting error with respect to the volatility model (through mean-squared errors – *MSE*, which is the mean of squared errors, errors computed as difference between real and estimated values). The obtained value will be used as reference for identification of volatility changes in the interval after the event. We use another 25 period time frame in order to measure the volatility impact. It is very important to assess market reaction in the same time interval for all types of considered events, so that we can obtain comparable results.

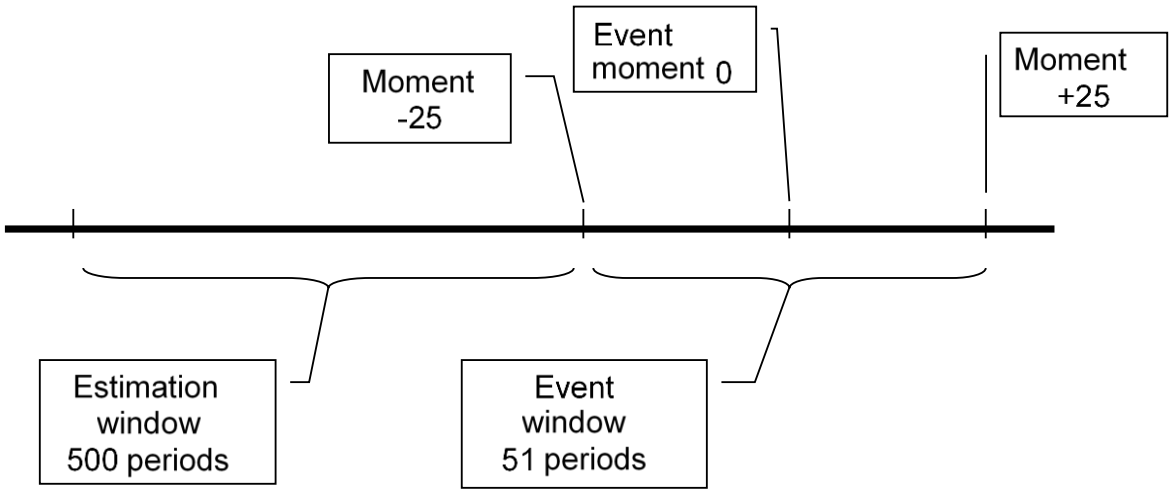
In each of the 25 periods after the event, we use the volatility model to make forecasts and calculate the squared error (ε_t^2), meaning the difference between squared return and estimated variance. Each of these values will be compared with the mean squared error computed in the pre-released time frame. We consider that a value is abnormal, meaning that we have a volatility impact, if $\varepsilon_t^2 > 2MSE$.

Thus, we construct a binary variable which takes the value of 0 if no volatility impact is detected and the value of 1 when at least one ε_t^2 is above the mentioned threshold. We sum the values of 1 and the result is divided by the total number of periods after the event (in this particular case we have 25 periods plus 1, which is event moment). The obtained indicator represents the impact of information regarding a macroeconomic indicator on the volatility of a financial asset.

$$Impact_t = \begin{cases} 1, \varepsilon_t^2 > 2MSE \\ 0, \varepsilon_t^2 \leq 2MSE \end{cases}, \quad \text{iar} \quad Volatility\ impact = \frac{\sum_{t=1}^{26} Impact_t}{26}$$

The event study methodology scheme is illustrated in Figure 1.

Figure 1. Event study methodology



The volatility model used to offer forecast is RiskMetrics. RiskMetrics is a risk management system proposed by the company JP Morgan and uses the exponentially weighted average model to forecast variance. The weight of square returns are exponentially reduced as we move into the past.

The RiskMetrics variance model, also known as exponential smoother is:

$$\sigma_{t+1}^2 = (1-\lambda)\sum_{\tau=1}^{\infty} \lambda^{\tau-1} R_{t+1-\tau}^2, \text{for } 0 < \lambda < 1$$

Separating from the sum the square return for τ = 1, where $\lambda^{\tau-1} = \lambda^0 = 1$, we obtain:

$$\sigma_{t+1}^2 = (1-\lambda)\sum_{\tau=2}^{\infty} \lambda^{\tau-1} R_{t+1-\tau}^2 + (1-\lambda)R_t^2$$

By applying the exponential smoother technique again, today's variance σ_t^2,, can be written as:

$$\sigma_t^2 = (1-\lambda)\sum_{\tau=1}^{\infty} \lambda^{\tau-1} R_{t-\tau}^2 = \frac{1}{\lambda}(1-\lambda)\sum_{\tau=2}^{\infty} \lambda^{\tau-1} R_{t+1-\tau}^2$$

Therefore, future variance can be described as:

$$\sigma_{t+1}^2 = \lambda\sigma_t^2 + (1-\lambda)R_t^2$$

Thus, the RiskMetrics model of future volatility estimation can be seen as weighted average between actual volatility and actual square return. For this analysis we used the volatility model with the variable λ taking the value 0.94, estimated for a 500 period sample prior to the event window. This way, the abnormal square return is defined as difference between actual square return and estimated σ_t^2.

However, in order to offer an accurate event impact, it is necessary to eliminate first the periodicity component from the data series. A regular, time-dependent time series is periodic. According to Erdemlioglu, Laurent and Neely (2012), this periodic pattern can be usually caused by regular trading trends such as opening and closing of the three major markets, Asia, Europe and North America, or effects of regular macroeconomic news.

Due to these regular variations, the variance calculated for high frequency data, $\sigma_{t,i}^2$, has a periodic component, $f_{t,i}^2$. Erdemlioglu, Laurent and Neely (2012) state that $\sigma_{t,i}^2 = s_{t,i} f_{t,i}$, where $s_{t,i}$ represents the stochastic part of the intraday volatility which is constant within one day, but varies form one day to another and $f_{t,i}$ is the standard deviation periodicity.The estimator proposed by Erdemlioglu,

Laurent and Neely (2012) is computed based on standard deviation: $\hat{f}_{t,i}^{SD} = \frac{SD_{t,i}}{\sqrt{\frac{1}{M}\sum_{j=1}^{M} SD_{t,i}^2}}$, where $SD_{t,i} = \sqrt{\frac{1}{n_{t,i}}\sum_{j=1}^{n_{t,i}} \bar{y}_{j;t,i}^2}$. M represents the number of returns from a data series and $\bar{y}_{t,i}^2$ is the standardized return of *i* order from day *t*. Therefore the log-returns used in this analysis are periodicity-adjusted returns, i.e. returns divided by the $f_{t,i}$ measure of periodicity.

Results

The results of this study reveal important information about the general state of Eurozone's economy. On average, indicators with the most persistent influence were the Consumer Price Index, Consumer Confidence Index, Producer Price Index, unemployment rate, Markit Eurozone Composite PMI Index and European Central Bank decision regarding interest rate. Two of these indicators, namely the Consumer Price Index and Producer Price Index are the main indexes used in order to measure the inflation, and together with the inflation rate they provide essential information about the real economy of Eurozone. Moreover, their evolution is a key factor in European Central Bank's decision regarding the interest rate. On the other hand, the PMI Composite Index and Consumer Confidence Indicator can offer an overview over the future evolution economic activity. This are the reasons why they are so important and their release may cause significant movements in financial instruments' prices. They are carefully followed by investors who want to take the best decision based on current and future developments of the economy.

Table 3. Average volatility impact for each analyzed asset after the publication of Eurozone's macroeconomic indicators

	CPI	PPI	Rd	GDP	IP	M3	RS	BT	U	PMIc	PMIm	BCI	CCI	ECI
EURCHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EURGBP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EURHUF	0.019	0.038	0.010	0.031	0.048	0.019	0.038	0.092	0.043	0.092	0.072	0.022	0.093	0.022
EURNOK	0.029	0.106	0.009	0.000	0.048	0.000	0.029	0.077	0.009	0.072	0.014	0.011	0.038	0.011
EURPLN	0.029	0.029	0.111	0.000	0.038	0.019	0.019	0.015	0.043	0.046	0.019	0.088	0.071	0.088
EURRUB	0.038	0.067	0.077	0.000	0.010	0.019	0.058	0.077	0.051	0.026	0.024	0.066	0.055	0.066
EURSEK	0.029	0.038	0.034	0.031	0.058	0.029	0.019	0.015	0.085	0.021	0.000	0.022	0.060	0.022
EURUSD	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EUSA10	0.000	0.000	0.000	0.000	0.010	0.000	0.010	0.000	0.000	0.010	0.014	0.000	0.000	0.000
EUSA5	0.010	0.000	0.051	0.000	0.000	0.000	0.000	0.015	0.000	0.000	0.005	0.000	0.000	0.000
SXXP	0.038	0.000	0.026	0.000	0.010	0.000	0.000	0.000	0.051	0.000	0.019	0.022	0.055	0.022
SX5E	0.029	0.000	0.026	0.000	0.010	0.000	0.000	0.046	0.026	0.000	0.014	0.033	0.038	0.033
VGA	0.135	0.019	0.000	0.000	0.000	0.000	0.019	0.231	0.034	0.067	0.087	0.022	0.082	0.022

In Annex 3 there are presented the publication moments of the six indicators which, on average, had the strongest impact, and the value of volatility indicator.

After the release of GDP there were very low reactions, or no reactions at all. This is a quarterly published indicator and generally does not provide surprising details regarding the overall state of the economy, this being already captured through monthly basis information. The results are in line with the ones previously mentioned in the literature review section.

Also, the currency exchange rates are the financial instruments that reflect the fastest new information entering the market, except EURCHF, EURGBP and EURUSD. The lack of impact and abnormal returns for these financial assets may be explained by the proximity of the four regions (Eurozone, Switzerland, Great Britain and United States). Economically, these countries are very similar. Usually they respond to the same types of information and sometimes we can even talk about contagion. The prices are adjusting very fast, but without sudden, significant movements.

In general, the reactions of financial instruments are not immediate. For most of the cases, there were not recorded significant abnormal returns during the first two or three periods. In other words, the

market does not react immediately and prices need some time to adjust and include new information. However, increased volatility persists for at least 15 minutes.

Conclusions

This paper tested the market efficiency and how events in the financial market shift returns from their estimated equilibriums by employing an event study with focus on 14 types of macroeconomic indicators on series of financial assets during 2nd of June 2014 and 30th of January 2015. The results demonstrated that the events had an impact on the financial market, though it was not immediate.

The decision making process in finance is very complex due to the high level of uncertainty in any financial market. Through the analysis presented in this paper it was highlighted also the great importance of high frequency data in assessing the impact of macroeconomic events on financial assets. Risk and volatility are associated with the quality and quantity of information that is entering the market. This is the reason why we investigated the connection between moments when we registered abnormal returns and main macroeconomic events. This fundamental analysis is offering an overview for the general direction of the market in the long term. Moreover, we determined the events that influenced the most the evolutions of financial assets. Overall, it was observed a stronger impact generated by the release of the following indicators: Consumer Price Index, Producer Price Index, Consumer Confidence Index, unemployment rate, Markit Eurozone Composite PMI Index, and Central Bank's decision on interest rate.

Bibliography

[1] Albu L. L., Lupu R., Calin A. C., Popovici, O. C. (2014b), "The effect of ECB's Quantitative Easing on Credit Default Swap Instruments in Central and Eastern Europe", Procedia Economics and Finance, Volume 8

[2] Andersen T., Bollerslev T., Diebold F., Vega C. (2007), „Real-time price discovery in global stock, bond and foreign exchange markets", Journal of International Economics 73

[3] Ashley J. W. (1962), „Stock Prices and changes in Earnings and Dividends: Some Empirical Results", Journal of Political Economy 70(1)

[4] Balduzzi P., Elton E., Green C. (2001), „Economic news and bond prices: evidence from the US treasury market.", Journal of Finance Quant Analysis 36

[5] Ball R., Brown P. (1968), „An Empirical Evaluation of Accounting Income Numbers", Journal of Accounting and Research 6(2)

[6] Barker, C. A. (1956), „Effective Stock Splits", Harvard Business Review 34(1)

[7] Barker, C. A. (1957), „Stock Splits in a Bull Market", Harvard Business Review 35(3)

[8] Barker, C. A. (1958), „Evaluation of Stock Dividends", Harvard Business Review 36(4)

[9] Barndorff-Nielsen O., Shephard N. (2004), „Power and bipower variation with stochastic volatility and jumps", Journal of Financial Econometrics

[10] Bollerslev T., Cai J., Song F.M. (2000), „Intraday periodicity, long memory volatility, and macro-economic announcement effects in the US treasury bond market", Journal of Empirical Finance 7

[11] Campbell J.Y., Lo A.W., MacKinlay C.A. (1997), „The Econometrics of Financial Markets", Princeton, NJ: Princeton University Press

[12] Dolley J. C. (1933), „Characteristics and Procedure of Common Stock Split-Ups", Haravard Business Review 11

[13] Erdemlioglu D., Laurent S. și Neely C. J. (2012), „Econometric modeling of exchange rate volatility and jumps", Working Paper 2012-008A, Federal Reserve Bank of St. Louis.

[14] Fama E. F., Fisher L., Jensen M. C., and Roll R. J. (1969), „The Adjustment of Stock Prices to new Information", International Economic Review 10(1)
[15] Furfine C. (2001), „Do macro announcements still drive the US bond market?" BIS Q Rev 49–57
[16] Green C.T. (2004), „Economic news and the impact of trading on bond prices." Journal of Finance 59
[17] Krueger, A.B. (1996), „Do markets respond more to more reliable labor market data?" Articol nepublicat, Princeton University, A test of market rationality
[18] Longerstaey J., (1996), „J.P.Morgan/Reuters. RiskMetricsTM—Technical Document"
[19] Myers J. H., Bakay A. (1948), „Influence of Stock Split-Ups on Market Price", Harvard Business Review 26
[20] Fleming M. J., Remolona E. M. (1997), „What Moves the Bond Market?" Federal Reserve Bank of New York Economic Policy Review 3
[21] Ederington L. H., Lee J. H. (1993), „How markets process information: News releases and volatility", The Journal of Finance 48(4)
[22] Conrad C., Lamla, M. (2010), „The high-frequency response of the EUR-USD exchange rate to ECB communication", Journal of Money, Credit and Banking, 42

Annex 3. Indicators that, on average, had the highest volatility impact

Event	Affected asset	Publication moment	Volatility impact
Consumer Price Index	EURHUF Curncy	10/16/2014 9:00	0.076923077
Consumer Price Index	EURHUF Curncy	11/14/2014 10:00	0.076923077
Consumer Price Index	EURNOK Curncy	10/16/2014 9:00	0.153846154
Consumer Price Index	EURNOK Curncy	12/17/2014 10:00	0.076923077
Consumer Price Index	EURRUB Curncy	10/16/2014 9:00	0.307692308
Consumer Price Index	EURSEK Curncy	11/14/2014 10:00	0.153846154
Consumer Price Index	EURSEK Curncy	1/16/2015 10:00	0.076923077
Consumer Price Index	EUSA5 Curncy	10/16/2014 9:00	0.076923077
Consumer Price Index	SXXP Index	1/16/2015 10:00	0.307692308
Consumer Price Index	SX5E Index	1/16/2015 10:00	0.230769231
Consumer Price Index	VGA Index	12/17/2014 10:00	1
Consumer Price Index	VGA Index	1/16/2015 10:00	0.076923077
Consumer Price Index	EURPLN Curncy	10/16/2014 9:00	0.076923077
Consumer Price Index	EURPLN Curncy	12/17/2014 10:00	0.076923077
Consumer Price Index	EURPLN Curncy	1/16/2015 10:00	0.076923077
Producer Price Index	EURHUF Curncy	10/2/2014 9:00	0.076923077
Producer Price Index	EURHUF Curncy	12/2/2014 10:00	0.153846154
Producer Price Index	EURHUF Curncy	1/8/2015 10:00	0.076923077
Producer Price Index	EURNOK Curncy	10/2/2014 9:00	0.307692308
Producer Price Index	EURNOK Curncy	11/4/2014 10:00	0.230769231
Producer Price Index	EURNOK Curncy	12/2/2014 10:00	0.230769231
Producer Price Index	EURNOK Curncy	1/8/2015 10:00	0.076923077
Producer Price Index	EURRUB Curncy	11/4/2014 10:00	0.230769231
Producer Price Index	EURRUB Curncy	12/2/2014 10:00	0.307692308
Producer Price Index	EURSEK Curncy	10/2/2014 9:00	0.230769231
Producer Price Index	EURSEK Curncy	12/2/2014 10:00	0.076923077

Producer Price Index	VGA Index	1/8/2015 10:00	0.153846154
Producer Price Index	EURPLN Curncy	11/4/2014 10:00	0.153846154
Producer Price Index	EURPLN Curncy	12/2/2014 10:00	0.076923077
Consumer Confidence Index	EURHUF Curncy	11/20/2014 15:00	0.307692308
Consumer Confidence Index	EURHUF Curncy	1/8/2015 10:00	0.076923077
Consumer Confidence Index	EURHUF Curncy	1/29/2015 10:00	0.076923077
Consumer Confidence Index	EURNOK Curncy	10/23/2014 14:00	0.307692308
Consumer Confidence Index	EURNOK Curncy	11/20/2014 15:00	0.076923077
Consumer Confidence Index	EURNOK Curncy	12/22/2014 15:00	0.076923077
Consumer Confidence Index	EURNOK Curncy	1/8/2015 10:00	0.076923077
Consumer Confidence Index	EURRUB Curncy	10/23/2014 14:00	0.076923077
Consumer Confidence Index	EURRUB Curncy	10/30/2014 10:00	0.307692308
Consumer Confidence Index	EURRUB Curncy	11/27/2014 10:00	0.153846154
Consumer Confidence Index	EURRUB Curncy	12/22/2014 15:00	0.153846154
Consumer Confidence Index	EURRUB Curncy	1/22/2015 15:00	0.076923077
Consumer Confidence Index	EURSEK Curncy	10/23/2014 14:00	0.307692308
Consumer Confidence Index	EURSEK Curncy	10/30/2014 10:00	0.076923077
Consumer Confidence Index	EURSEK Curncy	11/20/2014 15:00	0.307692308
Consumer Confidence Index	EURSEK Curncy	12/22/2014 15:00	0.076923077
Consumer Confidence Index	EURSEK Curncy	1/29/2015 10:00	0.076923077
Consumer Confidence Index	SXXP Index	12/22/2014 15:00	0.153846154
Consumer Confidence Index	SXXP Index	1/22/2015 15:00	0.076923077
Consumer Confidence Index	SXXP Index	1/29/2015 10:00	0.153846154
Consumer Confidence Index	SX5E Index	11/20/2014 15:00	0.076923077
Consumer Confidence Index	SX5E Index	12/22/2014 15:00	0.230769231
Consumer Confidence Index	SX5E Index	1/29/2015 10:00	0.230769231
Consumer Confidence Index	VGA Index	12/22/2014 15:00	1
Consumer Confidence Index	VGA Index	1/8/2015 10:00	0.153846154
Consumer Confidence Index	EURPLN Curncy	11/27/2014 10:00	0.153846154
Consumer Confidence Index	EURPLN Curncy	12/22/2014 15:00	0.307692308
Consumer Confidence Index	EURPLN Curncy	1/22/2015 15:00	0.076923077
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Markit Eurozone Composite PMI	EURHUF Curncy	11/20/2014 9:00	0.076923077
Markit Eurozone Composite PMI	EURHUF Curncy	12/3/2014 9:00	0.153846154
Markit Eurozone Composite PMI	EURHUF Curncy	12/16/2014 9:00	0.153846154
Markit Eurozone Composite PMI	EURHUF Curncy	1/6/2015 9:00	0.076923077
Markit Eurozone Composite PMI	EURNOK Curncy	11/5/2014 9:00	0.076923077
Markit Eurozone Composite PMI	EURNOK Curncy	12/3/2014 9:00	0.076923077
Markit Eurozone Composite PMI	EURNOK Curncy	1/23/2015 9:00	0.230769231
Markit Eurozone Composite PMI	EURRUB Curncy	12/3/2014 9:00	0.153846154
Markit Eurozone Composite PMI	EURRUB Curncy	12/16/2014 9:00	0.153846154
Markit Eurozone Composite PMI	EURRUB Curncy	1/6/2015 9:00	0.076923077
Markit Eurozone Composite PMI	EURSEK Curncy	10/3/2014 8:00	0.076923077
Markit Eurozone Composite PMI	EURSEK Curncy	12/3/2014 9:00	0.076923077
Markit Eurozone Composite PMI	EURSEK Curncy	1/6/2015 9:00	0.153846154
Markit Eurozone Composite PMI	EUSA10 Curncy	11/5/2014 9:00	0.153846154

Markit Eurozone Composite PMI	VGA Index	12/16/2014 9:00	1
Markit Eurozone Composite PMI	EURPLN Curncy	10/3/2014 8:00	0.076923077
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Markit Eurozone Composite PMI	EURPLN Curncy	12/3/2014 9:00	0.230769231
Markit Eurozone Composite PMI	EURPLN Curncy	12/16/2014 9:00	0.230769231
Markit Eurozone Composite PMI	EURPLN Curncy	1/6/2015 9:00	0.076923077
Unemployment rate	EURHUF Curncy	9/30/2014 9:00	0.076923077
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Unemployment rate	EURHUF Curncy	1/7/2015 10:00	0.153846154
Unemployment rate	EURHUF Curncy	1/30/2015 10:00	0.076923077
Unemployment rate	EURNOK Curncy	10/31/2014 10:00	0.076923077
Unemployment rate	EURRUB Curncy	10/31/2014 10:00	0.153846154
Unemployment rate	EURRUB Curncy	1/30/2015 10:00	0.307692308
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Unemployment rate	EURSEK Curncy	1/30/2015 10:00	0.153846154
Unemployment rate	SXXP Index	1/7/2015 10:00	0.230769231
Unemployment rate	SXXP Index	1/30/2015 10:00	0.230769231
Unemployment rate	SX5E Index	1/7/2015 10:00	0.076923077
Unemployment rate	SX5E Index	1/30/2015 10:00	0.153846154
Unemployment rate	VGA Index	1/7/2015 10:00	0.230769231
Unemployment rate	VGA Index	1/30/2015 10:00	0.076923077
Unemployment rate	EURPLN Curncy	9/30/2014 9:00	0.076923077
Unemployment rate	EURPLN Curncy	10/31/2014 10:00	0.076923077
Unemployment rate	EURPLN Curncy	1/7/2015 10:00	0.153846154
Unemployment rate	EURPLN Curncy	1/30/2015 10:00	0.076923077
ECB interest rate decision	EURHUF Curncy	10/2/2014 11:45	0.076923077
ECB interest rate decision	EURHUF Curncy	1/22/2015 12:45	0.076923077
ECB interest rate decision	EURNOK Curncy	11/6/2014 12:45	0.076923077
ECB interest rate decision	EURRUB Curncy	10/2/2014 11:45	0.153846154
ECB interest rate decision	EURRUB Curncy	11/6/2014 12:45	0.230769231
ECB interest rate decision	EURRUB Curncy	1/22/2015 12:45	0.307692308
ECB interest rate decision	EURSEK Curncy	12/4/2014 12:45	0.076923077
ECB interest rate decision	EURSEK Curncy	12/4/2014 12:45	0.076923077
ECB interest rate decision	EURSEK Curncy	1/22/2015 12:45	0.153846154
ECB interest rate decision	SXXP Index	12/4/2014 12:45	0.076923077
ECB interest rate decision	SXXP Index	12/4/2014 12:45	0.076923077
ECB interest rate decision	SXXP Index	1/22/2015 12:45	0.076923077
ECB interest rate decision	SX5E Index	1/22/2015 12:45	0.230769231
ECB interest rate decision	EURPLN Curncy	10/2/2014 11:45	0.076923077
ECB interest rate decision	EURPLN Curncy	11/6/2014 12:45	0.076923077
ECB interest rate decision	EURPLN Curncy	1/22/2015 12:45	0.076923077

Romanian Culture and Art in the 18th -20th centuries - important sector in the economic development

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Abstract:
Cultural tourism is the instrument for economic development that leads to economic growth by attracting visitors from the outside of the host community and who are partly or generally motivated by an interest in historical, artistic, scientific or lifestyle related components, realities, traditions and information about a community, region, group or institution. Such a journey focuses on deepening the cultural environment, including landscapes, visual and theatrical arts, lifestyles, values, traditions and events.The capacity of the national economy to benefit from tourism depends on the availability of investments to develop the necessary infrastructure and its ability to meet the needs of tourists.

Keywords: urban culture, cultural landscape, urbanity

JEL classification: Z11, Z32

Introduction

In many countries, tourism is considered more important than production in terms of both economic and social aspects. Tourism is an excellent potential as a catalyst for economic growth and, for this, is a key macroeconomic sector.

Tourism and cultural heritage are the basis of two major, self-contained, highly developed and complex areas, which are constantly changing due to the evolution of the concepts that govern them. Often these areas act in parallel, following each other's own path, although they interfere on certain levels with the presence of common elements such as heritage values that at one point become attractions for tourism.

Cultural wealth is due to Romania's multicultural aspect through the presence of a large number of minorities, exhibiting the great western and oriental cultures.

In the old world, cultural tourism can be based on buildings or visiting the ruins of great temples or buildings. They are generally funerary buildings. Romania could offer quite a lot from this point of view. We have such monuments - ruins, dating from the same period as the most visited cultural objectives of this type in Greece or Small Asia. The geo-Dacian sanctuaries remain unmatched in the antiquity world, both through the organization of the ensembles and the architectural conception. The oldest rectangular temples are preserved in the Sebeş Mountains, at Sarmisegetusa and date back to Burebista's time. Subsequently, they underwent transformations and amplifications, especially during Decebal's time.

Besides the great ensemble of the Sebes Mountains, the Dacian fortresses from Tilişca (Sibiu County), from Bâlcă Doamnei (Neamţ County), from Argedava - a locality identified with the settlement of Popeşti on Argeş, are mentioned.

Of particular importance for the subsequent evolution of the Geo-Dacian culture was the installation of Greek colonies on the Black Sea coast and on the lower course of the Danube. According to the chronicles of Eusebius, in 657 BC, the settlers from Milet founded the city of Histria. In the 6th century BC The colonists of Pontic Heraclea founded the city of Callatis, and Tomis was born at the end of the same century, with the participation of the nearby Histria.

Implanted into the territory of the Getae, the Greek colonies brought to them a series of architectural, artistic and craftsmanship elements, many of which are absorbed by the native environment.

Romanian Art in the 18th centuries

The process of emancipation in architecture is quite visible. Small houses are beginning to come to life, and it is significant to multiply the wall-building houses built in the urban area.

In Transylvania, Crişana and Banat the Baroque architecture was imposed as an official architecture of the Habsburg Empire. In Baroque architecture, Baroque architecture is quite difficult in the form of echoes mediated on the one hand by the Transylvanian centers, on the other hand, by the Istanbul fashion, where the baroque was adapted to the decorative concept of Oriental-Islamic tradition.

In Wallachia, Brâncoveanu's rich legacy architecture marked the entire architectural activity.

Brâncovenescesc style

In art, the transition to the 18th century is gradually, in a continuous and secure process, following the impetus given by Constantin Brâncoveanu.

Wallachia has a great artistic flowering. This is Mogosoaia Palace, with large and bright rooms.

In the religious architecture, the most united ensemble is the one from Horezu. As a plan, the central church has a porch, courtyard, sanctuary and altar. Here he set up the famous library, preserved over the centuries under the name of "Constantin Brâncoveanu's Library", which currently counts over 4,000 volumes.

Brâncoveanu sculpture is made of stone and wood. Brâncoveanu's masters treat the motives more freely, the ornament often taking the look of a lace. The ornament is highlighted, which makes floral and plant motifs appear on columns, handrails, or door and window frames.

Leading innovations were brought to Brâncoveanu's craftsmen and in painting. The characters are rendered with natural, true movements, close to reality. The most visible trends in this regard are also in Horezu. The painting in the chapel is frescoed. Although the iconographic program preserves the Byzantine tradition, we also distinguish a few peculiarities, of which: the introduction of the portraits of the craftsmen in the porch, along with the founders; free interpretation of the composition of the icons; Approaching in a new way the scene of the Last Judgment. Among the historical scenes is the "Life of St. Constantine the Great", a rare representation of great artistic and historical value.

The votive painting is perhaps the largest, most outstanding and valuable in the whole country. It depicts a true gallery of historical portraits of great artistic value, depicting St. Constantine Brancoveanu and his whole family, distinguishing the face of Mrs. Maria, along with his direct ancestors and his relatives from Basarab and Cantacuzines. It is also understood that the church wanted to be a necropolis of the Brâncoveanu family and of its people.

Constantin Brâncoveanu also contributed to the decorative arts: sculpted furniture, embroidery, fabrics, etc. In this respect, the Romanian craftsmen in Şchei District of Braşov made a great contribution, executing orders and teaching others their mastery in the book of books and the making of gold or silver or gold or gold ornaments.

Brâncoveanu style appears as a complex and innovative artistic phenomenon.

Architecture in Muntenia and Moldova after Constantin Brâncoveanu

The boyish house and the merchants' houses

The boyars' courtyards, made of thick brickwork made of stone mixed with brick or only brick, were usually in the middle of courtyards with fruit trees. The courtyards were surrounded by a thick and tall defense wall. The boyars' houses were divided into several rooms that were in a central hall.

The merchants' houses were made by processing the traditional elements of the old farmhouse. Some of them are located in Suceava, Botosani, Râmnicu Vâlcea, Ploieşti, Bucharest.

In Transylvania, the forms of architecture dominated by elements of the Renaissance, preserved by the Hungarian nobility, continued to be appreciated, but baroque buildings gradually developed. Thus the fortified citadels from Cluj, Alba Iulia were built. Characteristic are the Bruckenthal Palace in Sibiu and the Banffy Palace in Cluj.

Romanian Art in the 19th century

In the first decades, the tradition of the 18th century is preserved. In the towns there are buildings with architectural elements specific to Asia Minor, especially in interior decoration and furnishings, as a result of trade exchanges between native merchants and those in the Near East.

Another category of buildings are the shops, town inns, such as Manuc's Inn in Bucharest.

With the social-economic development, the Romanian people, in full ascension, tend towards a modern culture, based on the assimilation of some elements of Western Europe. Thus appeared forms of the neoclassical architecture found in the former Palace of the Cantacuzino family in Iasi, Creţulescu House, Ştirbei Palace, Ghica Palace in Bucharest. In Transylvania, the Teleky Palace and the Zsombory House in Cluj are the most representative buildings of the neoclassical style.

Towns know great transformations, especially as systematization. In the first half of the nineteenth century, towns such as Bucharest, Galati, Iasi, Arad, Oradea, Timisoara, Sibiu and Cluj were enlarged and restructured. New towns like Alexandria and Turnu Magurele have been built.

After the 1848 revolution in Bucharest, new institutions were created, with an important role played by Alexandru Orăscu, Bucharest's chief architect. Among the most successful buildings are the former Palace of the University of Bucharest, the building of the former Boulevard Hotel, the Bucharest cinema.

Apart from the neoclassical style, a romantic style has been developed, characterized by the processing of elements of the Gothic style. Palaces, churches, hospitals, and so on were built, such as the Palace of the History Museum, the University House, and so forth.

The social economic development, after 1877, imposed a more intense pace of construction for state institutions: ministries, palaces of justice, etc. Thus, a new style of architecture appears, the eclectic style, with new elements taken in particular from France and Austria. Under these conditions, the building of the Institute of Medicine and Pharmacy, the Romanian Athenaeum, the Palace of Justice, the CEC, and the National Bank Palace, was built in Bucharest. In Iasi the new façade of the University and the National Theater were built and the Art Museum in Craiova. In Transylvania the theaters in Cluj and Oradea, the Babeş-Bolyai University building in Cluj, etc. are being built.

Simultaneously with the eclectic style, there was a need to create a Romanian architecture, starting from the artistic traditions of the Romanian people. In this direction is Ion Mincu's work, the creator of a national style. His first work was the Lahovary House in Bucharest.

Romanian sculpture in the 19th century mirrors all the most important development stages of our country. The sculpture in the bas-relief is very common at first, and it adorns the borders of the doors and the windows, the interior or the furniture. Later sculpture develops in round thick at the instigation of Gheorghe Asachi. The first stadium in round thick was made of plaster and symbolically represented Romania Eliberated, through the image of a woman who held in a hand the balance of righteousness in another cross.

A special place in Romanian sculpture is occupied by Ion Georgescu, who plays the frenzy of life, through the realistic elements of his work, through the heat of rendering the represented models and by the elements of authenticity. Through Ion Georgescu, the Romanian monumental sculpture acquires the character of true sculpture. He made plastic the shape of the bodies in which the pulse of life feels (Izvorul newspaper, 1878).

Romanian Painting in the 19th Century

The revolutionary movement of the popular masses of 1848 found in plastic art a significant echo, portraits proving craftsmanship sustained by a long practice. An example is Constantin Daniel Rosenthal who painted "Revolutionary Romania" or Barbu Iscovescu who painted the revolutionary flag on which the motto "Justice-Fraternity" was written. Barbu Iscovescu made a series of portraits of the mountain revolutionaries, including the portrait of Nicolae Golescu. The art of these painters reflects an intense activity in the service of popular masses, the struggle for justice.

After the cessation of the revolution, the union of Wallachia with Moldova, in 1859, remains in the artistic vision of both painters and sculptors. There is no artist, from this period, who did not have as a source of inspiration and concern, the idea of the Union. The painters are reminded: Constantin Lecca, Gheorghe Tăttărescu (with the work of the Union of the Principalities).

The artistic personality that emerges in the Union era is the painter Theodor Aman, who in his works mirrors almost every political and social event in our country ("The Union of the Principalities", "The Hora Unirii in Craiova", "Vlad Ţepeş and his messengers" etc.). His historical pictorial work, made in a neoclassical form, is crossed by an innovative, romantic breath. Aman painted portraits (Cezar Bolliac, Pepina Aman) in which the artist turns out to be a good observer and psychologist.

Gheorghe Tăttărescu, a pioneer of neoclassicism in Romanian painting, painted the portraits of revolutionaries Gheorghe Magheru, Ştefan Golescu in exile, and in 1851 painted Nicolae Balcescu's portrait (in three almost identical reps). The ideal of national liberation and the edification of a modern Romania is transposed into allegorical compositions with revolutionary subject (Renaissance of Romania, 1849, Modern Romania, 1866) or patriotic subject (Unification of Principalities, 1857). In 1860 he was commissioned to draw up a "National Album" of the country's historical monuments and monuments. Thus, he has the opportunity to assert himself as a landscape artist with discrete romantic accents (Dâmbovicioara newspaper, 1860). Much of his artistic activity was devoted to religious art, creating a personal style influenced by Italian academics and partly by traditional Byzantine iconography. Between 1853 and 1892, with the help of his students, he painted over 50 churches in Bucharest (St. Spiridon's Church) and Iasi (the Metropolitan Church of Iasi), as well as the Greek Church in Braila or Ciolanu Monastery in the county Buzau.

Nicolae Grigorescu, the first of the founders of the modern Romanian painting, followed by Ion Andreescu and Stefan Luchian, became a symbol for the young generations of artists who, in the first decades of the 20th century, sought to identify and bring to light the values of Romanian spirituality.

He is known as a peasant's painter, being its most authentic representative. His pictorial work is closely related to the nature and life of ordinary people.

Stefan Luchian turned out to be an original artistic personality, affirming himself with a generous, vibrant painting, which, through his colorful palette of light, his new artistic position, and a sparkling exposure of language, managed to convey to the viewer a high quality humanist message. Luchian's great innovatory contribution to Romanian painting from that time is the way of translating the light effects. Portraits such as Lorica, Child portrait or Santa Nicolae Cobzarul, the face of pain in the self-portrait named modesty, A painter, works inspired by the events of 1907 - marked by peasant revolts, or extremely expressive type scenes such as Laura, all are chromatic echoes of Stefan Luchian's sensitivity. When, at the age of thirty-three, due to illness, landscapes become inaccessible, Luchian focuses his attention on flowers, and his pastels reach unparalleled craftsmanship.

Romanian Art in the Twentieth Century

At the beginning of the 20th century, history records an increase of the Romanian economy parallel to deep transformations in the structure of society.

In Romania, during this period, the national trend in architecture is stated more strongly. Petre Antonescu is undoubtedly one of the most sophisticated architects in his era. A first period, defined by the author as classic, is attached to the conservative beaux-arts-architecture, where historical styles combine with Art Nouveau elements. A second creative period is related to the experiment of the Romanian cult architecture. One of the first buildings designed in Bucharest in 1902, in eclectic style, is that of the Palace of Elena Kretzulescu, elaborated in the French neo-Renaissance style. Enescu House follows the same eclectic-beaux-arts-satire style, perhaps less complicated.

Petre Antonescu's most successful works are considered to be the national architectural achievements such as the "Bucharest home of Ionel I. C. Bratianu" and Florica's Mansion, which launches the model of the classical Neo-Romanian style. The source of Petre Antonescu's inspiring tradition remains Brâncoveanu's architecture.

Sculpture of the twentieth century has gone through revolutionary transformations. Numerous new influences have given rise to new styles, themes and materials have been used. A large development has seen the funeral sculpture, especially the busts and bas-reliefs. Among the artists of that time, the personality of Dimitrie Paciurea is detached. The type in which he excelled Paciurea was the portrait. From the very beginning, the artist succeeds in expressing himself freely, with a dramatic poetic force, almost surrealist, reaching the climax in the "CHIMERAS" series.

The Art of the 1900s is the art of artists returning to the country after their studies in Germany and France. We can mention painters such as: Stefan Luchian, Ştefan Popescu, Cecilia Cuţescu-Storck. Prior to the First World War, Romanian art has primitive, fauve and expressionist and less cubist tendencies. One of the theoretical problems of time was that of the "national specificity".

Octav Băncilă left to posterity a work characterized by a very strong critical realism, the artist being known as a pioneer and as *the Painter of the 1907 uprisings*. Attached to many and exploited, the painter had four great themes with which he made an era in painting Romanian. These were: the theme of the proletariat, peasant themes, Jewish themes and Gypsy themes. To all this is added the military theme. The paintings on the social themes of the peasantry life in Romania were begun by Stefan Luchian in 1905 when he made the famous painting "At the sharing of corn".

Cultural elements of the Romanian urban area

In the current understanding, urban culture refers to official culture, somehow synonymous with that of the center or the elite, intellectuals, magazines, or cultured people. It appears to contain a set of elements that shape its profile - from language, history, memory of places, personalities, to literature, art, architectural style, how to arrange public spaces (and how to use those spaces), how Consumption, entertainment, music, clothing - obviously, not necessarily in this order. On the other hand, the Romanian urban culture is a relatively new phenomenon, not older than two centuries, the cultural modernization being still ongoing.

The transformations of social-political and economic life have led to important changes in the periods of the Romanian cities. The cultural dignity of the cities is a valuable historical testimony. Cities such as Târgovişte, Sighisoara, Sibiu, Iaşi, Craiova, Timisoara, Cluj and many others represent a palpable creation of a long history. The adoption and development of tourism development strategies and the intense promotion of tourist objectives would certainly lead to a continuous flow of tourism, and the cities would have an economic and social development.

With a particularly rich cultural and historical sphere, but with a well-structured and well-structured management and marketing plan, cities can enjoy a fairly important tourist flow. Medieval cities are an eyewitness of a tumultuous history, a witness of transformations, and the sights, monuments, old buildings, places of worship are a history that should be widely publicized.

1. Sibiu is a city of present and future, friendly with contemporary art, a generous host for music and exhibition festivals and for the nearly 2 million tourists that it registers every year at various cultural events. Sibiu is perceived as a city of art and culture, which can be considered as the cultural capital of Romania due to the secular traditions and artistic cultural heritage that the city and its border region holds.

Sibiu is the place where the first museum on the territory of Romania, *the Brukenthal Museum* opened on 25 February 1817 and the second museum opened in Europe bearing the name of the former Transylvanian governor, Samuel von Brukenthal, who donated his great personal collections of art And an impressive library to set up this museum that is housed in its former residence.

Eight cultural centers and many other sports and cultural associations offer an event-rich program.

Huet Square is named after Albert Huet renowned for his contribution to religion and education. This market takes place around the Evangelical Cathedral, built in the 14th century on the site of an old church dating from the twelfth century. The Gothic building is dominated by the seven-level tower with the four turrets on the corners, a sign that the town was entitled to death. The tower of the church, 73.34 m high, is the highest building in Sibiu.

The Metropolitan Cathedral in Sibiu, dedicated *to the Holy Trinity*, built between years 1902-1906, was built by Metropolitan Ioan Metianu and built according to the plans of the architect engineers Virgil Nagy and Joseph Kammer in Budapest. Raised on the site of a Greek church dating back to 1778, which until then served as an episcopal cathedral, features the characteristics of a Byzantine basilica.

Sibiu has a two-century old theatrical history found in the two present theaters: the Radu Stanca National Theater and the Gong Theater. Both theaters perform performances in both Romanian and German languages.

Eight cultural centers, the Writers' Association, the Union of Fine Artists and many other sports and cultural associations offer an event-rich program.

2. The city of Brasov certified in 1234, in Ninivensis Catalog, under the name of Corona, is in its essence a multicultural city, supported by a historical legacy attested by centuries. There is even a "living" proof of the historical cultural profile through the survival of the old local cultural and ethnic communities within the narrow neighborhood of the neighborhood they occupy in ancient times (Sacei - Cetate and Braşuvechi, Old Romanians - Şchei, Hungarians and Szeklers - Blumăna). They are also the deposits of the immaterial patrimony of the communist era (traditions, legends and stories). Brasov is an example of a city where hundreds of years of tradition and solidarity of medieval or pre-modern type have survived. Thus, the Romanians in the Sheikhs have kept a traditional harbor of at least three centuries old, ancient games and unique rituals in the area of Roman Oriental.

The personalities who lived in Brasov, marking their cultural and artistic life, are evoked by memorial houses, commemorative plaques, museums, art galleries, historical monuments and public buildings or street names.

Brasov is a university center with a very strong tradition in the field of technical and forestry.

3. Sighisoara, founded by the German colonists, is among the few city-cities inhabited in Europe and the only one preserved for the most part but also inhabited in Romania. The medieval atmosphere of the Sighisoara Citadel is given by the appearance of the narrow streets, the architecture of the walls and the relatively well preserved towers and its old churches. At the height of its power it had 14 towers (9 at present), and three rows of defense walls. The most beautiful monument and symbol of the Citadel is *the Clock Tower*. It is the expression of four architectonic styles: it is based on two vaulted gangs belonging to the old twelve-century old tower, built in the late Romanesque style. On the fifth floor Gothic structure is interrupted by the *"loggia",* which suggests the Renaissance style, which vertically connects with the Baroque roof, which practically doubles the height of the tower.

The Church of the Monastery is a Gothic-style architectural monument and is located in the immediate vicinity of the Clock Tower. The church belonged to the Dominican monks and has been mentioned since 1298. The patrimony of the church has, among other things, 39 oriental rugs of great value, made in the 16th-17th centuries and a bronze cast in 1440.

In the Citadel there are three civilian buildings with late Gothic architecture or the Renaissance period: the Gothic House, the House with the Stag and the Vlad Dracul House. The Vlad Dracul House is the oldest civil stone construction in the fortress. Here Prince Vlad Dracul lived between years 1431-1435.

The Venetian House was named because of the double windows that imitate the Venetian Gothic. The edifice dates from sec. The sixteenth century being the residence of Mayor Stephanus Mann, whose funeral stone can be seen in the Church from the Hill.

Sighisoara is considered to be the most beautiful city inhabited in Europe.

4. The town of Târgovişte is distinguished by its anthropic touristic and cultural potential, represented by architectural monuments, museums, memorial houses, old boyar houses, commemorative monuments and art and culture institutions, the city being considered one of the major cultural centers Of the Romanian Middle Ages, often called by the foreigners "Wallachia Florence".

In 1418 Târgovişte is documented as a city and capital of Wallachia. During this period the city benefited from a privileged status being the most important economic and cultural center of Wallachia, a fact favored by the crossroads of important commercial roads.

A long range of tourist attractions in this city means development priorities for Romanian culture and tourism: the Royal Court Museum Complex, numerous museums (the Museum of Romanian Printing and Old Romanian Books, the Museum of the Writers' Writers, the Romanian National Police Museum), Chindia Park And the Zoo, as well as important places of worship (Monumental Complex "Stelea", Dealu Monumental Complex, Metropolitan Monument Complex, etc.).

The urban landscape must be regarded as an open, wide-ranging cultural work, the continuous creation of political, administrative, economic forces, as well as of specialists, professional or amateur artists and, last but not least, of the inhabitants.

Bibliography:

[1] Banciu, Angela (2003), *Cultură şi civilizaţie europeană,* Editura Lumina Lex, Bucureşti;
[2] Coanda G., (2006), O istorie geopolitica si a geocivilizatiei Romaniei – niste viziuni subiective proiectate dinspre orizontul istoric al Targovistei, Editura Bibliotheca, Targoviste, pag. 274;

[3] Marin Nicolau – Golfin (1968), Istoria artei, Editura didactică și pedagogică, București;
[4] Neagoe L. (2008), Depăşind modernitatea: crize şi modele în cultura română, Cuvântul 2;
[5] Teodorescu Camelia (2008), Cultură, civilizaţie şi turism, Editura Transversal, Târgovişte.
[6] http://www.insse.ro
[7] http://www.cultura.ro/
[8] http://turism.gov.ro

BUCHAREST STOCK EXCHANGE. THE EVOLUTION OF INSTITUTIONAL FRAMEWORK AND OF THE MAIN FINANCIAL INSTRUMENTS.

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Abstract:
The Stock Exchange is primarily intended to facilitate the flow of money from those who own capital (investors) to those who need capital in order to develop their own business (entrepreneurs). Any company listed on the Stock Exchange enjoys more advantages than access to development capital, the additional benefits being the improvement of the Company's profile, constant and free advertising, higher visibility vis-à-vis the customers and the business partners. This article analyses the evolution of the institutional framework of the Bucharest Stock Exchange at the time of creation and so far until now, as well the evolution of the main financial instruments traded in markets operating within the Bucharest Stock Exchange. An analysis is made related on the institutional framework since the establishment of the institution, showing the main progress and events that influenced the functioning and development of the Bucharest Stock Exchange. The main financial instruments traded on the Bucharest Stock Exchange (shares, bonds, fund units) as well as the evolution of the eight indices of Bucharest Bureaus are analysed.

Keywords: *Bucharest Stock Exchange (BVB), evolution, indices*

JEL Classification: *G15*

Introduction

The Stock Exchange term designates the institution of the market economy, with the purpose of providing the organized framework needed for transactions and a system of principles and norms that guarantee the conclusion and performance of the conventions on a balanced, mutually trustworthy and transparency basis between the contracting parties.

The Stock Exchange is the place where securities are traded under certain rules and procedures specific to this field. Being called the barometer of an economy, it is meant to highlight the rules of a free play of the market forces, being the closest to the pure and perfect market economy model. The Stock Exchange has a determining role in price formation based on the demand-supply ratio, mirroring in this respect the economic reality.

Any company listed on the stock exchange enjoys more advantages than access to development capital, additional benefits being improved company profile, constant and free advertising, higher visibility vis-à-vis customers and business partners. The Stock Exchange represents the place where the securities are traded in compliance with certain rules and procedures specific to this field.

The Stock Exchange identifies the legal framework for its incorporation, under the Law no. 52/1994 related on securities and stock exchanges (currently abrogated). According to these provisions, the Stock Exchange was established as a public institution by a decision of the National Securities Commission (CNVM, *Romanian acronym*), currently the Financial Supervisory Authority, being invested with legal personality. The Stock Exchange under the regulatory acts could receive donations, bequest and subsidies. By the same law it was established that CNVM could decide to set up a Stock Exchange only when it receives a request in this respect by at least 5 securities companies, owners of stock exchange authorizations.

The supervision and control of the stock exchange regarding the administration and operation was attributed to the stock exchange Commissary.

For the Stock Exchange Management a stock exchange Committee has been appointed, consisting of 5-9 members, being elected by the Stock Exchange Association. The mandate of the members of the committee was set for a term of 5 years. The members of the Stock Exchange Committee, after being appointed and before taking office, had to be individually validated by CNVM. After their validation, the president and the two vice-presidents were elected, the president being the legal representative of the Stock Exchange as a public institution.

Administration of the Stock Exchange is provided by the General Manager, who is appointed by the Stock Exchange Committee. The mandate of the General Manager is 5 years, with the status of civil servant with duties involving the exercise of public authority. The General Manager is the legal representative of the Stock Exchange, as a legal person, in relations with public authorities and with Romanian or foreign natural persons.

By the provisions of Law no. 52/1994 are implemented and regulated stock exchange operations, as all negotiations made at the Stock Exchange in the exchange meetings, which are recorded in accordance with regulations of the stock exchange transaction. Any type of stock exchange transaction made and registered represents an act of merchant which creates valid obligations that cannot be opposed to the exception of the game.

The Bucharest Stock Exchange was established on 21st April 1995 by Decision no. 20 issued by CNVM. The Bucharest Stock Exchange was established as a public institution with a legal personality that achieves its objectives according to the principle of self-financing.

The decision to establish the Bucharest Stock Exchange was issued by CNVM as a result of the request from 24 securities companies, members of the Stock Exchange Association. The Bucharest Stock Exchange has been awarded the status of a public interest institution, operating in the form of an auction market respecting the principle of price uniqueness as a point of equilibrium between supply and demand, on the basis of orders placed on the same security listed on the stock exchange.

The first trading session in the modern period of operation of the Bucharest Stock Exchange took place on November 20, 1995, at which 25 securities companies were able to bid in 6 companies listed on the stock exchange. As far as the material resources necessary for the establishment of the Stock Exchange are concerned, it received funding for the first year of activity from the state budget, based on the proposal submitted by CNVM. The amounts allocated as financing had to be recovered through CNVM over 3 years and the amounts had to be paid to the state budget, after the second year of operation of the Stock Exchange.

By Order no. 4 of 9th February 1996 issued by the President of CNVM, the Regulation no. 7/1995 on the status of the General Commissary of the Stock Exchange is approved. According to this regulation, the General Commissary exercises direct and permanent supervision and control of the Stock Exchange. In order to carry out the duties laid down in the Regulation, the General Commissary shall have free access to all premises, to all documents, information and records of the Stock Exchanges, which must make available to the General Commissary all the documents and information which he requests.

The Bucharest Stock Exchange operated as an auction market in which the principle of price uniqueness is respected as a point of equilibrium between supply and demand at a certain point in time.

With the advent of the Law no. 297/2004 regarding the capital market and the need to align the internal legislation with the European directives in the field, the Bucharest Stock Exchange changes its legal status, being transformed into a joint stock company. Company shares are distributed to brokerage companies operating on the market at that time.

In the first part of the stock exchange evolution, there is a continuous increase of the three stock indices (BET, BET-C and BET-FI), reaching new historical peaks at that time.

In 2005, the Bucharest Stock Exchange became an associate member of the World Federation of Exchanges: During the same period, the first privatization of a state-owned company took place on the Bucharest Stock Exchange. Transelectrica, as a result of a public offer for sale, is listed on the Bucharest Stock Exchange.

2008 is the year when a new premiere takes place at the Bucharest Stock Exchange, considering that the state securities were being traded and the first closed investment fund (STK Emergent) is listed.

The year 2010 is representative for the Bucharest Stock Exchange, when the first international company (Daimler AG) was introduced to trading on the Alternative Trading System of the Bucharest Stock Exchange. In mid-2010, the Bucharest Stock Exchange is listed on its own regulated market.

Year 2011 is marked by the listing of Proprietatea Fund on the Bucharest Stock Exchange, an event that has had a great influence on the value of transactions as well as on the number of active investors on the market.

In 2013, on the positive trend of the evolution of the Bucharest Stock Exchange, the program of privatizations through the capital market continues. Nuclear Electrica and Romgaz are listed on the Stock Exchange. The public offer for the sale of 15% of Romgaz shares is the largest offer that has been carried out to date at the Bucharest Stock Exchange.

The year 2014 is marked by the continuation of the modernization process of the Bucharest Stock Exchange. Implementing a new program for market-makers, reducing stock market indices and introducing new measures for potential and existing issuers is taking place. Also in 2014, the largest initial public offer for sale in the history of the Bucharest Stock Exchange is registered, respectively the sale of shares of Electrica and the stock exchange listing of this company.

The year 2015 marks the launch on the market share of the Alternative Trading System of the Bucharest Stock Exchange of the AeRO market, whilst the year 2016 marks the launch of a new investment product for both growing and declining markets (warrant).

The Bucharest Stock Exchange is a competitive market both in Eastern Europe and Central Europe, offering many financing opportunities for companies, which in turn aim to raise large investments in the capital market, growth prospects being optimistic in this respect. Thus, the Bucharest Stock Exchange can represent a financing alternative for large companies, which can attract significant capital from the main market, as well as start-ups and SMEs, for the latter being created the AeRO market.

Nowadays, the Bucharest Stock Exchange operates two types of instruments that help entrepreneurs looking for financing for their own companies. These instruments are represented by shares and bonds.

The Bucharest Stock Exchange operates two markets as follows:

(i) *the Main Market* - used for companies with a higher maturity; and

(ii) *the AeRO market* - where admission requirements are less rigorous allowing small and medium-sized companies to be admitted to this market.

There are three different methods within the Bucharest Stock Exchange through which a company can list its shares on the Main Market as follows:

(i) *The Initial Public Offering* - (Initial Public Offering - IPO), which involves making a prospectus that must be approved by the Financial Supervisory Authority. The company initiating the offer must also comply with all legal and regulatory procedures in the field.

(ii) *Private Placement*. However, this method limits the number of investors to 149 and does not require any further pre-approval or authorization phases.

(iii) *Technical listing,* this being a method for which no offer is made prior to listing. Under this offer, the company decides to benefit from the advantages of a listed company (transparency, credibility, higher visibility among profile companies).

Currently, the Bucharest Stock Exchange provides and calculates in real time 8 own indices and an index developed together with the Vienna Stock Exchange (the ROTX index).

The indexes calculated and distributed by the Bucharest Stock Exchange include the following indices: BET (Bucharest Exchange Trading), BET-TR, BET-XT, BET-XT-TR, BET-BK, BET-FI, BET-NG, BET Plus. The BET index can be referred to as a free float capitalized index for the most liquid shares traded on the BVB regulated market. The BET index was launched on September 19, 1997, being the first index developed and launched by the Bucharest Stock Exchange, with a value of 1,000 points at the launch date.

All index categories provided by the Bucharest Stock Exchange are calculated in Lei, Euro and USD, all of them being distributed in real time. The methodology used and applied by BVB in the use of indices allows the use of these indices as an active support for derivatives and structured products.

Table 1. Evolution of BVB indices on December 30, 2016.

Indici BVB	3 luni	6 luni	9 luni	12 luni
BET	2.14%	9.45%	5.50%	1.15%
BET-BK	2.88%	12.48%	6.65%	0.19%
BET-FI	2.12%	11.53%	6.26%	-1.87%
BET-NG	2.86%	4.83%	3.70%	-2.97%
BET-TR	2.14%	11.46%	14.42%	9.70%
BET-XT	2.50%	9.73%	5.78%	0.47%
BET-XT-TR	2.71%	12.38%	14.11%	8.39%
BETPLUS	2.09%	9.83%	5.67%	1.74%
ROTX	3.08%	14.87%	7.37%	0.94%

Source: *ASF, https://asfromania.ro/informatii-publice/media/arhiva/5802-evolutia-pietei-de-capital-la-31-12-2016*

These indices show the evolution of the prices of the most traded companies as well as the evolution of certain sectors that are representative of a country's economy and are traded on the stock exchange. All indices distributed by BVB are weighted price indices having a free float capitalization, with maximum limits on the weight of the component companies. The exception to this feature is represented by the BET-TR and BET-XT-TR indices that are adjusted for dividends, the remainder of the indices indicating only the evolution of market prices.

The calculation of the BET index and its spread to the public is done in real time by the BVB for each trading day and the values of this index are denominated both in Euro and USD, and are then published at the end of each trading session. For companies, the main selection criterion is given by the liquidity index. After 2015, for the selection, in addition to the criterion of the liquidity index, the transparency criteria for issuers and the quality of their communication and reporting to and with investors are also applied. The BET index reflects the evolution of companies that are the most traded on the market, but not with the inclusion in this category of the financial investment companies (SIFs). This is a preponderant price index that has a free float capitalization. The maximum share of such an index symbol is 20%.

The main types of financial instruments traded on the Bucharest Stock Exchange are: shares, bonds, fund units, certificates and warrants.

Regarding the *evolution* of *the shares* on the BVB's main market, it can be noticed that during the period 2008-2017 there is an increase of trading sessions from 250 meetings in 2008 to 254 meetings in 2016, and a decrease of them to 157 so far. The capitalization of shares in this market is on a steadily increasing trend from 45.701.492.619 lei in 2008 to 164.539.547.350 lei currently.

With all these increasing developments, the number of intermediaries experienced a reverse trend compared to the evolution of the shares, out of the 76 intermediaries registered in 2008, their number decreased vertiginously, with 36 intermediaries being currently authorized to carry out intermediation activities (according to Table 2).

Table 2. The evolution of shares in the Main Market of the Bucharest Stock Exchange (BVB) between 2008 and July 2017

An	Sedințe de tranzacționare	Nr. tranz.	Volum	Valoare	Valoare medie zilnică	Capitalizare	Societăți emitente	Nr. intermediari
2017	157	533.043	4.905.272.891	7.489.050.088	47.700.956	164.539.547.350	86	36
2016	254	653.27	11.048.103.360	9.253.798.584	36.432.278	146.549.746.292	86	38
2015	251	685.248	6.696.750.556	8.803.398.908	35.073.302	146.002.473.957	84	38
2014	250	787.753	11.615.242.311	12.990.643.873	51.962.575	129.958.141.655	83	40
2013	251	636.405	13.087.904.925	11.243.500.680	44.794.823	133.829.707.066	83	43
2012	250	647.974	12.533.192.975	7.436.052.589	29.744.210	97.720.863.603	79	54
2011	255	900.114	16.623.747.907	9.936.957.505	38.968.461	70.782.200.350	79	61
2010	255	889.486	13.339.282.639	5.600.619.918	21.963.215	102.442.620.945	74	65
2009	250	1.314.526	14.431.359.301	5.092.691.411	20.370.766	80.074.496.090	69	71
2008	250	1.341.297	12.847.992.164	6.950.399.787	27.801.599	45.701.492.619	68	76

Source: BVB, http://www.bvb.ro/TradingAndStatistics/Statistics/GeneralStatistics

Regarding the evolution of the BVB's main market, it can be said that it has evolved in a way similar to the evolution of the shares, the trading sessions dropping from 250 in 2009 to 157 nowadays. In terms of number of transactions, their evolution has dropped quite drastically from 965 in 2009 to 393 in 2014, after which they show a massive increase reaching 2.017 in 2015 and 23.364 transactions in 2016. The volume of transactions as well registered in 2009-2010 an increase from 2.892.920 lei to 3.014.375 lei in 2010, followed by a period of massive decline between 2012 and 2015. Starting with 2016, the volume of transactions resumed their upward trend reaching 7.903.823 lei at the end of the year (Table 3).

Table 3 .Evolution of bonds in the Main Market of the Bucharest Stock Exchange (BVB) between 2009 and July 2017.

An	Sedințe de tranzacționare	Nr. tranz.	Volum	Valoare	Valoare medie zilnică	Societăți emitente	Societăți emitente noi
2017	157	550	535.911	703.605.217,87	4.481.561,90	73	6
2016	254	23.364	7.903.823	1.345.447.473,98	5.297.037,30	80	6
2015	251	2.017	434.214	2.843.487.707,92	11.328.636,29	81	11
2014	250	393	170.029	955.710.416,65	3.822.841,67	71	5
2013	251	567	203.548	1.395.726.025,44	5.560.661,46	70	7
2012	250	409	245.238	1.431.115.737,72	5.724.462,95	68	8
2011	255	248	1.857.248	545.978.257,20	2.141.091,20	60	6
2010	255	543	3.014.375	2.571.065.247,01	10.082.608,81	55	7
2009	250	965	2.892.920	1.284.618.844,77	5.138.475,38	60	16

Source: BVB, http://www.bvb.ro/TradingAndStatistics/Statistics/GeneralStatistics

The same trend is a available or the fund units in the main market of the BVB, the total value of transactions decreasing from 22.66.838,35 lei in 2010 to 11,176,401.80 lei in 2014 and 4,072,957.91 lei in 2016 (Table 4).

Table 4 .Evolution of Fund Units in the Main Market of the Bucharest Stock Exchange (BVB) between 2009 and July 2017.

An	Sedințe de tranzacționare	Nr. tranz.	Volum	Valoare	Valoare medie zilnică
2017	157	4.276	471.575	9.073.005,95	57.789,85
2016	254	1.986	254.715	4.072.957,91	16.035,27
2015	251	2.169	457.314	7.721.840,97	30.764,31
2014	250	3.572	506.367	11.176.401,80	44.705,61
2013	251	5.031	349.998	7.526.503,38	29.986,07
2012	250	2.647	164.774	4.924.685,65	19.698,74
2011	255	5.755	88.644	8.697.164,86	34.106,53
2010	255	5.027	223.112	22.663.838,35	88.877,80
2009					

Source: BVB, http://www.bvb.ro/TradingAndStatistics/Statistics/GeneralStatistics

At the Bucharest Stock Exchange, the ATS has a positive evolution, with an increase in the traded value from 604,792 lei in 2010 to 89,922,877 lei in 2015, reaching the maximum in year 2016 with a value of the transactions of 209,259,077 lei.

The situation is identical in the capitalization of ATS where in 2015 there is a capitalization of 3,854,076,943 lei and 5,270,137,616 lei until nowadays (Table 5).

Table 5 .The evolution of ATS within the Bucharest Stock Exchange (BVB) between 2010 and July 2017

An	Sedințe de tranzacționare	Nr. tranz.	Volum	Valoare	Valoare medie zilnică	Capitalizare	Societăți emitente	Nr. intermediari
2017	157	35.425	119.655.643	110.111.293	701.346	5.270.137.616	296	30
2016	254	53.219	285.223.146	209.259.007	823.854	4.241.612.026	292	32
2015	251	31.657	165.338.187	89.922.877	358.258	3.854.076.943	306	33
2014	250	8.718	999.905	20.236.933	80.948	0	36	34
2013	251	7.656	1.951.214	20.833.367	83.001	0	29	36
2012	250	5.947	122.248	16.845.137	67.381	0	27	45
2011	255	3.285	89.211	11.139.103	43.683	0	10	48
2010	26	152	2.731	604.792	23.261	0	1	45

Source: BVB, http://www.bvb.ro/TradingAndStatistics/Statistics/GeneralStatistics

In conclusion, the Bucharest Stock Exchange offers the alternative for financing mature companies, companies that can attract capital from the Main Market , as well as a start-up and SME financing, for the latter being created the AeRO market.

The Stock Exchange can also be called the barometer of an economy, with the aim of highlighting the rules of a free play of the market forces, being the closest to the pure and perfect market economy model. The Stock Exchange has a determining role in price formation based on the demand-supply ratio, mirroring in this respect the economic reality.

Bibliography

[1] Anghelache, G, 2009. Capital Market in European Context.
[2] Alexandru, C., 2008. *Capital market in Romania* . Bucharest : Economic Publishing House.
[3] Anghelache, G., 2004. *Capital market.* Bucharest: Economic Publishing House.
[4] Anghelache, G., 2000. *Stock Exchange and OTC market.* Bucharest: Economic Publishing House.
[5] Anghelache, G., 1992. *Capital Markets and Stock Market Transactions.* Bucharest: Didactic and Pedagogical Publishing House.

[6] Bucharest Stock Exchange (2012), *Bet Index Manual, Bucharest Exchange Trading Index,* online publication
[7] Basno, C., Dardac, A., 1997. *Stock exchanges: dimensions and socio-economic resonances.* Bucharest: Economic Publishing House.
[8] Ciobanu, G., 1997. *Stock exchanges and Exchange trades.* Bucharest: Economic Publishing House.
[9] Popa, I., 1994. *The stock exchange.* Bucharest: Adevărul Publishing House.
[10] Popa, I., 1995. *The stock exchange.* Bucharest: Adevărul Publishing House.
[11] Vâlcu, D., 2010. *101 Stock market strategies with technical analysis.* Constanţa: Educofin Publishing House.
[12] Law No. 297/2004 on the capital market, published in the Official Gazette no. 571 / 29.06.2004, as subsequently amended;
[13] Regulations for the organization and functioning of the Bucharest Stock Exchange SA - approved by the CNVM Decision no. 2600 / 14.09.2006 and modified by the CNVM Decision no. 3196 / 12.10.2006, 1754 / 21.12.2009, 1216 / 22.09.2010 and the ASF Decision no. 1681 / 07.17.2015
[14] Sectoral legislation ASF-capital market, CNVM legislation;
[15] www.bvb.ro ;
[16] www.tranzactiibursiere.ro ;
[17] https://asfromania.ro/ .

THE ROMANIAN REGULATORY AUTHORITY FOR ENERGY AS AN EFFICIENT INSTITUTION IN THE CONTEXT OF ENVIRONMENTAL POLICIES

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Abstract:

In the context of new environmental paradigms for the efficient customization of both traditional and renewable energy systems, the international regulations aim to be effective sources of alignment. The internal marketing and control practices in a big state-owned enterprise are the concepts implemented in this paper into a multi-criterial decision-making model for understanding, observing and accommodate the personnel for reaching high service quality. The best practices for effective policy design are alternatives in an analytic network processes model designed and estimated by the staff in the audit department of the Romanian Regulatory Authority for Energy (RRAE). This model integrates all the national and international regulations at which the Romanian Regulatory Authority for Energy adhered and it determines for every employee criteria of performance to be contained in the individual forms of evaluation, so that the general principles adhered regarding the implementation of the energy efficient systems produce tangible effects.

Keywords*:* environmental policy instruments, internal marketing, Romanian Regulatory Authority for Energy (RRAE), COSO, Analytic Network Processes (ANP)

JEL Classification: M12, C49, H83

1. Introduction

In order to increase the performance of different energy paradigms in promoting pattern changes in environmental policy instruments, the institutional organisational process need to be conceived as a durable process which implies important collective and individual efforts. The model developed in this paper integrates all the national and international regulations at which the Romanian Regulatory Authority for Energy (RRAE) adhered and identify the measures need to be taken at the level of each and every employee, in terms of individual forms of evaluation, so that all the principles regarding the implementation of the energy efficient systems produce tangible effects. The conceptual instrument considered for the effective alignment is the internal marketing. Internal marketing as a method built the foundation of a multi-criterial decision making model whose alternatives are employees' evaluations forms. This model, designed and estimated by staff in the audit department of the RRAE is developed using the analytic network processes theory (ANP) and the SuperDecisions software.

Internal marketing is a concept defined as promoting the products of an organisation to its employees in order to deliver consistently superior quality services to customers. This implies that the organisation sees and treats its 'employees as internal customers' in order to develop, motivate and retain them for a customer-oriented behaviour (Benoy, 1996, p. 54). This approach has as main goals the satisfaction of internal customers, which is crucial when establishing their commitment to the firm and consequently, when satisfying the clients of the firm. (Caruana and Calleya, 1998). Hence, as Berry and Parasuraman (1991) state, treating employees as customers is the management philosophy of internal marketing. Another model of internal marketing is completed by Gronroos (2007) who divides it into strategic and tactical levels. Within his definition, he includes at strategic level 'the adoption of

supportive management styles and personnel policies', 'customer service training' and 'planning procedures'. At tactical level, he implies activities such as 'ongoing internal training', 'informal internal communications', 'internal market research' and 'internal market segmentation'. (Sargeant and Asif, 1998, p.68). Within the public entities there is generally a normative culture, where the focus is on a correct tracking of procedures, which are more important than the result. Moreover, within this type of organisational culture, the professional, moral etc. standards are elevated and reflect the attitude that the public entity has towards change.

In the realisation of the institutional organisational process, a durable process which implies important collective and individual efforts, a logical and chronological crossing of the following steps is necessary: the analysis of the objectives of the public entity, the designation of necessary activities and the establishment of their content, the creation of compartments, organizational structure and evaluation of its functionality. For improving organizational performance and governance, the Committee of Sponsoring Organisations (COSO) synthetized guidance for the management on how to implement and evaluate the effective enterprise risk management. According to COSO prototype, there are 3 main objectives of the Internal Control System, the efficiency of activities, the precision of the financial reports and the law enforcement and applicable regulations. In Romania, this model was first adopted by the public entities in 2005 and a first review was undertaken in 2015. Specific national legislation pieces (OMFP no. 946/2005, OSGG no. 400/2015, and OSGG no. 200/2016) consecrated the Code for Managerial Internal Audit of Public Entities. This Code includes Standards of Managerial Internal Audit. These standards define a minimal set of management regulations that must be followed by all public entities. Their aim is to create a uniform and coherent managerial internal audit model able to enable comparisons between entities of the same kind or within the same entity, at different moments in time and to make possible the highlighting of its economic activity and evolution. These standards also constitute a reference system, suitable for evaluating the evolution of the managerial internal audit models and the areas and directions subjected to alterations.

2. Regulatory Authority for Energy: an Overview

Regulatory Authority for Energy ('RAE'), is an independent administrative authority, a legal entity, under governmental control, funded integrally from own income, with independent decisional, organisational and functional roles. Its function is to elaborate, approve and monitor the application of the mandatory regulations at national level, necessary for the functioning of the sector and the market of electrical energy, thermal energy and natural gas. The actual form of organisation and functioning has been established in 2012. Between 2009 and 2012, RAE was organised and functioned under direct coordination of the Deputy Prime Minister, being funded by the national budget. Before, its regulatory activity took place within 3 entities: with regards to the sector and market of electrical and thermic energy: Regulatory Authority for Energy (RAE) – 1998-2007, with regards to the sector and market of natural gas: Regulatory Authority for Natural Gas (RANG) – 2000-2007, with regards to the formulation of engineering efficiency policy: Romanian Authority for Energy Conservation (RAEC) – 2002-2009.

In 2007, a singular regulatory authority for energy and natural gas was conceived, as the Regulatory Authority for Energy, (RAE), which took the attributions, budget, financial sources, personnel, rights and obligations from the Regulatory Authority for National Gas, which disbanded (fusion through absorption of RANG by RAE). In 2009, RAE also attained de Romanian Authority for Energy Conservation from the Economic Minister (fusion through absorption of RAEC by RAE).

RAE is led by 1 president and 2 vice-presidents. The president is the representative of RAE as independent administrative authority and legal person. His activity consists on giving orders and making decisions. He establishes the responsibilities, attributions and competences of the vice-presidents of RAE and of the general secretary through internal decisions. The financing of current expenses and the capital of RAE in ensured integrally through own revenues. RAE's revenues come from rates from licenses, authorisations and attestations, annual contributions to economic regulatory operators for electrical and thermic energy and natural gas, but also from other funds offered by international entities. The annual budget and expenses are to be approved by the president of RAE.

The regulatory committee composed of 7 members (RAE president, 2 vice-presidents and 4 other members) was funded to approve the regulations for electrical and thermic energy and natural gas. The members are named or revoked during the meetings of the Parliamentary Committees. The activity of

the Regulatory Committee develops under its own organisational and functioning regulations, approved by the president of RAE.

The Regulatory Committee is assisted by an Advisory Board, composed of 13 members, named as decision of the Prime-Minister, which has as functions to ensure the harmony between the interests of the economic operators from the energy sector and their consumers, to evaluate the impacts of the regulations imposed by RAE and to propose solutions to problems. Its activity develops under its own organisational and functioning regulations, approved by the president of RAE. On their website, RAE makes public the information of public interest and exercises its attributes with respect to transparent, objective, proportional, impartial and neutral principals in the relationship with economic operators. The main attributions are as follows: issues, modifies and withdraws permits and licenses, Issues technic and commercial regulations, ensuring access to electrical energy and natural gas networks, issues and approves methodologies for approving prices and rates, ensures the monitoring of the functioning of energy markets, promotes the production of energy from renewable sources.

In order to fulfil its attributes and competences, RAE realises the following general objectives: the promotion of a safe European internal market of electrical energy and natural gas, competitive and durable from an environmental perspective and of its opening in the benefit of all clients and providers of the European Union and also, the ensuring of adequate conditions for an efficient and safe functioning of the electrical energy and gas networks, as long term objectives (1.GO – Facilitating the presence of European Energy Market at a national level),the development of the competitive and functional regional markets, within the European internal market of electrical energy (2. GO – Regional Integrated Energy Markets), the withdrawal of restrictions regarding border commerce with electrical energy and natural gas energy, in order to satisfy demands and facilitate and easier access of the national market in the European internal market of electrical energy and natural gas (3. GO – Integration of Internal Market in the European Energy Market), the development of a national energetic system which is safe, reliable and efficient, costumer oriented, allowing the promotion of energetic efficiency and the integrating of renewable sources of energy, and also of the production distributed in transport and distribution networks. (4. GO – A safe Energetic System). Other tasks are as follow:

- the reinforcement of an access to the network for the new capacities of production, especially through the elimination of obstacles which prevent the access of new participants to the electrical energy and natural gas market or the use of renewable sources of energy (5. GO – Free entrance in the Energy Market);
- the ensuring of given stimulants to the operators of electrical network / systems of natural gas and to the other beneficiaries of electrical networks / systems of natural gas, in order to grow the efficiency of functioning of transport and distribution systems of energy and for establishing a more rapid integration within the market (6. GO – Correct benefits for the Energy providers);
- The consumer protection, by ensuring effective competitive market, supporting vulnerable clients, imposing quality standards of public services from electrical energy and natural gas sector, by facilitating clients the access to their level of consumerism data in the exchange process of the electrical energy and natural gas provider, and also by informing correctly and competently the consumers (7. GO – Standards for public services in energy);
- The guaranty of economic operators from energy and natural gas sectors to respect their obligations regarding transparency. (8. GO – Transparency).

In 2016, the main objective of RAE is to continually improve the regulatory activity by beneficiating to a maximal level of the available human resources, in order to develop a modern, unitary regulatory framework, easy to access by all participants in the market, from the small consumer to the big corporations in the electrical energy and natural gas sector.

Externally, RAE collaborates with the regulatory authorities of regional states, including through cooperative agreements, with the Cooperative Authority in the Energy Domain (CAED) and European Commission, in order to create harmony to the regulatory framework for the development of the regional market, the regulations regarding border exchanges of electrical energy and natural gas, the management and allocation of interconnection capacities, without facilitating the fulfilment of their attributions and competences.

Internally, RAE collaborates with the Competition Council, with the National Authority for Consumer Protection, with Financial Supervisory Authority, with ministers and other specialised bodies of the interested central and local public administrations, with consumers' associations of electrical

energy and natural gas, with professional associations within electrical energy and natural gas sector, with patronal and syndic associations, including through reciprocal exchanges of information.

Regulatory Authority for Energy has correspondents in all countries that are part of European Union. They have different organisations' forms: commissions, authorities, institutes, agencies and offices. Regardless of their form of organisation, they are independent financial, administrative and decisional entities. These organisations have the same role within their countries as RAE has in Romania, such as:

- Creating predictability on constantly changing markets;
- Liberalisation and deregulation of the markets;
- Ensuring that the gas and electricity markets are transparent and competitive;
- Defending the vital interests of consumers;
- Controlling and monitoring the electricity and gas markets;
- Defining and maintaining a reliable and transparent tariff system.

There are some countries in which their representatives have additional duties attached to their tasks. For example, Germany has in addition to guarantee the deregulation and liberalisation of the markets for post, telecommunication and rail transport. Also, Italy and Bulgaria regulate, control and monitor the water market and Sweden assures a safe and efficient access to district heating.

COSO prototype includes five components of an efficient internal controls system, which are enumerated below. First, is the control environment at organizational management: it sets the bases of the internal control systems by providing a general structure. Second, the risk assessment implies the identification, evaluation and responses of the management regarding the risk that could affect the established objectives. Third, the control activities with regard to the policies, procedures, controls, other practices, which has as role the assurance that the objectives established by the management are attained and the risks are diminished. Forth, the information and communication through which supports all the components of COSO, the communication between employees regarding the controls and the hand in of information in an adequate format and utility time so that the members of an organization could fulfil their duties. The fifth one is the monitoring and implies the supervision of internal controls by the management, the supervision by other external members of the process (internal auditors, monitoring organizations, etc.) or the application of independent methodologies of the type procedures and standard questionnaires completed by the employees in the process.

There are general objectives rending into specific objectives required to be SMART. Individual objectives measured by performance indicators should embed the whole COSO framework and organisational culture as meta-approach. Therefore, deriving recommendations for an optimal internal marketing approach should be done in accordance with the individual performance regarded in the context of all the meta-approach previously described in detail.

This is the only way in which adjustments are put in accordance with the organisational culture and with the individual objectives. Recognising the specific connections, interconnections among all these conceptual and practical requirements, the internal audit department has rendered the task to deliver recommendations in accordance with all the above mentioned criterions.

While it is hard to keep in mind all the aspects regarding the mission, vision, integration of the company among other similar companies, the formalisation of an ANP Model illustrating all the connections and their intensity weighting offer not only an integrative view, but also, the possibility to assess the importance of the alternative recommendations in an integrated view.

Moreover, performing sensitivity analyses after estimating the model offer the possibility to deliver the best recommendation in accordance with the specific or individual objectives of particular interest. As it can be seen, there are a lot of things that should be reorganized for cultivating a better internal marketing and control approach within RAE. In general, enabling innovations in an entity requires a long process which is developed during a period of time, so that the workers get familiarized with the new working environment and the management changes and develops the initial scheme according to the results acquired up to that moment.

The management realise that they have to implement those solutions that have the greatest impact over developing the organisation's performances. Having in mind that they cannot be enforced all in the same time, prioritizing the problems which are to be solved would be an agreeable idea. The process of prioritization will be performed by using ANP.

For the purpose of this research the following activities were undertaken. Following the research of general and specific legislation that defines and regulates the way RAE is organised and operates it was pursued the observation and analysis of the activities carried out in several departments, several documents, procedures already enforced and results. It was gained access the RAE's organisational chart, Internal Regulation Policy, job descriptions, list of procedures, list of specific objectives for different departments, performance indicators established for fulfilling specific goals, procedure of yearly evaluation of employees' professional performances, individual performance reviews and the audit reports were processed in order to understand the control environment and organisational culture, the issues identified by internal auditors and their recommendations for activity improvements.

There are situations when specific objectives have been defined by taking into account activities undertaken within departments and / or activities specified in The Internal Organisation and Functioning Regulations without taking into consideration quality factors such as the quality increase of certain processes / activities. Also, certain specific objectives are not attached to one or more RAE general objectives. Specifically, although there are defined performance indicators attached to specific objectives, there is not a general calculus formula able to quantify quantitatively or qualitatively. Additional, although there are defined criteria in regards to the professional evaluation of RAE employees, there have not been identified individual objectives measurable by performance indicators able to enable the management to monitor to which extent the specific objectives have been attained.

The departments' specific objectives do not respect under any circumstance the SMART requirements:

1. They are not precise / specific (S). Although departments' specific objectives are clearly defined in accordance with the departments' activities and attributes specified in The Internal Organisation and Functioning Regulations, they do not contain quality elements and therefore can be considered associated activities and not specific objectives;
2. They are not always measurable and verifiable (M). Relevant indicators associated with specific result or performance objectives have been identified and calculus formulas established for them. Although they appear to be quality indicators, they are not measurable by having appreciation criteria attached to them. The performance indicators do not have names, only calculus formulas;
3. Although departments' specific objectives are necessary (A), there has not been established a correlation between specific objectives and available resources. There have not been defined individual objectives for employees or individual performance indicators;
4. Departments' specific objectives do not have fulfilling dead-lines (T). The established terms are "Annual" or "Permanent" without taking into account fulfilling or reporting dead-lines.

Individual objectives do not derive from specific objectives and the first are not accompanied by performance indicators able to measure the extent to which the objectives are fulfilled. These performance indicators are not defined in The Professional Performances Evaluation Review. In RAE, there is not yet a system for reporting the fulfilling of specific indicators. This system should have a monitoring function and be able to inform the middle and upper management about any possible deviation from objective fulfilment, activity risks and mitigate the effects of unforeseen events (Standard 10 – "Performance Monitoring").

Given all above, this paper uses a multicriterial approach to measure the degree of the implementation of COSO at RAE level. These potential solutions at the listed difficulties above are to be prioritised using ANP method.

3. The Model Description for an Effcient Romanian Regulatory Authority for Energy

For sure, determining the structure of a decision problem and implicitly the particular form of the ANP model is a creative process yet subject to the consensual agreement of the experts involved. This process implicates categorising factors that relate to that particular problem. If the model is structured in a form of a hierarchy, transferring influences top-down, the factors are categorised in four levels of hierarchy and in a descending order are as following: goal, criteria, sub-criteria and alternatives. In order to find elements for each level, the context of the problem must be well understood and possible solutions and participants that could help in solving the issue should be taken into consideration. The end result should be a hierarchy that has one level for each of the following: goal, attributes, issues, and

stakeholders. The two main purposes of a hierarchy are to ensure the overall view of existing relationships between elements and to check if the elements present at the same level have similar magnitudes. If feedback connections are appropriate considered a hierarchy can easily be transform into a network through the removal of the goal cluster.

Elements are different and they take a different cut of problems at different levels. Not necessarily will an element be a criterion for all the elements placed in lower levels. For instance, when one level deals with social problems, the very next level might evaluate political factors in respect to social factors. The way the hierarchy works is such that the elements with a more general character are placed in the superior levels of the hierarchy, while the more particular ones will be at the lower levels. Therefore, the comparison will be more meaningful.

One should know that the comparisons are based on a scale of numbers, where one has to decide how much he or she prefers the chosen answer in relation to the other element of comparison. The scale of numbers consists of numbers between 1 and 9, where 1 means equally important and 9 means extremely important. In the scale of measurement there are three parts: the set of elements, numbers used, and the mapping of elements according to chosen numbers.

The feasible part of this method is that the chosen criteria can refer to unclear or intangible issues. In this criterion relative measurement is used, taken from the standard scales and the normalising process. ANP is a useful tool as it allows comparison between the pairs of elements with an element from the hierarchy. The grading for the comparisons is based on one's standards or experiences. This method perceives decision making as a mathematical science as a result, as it is stated.

There are many strengths and weaknesses of ANP. One of the strengths may be the fact that in order to build a network, it structures a decision problem in many parts. This makes every part of the network seem more important. After figuring the input of a pairwise comparison matrix, one is able to see inconsistencies, but usually the users like the output, since this method has a decrease in bias in decision-making.

Following the theoretical descriptions in the chapters above about the categories and the sub-categories with their correspondences, all the information was organized in clusters with nodes and connections in between nodes. These clusters with their node constituents are listed below.

The clusters that we can find attached to this model are:

1. ORGANIZATIONAL CULTURE SURVEY;
2. COSO;
3. GENERAL OBJECTIVES;
4. SPECIFIC OBJECTIVES;
5. SMART;
6. INDIVIDUAL OBJECTIVES;
7. PERFORMANCE INDICATORS;
8. ALTERNATIVES.

The nodes associated with every cluster represent characteristics of these clusters and it will be presented in the following lines.

The cluster 1. ORGANIZATIONAL CULTURE SURVEY has the next three nodes:

1.1. Clear definition and dissemination of objectives and priorities;
1.2. Adequate understanding of the organisation's missions;
1.3. Adequate matches regarding hiring.

The cluster 2. COSO consists of:

2.1. Control Environment
2.2. Risk Assessment
2.3. Control Activities
2.4. Information & Communication
2.5. Monitoring Activities

The cluster 3. GENERAL OBJECTIVES has eight nodes:

3.1. Facilitating the presence of European Energy Market at a national level;

3.2. Integration of Internal Market into the Regional Market;
3.3. Integration of Internal Market in the European Energy Market;
3.4. A safe Energetic System;
3.5. Free entrance in the Energy Market;
3.6. Correct benefits for the Energy providers;
3.7. Standards for public services in Energy;
3.8. Transparency.

The cluster 4. SMART is composed of five nodes:
4.1. S – specific;
4.2. M – measurable;
4.3. A – attainable;
4.4. R – realizable;
4.5. T – timely.

This cluster is associated especially with general objectives and specific objectives in order to obtain those alternatives that have the greatest impact over organisation. It is connected with general objectives and specific objectives because these objectives require to be SMART. Also, it is interconnected to alternatives cluster because the goal is to obtain prioritized solutions.

The cluster 5. SPECIFIC OBJECTIVES consists of:
5.1. Annually improving of added value;
5.2. Implementation of internal control instruments for annually improving;
5.3. Assuring a good management of the annual terms.

It is derived from the general objectives cluster because these objectives are derived from general objectives and has as derivative individual objectives cluster because these aims are established in accordance to specific goals. Specific objectives are required to be SMART and, consequently, is interconnected to SMART cluster.

The cluster 6. INDIVIDUAL OBJECTIVES cluster consists of:
6.1. Improving quality of the job description files;
6.2. Improving the process of annual evaluation of performances in a specific time;
6.3. Completing of inheritance declarations in accordance with the deadline.

This cluster is derived from the specific objectives cluster and has a derivative cluster namely performance indicators. Likewise, it is interconnected with alternatives cluster in order to obtain realistic solution that will be implemented within RAE.

The cluster 7. PERFORMANCE INDICATORS comprises three nodes:
7.1. The progress of the work required;
7.2. The number of registered inadequacies;
7.3. Respecting project deadlines.

It is interconnected only with alternatives cluster because it is the most specific tool that can be attributed to an employee in order to be monitored.

The cluster 8. ALTERNATIVES consists of six recommendations which represent the nodes from the cluster:
8.1. A strategy for 3-5 years;
8.2. Reassessment of the general objectives;
8.3. Reassessment of the specific objectives;
8.4 Integrating performance indicators;
8.5. Establishing performance indicators for individual objectives;
8.6. The optimal fit of the individual objectives to every employee.

Nodes in this cluster are connected in a complex way with another node in different clusters. For instance, the first node has a direct relationship with nodes in three different clusters namely: general objectives, specific objectives and organizational culture survey. Alternatively, the second node is

interconnected only with general objectives cluster because it refers only to the reassessment of them. The reassessment of specific objectives node is connected with the specific objectives cluster.

The Super Decisions software was used for obtaining a prioritization of the recommendations designed to help RAE to solve their problems identified in this case study.

4. ANP MODEL ESTIMATION

Following the traditional procedure of estimating a model in the consensus mode, all the members of the Audit Department were gathered together in 5 consecutive one hour and a half meetings. In the first meeting, it was presented the skeleton of the model, opinions about its completion were gathered and assembled and all the suggested connections in between nodes and clusters were established in full consensus. In the next three meetings there were evaluated all the pairwise comparisons. Each time, when inconsistency index associated with a decision matrix was above the recommended level of 0.1, the inconsistency report was generated and experts were asked to revise their estimations and deliver a commonly agreed new pairwise comparison. This procedure was repeated with the whole group together until the inconsistency index fall under the threshold of 0.1. At the end of the fourth meeting, the synthetized results were generated and presented to the group. In the fifth meeting there was explained the procedure of the sensitivity analysis and several options were chosen for numerical illustration. The ANP model is shown in Figure 1 below.

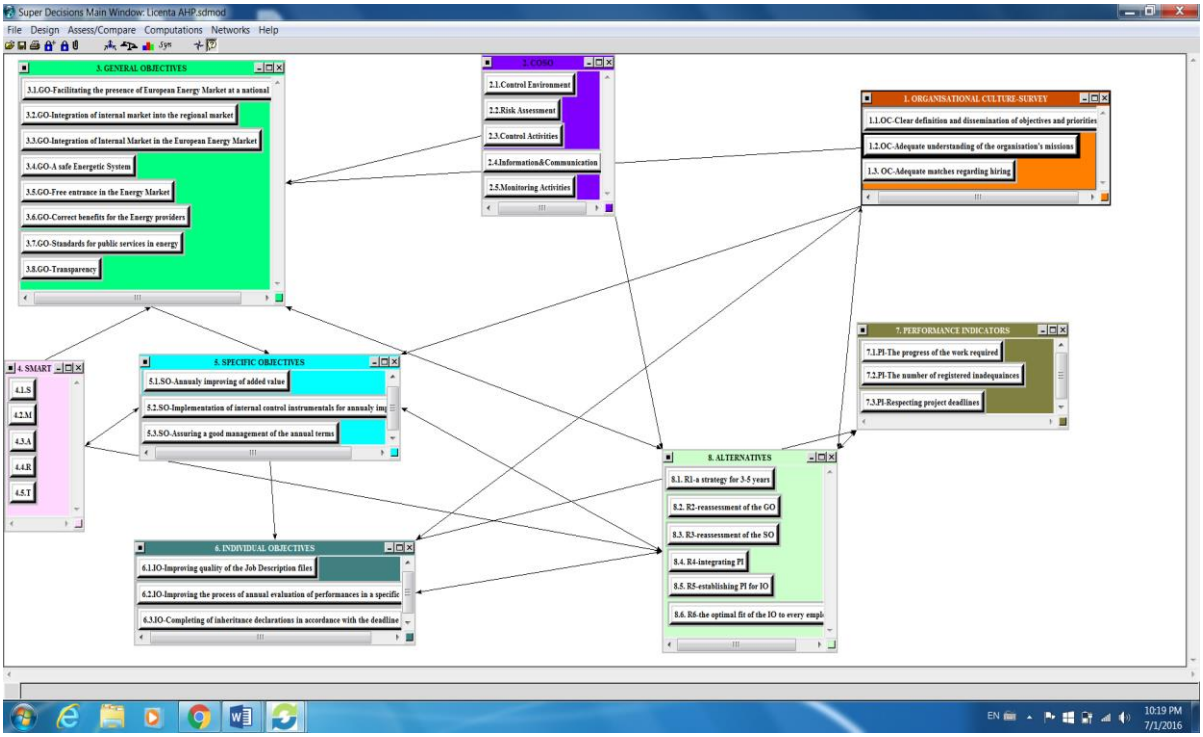

Figure 1: The ANP Model

The synthetized results refer to the comparative weights of importance for the Alternatives. The alternatives are the suggested improvements and these suggested improvements are decided in accordance with all the firm's general and subjective objectives. It is therefore a big step to an integrative way of suggesting improvements, in accordance with all the macro and micro policies at the firm's level.

The specific numbers, as derived from the synthetized model are shown in the Figure 2.

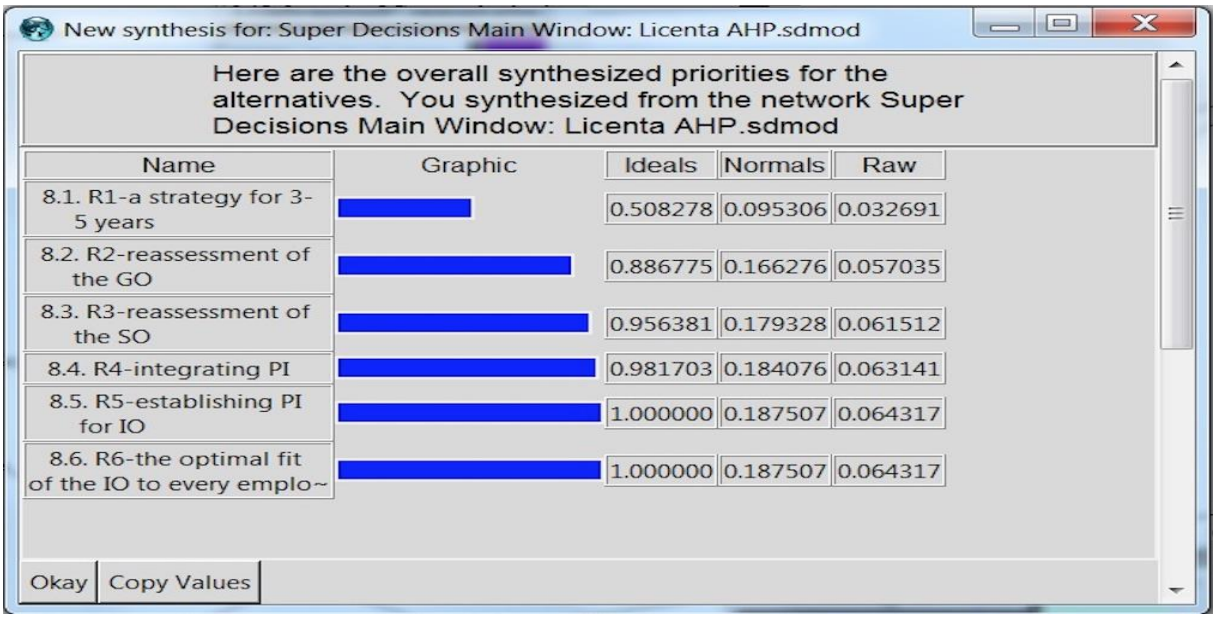

Figure 2: The synthetized ANP Model

The R5 - establishing performance indicators for individual objectives and 8.6 - the optimal fit of the individual objectives to every employee have the biggest weight because they are not implemented yet, and represents an immediately measure that the management has to take in order to solve the issues encountered by RAE. These are the most important because the individual objectives do not derive from specific objectives and the first are not accompanied by performance indicators able to measure the extent to which the objectives are fulfilled. These performance indicators are not defined in The Professional Performances Evaluation Review. In RAE, there is not yet a system for reporting the fulfilling of specific indicators. This system should have a monitoring function and be able to inform the middle and upper management about any possible deviation from objective fulfilment, activity risks and mitigate the effects of unforeseen events.

The last two recommendations have the same value because it was considered that individual objectives cannot be measurable without performance indicators and they have scored with same values because their importance is of an equal extent.

The R4 - integrating performance indicators alternative which refer to integrate performance indicators has a value of 0.184076, which represent an appropriate value towards the last two alternatives which have 0.187507. This happens because this alternative reinforces the previously two measures.

The R3 - reassessment of the specific objectives alternative, reassessment of the specific objectives, has a value of 0.179328. It represents the fourth value on the list of the comparative priorities because these objectives are already established by the management of the organization. They need only to be reassessed because they are not SMART.

The R1 - a strategy for 3-5 years alternative renders the smallest importance because of the timeframe, not being the most urgent thing to do in the present. RAE has already a strategy implemented, but that one is not specific and measurable.

Sensitivity analysis with respect to the main categories – expressed as three nodes – in the ORGANISATIONAL CULTURE SURVEY cluster is best expressed through the rate of change.

The actual values of the alternatives representing the recommendations suggested in the meta-context of the ANP model correspond to a control parameter of 0.5. If the importance of the node 1.1. OC - Clear definition and dissemination of objectives and priorities would be increased by 50% that would correspond to a value of the control parameter of 0.75. The comparative values under these two circumstances are shown in figures 3 and respectively 4.

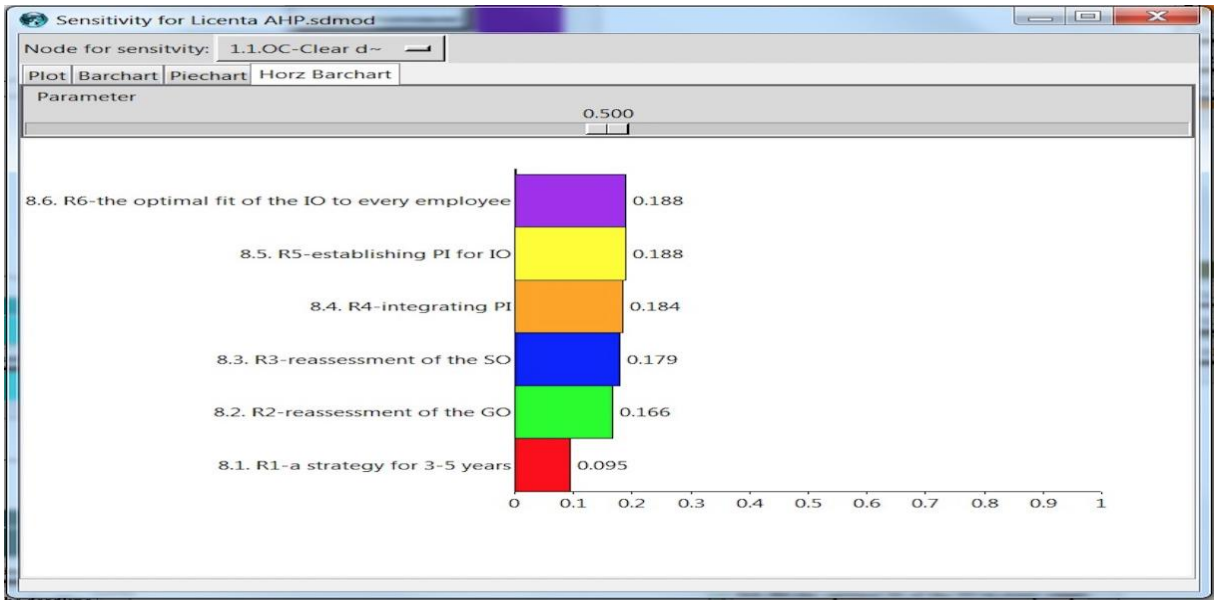

Figure 3: Parameter 0.5 with respect to the node 1.1

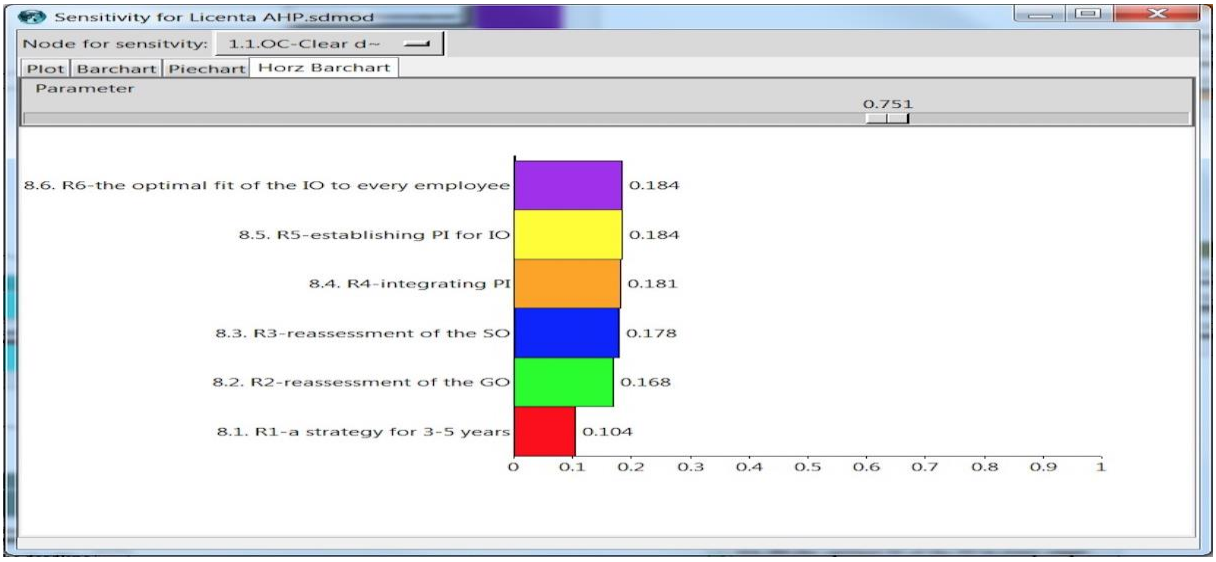

Figure 4: Parameter 0.75 with respect to 1.1

The changes in the weight of importance of the alternatives are shown in the table below and based on this are derived the correspondence rates of change:

1.1.OC-Clear definition and dissemination of objectives and priorities	Current value of control parameter 0.5	50% increase in the importance of the criterion 1.1 corresponding to the control parameter 0.75	Rate of change	
R6-the optimal fit of the IO to every employee	0.188	0.184	(0.188 – 0.184) / 0.188	- 0.021
R5-establishing PI for IO	0.188	0.184	(0.184 – 0.188) / 0.188	- 0.021
R4-integrating PI	0.184	0.181	(0.181 – 0.184) / 0.184	- 0.016
R3-reassessment of the SO	0.179	0.178	(0.178 – 0.179) / 0.179	- 0.005

R2-reassessment of the GO	0.166	0.168	(0.168 – 0.166) / 0.166	0.012
R1-a strategy for 3-5 years	0.095	0.104	(0.104 – 0.095) / 0.095	0.094

Results confirm that the clearer are set the objective the most sensitive is the formulation of a strategy for the next 3-5 years. On the other hand, the R6 -the optimal fit of the individual objectives to every employee and the R5 – establishing performance indicators for individual objectives are less sensitive to the extra time spend for setting more clear the future objectives. The reassessment of the specific objectives seems to be the least sensitive with respect to the extra time for a better formulation of the 1.1 clear definition and dissemination of objectives and priorities. While these results confirm the common perceptions, the particular numerical values give also a much closer numerical sense about the scale of sensitivity.

If the importance of the node 1.2. OC - adequate understanding of the organization's missions would be increased by 50% that would correspond to a value of the control parameter of 0.75.

The changes in the weight of importance of the alternatives are shown in the table below and based on this are derived the correspondence rates of change:

1.2.OC-Adequate understanding of the organization's missions	Current value of control parameter 0.5	50% increase in the importance of the criterion 1.1 corresponding to the control parameter 0.75	Rate of change	
R6-the optimal fit of the IO to every employee	0.188	0.181	(0.181 – 0.188) / 0.188	- 0.037
R5-establishing PI for IO	0.188	0.181	(0.181 – 0.188) / 0.188	- 0.037
R4-integrating PI	0.184	0.180	(0.180 – 0.184) / 0.18	- 0.021
R3-reassessment of the SO	0.179	0.184	(0.184 – 0.179) / 0.179	0.027
R2-reassessment of the GO	0.166	0.172	(0.172 – 0.166) / 0.166	0.036
R1-a strategy for 3-5 years	0.095	0.102	(0.102 – 0.095) / 0.095	0.073

Results confirm that the clearer are set the objective the most sensitive is the formulation of a strategy for the next 3-5 years. On the other hand, the R6 - the optimal fit of the individual objectives to every employee and the R5 – establishing performance indicators for individual objectives are less sensitive to the extra time spend for setting more clear the future objectives. The R4 – integrating performance indicators seems to be the least sensitive with respect to the extra time for a better formulation of the 1.2. OC - adequate understanding of the organization's. While these results confirm the common perceptions, the particular numerical values give also a much closer numerical sense about the scale of sensitivity.

The changes in the weight of importance of the alternatives are shown in the table below and based on this are derived the correspondence rates of change:

1.3.OC-Adequate matches regarding hiring	Current value of control parameter 0.5	50% increase in the importance of the criterion 1.1	Rate of change

		corresponding to the control parameter 0.75		
R6-the optimal fit of the IO to every employee	0.188	0.182	(0.182 – 0.188) / 0.188	- 0.031
R5-establishing PI for IO	0.188	0.182	(0.182 – 0.188) / 0.188	- 0.031
R4-integrating PI	0.184	0.179	(0.179 – 0.184) / 0.184	- 0.027
R3-reassessment of the SO	0.179	0.184	(0.184 – 0.179) / 0.179	0.027
R2-reassessment of the GO	0.166	0.169	(0.169 – 0.166) / 0.166	0.018
R1-a strategy for 3-5 years	0.095	0.103	(0.103 – 0.095) / 0.095	0.084

Results confirm that the clearer are set the objective the most sensitive is the formulation of a strategy for the next 3-5 years. On the other hand, the R6 - the optimal fit of the individual objectives to every employee and the R5 – establishing performance indicators for individual objectives are less sensitive to the extra time spend for setting more clear the future objectives. The R2 – reassessment of general objectives seems to be the least sensitive with respect to the extra time for a better formulation of the 1.2 adequate understanding of the organization's. While these results confirm the common perceptions, the particular numerical values give also a much closer numerical sense about the scale of sensitivity.

5. Conclusions

The study carried out throughout this paper was set out to explore the concepts of internal marketing and control systems within an organisation, ideas framed around a case study performed at RAE. After an in-depth research on the existing models at other firms and also at RAE, several recommendations on ways of improvement have been established, enumerated below. First is the improvement of the evaluation of individual's professional performance process by setting individual objectives. These individual objectives must fit to every employee. Next, it is needed the evaluation of the performance level for each employee according with the performance indicators and identifying the needs of professional training. Theses should be followed by the determination of the departments' specific and individual objectives by fulfilling the SMART requirements, the setting out measurable individual performance indicators for employees in order to assess employees' professional performances on their own established objectives, the design of a report system and the balance scorecard, for introducing general specific and individual objectives, in order to identify, examine and organise the activities of the personnel. About the design of a strategy for 3-5 years, the most important element of the internal control system implementation is the implementation of COSO Model, with its five key elements: control environment, performance and risk management, control activities, information, communication and monitoring activities. In the process of identifying the disadvantages of the Standard 'Objectives' implementation the following issues are prevalent: specific targets and common functions are not identified and clearly stated, departments' specific objectives do not respect under any circumstances the SMART requirements and performance indicators are not defined, the individual objectives measured by indicators have not been identified.

Overall the recommendations may be implemented depending on the financial and human resources availability and competences and furthermore the top and line managers of RAE must be trained accordingly to provide high quality service and build strong relationships with the customers.

References

[1] Berry, L.: *The employee as customer*, *Journal of Retail Banking*, Vol. 3, Issue 1, pp. 8-25, (1981)

[2] Berry, L.L. and Parasuraman, A.: *Marketing Services: Competing Through Quality*, The Free Press, Oxford, (1991)

[3] Caruana, A., & Calleya, P. (1998): *The effect of internal marketing on organizational commitment among retail bank managers*, The International Journal of bank Marketing, Volume 16, Issue 3, pp. 108-116

[4] Collins, B. and Payne, A. (1991): *Internal marketing: a new perspective for HRM*, European Management Journal, Vol. 9, Issue 3, pp. 261-270

[5] Danik, L., and Kowalik, I. (2013): *The studies on born global companies – a review of research methods*, Journal of Economics & Management, Vol. 13, Issue 1, pp. 10-26

[6] Drummond, H. (2000), Introduction to Organisational Behaviour, Oxford University Press

[7] Foreman, S.K. and Money, A.H. (1995): *Internal marketing: concepts, measurement and application*, Journal of Marketing Management, Vol. 11, Issue 8, pp. 755-768

[8] Frost, F.A. and Kumar, M. (2000): *"INTSERVQUAL – an internal adaptation of the GAP model in a large service organisation",* Journal of Services Marketing, Vol. 14, Issue 5, pp. 358-377

[9] Gilmore, A. and Carson, D. (1995): *Managing and marketing to internal customers*, in Glynn, W.J. and Barnes, J.G. (Eds), *Understanding Service Management*, John Wiley, Chichester, pp. 295-321

[10] Gorchels, L.M. (1995): *Trends in marketing services*, Library Trends, Vol. 43 No. 3, pp. 494-509

[11] Greene, W., Walls, G. and Schrest, L. (1994): *Internal marketing: the key to external marketing success*, Journal of Services Marketing, Vol. 8, Issue 4, pp. 5-13

[12] Gronroos, C. (2000): *Service Management and Marketing: A Customer Relationship Management Approach*, 2nd edition, John Wiley, Chichester

[13] Gronroos, C. (2007): *Service management and marketing: customer manager in service competition*, 3rd edition, John Wiley, Chichester

[14] Helman, D., and Payne, A. (1992): *Internal marketing: Myth versus Reality*, Cranfield School of Management

[15] Hicks, H. G. and Gullett, C. R. (1976): *The Management of Organisations*, 3rd edition, McGraw-Hill

[16] Industrial and Organisational Psychology, Rand McNally

[17] Joseph, Benoy, W. (1996): *Internal Marketing Builds Service Quality*, Journal of Health Care Marketing, Vol. 16, Issue 1, pp. 54-59

[18] Kotler, P. (2001): *A Framework for Marketing Management*, Prentice-Hall, Upper Saddle River, NJ

[19] Laurie J. Mullins (2010): *Management & Organisational Behaviour* – 9th edition, Financial Times Prentice Hall

[20] Lawler, E. E. (1976): *Control Systems in Organization, in Dunette*, M. D. (ed.) Handbook of

[21] Lewis, B. and Entwistle, T. (1990): *Managing the service encounter: a focus on the employee*, International Journal of Service Industry Management, Vol. 1, Issue 3, pp. 41-52

[22] Mei-Hwa Lin, Hiu Lam Choy, William W. Cooper, Hsihuia Chang (2008): *The Sarbanes-Oxley act and the production efficiency of public accounting firms in supplying accounting auditing and consulting services: an application of data envelopment analysis*, International Journal of Services Sciences, Vol. 1, No. 1, pp. 3-20

[23] Parasuraman, A., Zeithaml, V. A., Berry, L. L., (1990): *Delivering quality service: balancing customer perceptions and expectations*, The Free Press, New York

[24] Rafiq, M. and Ahmed, P.K. (2000): *Advances in the internal marketing concept: definition, synthesis and extension*, The Journal of Services Marketing, Vol. 14, Issue 6, pp. 449-462

[25] Rafiq, M. and Ahmed, P.K. (2000): *The scope of internal marketing: defining the boundary between marketing and human resource management*, Journal of Marketing Management, Vol. 9, Issue 3, pp. 219-232

[26] Robert K. Yin (2009): *Case Study research – Design and Methods*, 4th edition, SAGE Publication, Los Angeles.

[27] Saaty, T. (2008): *Decision making with the analytic hierarchy process,* International Journal of Services Sciences, Vol.1 No.1, pp. 83-98
[28] Sargeant, A., & Asif, S. (1998): *The strategic application of internal marketing: an investigation of UK banking,* International Journal of Bank Marketing, Vol. 16, Issue 2, pp. 66-79
[29] Tulgan, B. 'Winning the Talent Wars' (2001): in Crainer, S. and Dearlove, D. (eds), Financial Times Handbook of Management, 2nd edition, Financial Times Prentice Hall, p. 351.
[30] Wilson, F. (2004): *Organisational Behaviour and Work: A Critical Introduction*, 2nd edition, Oxford University Press
[31] *Zeithaml*, V. A. (2000): *Services Marketing, profitability and the economic worth of customers: What we know and what we need to learn*, Journal of the Academy of Marketing Science, Vol. 28, Issue 1, pp. 67-85
[32] Zeithaml, V. A. and Bitner, M. J. (1996): S*ervices Marketing, McGraw-Hill, New York*
[33] Zeithaml, V.A., Bitner, M.J., Gremler, D.D. (2013): *Services marketing: integrating customer focus across the firm*, McGraw Hill, New York
[34] Zimmermann, J. (1997): '*The Different Centres of Control'*, Mastering Management, Financial Times / Pitman Publishing

Integrating the Environmental Accounting on the Information System of the Economic Entities

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Abstract:
Integrating environmental accounting into economic entities is an urgent necessity for sustainable development and for getting long-term benefits. Sustainable development means providing the present needs of mankind without affecting the development of future generations, so we consider it is absolutely necessary to emphasize the importance of rational consumption of non-renewable resources and expanding consumption of renewable resources, increasing investment in green technologies, minimizing pollution, developing research and innovation, using biotechnologies, the increase of recycling of materials, the implementation of environmental management systems, all of these considerations being necessary to be applied in the economic entities to increase their profitability. The purpose of this paper is to present the cost typology used by the environmental accounting and its integration into the information system of the economic entities.

Key words: *environmental accounting, information system, environmental costs, environmental management system, sustainable development*
Jel classification*:* M41, M64

Introduction

The irrational use of fossil fuels, massive deforestation and land-use change, extensive industrialization based on the consumption of non-renewable resources have contributed to the increase in greenhouse gas emissions, such as carbon dioxide, methane, nitrogen dioxide, etc. The accumulation of these gas emissions has contributed to an increase in the amount of heat coming from the sun and kept in the atmosphere, leading to climate change [5]. The climate change leads to effects, such as [14], [2]: *i) increase in global average temperature; ii) changes in the precipitation level; iii) melting glaciers; iv) increase in ocean temperature, level and acidity; (v) desertification; vi) salinisation and alkalinisation of soil, etc*. At the same time, climate change will have effects not only on the environment, but also on socio-economic sectors, including agriculture and food security, human health, water reserves, terrestrial ecosystems, etc. [9]. Thus, the 21st century represents a period of major changes in the business environment, through the universality of competition between industrial branches, increasing performance by integrating management strategies, performance and quality audit, increasing research and innovation, implementing visionary management, [13] and the emergence and the use of environmental accounting, the implementation of environmental management systems in order to extend the activities of economic entities, to achieve sustainable development over time and to achieve superior financial performance within a global context that aims at sustainable development.

Environmental accounting is an instrument that helps identify the impact that economic entities have on the environment. The set of data that can be provided by environmental accounting, consists in the quantification of the effects generated by the use of natural resources for economic development, and the costs of pollution, degradation and restoration of resources. The integration of environmental

accounting into the information system of economic entities can help to identify environmental costs and outline techniques to reduce them. [3]. At the same time, the integration of environmental accounting into the information system of the economic entity contributes to enhancing environmental performance, controlling costs, redirecting investments to green technologies, developing some organic processes along the production and distribution of chain of goods. The purpose of the paper is to present the cost typology used by the environmental accounting and its integration into the information system of the economic entities.

1. Environmental Accounting - Instrument for Sustainable Development of Economic Entities

The production of goods and services uses natural resources and generates effects on the natural environment that lead to the depletion of natural resources and the production of waste that is dumped in the natural environment. Dumping waste in the natural environment causes changes in natural systems with effects on ensuring human well-being and human evolution. Thus, the natural environment is perceived as a stock of natural capital, and its use is perceived by people as services coming from this stock. [16]. The services offered by the environment are: [1],[4]:

Table no. 1. Services offered by the environment

No. crt.	**SERVICE**	**BENEFITS**	
1.	**PROVISIONING**	*Nutrition*	✓ Crops; ✓ Livestock and dairy products; ✓ Wild plants and animals and their products; ✓ Freshwater plants and animals for food; ✓ Marine algae and animals for food.
		Water	✓ Water for human consumption; ✓ Water for agricultural use; ✓ Water for industrial and energy use.
		Materials	✓ Biotic materials.
		Energy	✓ Biomass based energy.
2.	**REGULATION AND MAINTENANCE**	*Regulation of biophysical environment*	✓ Bioremediation; ✓ Dilution, filtration decomposition, remineralisation and recycling.
		Flow regulation	✓ Air flow regulation; ✓ Water flow regulation; ✓ Mass flow regulation.
		Regulation of physico-chemical environment	✓ Atmospheric regulation; ✓ Water quality regulation; ✓ Pedogenesis and soil quality regulation.
		Regulation of biotic environment	✓ Lifecycle maintenance, habitat and gene pool protection; ✓ Pest and disease control.
3.	**CULTURAL**	*Symbolic*	✓ Aesthetic, Heritage; ✓ Spiritual
		Intellectual and experiential	✓ Recreation and community activities;
			✓ Information and knowledge.

(Source: processed by: EEA., 2012b.)

Having presented the services provided by the environment, it is possible to establish the directions of protection and management of the environmental resources, which are necessary and can be adopted at the level of the economic entities [15]: *i)) environmental and climate protection; (ii) waste water management; iii) waste management; iv) protection of biodiversity and landscape; (v) protection of soil and groundwater; vi) protection against radiation; vii) reduction of noise and vibration, etc.*

Within economical entities, environmental costs are the result of impact reduction activities and the conservation of the environment. Costs can therefore be classified according to different criteria, such as: [10]: *i) prevention of pollution; ii) environmental conservation; iii) recycling of resources; iv) administration; v) research, development and innovation; vi) social responsibility; vii) environmental remediation.* Thus, a detailed typology of environmental costs can be identified and presented, which can be reflected at the level of the economic entities (Table no.2).

Table no. 2 Typology of environmental costs

No. crt.	**Classification criteria**	**Typology of environmental costs**
1.	**POLLUTION PREVENTION**	✓ *costs to prevent air pollution;* ✓ *costs to prevent soil pollution;* ✓ *costs to prevent water pollution;* ✓ *costs to prevent noise pollution;* ✓ *costs to pevent thermal pollution;* ✓ *costs to prevent radioactive pollution;* ✓ *costs to prevent olfactory pollution;* ✓ *costs to prevent light pollution;* ✓ *costs to prevent visual pollution;* ✓ *other pollution prevention costs..*
2.	**ENVIRONMENT CONSERVATION**	✓ *costs to prevent global warming;* ✓ *costs for energy conservation;* ✓ *costs to prevent ozone depletion;* ✓ *costs for the conservation of water resources;* ✓ *other costs for global environmental activities.*
3.	**RECYCLING RESOURCES**	✓ *costs for efficient use of resources;* ✓ *costs for waste recycling;* ✓ *costs for neutralization of waste;* ✓ *the cost of contributing to the movement of resources* ✓ *other costs related to waste management, recycling and neutralization.*
4.	**ADMINISTRATION**	✓ *costs for the implementation of an environmental management system;* ✓ *costs for the maintenance of the environmental management system;* ✓ *costs for environmental impact monitoring;* ✓ *costs for the professional qualification of employees in the field of the environment;* ✓ *costs for the authorization and advertising of organic products;* ✓ *costs for activities aimed at improving the environment (greening, landscape preservation, etc.).*
5.	**RESEARCH, DEVELOPMENT AND INNOVATION**	✓ *costs of research for the development of innovative products that contribute to the preservation of the environment;*

		✓ *research and development costs to reduce the environmental impact along the product value chain: manufacturing - distribution - marketing - recycling.*
6.	**SOCIAL RESPONSIBILITY**	✓ *costs for environmental and landscape conservation activities, planting of trees, etc. carried out in places different from the ones where the economic activities are carried out;* ✓ *costs related to donating or providing financial support to environmental groups or various social activities related to environmental conservation that support local communities.*
7.	**ENVIRONMENTAL REMEDIATION**	✓ *costs for the restoration of the natural environment and bringing it to the initial state;* ✓ *insurance costs to cover environmental degradation;* ✓ *other environmental costs.*

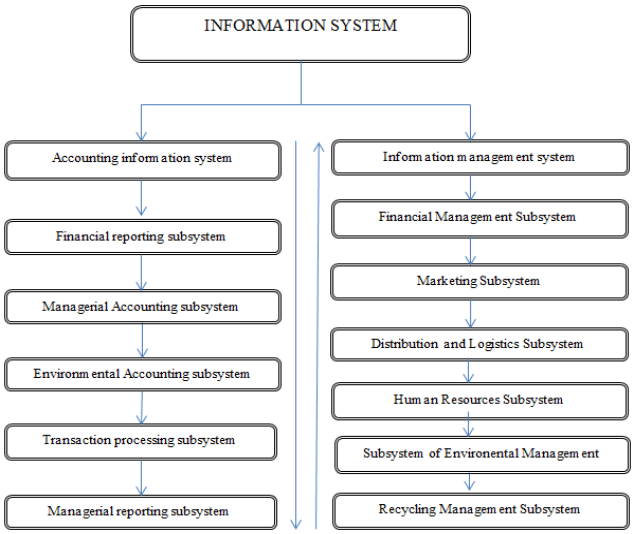
(Source: processed by: Ministry of the Environment JAPAN, (2005), Environmental Accounting Guidelines, available at: https://www.env.go.jp/en/policy/ssee/eag05.pdf)

Environmental activities can be managed in terms of quantity, so economic entities can accurately identify and quantify investments and costs associated with environmental conservation activities. Having an ample perspective on the potential benefits generated by such investments, the economic entity can increase the efficiency of its activities, and the integration of environmental accounting into the information system provides support for a rational decision-making process. [10].

2. Integrating Environmental Accounting in the Information System of the Economic Entity

The competitive economic entity is made on a primordial base represented by a well-defined and functional information system, because information has become an important resource, together with raw materials, capital and labor but at the same time an essential tool for adaptation, evolution , maximizing the results of the organization and its sustainable development in accordance with the natural environment. [8]. At the same time, the information system leads to increased productivity and to achieving medium and long-term strategic plans to prevent rapid developments in demand and supply of goods and services. The information system is the set of data and information, circuits and information flows, procedures, means of handling information used to establish and achieve the sustainable objectives of the economic entity[12].

Figure 1. **The information system within economic entities integrating environmental accounting**



(Source: processed by the author)

On the one hand, the information system ensures a permanent record of the economic processes with a significant impact on the development and efficiency of the activities carried out by the economic entities, and on the other hand, through the integration of the environmental accounting and the environmental management system, it provides evidence of the impact that the economic activities which have been carried out generate on the environment. It also contributes to the identification of the main techniques and ways to minimize this impact. Through the information system one can ensure the necessary information for decision making and one can provide the necessary data to highlight the achievement of the strategic objectives which are also sustainable [11].

Each economic entity must adapt its informational system to the needs of its users, in accordance with the fundamental objectives of all systems, respectively [6]: *i)it supports the management function: the information system provides the support and resources that are necessary to profitably manage the entity's resources; ii) support in decision making: the information system provides managers with the information they need to fulfill their responsibilities and for making optimal decisions; iii) it supports the day-to-day operations of the economic entity: the information system provides the necessary support to the operational staff in order to efficiently fulfill their daily tasks; iv) it supports the environmental management.* The information system consists of the accounting informational system and management informational system. Accounting is a key component of the economic informational system because, by using the specific means and procedures, it provides information, such as [7]: *i) building the past and present economic entity; ii) orientation of future economic strategy and decisions; iii) market-oriented analysis; iv) narrowing the random field in decision-making; v) solutions and motivations of adopted decisions.* The integration of environmental accounting into the informational system of the economic entity provides information on [10]: (*i)the cost of environmental preservation expressed in monetary units; (ii) the benefit for the preservation of the environment expressed in physical units; (iii) the economic benefit of environmental conservation activities expressed in monetary units.* The set of data provided by environmental accounting as descriptive data and figures outline a structure of financial performance of these records, since it identifies, quantifies and systematically communicates the costs and the benefits resulting from conservation activities in monetary value. At the same time, environmental accounting identifies, quantifies and communicates the benefits of environmental conservation in physical units, which determines the actual and concrete environmental performance.

Environmental accounting, as an integrated part of the informational system, has double function [10]: *at internal level* - it ensures the efficient management of environmental conservation costs, analyzing cost - benefit activities of environmental conservation, promotes efficient activities of environmental conservation, identifies investment needs to reduce the impact of economic activities on the environment, supports research and innovation within the company; *at external level* - through the quantitative results of environmental conservation activities, the economic entity can influence the behavior and decisions of its external partners such as investors, consumers, business partners, state institutions, etc., thus increasing the social and the environment responsibility.

Conclusions

Economic entities operating in an unstable economic environment and characterized by numerous transitions to the circular economy, bioeconomy through which one plans the sustainable development of humanity, generate at their level, major structural changes, which imply the development of efficient information systems and the integration through them, of some of environmental accounting and environmental management systems. This opens up a new optics of the way an economic entity develops, which, by not modifying its primary premise, namely maximizing profit, that should be achieved by making the economic entity responsible of the impact that its economic

activities having been carried out may generate on the environment. At the same time, the new optics for sustainable development of economic entities means minimizing the consumption of non-renewable natural resources, expanding the use of renewable resources, monitoring environmental impact, optimizing activities and investments for environmental conservation, waste management and increasing recycling.

References

[1] Australian Government, Bureau of Meteorology, *The Environmental Accounts Landscape Contributing to the Australian Government National Plan for Environmental Information initiative*, available at: http://www.bom.gov.au/environment/doc/environmental_accounts_landscape.pdf.

[2] Charvériat C., (2000), *Natural disasters in Latin America and the Caribbean: an overview of risk.* Inter-American Development Bank, Research department – Working Paper #434, available at: https://www.unisdr.org/preventionweb/files/2544_ENVNatDisastLACeline.pdf.

[3] Deshwal, S., (2015), *Green accounting and practices*, International Journal of Applied Research 2015; 1(8): 683-684, available at: https://www.researchgate.net/publication/290440441_Green_accounting_and_practices.

[4] EEA., 2012b.,(2012), Haines-Young, R. and Potschin, M. *Common International Classification of Ecosystem Services (CICES V4): Consultation Briefing Note. Paper prepared for discussion of CICES Version 4*, European Environment Agency, Copenhagen.

[5] Fischer G, Mahendra Shah and Harrij van Velthuizen, (2002). *Climate Change and Agricultural Variability, A special report, on Climate Change and Agricultural Vulnerability*, Contribution to the World Summit on Sustainable Development. Johannesburg (Global,agriculture), available at: http://adapts.nl/perch/resources/climateagri.pdf.

[6] Hall, J. A.,(2011) *Accounting Information Systems. Seventh Edition,* Ed. South-Western Cengage Learning, USA.

[7] Horomnea, E., (2011) *Dimenisuni ştiinţifice, sociale şi spirituale în contabilitate. Geneză, doctrină, normalizare, decizii*, ediţia a II – a, Ed. TipoMoldova, Iaşi.

[8] Khaghaany, M., M., *Accounting Information Systems,* accesat : http://mng.uokufa.edu.iq/teaching/maithmm/lectures.files/Accounting%20Information%20Systems.pdf.

[9] Magrin, G., C. Gay García, D. Cruz Choque, J.C. Giménez, A.R. Moreno, G.J. Nagy, C. Nobre and A. Villamizar, (2007): Latin America. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 581-615, available at: https://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter13.pdf.

[10] Ministry of the Environment JAPAN, (2005), *Environmental Accounting Guidelines*, available at: https://www.env.go.jp/en/policy/ssee/eag05.pdf.

[11] Moga, T, Voicu, R., Rădulescu, C.V., (2003), *Management*, Ed. ASE, Bucureşti.

[12] Nicolesc, O., Verboncu, I.,(1995), *Management*, Ed. Economică, Bucureşti.

[13] Tabără, N., Briciu, S., (2012), *Actualități și perspective în contabilitate și control de gestiune*, Ed. Tipo Moldova, Iași.

[14] UNF., (2007), *Convention on Climate Change*, *Climate Change: Impacts, Vulnerabilities And Adaptation In Developing Countries*, available at: https://unfccc.int/resource/docs/publications/impacts.pdf.

[15] United Nations Division for Susttainable Development, (2001), *Environmental Management Accounting Procedures and Principles*, New York, available at: http://www.un.org/esa/sustdev/publications/proceduresandprinciples.pdf.

[16] United Nations, (2000), *Handbook of National Accounting Integrated Environmental and Economic Accounting. An Operational Manual*, Series F, No. 78, New York, available at: http://repository.un.org/bitstream/handle/11176/232220/ST_ESA_STAT_SER.F_78-EN.pdf?sequence=1&isAllowed=y.