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IMPLICATIONS OF MANAGERIAL OBJECTIVES IN THE PERTINENT ELABORATION OF ACCOUNTING INFORMATION WITHIN COMPANIES IN ROMANIA

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***Abstract**: This paper aims to examine the factors that influence the quality of the accounting information developed within the companies in Romania. In our opinion, accounting information is developed under certain circumstances, not to reflect the reality of the enterprise's financial position but to provide the desired image for shareholders or management. Accounting is thus challenged because of its ability to alter the company's true representation. The study is based on the analysis of a representative sample of companies listed on the stock exchange and operating in Romania. The analysis of the data revealed a close connection between the role of the actors involved in the production of financial statements, the perception of the existence of an institutional framework for accounting regulation and the quality of the accounting information produced.*
***Key words**: Accounting information, Creative Accounting, Managerial Accounting*
***JEL classification:** M48, M41.*

1. Introduction

Information is the only inexhaustible resource, a real power factor, a good that directly influences the welfare of a nation. In the midst of the informational revolution, the deepest change seems to be related to the collection, processing, production and dissemination of information (Cucui, 2006).

The process of production of accounting information uses a professional judgment on the application of standards, including the decisions taken in the preparation of annual accounts. This is crucial in producing reliable, relevant and sincere information. Several studies about the information content of the financial statements reveals the compliance and control of the legal framework by different stakeholders in the production of accounting information (Krishnan, 2003).

The production of financial statements may involve several parties, such as management, audit committee, board of directors, and external auditor. The management of the economic entity is responsible for preparing the content; the audit committee and board of managers review, approve information and monitor how management performs its accounting information responsibilities; the auditor issues an opinion on the financial statements after conducting an audit in accordance with the standards in force. In this context, the intervention of a large number of actors with divergent interests in the production of accounting information can lead to various forms of manipulation.

Accounting information, which forms the basis for decision-making, must be relevant, complete, neutral, timely and without significant distortions. In order to produce useful accounting information, a rigorous process must be followed to ensure that all these criteria are met. This study was conducted by interrogating accounting practices, the regulatory and control institutional framework and the role of actors involved in the process of compiling accounting information.

The question arises whether the process of preparing the financial statements reflects the accounting reality of all transactions and events that affect the economic life of the company or whether, in concrete terms, the current institutional framework can guarantee the production of reliable and honest accounting information. Therefore, we will

review the literature that will lead to methodological choice. Subsequently, the results will be presented, followed by their discussion.

2. Accounting information

Management is responsible for preparing the entire accounting policy of the company, having the ability to influence the information content of the financial statements of the company. Therefore, the flexibility of accounting rules may allow managers to exercise a random judgment and publish results based on discretionary objectives (Watts, Zimmerman, 1990).

Moreover, as managers are investors who are very well anchored in the economic realities and aware of the prospects of the economic entity's activity, they have the responsibility to communicate real data on the financial statements on the market. But there is a difficulty in assessing managerial orientation. The premise that managers manipulate accounting data is the starting point for a significant number of academic accounting papers.

However, it should be stressed that the reported accounting information is not only a manager's wish, but also a culmination in the process of reporting on the internal validation flow of all actors involved in the accounting information chain. From the above, our first hypothesis finds its foundation.

Hypothesis 1: Manager's accounting choices significantly influence the quality of accounting information produced by Romanian companies.

Governance in the field of accounting information is the responsibility of the board of directors and the audit committee. As a consequence, the audit committee reviews the financial statements prior to their release and recommends their approval to the board of directors. Furthermore, the audit committee must have expertise, which is a necessary condition for engaging in the production of accounting information. It should be remembered that these actors contribute to providing the information produced with a credibility guarantee in terms of reliability, sincerity and faithful image.

Several studies identify the competence or expertise of the audit committee as a criterion of effectiveness. This results in a reduction of discretionary practices regarding the financial expertise of the audit committee, management expertise and commercial banks' interference (Xie, Davidson and Dahalt, 2003). The expertise dimension, in particular the audit expertise of an audit committee, appears to be an important element in preventing the manipulation of results and hence a factor in the quality of accounting information.

Empirically, recent work has focused on the relationship between financial communication and the presence of the audit committee. In terms of presence, many authors find a positive relationship between the existence of an audit committee and the level of disclosure of voluntary information (Arcay and Vazquez, 2005).

However, other authors do not identify significant links between the presence of an audit committee and the quality of accounting information (Kent and Stewart, 2008). This seems surprising given the role that this body has to play in improving the quality of accounting information. From the above, the following assumptions can be assumed:

Hypothesis 2: The presence of the audit committee in the board of directors is positively correlated with the quality of the accounting information produced by the companies in Romania.

Hypothesis 3: The presence of a strict and rigorous regulatory and control institutional framework for accounting information has a significant impact on the production of quality information within companies in Romania.

The existence of a strict and rigorous institutional framework would favor the production of quality accounting information. The legal, policy and regulatory institutional system is an external governance mechanism whose efficiency varies according to the role that these institutions play in the economy. Numerous studies have examined the disciplinary role of national and legal systems of governance (Boughanmi and Deffains, 2006).

Generally, institutional control activity enters into a macro-governmental analysis framework with coercive tools that can discourage fraudulent practices. From the above, the views of the authors are unanimous about the need for the state to equip itself with an institutional arsenal that oversees the production of accounting information within companies.

3. Applied methodology

The study sample consists of companies operating in Romania, namely limited liability companies, including companies that are under pressure to certify the financial statements by a statutory auditor. The sample was selected following the collection of disclosed statistical, financial and business data, published by target audience companies on specialized sites or public institutions. Thus, the company's characterization was aimed at identifying issues such as business age, industry, management experience within the company, etc. Data analysis also aimed to question the production of accounting information in the companies in the sample.

4. Sample description

The description of the study sample considers the behavior of companies in the production and use of accounting information.

A number of difficulties have been identified in describing companies participating in the study because knowledge of the characteristics of these companies is essential to have a good understanding of the factors that can influence the quality of the produced accounting information.

All the observed businesses were created after 1990, aged between 5 and 25 years. The companies in the sample produce the majority of domestic financial statements (84.5%). Similarly, when this production of accounting information is carried out internally, 90% of accountants follow managerial decisions. Accounting choices applied by most of the companies in the sample indicate an increase in company spending, which paves the way for significant accounting manipulation.

The companies surveyed are mostly satisfied with the summary financial statements drawn up, this observation reinforcing the usefulness and confidence in the accounting information produced by the companies in Romania. The accounting information produced is generally important for business management. The first purpose of using accounting information is that it allows management of the company to take decisions. Similarly, accounting information is important for predicting the evolution of the company's business, a utility that seems to be very important to most companies compared to other purposes.

The analyzed sample mainly covers companies with audit committees as leverage (64%). This observation highlights the strong involvement of governance mechanisms and the importance of the audit committee in the process of producing reliable and honest accounting information. Moreover, in the vast majority of the sample companies audited (90%), the auditor reports to an international audit firm (KPMG, Price Waterhouse Coopers, Ernst & Young and Deloitte). This suggests an external quality audit due to the reputation of the auditors and the reputation of the audit firms. Regarding the functioning of the audit committees, the results of the survey show that the audit committees meet

twice a year. In addition, most companies perceive the existence of a regulatory framework and control of accounting information produced in Romania. This analysis gave us an overview of the characteristics of the companies studied.

5. Construction of study variables and model specification

The quality of information is assessed by its ability to reproduce a reality that is not influenced by the perception and judgments of the emitter or the form that makes this reality understandable. The concept of quality is therefore defined by qualitative characteristics, based on a dual function assigned to accounting information - a utility function and a social function. In his study, (Michaïlesco, 2009) measures this quality through a list of broadcast elements or indicators associated with a weighting system. Other studies have examined the use of accumulations to measure the quality of information by using estimation models (Chan, Chan, Jegadeesh and Lakonishok, 2006).

These are the determinants of producing accounting information. Among these explanatory factors, the management's accounting choices, the quality of the audit, the presence of an audit committee, its functioning and independence to address reliable and honest accounting information are addressed in the study.

- Manager's election choices

These are the choices made by the manager, allowing them to enhance their personal utility. To this end, the manager adjusts his accounting choices to meet the expectations of the shareholders and may adopt a "maximizing" behavior to deviate his accounting choices in favor of increased remuneration. Indeed, when its compensation is indexed to the accounting indicators, the manager will choose the accounting choices that increases the benefits.

In order to reduce annual depreciation costs and consequently to increase the accounting result, managers often choose the straight-line method of depreciation because they tend to depreciate fixed assets less in the early years. Consequently, it can be argued that the linear depreciation method is an accounting practice whereby financial statements can be manipulated for purposes that serve the interests of the shareholders;

- Audit quality

The auditor's independence is correlated with its size, and the latter influences the quality of the audit. In this study, the quality of the audit is measured by the fact that the auditor belongs to an international firm (Big Four).

- The functioning of the audit committee

The effectiveness of the audit committee results in continuous monitoring and regular monitoring of the activities of the management bodies. This effectiveness is measured in this study by the number of meetings of the audit committee during the fiscal year.

In an explanatory statement, the degradation of accounting information is an attempt to explain through systemic and environmental malfunctions that are not the only variables that can affect the reliability and relevance of accounting information. Finally, and since the certification of the external auditor is a guarantee of the reliability of the company's financial statements, our control variable would be the quality of the audit. Our conceptual framework is part of the informational perspective of the annual financial statements.

When the method used is linear, the quality of the accounting information seems to be better than when the method is degressive. In addition, accounting information is clearly of better quality when the audit committee holds at least two meetings during a financial year. Similarly, the fact that the audit reports issued by an international audit firm influence the choice of the depreciation method to be adopted.

- Independence of the audit committee

The independence of the audit committee depends on its composition. The presence of external investors, investment banks and financial experts within the audit committee strengthens its independence. In this study, the independence of the audit committee is measured by the presence of bankers and financial experts.

- The perception of the absence of a rigorous regulatory framework for control and accounting

6. Discussion of the results

The presence of internal and external governance mechanisms within Romanian companies guarantees the production of reliable and sincere information. This study has shown that the accounting choices of executive directors, especially the choice of the accounting depreciation method, explain the quality of the accounting information so that our first hypothesis is validated.

Similarly, the presence of an audit committee within the company, the number of meetings held by the audit committee during a financial year, allows the company to prepare financial statements reflecting the real and accurate situation of the assets and the financial position of the company. This leverage of internal governance strengthens our view, and the second hypothesis is therefore confirmed.

The quality of external auditing as measured by the auditor's membership in an international firm has a significant influence on the quality of the produced accounting information. Due to the company's reputation, the importance of the means and the auditors' expertise, the audited financial statements imply credibility in the published information. Similarly, the perception of the existence of a strict and rigorous regulatory and controlling institutional framework explains in this study the quality of accounting information in companies in Romania. The existence of a strict and rigorous institutional framework through the coercive aspect should promote the production of reliable and accurate accounting information.

7. Conclusion

The aim of this paper was to describe the process of accounting reporting and the ability to produce quality information. This observation was specifically motivated by the fact that the existence of internal and external control levers within the company plays a key role in producing trustworthy and honest information.

Finally, in Romanian companies, the production of accounting information is subject to various manipulations. Thus, the production of reliable and accurate accounting information is the result of a harmonious functioning of both internal and external government leverage and the implementation of regulatory and ethical structures in the management options center.

Thus, it is necessary to establish a strong and rigorous institutional framework for monitoring and supervising the production of accounting information. To reduce creative accountability by the various stakeholders, the authorities should make improvements and improvements to the regulations in place.

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CORPORATE TAX PLANNING AND PERFORMANCE OF NIGERIAN LISTED OIL & GAS FIRMS

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Abstract: *Corporate tax is obligatory and constitutes an unbalanced transfer of resources to the government with a negative impact on firm performance. However, organizations adopt tax planning strategies to curtail tax liability without adverse effect on firm performance. Thus, this study examined the relationship between tax planning and performance of Nigerian listed Oil & Gas firms. The study adopted a descriptive research design and secondary data were collected from selected five firms over a period of six years (2012-2017). Descriptive Statistics and simple pooled Ordinary Least Square regression analysis were used to evaluate the probable relationship among the identified variables. The indices of determination for corporate tax planning are: Effective Tax Rate (ETR); Firm Size (FS); Firm Age (FAGE); Financial Leverage (FL) and Return on Assets (ROA) for performance. The results of the study showed that ETR, FS, and FAGE have significant relationship with ROA of Nigerian listed Oil & Gas firms ($p<0.05$). However, FL has negative and insignificant relationship with ROA of Nigerian listed Oil & Gas firms ($p>0.05$). The study concluded that an optimal mix of tax planning strategies enhance performance of Nigerian listed Oil & Gas firms. Therefore, it is recommended that the management of Nigerian listed Oil & Gas firm should incorporate tax planning into their overall financial scheme for improved performance.*
Keywords: *Effective Tax Rate, Firm Size, Firm Age, Financial Leverage and Return on Equity.*
JEL Classification: *H21, H25.*

1. Introduction

Corporate tax planning is primary to financial planning and offers a tax manager and firm an opportunity to legally reduce the tax burden and improve performance. Tax planning is the process of taking a conscious effort to consider the tax payable at a future date and carefully, within the ambit of the tax law, minimize the burden. Tax payment is an expense from the stance of a taxpayer and payment is not an option for a taxpayer as stipulated in the tax laws of the country. However, taxpayers are not under any compulsion to pay more than his ability to support the government. Therefore, taxpayers usually exploit loopholes in the tax laws to legally and morally ensure that minimum possible tax is paid to the government.

Tax, as a major instrument of fiscal policy, to regulate the economy of a nation has been adopted by successive governments in Nigeria to encourage industrial and corporate

growth (Nwaobia, 2013). Tax plays a vital role in the fortunes and misfortunes of any organization as it is used to shield infant industries, encourage investors to invest in convinced areas of the economy considered needful for economic growth and also a high tax regime is likely to wipe-off profit available for investment opportunities. Ihendinihu (2009) in Dickson and Nwaobia (2012) noted that unfavorable tax policy is a major reason for the evolution of the subversive economy, where law-abiding tax payers and firms seek shelter from high tax regime.

The major challenge of corporate organization is the high tax rates and multiple taxes that lead to high tax burden above the statutory corporate tax. In recent time, there are different taxes levied on companies and individuals as stated in the Official List of Collection Act 1998 (Bammeke, 2012). Some of these taxes are overlapped and cogently collected from corporate organizations and the resultant collection makes it uneconomical for firms in term of cost structure (Nwaobia, 2013). Nnadi and Akpomi (2008), a tax policy describes the cost structure of firms as it is incorporated into pricing decision. Ogundajo and Onakoya (2016) added that tax costs deplete distributable profits available to stakeholders and increase the production costs. Severally, these taxes become a considerable cost to organizations and if not skillfully and legally planned and reduced may adversely affect cash flow and ability to invest. Hence, to lessen the burden and effect of taxes on firm profitability, tax planning is exigent. However, numerous firms are not aware of some corporate tax planning strategies available to legally minimize the tax burdens.

The petroleum industry in Nigeria comprises two major sectors: the upstream sector that deals with oil exploration and production activities, while the downstream sector deals with the storage, transportation, refining, hydro processing, marketing, and distribution. The sector has a market capitalization of N763.28 Billion as of December 2015 with an all-share index of N356.56 Billion. In addition to this, the Nigerian Security and Exchange in 2015 rated the Oil & Gas sector as the seventh most liquid sector in the Nigerian Economy. Despite the above performance, studies on corporate tax planning and performance of listed Oil & Gas firms in African context are mix and inconclusive and relatively few studies have been undertaken to examine the relationship that exists between corporate tax planning and performance of Nigerian listed Oil & Gas firms.

The specific objectives are to:

a. examine the relationship that exists between effective tax rate and performance of Nigerian listed Oil and Gas firms;

b. evaluate the relationship that exists between firm age and performance of Nigerian listed Oil and Gas firms;

c. assess the relationship that exists between financial leverage and performance of Nigerian listed Oil and Gas firms; and

d. identify the relationship that exists between firm size and performance of Nigerian listed Oil and Gas firms.

From the objective of the study the following research hypotheses are formulated to guild the outcome of the study:

H_0: there is no significant relationship between effective tax rate and performance of Nigerian listed Oil and Gas firms;

$H_{0:}$ there is no significant relationship between firm age and performance of Nigerian listed Oil and Gas firms;

$H_{0:}$ there is no significant relationship between financial leverage and performance of Nigerian listed Oil and Gas firms; and

$H_{0:}$ there is no significant relationship between firm size and performance of Nigerian listed Oil and Gas firms.

2. Literature Review

Tax planning involves anticipating a set of circumstances and the identification of opportunities to minimize or defer tax liabilities within the tax law (Armyau and Jamilu, 2016). Bariyima and Cletus (2014) describe tax panning as arranging the affairs of business to ensure that the maximum allowances, exemptions, and reliefs are enjoyed. Consideration is given to the likely effect on the tax liabilities, timing of fixed assets acquisitions and disposals. The choice of the accounting date of a business entity can also have a significant effect on the tax payable by the business (Danielova and Sarka, 2011). The impact of commencement rules on taxable profits of the taxpayer is considered in tax planning, before deciding on taxpayer's accounting date (Ftouhi, Ayed and Zemzem, 2014). Planning with regards to the time profit is earned and payment of assessable tax leads to significant financial advantage to a continuing business (Nwaobia, Kwarbai and Ogundajo, 2016). When a business ceases to trade permanently, the date of cessation can also impact on tax liability. In tax planning, the tax-conscious business person and tax expert must work together to significantly reduce tax liability payable (Nwaobia et.al, 2016). Tax planning requires detailed knowledge of tax legislation and its application to particular circumstances, identifying and taking advantage of loopholes if any (Katz, Khan, and Schmidt, 2013). It is noteworth that tax planning involves noting applicable tax legislation, to be assured that the tax laws are properly complied with and necessary actions are taken by taxpayers to pay all taxes as at when due.

Tax avoidance arises in a situation where the taxpayer arranges his financial affairs in a form that would make him pay the least possible amount of tax (Armayau and Jamilu, 2016). Tax avoidance schemes are carried out after a critical review of the tax laws and the taxpayer would then implement devices to exploit loopholes in the tax laws that would enable him to pay to minimize tax (Shane and Maria, 2015). It should be noted that to a very large extent, tax avoidance is legal once it is done within the permissible tax laws (Nanik and Ratna, 2015). There are, therefore bound to be several and unending specific anti-avoidance legislation to effectively stop the taxpayer willing to carry out tax avoidance schemes (Bariyima and Cletus, 2014). As the legislature cannot accurately foresee all schemes which a taxpayer could devise, consideration is given to the promulgation of general anti-avoidance legislation (Ogundajo and Onakoya, 2016).

Tax evasion, on the other hand, is the illegal means by which a taxpayer minimizes tax liability (Ftouhi, Gadzo and Kportorgbi, 2013). Tax evasion is usually more prevalent when the tax system is perceived to be unfair coupled with lack of transparency in governance (Nwaobia et.al, 2016). The Revenue Service views any case of tax evasion seriously if discovered; the Revenue Service will go further to reopen the relevant assessments beyond the normal statutory limit of six years (Armayau and Jamilu, 2016). A tax evader may be charged to court for criminal offenses with the consequent fines, penalties and, at times, imprisonment.

There are two basic corporate tax planning rules. The first is when a company should not take extra expenses or strive to minimize income to get a tax deduction (Seyram and Holly, 2014). The goal in tax planning is rather to increase the company's assets after tax profit. The second rule is to attempt to defer taxes as much as possible and this is possible when a company legally puts off taxes to next tax season, the money that would have been used to settle the year's tax liability is released for interest-free use (Nanik and Ratna, 2015). Effective tax planning strategies should produce benefits in terms of wealth creation for the company; hence, tax planning is actually a subset of the overall financial planning of a company which needs to take into account investment, financing and wealth building strategies of the company (Morien, 2008). Kawor and Kportorgbi (2014) put

forward different types of tax planning strategies to include strategies for obtaining tax deductions; tax credits and offsets; moving income away from an entity paying a high rate of tax to an entity paying a lower rate of tax. It also includes moving profits and losses between tax years, either to defer tax or take advantage of a more favorable tax rate and reducing the amount of assessable capital gains tax from an investment sold at a profit. Each of these strategies embodies several elements to deal with in implementing the strategy. ICAN (2009) makes it clear that tax planning requires detailed knowledge of different tax legislation and their application to particular circumstances. It requires the ability to identify and take advantage of any loopholes in the legislation. It requires ensuring that the tax-payer complies with tax laws to avoid sanctions and penalties. Many sections of the Companies Income Tax Act, LFN 2004 contain varying provisions that give the corporate tax manager the latitude to mitigate the company's tax liability. Tax planning, in essence, involves the application of relevant incentive provisions for corporate tax-payers based on enabling laws such as the CITA, PITA, VAT and ancillary provisions (Gatsi, Gadzo and Kportorgbi, 2013). It thus demands a thorough knowledge of the tax statutes and other regulations arising from the annual fiscal policies of government as contained in the budget announcements.

Theory Underpinning the Study

Political cost theory is adopted for this study. The theory was enunciated by Watts and Zimmerma (1978). Watts and Zimmerma (1978) assert that Political cost theory upholds that bigger firms possess greater economic and political influence relative to small firms. Bigger firms take advantage of economic and political advantage to lessen their tax burden as they are able to engage in aggressive tax planning and manipulate the political process in their favor. In support of this theory, Porcalo (1986) submitted that larger firms have smaller effective tax rates (ETRs) while Rego (2003) posited that economies of scale can significantly affect a firm's ability to reduce its tax burden. Loretz and Moore (2009) however, argued that tax planning decisions, similar to a firm's operational decisions, are made in a competitive environment. This implies that where tax payments made by the company differ significantly from those of the peer group, it could lead to "reputational loss." Hence, managers have to strike a balance between the benefits to reduce the tax burden and the costs of reputational loss if they deviate too much from the behavior of peer group.

Empirical Framework

Firm's profitability can influence effective tax rate especially when profitability is measured based on pre-tax income; we expect more profitable firms to have higher earnings and hence pay more taxes. Minnick and Noga (2010) found a positive relationship between firms' profitability and ETR. Derashid and Zhang (2003) opined that more profitable firms have a lower cost associated with managing taxes because they have more resources to invest in the planning activities that contribute to lower effective tax rates which therefore indicates a positive relationship between effective tax rate and firm performance. Even though, Bryant-Kutcher, Guenther and Jackson (2011) found a negative correlation between ETR and firm value. According to them, differences in company income tax rate are not completely offset by non-tax expenses. The negative correlation is justified on the ground that, there are constraints on analysts' forecast in conveying earnings information in the short-run, and this leads to omission of value related information in the prediction (Richardson and Lanis, 2015).

Age is the length of time during which a being or thing has existed (Halil and Hasan, 2012). Coad, Segarra and Teruel (2007) defined firm age as the number of years of

incorporation of the company. Shumway (2001) believed that listing age define the age of the company and that listing age is more economical since listing is a defining moment in the company' life. The relationship between firm age and profitability is contentious. Some reported a positive and significant relationship between age and profitability (Kawor and Kportorgbi, 2014). Others reported a negative relationship (Dogan, 2013; Haltiwanger, 2016).

The leverage ratio is widely used to measure the portion of long-term debts towards total assets of a business organization's activities. It means the capability of a business organization in financing its total assets with long-term debt (Danelova and Sarka, 2011). Fama and French (2002) found a positive relationship between leverage and firm value. On the contrary, Rajan and Zingales (1995) found a negative relationship between leverage and profitability. The result of the study is consistent with De Wet (2006) who opined that a significant amount of value can be unlocked in moving closer to the optimal level of gearing. Modigliani and Miller (1963) concluded that the cost of equity of a firm increases as the debt of the firm increases. The combination of negative and positive results on the relationship between leverage and firm value showed that the issue is largely unsettled, and this creates a gap which requires further clarification (Katz et al., 2013).

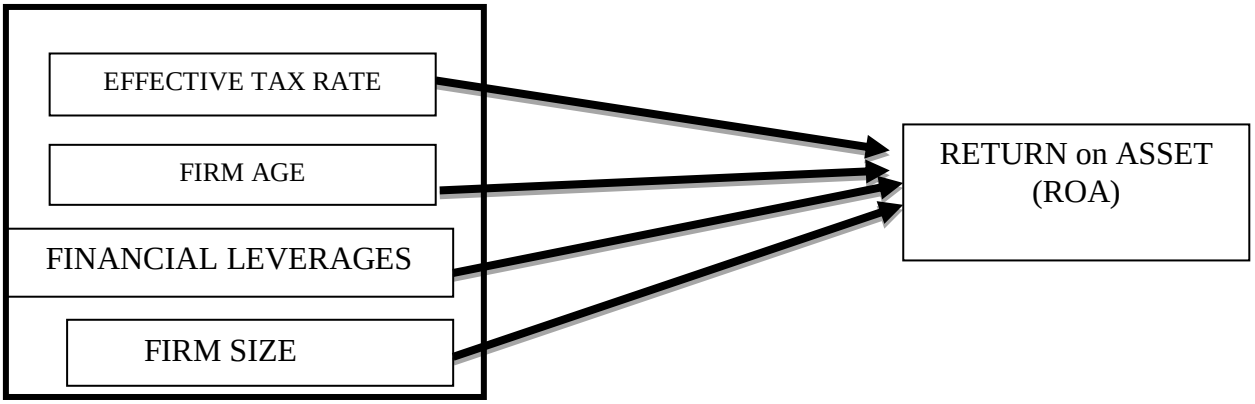
The relationship between firm size and firm performance is mixed. Stierwald (2009), Saliha and Abdessatar (2011) found a positive relationship between firm size and profitability because profitability increases as the size of the firm expand. Big firms have more competitive power when compared to small firms and because they have a bigger market share, they have the opportunity to make more profit (Yang & Chen 2009). On the contrary, Becker-Blease et al. (2010), Banchuenvijit (2012), found a negative relationship between profitability and firm size because organization costs increase with firm size, at some points, these costs will outweigh the benefits from economies of scale and hence profitability will fall. These inconsistencies in results and extant literature of scholars on corporate tax planning and firm performance present a knowledge gap which forms a reasonable motivation for further study.

3. Methodology

The study employed descriptive research design to assess the effect of corporate tax planning using (effective tax rate, tax saving, financial leverage, and firm size) and performance (Return on Assets) as surrogates. Data for this study were obtained from the published annual reports of five purposively selected listed Oil & Gas firms in Nigeria. The published annual reports of the selected firms were prepared to meet the requirements of the Nigerian Companies and Allied Matters Act 2004 (as amended), Nigerian Stock Exchange and Securities and Exchange Commission. These published financial reports were audited by professional audit firms and were thus reliable and valid. The secondary data were collected from income statement and statements of financial position of the selected Oil & Gas firms over a period of six years (2011–2016). Descriptive statistics were used to define the data, measured the central tendencies and dispersions. Inferential statistics such as pooled Ordinary Least Squares (OLS) regression was used to estimate concepts and test formulated hypotheses as it minimized the sum of squared errors in the process of examining the relationship between the dependent and independent variables.

In order to analyze the relationship that exists between corporate tax planning and performance of Nigerian listed Oil and Gas firms, the independent variable was measured using effective tax rate, firm age, financial leverage, and firm size while the dependent variable, firm performance, was measured with Return on Asset (ROA).

X= Corporate Tax Planning Y= Firm Performance



Source: Researcher's Conceptualized Model 2017

Operationalization of Variables
Model Specification
Y=F(X)
ROA=F (ETR, FS, LEV, FAGE)
The mathematical representation is specified as follows:
$ROA_{it} = \beta_0 + \beta_1 ETR_{it} + \beta_2 FS_{it} + \beta_3 LEV_{it} + \beta_4 FAGE_{it} + \varepsilon_t$
Where:
ROA= Return on Asset
ETR= Effective Tax rate
FS= Firm Size
LEV= Leverage
FAG= Firm's Age
β_0= Constant term
$\beta_1 \beta_2 \beta_3$= Parameter to be estimated
ε_t = Random error

In the table below (Table no. 1) is the descriptive statistics of the time series employed. The essence was to give a cursory review of the statistical properties and trends of the variables employed.

Table no. 1. Measurement of Variables

S/N	Variables	Variable type	Measurement
1	Firm performance	Dependent	ROA = Return on Assets = profit before tax ÷ total assets
2	Effective Tax Rate	Independent	corporate income tax expense / profit before tax
3	Firm Age	Independent	Natural log number of years between the date of establishment of the company and the year of observation
4	Financial leverage	Independent	Non-current Debt / Shareholders' Fund Ratio
5	Firm size	Independent	Natural Logarithm of Total Assets

Source: Researcher's computation, 2017

4. Data presentation, analysis and discussion

In this section, the description of the data collected for the study is presented and discussed. The summary of the descriptive statistics of the data collected is presented in Table no. 2 as follows:

Table no. 2. Descriptive Analysis

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
	Statistics	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
FP	30	-.4740	.1486	.014461	.1262777	-2.541	7.400
ETR	30	-.0242	.5644	.267001	.1748046	-.438	-.814
FL	30	.0104	7.1544	.539288	1.2740203	5.158	27.502
FS	30	23.3824	26.3925	24.981028	.8060280	-.025	-.305
FAGE	30	3.3322	3.9703	3.741692	.2317493	-.941	-.563
ValidN(list wise)	30						

Source: Researcher's computation with the aid of SPSS (2017*)*

The Table no. 2 shows that the measure of firm performance has an average value of 0.014461 with a standard deviation of 0.1263, a minimum value of -0.4740 and 0.1486 as its maximum value. The standard deviation indicates that the data deviate from the mean value from both sides by 0.1263, implying that the data are dispersed from the mean because the standard deviation is lower than the mean. The value of the kurtosis 7.400 on the other hand, supported that most of the value is higher than the mean. Similarly, the coefficient of skewness -2.541 implies that the data is negatively skewed, thus the data does not meet the symmetric distribution.

The table also shows that the effective tax rate has an average value of 0.267001 with a standard deviation of 0.1748 and the minimum value of -0.0243 and maximum of 0.5644. This implies that the deviation from the mean is 17.5%. The value of kurtosis -0.814 supports that most of the values are less than the mean. The coefficient of skewness -0.438 implies that the data is negatively skewed. Financial leverage has 0.104 as its minimum value and 7.1544 as maximum value respectively. Financial leverage shows an average value of 0.539 and standard deviation of 1.2740, this signifies that the data are widely dispersed because it is higher than the mean.

The data has a skewness coefficient of 5.158 implying that data are positively skewed with kurtosis of 27.502. The summary descriptive statistics in the table shows that on average the firm size during the period of study is around 24.98% with standard of 0.80640. This implies that the data in the sample deviated from the mean by 0.81. The minimum and maximum values of firm size are 23 and 26 respectively. The coefficient of skewness -0.025 implies that the data are negatively skewed and therefore does not conform to the symmetrical distribution requirement. Similarly, the coefficient of kurtosis -0.0305 also supports that most of the value is less than the mean. Table no. 2 indicates that the average firm age 3.9703 (in natural logarithm) with a minimum of 3.3322, a maximum value of 3.9703 and a standard deviation of 0.2317. The value of the kurtosis -0.563 on the

other hand, supports that most of the values are less than the mean. Similarly, the coefficient of skewness -0.563 implies that the data is negatively skewed.

Correlation statistics

Table no. 3 displays the correlation matrix which shows the direction of the relationship between the dependent variable (Return on asset) and the independent variables (effective tax rate, financial leverage, firm size, and firm age). Multicollinearity may be an issue since the correlation coefficients between various independent are significant. Variance Inflation Factors (VIFs) was calculated when estimating the regression model to test for signs of multicollinearity between the independent variables.

Table no. 3. Coefficient of correlation

		FP	ETR	FL	FS	FAGE
FP	Pearson Correlation	1.000				
	Sig. (2-tailed)					
ETR	Pearson Correlation	.589**	1.000			
	Sig. (2-tailed)	.001				
FL	Pearson Correlation	-.230	-.294	1.000		
	Sig. (2-tailed)	.222	.115			
FS	Pearson Correlation	-.308	-.459*	.286	1.000	
	Sig. (2-tailed)	.098	.011	.125		
FAGE	Pearson Correlation	-.368*	-.154	.177	.626**	1.000
	Sig. (2-tailed)	.045	.418	.348	.000	

Source: Researcher's computation with the aid of SPSS (2017).

The correlation matrix from Table no. 3 shows the relationship between the independent variables (proxied by the effective tax rate, financial leverage, firm size, and firm age) and the dependent variable which is firms' performance (proxied by Return on Asset) of listed Oil & Gas firms in Nigeria. The correlation coefficient between effective tax rate and firm performance is 0.589 which indicates that effective tax rate is positively correlated with firm's performance which implies that the firms have more resources to invest in the planning activities that contribute to lower effective tax rates.

Financial leverage coefficient shown in Table no. 3 indicates a negative relationship with the firm's performance; this implies that as tax rates increases, the firms intensify tax planning activities. The correlation coefficient of firm size shows a negative correlation with firm's performance, thus indicating that the firm's total asset is not efficiently utilized to influence the firm's financial performance.

The firm's age and firm's performance is negatively correlated but statistically significant at 5% level of significance ($P<0.05$) indicating that there is industry specific managerial experience and innovations in the firm's activities. However, the study uses Variance Inflation Factors (VIFs) to confirm the level of correlation between the independent variables. The decision criterion for the variance inflation factor is that a value of 10 and above implies the presence of perfect multicollinearity. The result indicates the absence of collinearity among the independent variable. As such, multicollinearity does not present a problem for the study.

Table no. 4. Simple pooled OLS regression for the study model

Variable	Coefficient	t- stat	Probability
Constant	- 0.258	- 0.375	0.711
Effective tax rate (ETR)	0.455	3.660***	0.001
Firm size (FS)	0.041	1.215**	0.236
Financial leverage (LEV)	- 0.004	- 0.277	0.784
Firm Age (FAGE)	- 0.233	- 2.222	0.036
R^2	0.458		
ADJ. R^2	0.371		
F- stat (Probability)	5.282*** (0.003)		
Durbin Watson	1.226		
No of Observation	30		

, **, ** indicates significant at 10%, 5% and 1% respectively.
Source: Researcher's computation with the aid of SPSS (2017).

The result of the pooled OLS shows that the coefficient of the tax planning proxy (ETR) is statistically significant at 5% level and has a positive value of 0.455 (p-value 0.001). The Firm Size (FS) exerted a positive and insignificant effect on firm performance while Financial Leverage (LEV) exerted a negative but insignificant effect on firm performance. The Firm Age (FAGE) is statistically significant and a negatively associated with firm performance. The adjusted R square value of 0.458 reveals that tax planning variables (ETR, SIZE, LEV, and FAGE) account for only 45.8% of the variation in the Oil & Gas sectors performance. Though the individual effects of the proxies on firm value are mixed, the F- ratio of 5.282 and associated P-value of 0.003 indicates a joint statistically significant effect of ETR, FS, LEV, and FAGE on firm performance. The significant nature of the F-stat implies that the overall goodness of fit of the model is satisfactory and sufficient enough to explain the dependent variables. This is consistent with the work of kawor and kportorgbi (2014). The Durbin Watson falls in the range of 1.23 to 2.4 which is an indication that there is no autocorrelation problem in the model.

Results and Discussions

The results of the hypotheses testing were summarized and presented in table 4.6 and the discussion of findings follows. The results obtained in this study are in harmony with some of the findings of previous studies.

Table no. 5. Summary Results of the Hypotheses Testing

Null Hypotheses	**Results of the Hypotheses Testing**	**Decisions**
Ho_1	There is no significant relationship between effective tax rate and performance of listed Oil & Gas firms in Nigeria.	**Rejected**
Ho_2	There is no significant relationship between firm size and performance of listed Oil & Gas firms in Nigeria.	**Rejected**
$H0_3$	There is no significant relationship between financial Leverage and performance of listed Oil & Gas firms in Nigeria.	**Not rejected**
$H0_4$	There is no significant relationship between firm age and performance of listed Oil & Gas firms Nigerian.	**Rejected**

Source: Authors' Computation, 2017

Discussion

The result of hypothesis one supports the findings of Richardson and Lanis (2015); Minnick and Noga (2010); that a positive relationship exists between firms' profitability and ETR. Rego (2003) opined that more profitable firms have a lower cost associated with managing taxes because they have more resources to invest in the planning activities that contribute to lower effective tax rates which therefore indicates a positive relationship between ETR and firm value. Even though, Bryant-Kutcher, Guejnther, and Jackson (2011) found a negative correlation between ETR and firm value. According to them, differences in company income tax rate are not completely offset by non-tax expenses.

Furthermore, the size of the firm has a positive contribution to firms' return on assets. This is because large firms are more likely to exploit economies of scale and enjoy higher negotiating power over their clients and suppliers (Richardson and Lanis, 2015). The result is also in line with (Yang and Chen, 2009) who contend that big firms face less difficulty in getting access to credit facilities for investment, and have broader pools of qualified human capital, and may achieve greater strategic diversification while small companies are handicapped by the small collateral assets which they can use as securities in securing credit for investments. Therefore, big firms have more competitive power when compared with small firms because they have bigger market shares (Stierwald, 2009).

Leverage ratio has a negative impact on the return on assets of listed Oil & Gas firms in Nigeria. The finding is consistent with Katz et al., (2013) who found that on average, the main components of current profitability: margins, utilization of assets and operating liability leverage, resulting in lower future profitability for tax aggressive firms as compared with firms that do not tax aggressive. Modigliani and Miller (1963) conclude that the cost of equity of a firm increase as the debt of the firm increases. Rajan and Zingales (1995) opined that the leverage level of a business organization would result in a negative relationship with income tax expenses, and this negative correlation could be due to the interest in the long-term debts which might be used as a tax-deductible item in business transaction activities and this will affect the value of the firm negatively.

Finally, the results show that the firm age has a negative and significant relationship with firm performance in listed Oil & Gas firms in Nigeria. From the coefficient of -0.233 indicating that there is industry specific managerial experience and innovations in the firm's activities. This result is significant at 5% level of significance ($p<0.05$). Based on this, the study rejects the null hypothesis. The results further show that the age of the firm had a negative and significant effect on the return on assets of Oil & Gas firm in Nigeria. More specifically, a unit increase in age of the firm leads to a 0.0123 decrease return on assets. Thus, the more the firms‟ age, the less value they attract. This is consistent with the findings of Minnick and Noga (2010) who noted that the age of a firm is positively related to its productivity levels and therefore related to firm value. This may be because as firms age, they become more experienced and efficient in tax planning. Thus this experience and efficiency lead to a higher return on assets.

5. Conclusion and Recommendations

The study established that tax planning affects the corporate performance of Nigerian listed Oil & Gas firms. However, the nature of the effect depends on the tax planning variables adopted. While some of the tax planning variables such as ETR, FS have a positive effect on return on assets; LEV and FAGE have a negative effect. Results suggested that ETR and FS are important tax planning variables that can positively impact the performance of Nigerian listed Oil & Gas firms. Findings of this study, therefore, provide interesting insight into the structuring of tax planning strategies by firms and are

expected to stimulate research into appropriate delimitation of tax planning strategies into those that could positively influence firm performance in the short - run and those that are better utilized for the purpose of cash flow enhancement, that would in the short run, improve capacity utilization and positively impact firm performance in the long-run. The study thus concluded that only an optimal mix of tax planning strategies could yield optimal benefits in the area of firm performance enhancement to Nigerian listed Oil & Gas firms. The present study provided support for the political cost theory which asserts that larger firms take advantage of their economic and political power to mitigate tax burden as they are able to engage in aggressive tax planning and manipulate the political process in their favor.

Based on the outcome of the study, it is recommended that Management commitment to tax planning as part of overall financial planning of Nigerian listed Oil & Gas firm is imperative for enhanced performance. Therefore, Nigerian listed Oil & Gas firms should tap from the wealth of experience of knowledgeable practitioners to produce effective results as Nigerian tax laws and environment are complex and volatile to frequent tax laws amendment. This makes it difficult for average corporate management to traverse and fully explore the loopholes advantages in the tax statutes. Therefore, Nigerian listed Oil & Gas firms should engage tax professionals and consultants for effective tax planning that meet corporate tax needs to galvanize performance.

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ENERGY INTENSITY OF THE HOUSEHOLD SECTOR IN THE REPUBLIC OF SERBIA

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Abstract: *Contemporary countries are increasingly aware of the need to change the way of energy consumption. For this reason, concern about energy security, the social and economic effects of high-energy prices, and the increased awareness of the climate change effects led to improvements in energy efficiency worldwide. The household sector can significantly contribute to the key goals of energy and climate policy achievement. It can contribute to reducing the energy intensity of the economy and the country's energy dependence, the greenhouse gas emissions, as well as meeting the climate goals. The paper analyses the basic aggregate indicators of the final energy consumption efficiency in Serbian household sector. Serbia's energy intensity is almost twice as high as the European average and it appears because of irrational energy consumption in households and industry and widespread obsolete technologies. The paper follows the trend of Total and Relative residential final energy consumption, Residential final energy consumption per capita and the correlation between Gross Domestic Product per capita and Final energy consumption of Serbian household sector. Although energy efficiency in this sector is lower than in the EU countries, residential energy consumption is nevertheless declining slightly and it is not conditioned by the country's economic development.*

Keywords: *energy efficiency, energy intensity, household sector, energy consumption in the Serbian household sector, energy consumption factors in the household sector.*
JEL Classification: *D10, O13, Q40.*

1. Introduction

Contemporary countries around the world are increasingly aware of the need to change the way of using energy. In this regard, the concern for energy security, the social and economic effects of high energy prices, as well as increased awareness of climate change effects are some of the factors that have led many countries to put more emphasis on their energy efficiency improvement policies and measures. Therefore, it has been increasingly recognized that energy efficiency improvement often represents the most economical, proven and the most accessible means for achieving these goals (International Energy Agency, 2014, p. 15). Today people use energy for various purposes such as transportation, space heating and cooling, water heating, electrical appliances' operations, cooking, lighting, manufacturing, entertainment, providing services, etc. The choices that they make in terms of energy use, such as purchasing fuel saving vehicles or the use of more energy efficient devices, greatly affect the environment and energy efficiency of the observed country. At the same time, there is a significant difference between energy efficiency and energy conservation (Campbell and Ryan, 2012, pp. 8-11). Energy efficiency refers to the use of technology that requires less energy to perform the same functions. For example, the use of Light Emitting Diode (LED) light bulbs or compact fluorescent lighting, which requires less energy consumption than traditional bulbs, is a good example of energy efficiency. On the other hand, energy conservation refers to any conscious behaviour that has a result in less energy use. In that sense, turning off the lights while leaving the room is a good example of saving energy.

The residential sector can make a significant contribution to the key energy and climate policy objectives achievement. More specifically, this sector may contribute to the reduction of the overall energy consumption and energy intensity of the economy, as well as decreasing the future energy dependence of the country. Investments in the energy efficiency of the household sector can also affect the reduction of greenhouse gas (GHG) emissions, as well as the climate change goals fulfilment (Organisation for Economic

Cooperation and Development, 2012, p. 7). This primarily relates to the launching of cost-effective and feasible initiatives to support the thermal insulation installation on energy-inefficient buildings, support to the installation of the automatic substations and radiator thermostats in buildings with the aim of better heat distribution, and to support the switching from coal to natural gas in the energy production for heating. These investments also include the encouragement of energy labelling for devices, equipment and buildings introduction. However, in order to succeed in the realization of such initiatives, it is necessary to establish an adequate political and regulatory framework with a clear set of incentives for energy efficiency investments. In addition, the potential lack of resources can jeopardize the implementation of such programs. This also refers to a number of political, regulatory and institutional factors that are beyond the direct control of program executives (OECD, 2012, p. 8). Such factors usually include poor price signals, inefficient structure of energy prices, weak enforcement of building codes, the lack of adequate measurement of actual heat consumption, lack of user's control over the use of heat (in the absence of thermostats), lack of energy labelling of devices, various investment barriers, etc.

The structure and intensity of households' energy consumption vary greatly from country to country, primarily depending on climate conditions, building stocks, living standards and the lifestyle of the population. Therefore, for each country, it is extremely important to understand the structure, drivers and energy consumption factors. This is particularly true for developing countries that will probably experience a significant increase in future energy use. On the other hand, in developed countries, household energy consumption has experienced its saturation, so there will probably be no major changes in this area (Nakagami, Murakoshi and Yumiko, 2008, p. 222). In the light of expectations of the future residential energy consumption growth at the global level, the question arises whether there is and where the room is for energy efficiency improvements. Household energy consumption depends on the number of structural factors such as housing forms and types of households, the degree of electrification, types of used equipment and devices and the rate of gasification. Furthermore, this factors usually also include wealth and standard of living, overall energy efficiency of the country, responsible and/or irresponsible attitude of the population towards energy consumption, quality of energy infrastructure, etc.

2. The Economic and Energy Profile of the Republic of Serbia

The Republic of Serbia (RS) currently has the candidate country status for the membership of the European Union (EU). Although Serbia is a market economy in transition, the public sector remains important in certain areas. Serbia has slightly less than 7.1 million inhabitants, a Gross Domestic Product (GDP) of 37.7 billion US dollars (at current prices) and a GDP per capita of $ 5,340 at current prices (World Bank, 2018). The country's economy relies on production, services and exports and it is largely driven by foreign investments. International economic sanctions, civil war and NATO bombing from 1999 significantly damaged the infrastructure and downgraded the country's economy, so in 2015 Serbia's GDP was 27.5% lower than its 1999 level (Index Mundi, 2018). Serbia is currently implementing stabilization measures and market reforms, achieving some progress in trade liberalization, as well as in the restructuring and privatization of state-owned enterprises. Nevertheless, many companies (thermal power plants, telecommunication companies, natural gas distribution companies, utility companies, etc.) remained state-owned. The global financial crisis revealed structural weaknesses of Serbia's economic growth model and induced the need for financial consolidation and acceleration of an unfinished transition into a market economy. In this regard, the

Government of the Republic of Serbia has shown some progress in the implementation of economic reforms such as fiscal consolidation, privatization and public spending reduction. However, high unemployment rates and relatively low household incomes continue to be a significant political and economic problem.

The country has made some progress towards EU membership and has so far opened 16 of the 35 negotiating chapters, of which two has temporarily closed (Science and Research and Education and Culture) (Stevanovic, 2018). Serbia is slowly implementing its structural economic reforms. Although the country reduced its budget deficit to 1.4% of GDP in 2016, and its public debt to 71% of GDP in 2017, the public debt remains as one of the main problems, as it has more than doubled in the period from 2008 to 2015 (Index Mundi, 2018). The main economic challenges that the country will continue to face in the future include high unemployment, the need for creation of new jobs in the private sector, the implementation of state-owned enterprise reforms, attracting new foreign direct investments (FDI) that add value, inefficient judicial system, aging and emigration of the population, and others.

Primary energy consumption in the Republic of Serbia (without the Autonomous Province of Kosovo and Metohija) in 2016 was 15.9 million tonnes of oil equivalent (Mtoe). A high share of coal, predominantly low calorie lignite, is dominating over the production of total primary energy in Serbia (with about 51%). In comparison with other countries, such a large share of lignite enables relatively high-energy independence and electricity production with relatively lower and stable costs. On the other hand, such use of this resource in electricity generation endangers the environment and enhances the risk of increase in GHG emissions. In the comparison with the EU countries, GDP at purchasing power parity (PPP) was at the level of 36% in 2015, total primary energy consumption per capita was 65%, final electricity consumption was 71%, while carbon dioxide (CO_2) emissions per capita were at the level of 88% (Agencija za energetiku Republike Srbije, 2018, p. 5).

Energy intensity, measured by the total primary energy consumption per unit of GDP (at PPP) is at the level of the countries of the region, but is 1.79 times higher than the European average (Madzar, 2018, p. 123). Higher energy intensity is primarily due to irrationality, i.e. low efficiency of energy consumption in households and industry, as well as obsolete technologies that are still widely used in various industrial branches. A significant difference in the final energy consumption structure in Serbia in relation to the EU countries is the higher share of final energy consumption in the residential sector (by 10%), but also the lower share of this indicator in transport sector (by 8%) (Republicki zavod za statistiku Republike Srbije, 2017, p. 27 and Eurostat Statistics Explained, 2017). In addition, these differences also arise because of the fact that industrial production in Serbia is significantly lower today than it was in the 1980s.

3. Research Methodology

The research methodology applied in this paper is largely limited by the availability of data. The paper uses the methodology of the International Energy Agency (IEA) for calculating the energy efficiency indicators of final energy consumption in the household sector. The paper first analyses the development of Total and Relative final energy consumption in the Serbian residential sector. The IEA and the European Environment Agency (EEA) define the final energy consumption as the overall energy delivered to end-users for all energy uses (EEA, 2015). In practice, it is usually disaggregated into the final end-use sectors, such as industry, transport, households, services, agriculture and forestry and fisheries. Total final consumption in absolute terms is usually measured in kilo tonnes of oil equivalent (Ktoe). Residual relative final energy consumption is the ratio between

Final energy consumption of households and the Total final energy consumption in the observed country. This indicator is usually expressed as a percentage.

After that, the paper investigates Final energy consumption per capita trends. This indicator shows how much energy each person uses in the observed country or region. Although this indicator cannot be identified with energy efficiency indicators, it does allow rough comparison of a large number of countries, as well as monitoring its general trends over time (International Energy Agency, 2014b, p. 44). Further, the paper observes the Residential final energy consumption indices with base year 2000 (as the initial year of this analysis) with the aim of more precise monitoring of final energy consumption in the Serbian residential sector.

In order to determine the nature of the relationship between GDP per capita and final energy consumption in the Serbian residential sector, Pearson's correlation coefficient is applied where GDP per capita is taken as an explanatory variable (X), while Residential final energy consumption is taken as response variable (Y). To calculate Pearson's correlation coefficient, there is a need to count three different sums of squares (SS): the sum of the X variable squares, the sum of the Y variable squares, and the sum of cross products of the X deviations with the Y deviations (Ivanovic, 1966, pp. 173-177).

The sum of the X variable squares is the sum of squared deviations of the X observed values:

$$SS_{XX} = \sum_{i=1}^{n} (X_i - \bar{X})^2 \quad (1)$$

Where the average value of the variable X is equal to:

$$\bar{X} = \frac{1}{n} \sum_{i=1}^{n} X_i \quad (2)$$

The sum of the Y variable squares is the sum of squared deviations of the Y observed values:

$$SS_{YY} = \sum_{i=1}^{n} (Y_i - \bar{Y})^2 \quad (3)$$

Where the average value of the variable Y is equal to:

$$\bar{Y} = \frac{1}{n} \sum_{i=1}^{n} Y_i \quad (4)$$

The X and Y variables' sum of products is equal to the sum of cross products of the X deviations with the Y deviations:

$$SS_{XY} = \sum_{i=1}^{n} (X_i - \bar{X})(Y_i - \bar{Y}) \quad (5)$$

The Pearson's correlation coefficient is the measure of the strength of the linear relation between the X and Y variables and it is calculated on the basis on the following formula:

$$r = \frac{SS_{XY}}{\sqrt{SS_{XX} \times SS_{YY}}} \quad (6)$$

The value of Pearson's coefficient of correlation ranges from +1 (the perfect positive correlation) to -1 (the perfect negative correlation).

The paper uses data from the Eurostat's database, the results of the Population and Households Census of Serbia from 1991, 2002 and 2011, as well as data from the Serbian Energy balances and various publications of the Serbian National Statistical Office. It should be noted here that because in Serbia and in the EU countries the collection of more

detailed data on end-use final energy consumption in households became mandatory only since 2015, at this moment we still do not have the required data for more detailed monitoring of this phenomenon. As already mentioned above, the indicators observed in this paper are not always closely related to energy efficiency and energy intensity indicators, but due to the lack of more detailed data, they are often the only ones, which we can build up. The IEA also considers the Residential energy consumption per household as one of the best indicators for the entire household sector (IEA, 2014b, p. 45).

4. The Relative and Total Final Energy Consumption in the Serbian Household Sector

This paper is devoted to the calculation of the generally accepted aggregate energy efficiency indicators of the Serbian household sector. The residential sector includes those activities that are closely related to private dwellings. More precisely, this sector covers all activities that involve the use of energy in flats and houses, such as space and water heating, space cooling, lighting, cooking and using devices, including the use of large appliances and small plug loads (IEA, 2014a, p. 25). The final energy consumption trends in the household sector and various forms of its end-use are influenced by the wide spectrum of factors such as overall energy efficiency improvements, demographic change, available energy mix, urbanization rates and internal migration. Other factors that can affect these trends are the number of occupied dwellings, number of household members, size and type of dwellings, buildings' characteristics and their age profile, income level and economic growth, preferences and behaviour of consumers, energy availability, climate conditions, devices' penetration rate, adopted energy standards, etc.

Devices and households can also be considered as an energy-using system that in turn provides some services (Ortiz-Santana and Bernstein, 1999, p. 4). For the household sector, there are standard methods for measuring energy consumption and energy efficiency. If the household is perceived as a system of devices and people who consume energy, the most common methods to measure energy efficiency in the household sector is to calculate the Total annual energy consumption by fuel, Total annual final energy consumption by end-use and the Total annual energy cost.

The IEA estimates that in 2011 around 23% of global final energy consumption has been recorded in the household sector. Whereas in the period from 1990 to 2011, the share of the household sector in the total final energy consumption remained relatively stable, total energy consumption in the household sector in absolute terms however grew by 35% because of the influence of the large number of factors. These factors include the number of occupied dwellings' and the population growth, changes in the apartments' size, more devices and the growth of wealth. The relative importance of energy consumption in the residential sector, as well as of energy sources used to meet energy demand varies considerably between countries and regions. Electricity and natural gas are the main energy products used in the OECD countries, where the electricity use is growing rapidly mainly due to increased penetration of small devices and wider dislocation of space and water heating pumps. On the other hand, in non-OECD countries, renewable energy sources (mainly traditional biomass) continue to be the dominant energy commodity, with the use of electricity that grew rapidly in the observed period, even by 270% (IEA, 2014a, p. 27). In the EU countries in 2016, the household sector accounted for 25.4% of final energy consumption or 17.4% of gross inland energy consumption. Most of the final energy consumption in the EU household sector derives from the use of natural gas (37.1%) and electricity (24.5%), followed by renewable energy resources with 16.0%, petroleum products (11.7%), derived heat with 7.5%, and coal products with 3.3% (Eurostat Statistics Explained, 2018).

The dynamics of Total final energy consumption in Serbia, Residential final energy consumption, Relative final energy consumption in the Serbian household sector, and the Residential final energy consumption per capita in the observed period is presented in the following table (Table no. 1).

Table no. 1. Some Aggregated Indicators of Energy Consumption in the Serbian Household Sector for the Period from 2000 to 2016

Year	Total final energy consumption (in Ktoe)	Residential final energy consumption (in Ktoe)	Relative residential final energy consumption (in %)	Population	Residential final energy consumption per capita (in Toe)
2000	6,941	3,127	45.0511	7,527,952	0.4154
2001	7,995	3,159	39.5122	7,504,739	0.4209
2002	8,657	3,209	37.0683	7,502,126	0.4277
2003	9,144	3,252	35.5643	7,490,918	0.4341
2004	10,330	3,121	30.2130	7,470,263	0.4178
2005	9,572	3,114	32.5324	7,456,050	0.4176
2006	9,706	2,838	29.2396	7,425,487	0.3822
2007	10,188	3,247	31.8708	7,397,651	0.4389
2008	9,478	2,911	30.7132	7,365,507	0.3952
2009	8,482	3,054	36.0056	7,334,937	0.4163
2010	8,997	3,091	34.3559	7,306,677	0.4230
2011	9,247	3,147	34.0326	7,251,549	0.4339
2012	8,486	3,135	36.9432	7,216,649	0.4344
2013	8,320	2,860	34.3750	7,181,505	0.3982
2014	7,831	2,760	35.2445	7,146,759	0.3862
2015	8,156	2,832	34.7229	7,114,393	0.3981
2016	8,603	2,941	34.1857	7,076,372	0.4156

Source: Energy balances of Serbia and population data from the Eurostat's database, author's calculation

Unlike the situation in the rest of the world and the EU countries, in Serbia the share of the household sector in total final energy consumption is still quite high (in 2016 this indicator was 34.18%). The Relative final energy consumption in the Serbian household sector gradually declined from 2000 to 2006 when it experienced its minimum. Thereafter it started to grow from 2006, achieving its two peak values of 36% in 2009 and almost 37% in 2012 (Fig. no. 1).

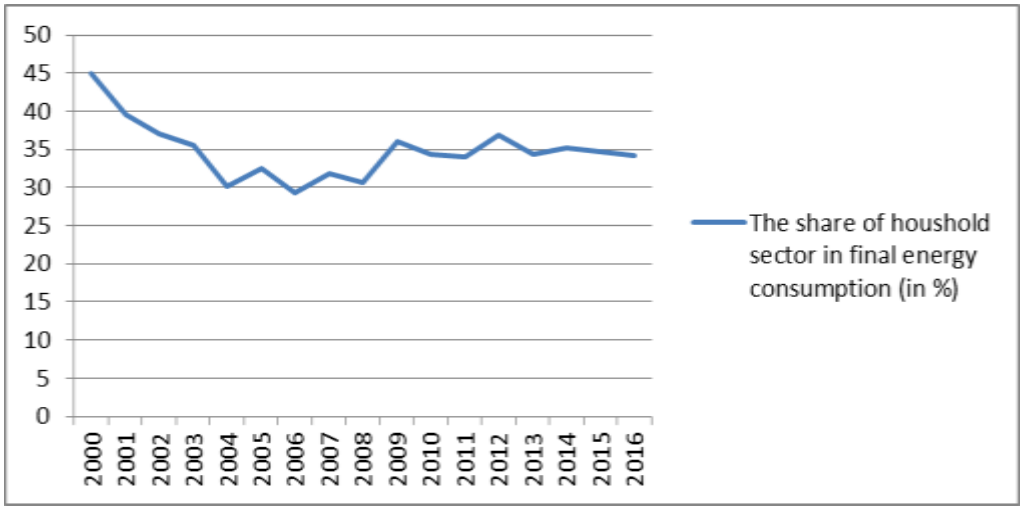

Figure no. 1. Relative Final Energy Consumption in the Serbian Household Sector in the Period from 2000 to 2016 (in %)

Although in the period from 2000 to 2016 there was a significant decrease of this indicator by around 24%, energy consumption in the Serbian residential sector is still extremely high, primarily due to the relatively low electricity price for households in comparison to the countries of the Western Balkans region and the EU (Agencija za energetiku Republike Srbije, 2018, p. 36). This is also due to the low overall energy efficiency in the country. Other factors contributing to this problem include the insufficient distribution of district heating and gasification, the domination of old, thermally non-insulated and energy-inefficient buildings in the country's total building stock, an outdated heat consumption charging system per floor area of heating space and the established practice of the population to waste energy. In addition, in urban areas, electricity is still the most dominant source of energy supply. In spite of all this, in the observed period, however, a slight decrease in Residential final energy consumption by 5.95% was recorded (Fig. no. 2). This trend can be partly explained by the poverty growth and the decline in real income, to a certain extent by the negative birth rate and increased internal migrations of the population to cities, and to a certain extent by the population emigration from Serbia due to economic and social insecurity and poor living standards.

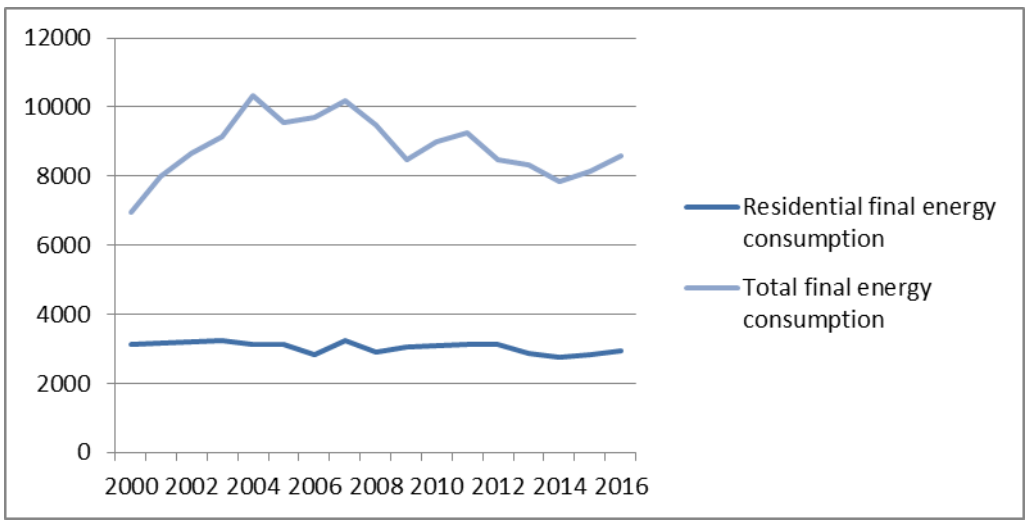

Figure no. 2. Total Final Energy Consumption and the Total Residential Final Energy Consumption Trends in the Period from 2000 to 2016 (in Ktoe)

5. Final Energy Consumption per capita in the Household Sector of Serbia

One of the most important energy intensity indicators of the residential sector is Final energy consumption per capita, and it is the most widely used and the most available indicator for the household sector. Although this indicator does not have an overly large informative character and does not talk much about the structure and drivers of household energy consumption, it is, however, useful because it provides an interesting insight into the general trends in energy consumption.

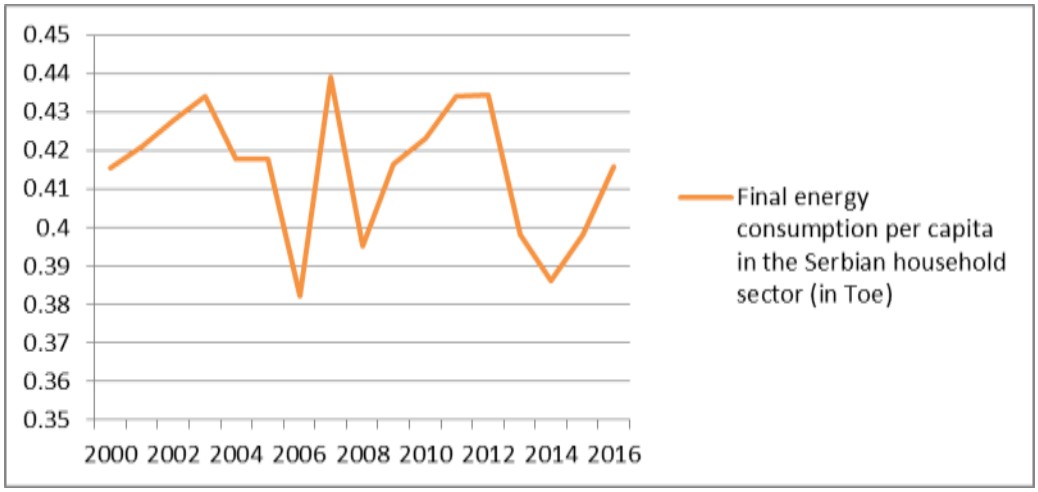

Figure no. 3. Final Energy Consumption per capita in the Serbian Household Sector in the Period from 2000 to 2016

As can be seen from Table no. 1 and Figure no. 3, in Serbia, from 2000 to 2016, Final energy consumption per capita in the residential sector varied considerably in the range from 0.38 tonnes of oil equivalent (Toe), i.e. 380 kilograms of oil equivalent in 2006 to around 0.44 Toe per inhabitant as it was just one year later. This indicator, first, grew by 2003, and after that, it experienced its sharp decline to the level of 0.38 Toe in 2006. After that, it continued with its sharp fluctuations up and down twice more, so that in 2016 it reached a value of about 0.42 Toe per inhabitant, which represents almost the same consumption from the beginning of the considered period.

The picture of the final energy consumption in the Serbian residential sector can also be supplemented with the monitoring of the index, i.e. consumption changes in relation to the base year 2000. Figure no. 4 suggests that the rate of change in final energy consumption in the household sector first declined by 9.24% by 2006, and then in 2007 it increased significantly and sharply by as much as 14.41% in comparison to the previous year. After its 2007 maximum value, in 2008, when the last economic and financial crisis began, this rate again experienced its severe fall by 10.35% compared to the previous year, achieving one of the lower values of energy consumption in the observed period. After that, this indicator continued with its slight growth until 2011, when it began to decline again, at first slightly, and later ever sharper. In 2014, the rate experienced its lowest value when the recorded energy consumption was 11.74% less than the 2000 consumption as the initial year of this analysis. Figure no. 4 clearly shows that at the end of the observed period, Final energy consumption in the household sector was significantly lower than at the beginning of its consideration, and that the negative rates of change of this indicator were higher than in the initial years of this analysis.

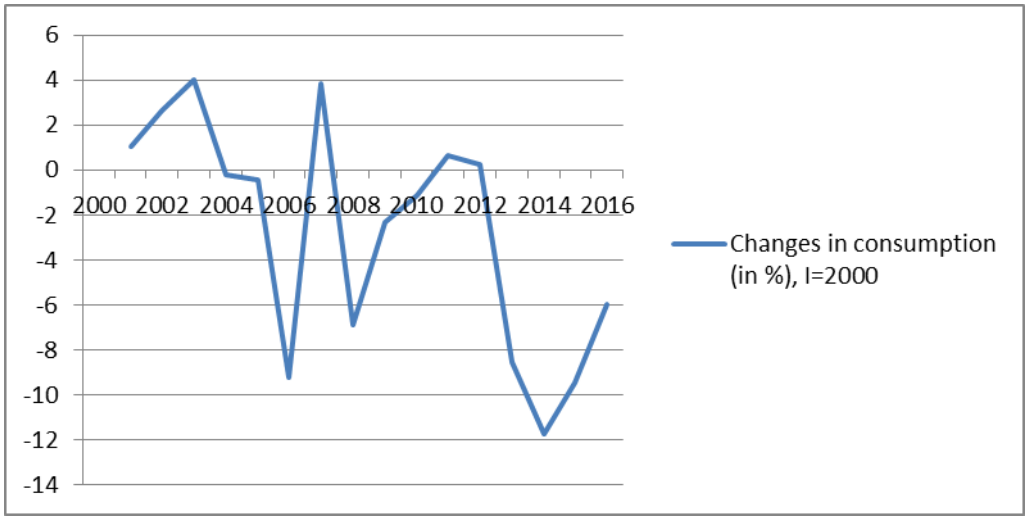

Figure no. 4. Base Indices of Final Energy Consumption in the Serbian Household Sector in the Period from 2000 to 2016 (in %, I=2000)

6. Correlation between GDP per capita and Final Energy Consumption of the Serbian Household Sector

Figure no. 5 shows the relationship between final energy consumption in absolute terms in the Serbian household sector and GDP per capita. The Pearson's correlation coefficient of these variables amounts r = -0.569, which means that this is a negative and not so strong correlation relationship. Overall, with the GDP per capita growth, the population consumption remained relatively stable. This phenomenon occurs primarily because of poverty and poor living standards, but also the still relatively low penetration rate of electrical devices. Other factors contributing to this trend include the great reliance on traditional biomass that is predominantly used in rural areas for space and water heating and cooking, as well as the decline in the households' number, the negative birth rate and emigration of the population from Serbia due to poor economic and social conditions.

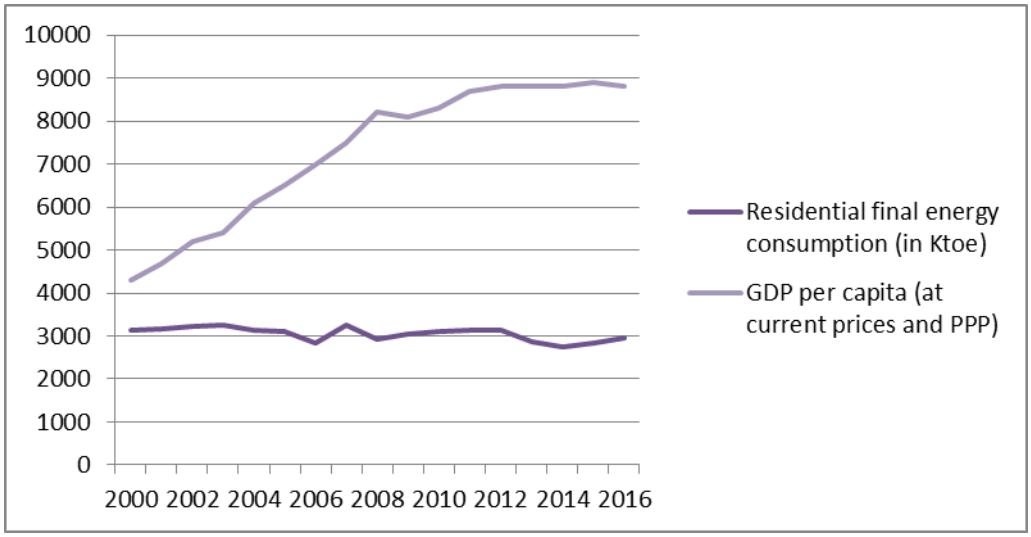

Figure no. 5. The Relationship between Final Energy Consumption in the Serbian Household Sector and GDP per capita, from 2000 to 2016 (in Toe, at current prices and PPP)

The mutual relationship between these two variables is presented in the scatterplot, where it is clearly seen that the cross section points are not completely grouped around the

regression line (Fig. no. 6). The dispersion of the points indicates a weak negative correlation.

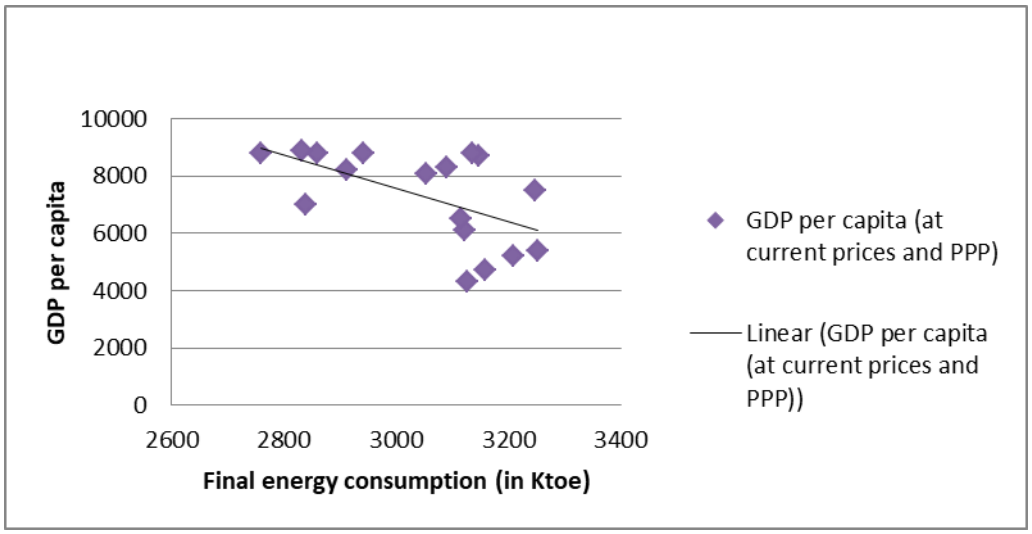

Figure no. 6. Scatter Diagram – The Relation between GDP per capita and Residential Final Energy Consumption in Serbia between 2000 and 2016

7. Conclusion

Given that energy consumption per capita in Serbia is 40% higher than the European average, the country is at the very bottom of European countries when it is about the energy efficiency of the economy and the household sector. In Serbia most of the energy is wasted in industrial plants and in the building sector, while inefficient use of energy mostly occurs because of poor planning, old and inefficient building stock, inadequate characteristics of work processes, poor maintenance and utilization of equipment, etc. In Serbia, there are also large GHG emissions, as well as between 300,000 and 400,000 residential buildings that do not have adequate thermal insulation, due to which energy is unnecessarily wasted on heating (Tanjug, 2014). Although energy efficiency in the Serbian household sector is considerably lower than in the EU countries, the figures from the paper clearly show that residential energy consumption in Serbia still decreases slightly, primarily due to poverty and poor living standards, high traditional dependences on biomass, declining households, negative birth rate and the population emigration due to poor economic and social conditions. More precisely, in the observed period there was a gradual and insignificant decrease in energy consumption of this sector. This conclusion is also supported by the fact that the trend of residential energy consumption is not in correlation with the trend of GDP per capita.

Recognizing these problems in its Development Energy Strategy of the Republic of Serbia until 2025, the Serbian Government defined energy efficiency as one of the priorities of rational use of energy sources, as well as it recognised the need for more intensive use of renewable energy resources. The Strategy also emphasizes that energy-efficient and environmentally friendly behaviour in energetics requires non-selective endorsement of laws and non-discriminatory practice (Vlada Republike Srbije, 2014, p. 3). In this respect, it is important to develop an energy and ecologically friendly culture, as well as to prompt changes in the costumers' and energy producers' behaviour that would emerge from information campaigns and knowledge dispersion as key development factors of contemporary economy. The Strategy defined following goals as priorities for efficient use of energy (Vlada Republike Srbije, 2014, p. 48): a) energy reconstructions in the building sector, and b) the introduction of energy management system into the public

sector. Acknowledging the fact that the existing energy intensity indicators of the country have values that are close to the countries of the region, but significantly above average values of the EU countries, the Strategy insists on more intensive use of measures and procedures for increasing energy efficiency, with the strong state support.

Serbia adopted The Law on Efficient Use of Energy in 2013, which should contribute to increasing of the energy supply security and its efficient use, as well as the reducing of country's dependency on energy imports, increasing the competitiveness of the economy and citizens' standards of living and to reducing the energy sector negative impact on the environment. The overall aim of the Law (Sluzbeni glasnik Republike Srbije, 2013) is to encourage responsible behaviour towards energy. This Law, among other things, foresaw the introduction of mandatory energy efficiency labelling system for certain types of products (refrigerators, televisions, air conditioners, washing machines and dishwashers, electric ovens and bulbs), as well as the dynamics of its introduction. The Law also envisages the harmonization of products with the requirements of eco-design, as well as their adequate labelling as a precondition for their market positioning. When it comes to the energy efficiency and energy properties of buildings, the Law on Planning and Construction from 2009, as well as its by-laws more precisely regulate this area. This Law (Sluzbeni glasnik Republike Srbije, 2009) is the basis for the adoption of buildings' energy certification regulations. There are special regulations that enact the energy characteristics used in calculating the buildings' thermal properties and the energy requirements for new and existing buildings. These codes also regulate more closely the conditions, content and the ways of issuing energy passports. However, in Serbia, the implementation of these regulations is still in its infancy. Thus, for example, until March 2016, only 970 energy passports for newly build buildings were issued, whereby there is also an initiative to assign these certificates for existing buildings (Privredna komora Srbije, 2016).

Beside the introduction of energy efficient products, processes and technologies, it is necessary to inform end-users adequately about the energy properties of household appliances, but also to specify the responsibility of producers, suppliers and distributors, as well as additional conditions related to eco-design. More precisely, there is a need to educate the public, as well as to launch information campaigns on the possibilities of more efficient use of renewable energy sources, devices and technologies. It is important to create awareness in the society about the value of energy and the need for its rationale use. All this should contribute to the end-users buying more energy efficient products and thus to the achievement of the defined goals. Also, in construction of new and reconstruction of existing buildings, the Law on Planning and Construction and its accompanying regulations should be applied more consistently. This is particularly true for areas of permitted buildings' energy characteristics determination and energy certificates issuance. In this way, remarkable energy savings (around 16% of final energy consumption) could be achieved during the building new facilities or reconstructing the existing ones (Vlada Republike Srbije, 2014, p. 49). It should also raise the price of electricity for households, because it is important for the price to reach a level that would be disincentive to its irrational spending, especially when it is about space heating. However, the elementary prerequisite for changing the electricity price for households is the increase in the number of protected, socially vulnerable customers, which was, in 2017, several times lower than it should be according to the evidence of the competent institutions (Agencija za energetiku Republike Srbije, 2018, pp. 1-2). In addition to the above, the billing system per actual heat consumption should be introduced, with the possibility of regulating heat energy. All this could lead to its more rational consumption in the Serbian household sector.

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GLOBALIZATION, RESISTANCE AND RESILIENCE: CHALENGES AND STAKES FOR ECOLOGICAL EDUCATION

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Abstract: *Ecological education involves political education, but not politicization. It invites us to be aware of programs regarding the generalization of ideas and practices. According to Francisco Guttierez (2002) education is itself an political act, no matter if we acknowledge it or not. It is also important to consider it a militant act. Completed with a critical view of society, education makes possible the building of hope that lacks naivety. In this context, the ecological education aims to clarify the connection between society and nature; it also helps us to reconnect with our basic human nature, it promotes more inclusive and rich relationships of otherness, it stimulates various projects of ecological solidarity based on the reality of the current way of life, which now we can share. All the above are to provide a culture of engagement, wherever we might be, regardless of its different outside forms.*

Key words: *globalization, ecological education, resilience.*
Jel Classification*: O, O2, O3, Q01.*

1. Introduction

The education for environment is very important as it refers to construction or reconstruction of our relationship with the world.

It is not an easy task to define globalization outside the usual clichés. It can be observed that, due to the contraction of the thenological development, in an accelerate time and space, the globalization represents ”the geographical extension of social interaction” (Clark, 1997).

This is defined by ”de-regionalization of social realities” (Clark, 1997), virtual communication, various forms of human migration.

Of course, the main form of globalization is the economical globalization realized through the market globalization. A different „engine” of globalization is the political aspect with its double impact of fragmentation and integration of the countries under the manipulated democratic.

There is, also, a cultural tension. On one hand, the discovering and propagation of different cultures, on the other hand, the uniformisation, especially in the field of a certain consumerism.

According to the report, the education is a victim of the world`s traps. The educational reforms inspired by financial Universal Organizations (as World Bank or International Monetary Fund) leads to the birth of a „new world of education”(Laval and Weber, 2002) in order to promote the economical competitiveness of the various countries as a strategy and to reach a common goal : to ensure the power of the one global market. The impressive discovery of the „education for sustainable development” is just a part of this globalizing dynamic.

Working together we can help each other to access the financial resources, the benefits of open markets, also to develop further our own capabilities and in the end to stop forever the underdevelopment of countries or regions. (The Johanesburg Declaration, UN, 2002)

2. Theoretical Background

The globalization becomes an object to outmost importance for educators. Their social role is more and more appreciated. A brief analysis of literature reveals that the

answer of the educational system to the matter of globalization it was, so far, mainly in the field of education for democracy and human rights.

The lesson of living together is a fundamental one. But one can wonder what the environmental education can add in this context. How does the construction or re-construction of our relationship with world can contribute to the development of a resistance force that one needs while facing the alienation brought by this standardization of the world. How can it build a culture of belonging, engagement and solidarity?

It is safe to say that the environmental education can offer an essential help for living and functioning better in a globalised world.

Globalization involves, obviously, a process of reinventing the dynamic of identity-otherness. Environmental education invites us to realize that our psycho-social identity is woven precisely trough ”environmental identity” (Carvalho, 2004).

3. Argument of the paper

The human otherness is, therefore, extended to a different form of otherness, involving the relationship with other forms and systems of life. By realizing his own environmental identity, one can find himself better equipped for facing the many forms of alienation.

Environmental education invites us to establish a creative program for solving the problems related to a better life together and to the effort of improving of the environmental conditions. It is, first of all, the courage of singular projects- no matter how small- that shows us that the profound change is possible step by step.

From a multitude of small, local projects it can emerge something far more important than any project taken individually, a general vision of the world.

In singularity its revealed the concrete universality of this projects, opposed to the abstract universality of a centralized show” (Carvalho, 2004).

It is preferred that all the projects to be viewed as an ensemble, and also form a political perspective. The political activity is represented by the action of citizens gathered to discuss and decide the political measures that will shape their lives as residents of a city or village (Heller, 2002).

To analyze the improvement of resistance, it should be examined the national security and national resistance strategies of many countries. Although the national resistance is included in the national security, its objectives stay unclear for the time being.

The advance process of globalization is reflected in the economical, social, cultural, political and military environment of a nation. The interdependence between countries consists in the reduction of the custom policies, of custom taxes, in the restriction or, on the contrary, the relaxation of the flux of merchandise, goods, theologies or services.

Despite the positive tendencies brought by the globalization, the negative tendencies do appear too and affects the individual human beings, the societies, the companies, the planet and ultimately the general security of human kind.

The following modifications have to be taken into consideration:

The economy must change.

The sustainable development will be considered within the economical theory, as a return to morality. This is possible mainly by replacing the mentality of ”humans in relationship with objects” with the more virtuous one of ”humans in relationship with humans”

The vanishing of natural ecosystems

This can be realized in a number of ways:

- The transformation and substitution of natural ecosystems with a diversity of structural and functional production system controlled by humans;

- Over exploitations of natural resources;
- Over exploitations of the soil and agro systems;
- Over exploitations and substitution of forester systems;
- Over exploitations of the waters and aquatic systems.

Since the first use of the "ecosystem" concept (Taulsey, 1935), in order to underline the connection between biotope and biota it was considered necessary to bring in discussion the older concept of "natural balance". Taking in consideration that an ecosystem reveals a complex behaviour, the notions of balance and stability presents a much larger acceptation.

Recent research on ecosystem stability and their behaviour in contact with outside pressure, revealed that: "The speed that the variables returns to the natural balance, after the pressure of outside factors, defines the resilience. The speed or returning to the natural state is in direct proportion with the resilience of the ecosystem which means the ecosystem is more stable".

Redefining the management of the relations between the socio-economical systems with the natural capital.

Is the object of research that can meet the needs of balance and sustainability.

The objective involves a few directions of research.

The research regarding the ability to resist of an ecosystem shows that this becomes the concrete manifestation of the power of resilience of an ecosystem.

There is also a need to define the directions that an ecosystem can develop without leaving its natural parameters of stability. These processes are taking places on big time scales- over 100 years- and are reversible anytime the ecosystem suffer an deep impact for external factors.

The new paradigms that guide the management of a territory under a major environmental pressure are:

- The context of sustainable development;
- Rising of the new concepts of vulnerability and resilience;
- Obstacles of implementation;
- Legislation factors.

The new paradigms that guide the management of a territory under a major ecological pressures are:

- Sustainable development is based on 3 pillars and it has to act as a conciliatory factor between different "actors", different interests. All taken into consideration in relation to each other;
- Sustainable development and its consequences;
- The systemic take on the territories;
- Urban ecosystems;
- Systemic treatment of the environmental constraints;
- Conciliation of urban development in regards to the natural risks and environmental protection.

4. Conclusions

Due to the increase in environmental hazards, the concept of resilience receives increased attention in the field of development. It was first explored in the field of systemic analyzes, especially socio-ecological systems. However, it is necessary, on the one hand, to question the relevance and scope of this concept at microeconomic level and, on the other hand, to question the links that link it with sustainable development.

The political dimension is structuring and allows you to go beyond the mere accumulation of gestures and actions, as the sand of a dune can easily be destroyed by the globalization wave. It can stimulate the institutional commitment of the powers that are. For example, ecological education involves political education, but not politicization. It invites us to be mindful of programs aimed at "generalizing" ideas or practices. According to Francisco Guttierrez (2002), education is itself a political act, whether or not it is conscious of it; it is important to consider it conscious as a practice, as a militant action. "Politics means participation in social reality" (Guttierrez, 2002, p.11), in dialogically defined and participatory creative projects. Associated with an approach to social critique, they make it possible to build hope without naivety. In such a dynamic, ecological education aims to clarify the link between nature and society; helps to redress a lost dimension of our identity, of our human nature; promote more inclusive and richer relationships of alterity; stimulates ecological solidarity projects that first offer an anchor in the living environment, which we can now share.

This is to develop a commitment culture wherever we are, no matter how much, because it is the same living environment that is being developed here and elsewhere in its differentiated forms. And it is ultimately only through concrete actions at our fingertips, considered from a holistic perspective that can extend the solidarity of living communities elsewhere, membership in resistance and engagement networks begin to be woven between regions, countries, meridian and parallel. Facing the wave of globalization, and homogenization save the world, the loss of meaning, to environmental education can contribute to "re-excite the world."

Acknowledgements

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DIGITAL DIVIDE GAP CONVERGENCE ACROSS EUROPEAN UNION: THE ROLE OF URBANISATION

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Abstract: *The paper analyses the convergence of households connectivity to Internet across European Union countries according to the degree of urbanisation and predicts future evolutions based on possibile scenarios. In order to estimate the process of convergence, five families of models were used to approximate the values of standard deviation of households' connection rate to Internet. Among them the linear model seems to describe the process more accurately.*

Key words*: digital divide, households, convergence, forecasting.*
JEL Classification*: C13, C53, D10.*

1. Introduction

In the vision of OECD (2001), the term of digital divide refers to the "gap between individuals, households, business and geographic areas regarding their use of the Internet and opportunities to access information and communication technologies (ICT)".

The ICT have a great potential to foster economic growth, human development and improve the life quality of people. Moreover, they are related to the achievement of Millenium Development Goals and building the Information Society (OECD, 2005; World Summit, 2003 and 2005).

The Europe 2020 strategy aiming to a smart, sustainable and inclusive growth for the European Economy includes the Digital Agenda for Europe, together with other six strategy flagships (European Commission, 2010a). It highlights the central role that the use of ICT must play in the strategical growth targets (European Commission, 2010b).

Considering the importance of the digital development to the EU, digital inequalities or assymetries must be identified and corrected in order to achieve the objective of the Europe 2020 strategy.

Several authors have focused on understanding and measuring digital divide across European countries, taking into consideration the focus of the European Commission on a homogenous digital development among of its members. The present paper intends to highlight the convergence process of digital divide in the EU and to forecast probable evolutions in the future.

The percentage of households connected to the Internet is used in the literature to measure the digital development/divide among other metrics (Cuervo and Menéndez, 2006; Chinn and Fairlie, 2007; Vicente and López, 2010; Brandtzaeg et al., 2011;Cruz-Jesus et al., 2012; Várallyai et al.,2015).

The aim of the paper is to highlight the convergence process of households' connectivity to Internet in the European Union countries and to estimate its evolution until 2035.

The paper is organised as follows: after the introduction the study methodology and data are exposed, the third section describes the main findings and the last section is dedicated to conclusions.

2. Methodology and data

In order to analyse the convergence of household connectivity rates to Internet in the European Union countries, the standard deviation of this variable is used:

$$STDEV = \sqrt{\frac{\left(x - \bar{x}\right)}{n-1}} \quad (1)$$

where n denotes the number of observations, x is the variable (percentage of households connected to Internet), $\bar{x}$ the mean value of x.

The data source is Eurostat, meaning data series from tables: isoc_bde_15b_h and isoc_ci_in_h for 2005-2017, respectively: percentage of household with Internet access in 27 European countries. Croatia was excluded due to lack of data. The Eurostat system makes difference between households living in high densely populated area (at least 500 inhabitants/km2), intermediate urbanised area (between 100-499 inhabitants/km2) and sparsely populated area (at least 100 inhabitants/km2).

In order to forecast the evolution of the convergence of households' connectivity to Internet, the following mathematical functions will be used:

Linear: $y = a + b \cdot t$ (2)

Polinomial: $\frac{1}{y} = a + b \cdot t$ (3)

Power: $y = a \cdot t^b$ (4)

Exponential: $y = a \cdot b^t$ (5)

Logarithmic: $y = a + b \cdot \ln t$ (6)

where: y is the standard deviation of internet connectivity rate, t is the time, a is the intercept and b is a coefficient.

In order to estimate the equation (4) we apply ln and we obtain the new equation below:

$\ln y = \ln a + b \ln t$ (7)

In a similar procedure applied to equation (5), the result is as follows:

$\ln y = \ln a + t \ln b$ (8)

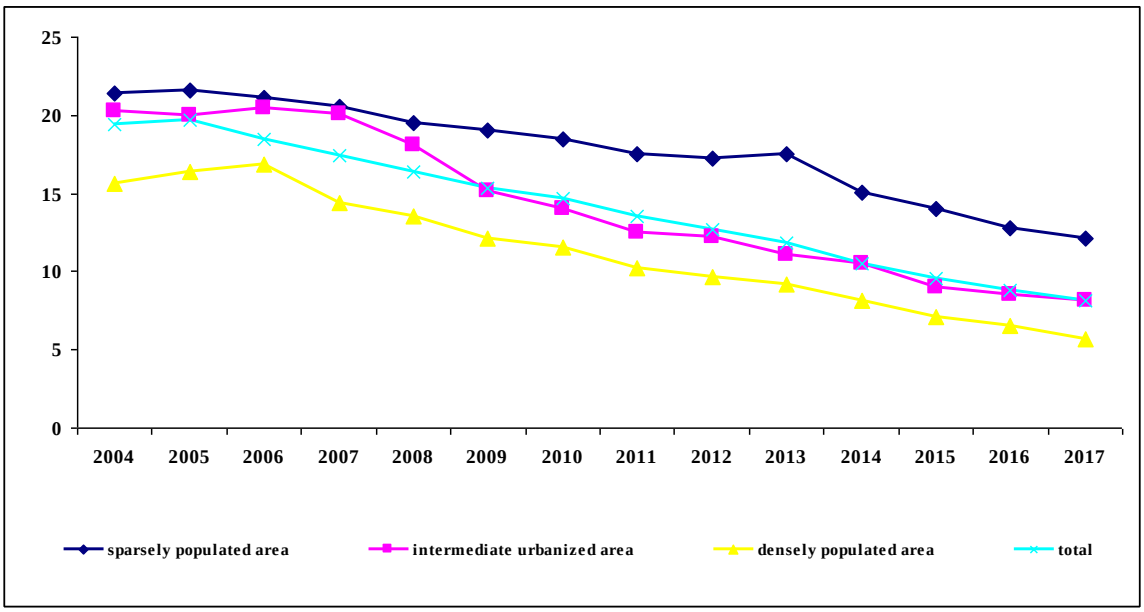
The equations (2), (3), (6), (7) and (8) will be estimated and their statistical accuracy will be checked for a significance of 5%.

3. Main findings

The standard deviation of households connection rate in the European Countries was calculated for the time span of 2004-2017, as total EU, for sparsely, intermediate and high densely areas (Figure no.1). We notice the descending trend in all cases, the convergence process being identified. In the EU densely populated areas, the standard deviation of households Internet access is lower than in other areas and in the EU as total. The digital divide gap in the sparsely populated areas is of 1.3-1.9 times higher than in the densely populated areas, indicating a lagging process of digital technologies penetration.

We notice also, different speeds of convergence in different urbanised areas. We estimate the speed of convergence through estimating the linear models of standard deviation of households' internet connection for total EU, sparsely populated, intermediate urbanized and densely populated areas.

Figure no. 1. Convergence of households' connectivity to Internet in the European Union countries by degree of urbanisation (2004-2017)



Source: author's computation based on Eurostat data

The estimated equations are the following:

total: $STDEV_t = 21{,}08918 - 0{,}93999 \cdot t$

sparsely populated area: $STDEV_s = 23{,}26359 - 0{,}74049 \cdot t$

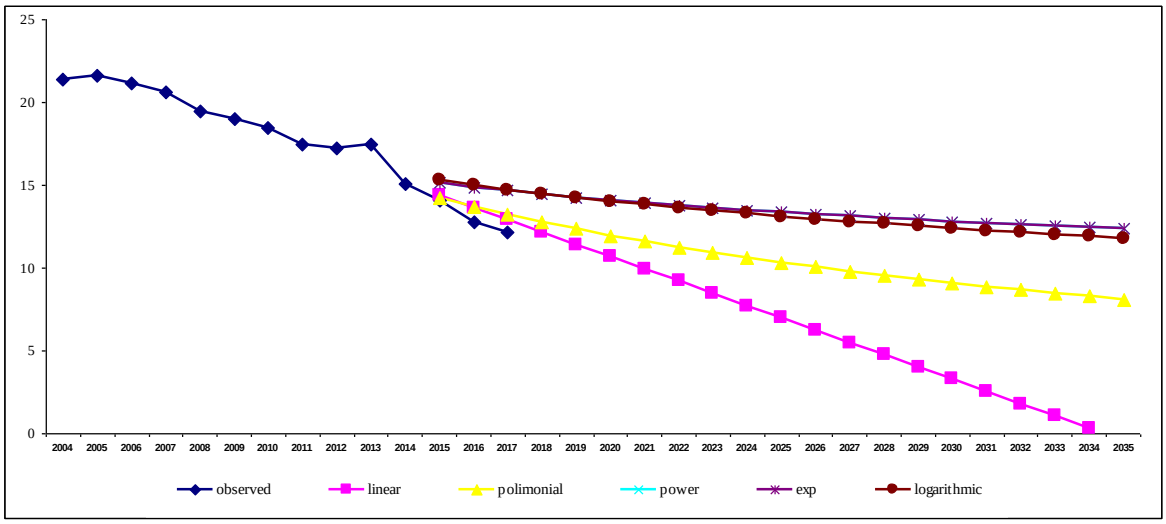
intermediate urbanized area: $STDEV_i = 22{,}50337 - 1{,}09463 \cdot t$

densely populated area: $STDEV_d = 17{,}80346 - 0{,}87758 \cdot t$

All the equations are statistically validated for a significance of 5%, as well as, the intercept and the coefficient of t.

The highest speed of convergence is registered in the intermediate urbanized areas (1.09463 units per year), not in the high densely populated areas, as expected.

Figure no. 2 Digital divide gap in the EU countries observed and forecasted - sparsely populated area

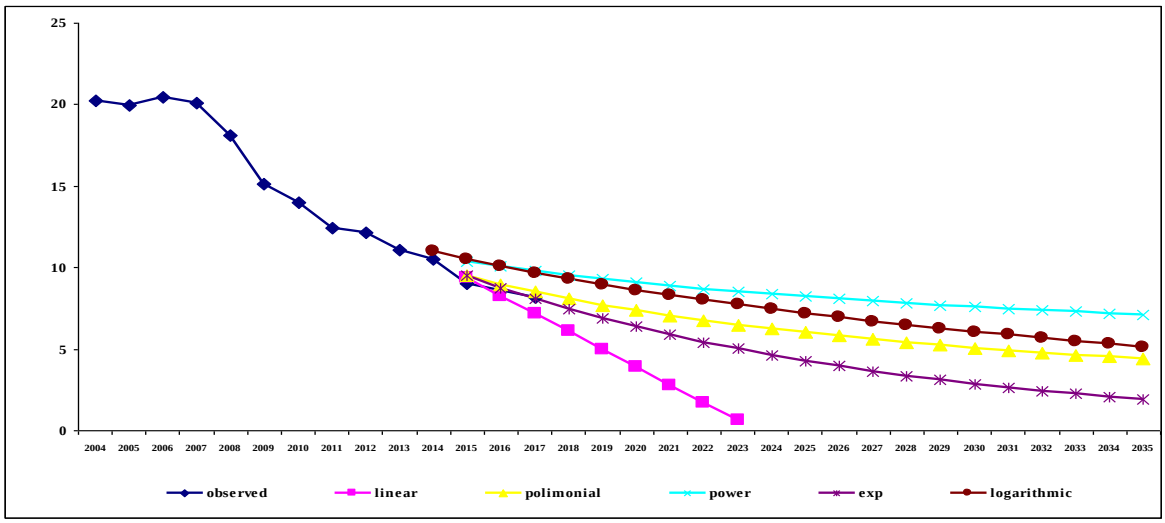


Source: author's computation based on Eurostat data

Figure no. 2, 3 and 4 display the observed dynamics of digital divide gap for 2004-2017 and the forecasted evolution according to the mathematical functions: linear, polinomial, power, exponential and logarithmic. The results of equations estimation are included in the Annex. All estimations are statistically validated for a significance of 5%.

In the sparsely populated areas the digital divide gap will be closed in 2034 according to the linear model (Figure no. 2). In the case of logarithmic and power models, the gap is maintained mostly constant until 2035 and the decrease is very slow in the case of polinomial and exponential model.

Figure no. 3. Digital divide gap in the EU countries observed and forecasted - intermediate urbanised area

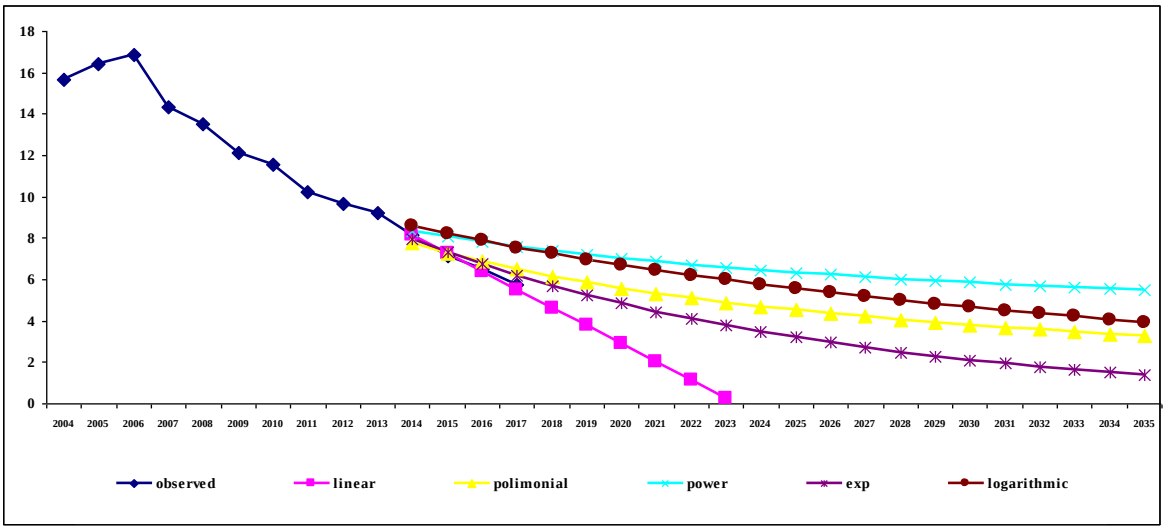


Source: author's computation based on Eurostat data

The gap decreasing is more evident in the case of intermediate urbanised area, for all predictions. A tendency of stagnation is identified in the case of power model starting with 2025.

According to the linear model, the digital divide gap will be closed in 2024 in the intermediate urbanised areas (Figure no. 3) as well as in the high densely populated areas (Figure no. 4).

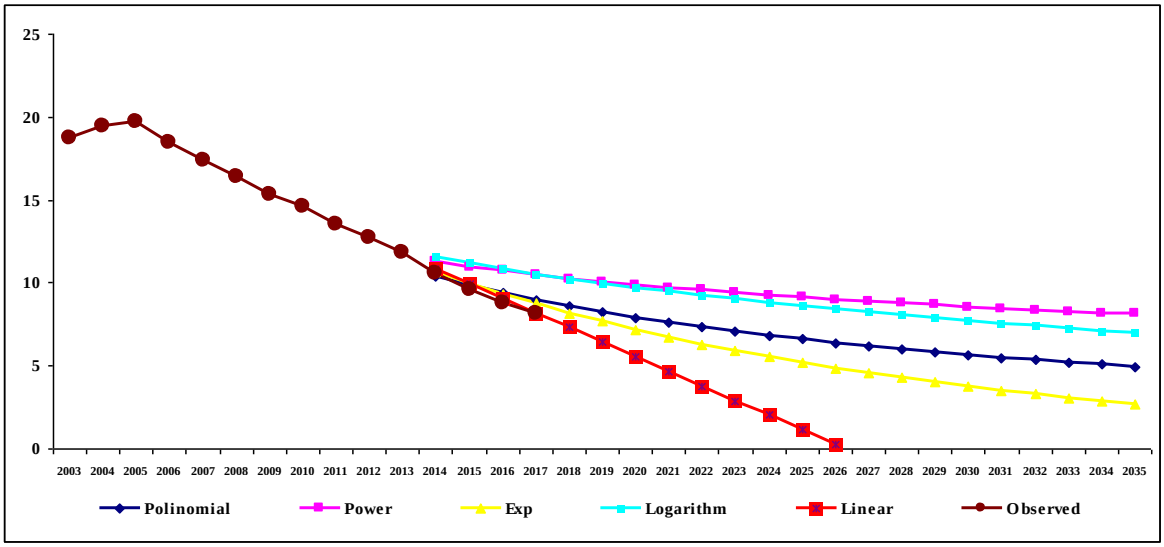
Figure no. 4. Digital divide gap in the EU countries observed and forecasted - high densely populated area



Source: author's computation based on Eurostat data

At EU level, in the linear model prediction, the digital divide gap can be closed in 2026.

Figure no. 5. Digital divide gap in the EU countries observed and forecasted - total



Source: author's computation based on Eurostat data

4. Conclusions

The aim of the paper was to analyse the digital divide gap convergence across EU countries on the basis of calculation of the standard deviation of the households' connection rates to Internet and to predict its values until 3035.

The digital gap is different according to the degree of urbanisation and the convergence process is identified in all cases (sparsely, intermediate and high densely populated areas).

As expected, in the EU densely populated areas, the digital divide gap is lower than in other regions, but the speed of convergence is higher in the intermediate urbanised areas.

The digital divide gap in the sparsely populated areas is of 1.3-1.9 times higher than in the densely populated areas, indicating a lagging process of digital technologies penetration.

In order to estimate the process of convergence, five families of models were used to approximate the values of standard deviation of households' connection rate to Internet. Among them the linear model seems to describe the process more accurately.

The digital divide gap can be closed in different time moments in different urbanised areas, in a linear predicted evolution. The degree of urbanisation is driving the speed of gap closure. As expected, the gap will be closed earlier in intermediate and high densely populated areas.

The digital divide is consequence of the social and economic influences: income, culture, urbanisation, education, as well as people's economic and social behaviour or social and individuals values.

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Annex

odel	Total EU	sparsely populated area	intermediate urbanised area	high densely populated area
Linear	$y = 21{,}39331 - 0{,}88307 \cdot t$	$y = 23{,}26359 - 0{,}74049 \cdot t$	$y = 2250337 - 1{,}09463 \cdot t$	$y = 17{,}80346 - 0{,}87758 \cdot t$
Polinomial	$\frac{1}{y} = 0{,}035125 + 0{,}005067 \cdot t$	$\frac{1}{y} = 0{,}03852 + 0{,}002652 \cdot t$	$\frac{1}{y} = 0{,}031756 + 0{,}006127 \cdot t$	$\frac{1}{y} = 0{,}037074 + 0{,}00837 \cdot t$
Power	$y = 25{,}22312 \cdot t^{-0{,}32444}$	$y = 25{,}25131 \cdot t^{-0{,}20611}$	$y = 27{,}303247 \cdot t^{-0{,}388561}$	$y = 21{,}76968 \cdot t^{-0{,}39889}$
Exponential	$y = 23{,}2427 \cdot 0{,}936871^{t}$	$y = 24{,}11564 \cdot 0{,}957107^{t}$	$y = 24{,}65442 \cdot 0{,}923467^{t}$	$y = 1976659 \cdot 0{,}920508^{t}$
Logarithmic	$y = 22{,}73294 - 4{,}5069 \ln t$	$y = 24{,}11564 - 3{,}5599 \ln t$	$y = 24{,}19315 - 5{,}50164 \ln t$	$y = 19{,}10427 - 4{,}3808 \ln t$

CONTAGION PHENOMENA RESEARCH AS A METHOD OF FINANCIAL CRISIS MANAGEMENT

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Abstract: *The effect of the financial crisis, triggered in 2008, is currently perceived at the level of the economic system, although the financial system has already recovered. The causes of the financial disaster were multiple, but it is undeniable that due to strong strong inertia between the components of the financial system, but more with the cell, the crisis spread much faster than in previous crises. Interconnections in the banking system are a necessity, as not all institutions are specialized at the same time in attracting funds in the form of deposits and their use in crediting the economy. Some institutions are specialized in attracting deposits, others only in lending and must be regarded as essential elements that ensure redistribution of liquidity within the system, from surpluses to deficits. But these fund transfers are risk-taking, especially credit, which can cause contagion to the whole system and the loss of solvable banks that have not been able to assimilate the perceived risk from other banks with major financial problems. In order to prevent the emergence of a systemic risk, it is necessary to develop a mechanism to assess the system's vulnerability to the risks generated within the system and to the contagion effect in order to set maximum exposure limits to system elements through effective regulatory rules. This article aims to investigate the contagion phenomenon within a banking sector and how it can be delivered more quickly when there are strong economic relationships and interdependencies between the banks. It was found that contagion is not a local issue and should not be treated as it is, but it is much broader, expanding on more than one region, so it is important to find correlations between countries in order to reduce its effect, that financial markets have underestimated the risk and degree of interdependence between countries.*

Key words: *central bank, inflation, monetary policy, inflationist expectations.*
JEL Classification: *E31, E32, E52, E58.*

1. Introduction

Crises can be defined as situations characterized by pronounced instability and are therefore accompanied by volatility and growing uncertainty in most markets (capital markets, oil market, money and foreign exchange markets, the labor market, etc.). They arise after a period when the price of assets (whether or not financially) has increased artificially, and when the market becomes aware of this over-assessment, it reacts accordingly.

US economist Mishkin (1991) defines the crisis as *"the situation in which adverse selection and moral hazard are getting worse and markets are no longer able to channel resources to the most productive investment opportunities"*.

A similar approach is encountered by Milton Friedman (2009, pp.111-136), who believes that the crisis has a strong psychological dimension. Panic by market outlook, depositors throw themselves into a dangerously high number on their deposits in banks, and so the banking system enters a generalized collapse. In the opinion of French sociologist Edgar Morin (1976, pp.149-163), the crisis is often associated with a lack of conditions to allow for a decision to be made.

The theorist and professor in the US, Ian Mitroff (1988, pp.83-107), is of the opinion that; in some cases, the crisis is defined as an event with a low probability of occurrence but which has major implications for society, organizations or individuals.

In the process of crisis, the financial problems of some market actors are transposed into the financial statements of others, who were a priori rather cautious and not

excessively exposed to risks, being totally unprepared to cope with the losses caused by imbalances in the system. The higher the degree of interconnection between the elements of the system, the greater the danger of contagion.

2. Defining the concept of contagion

The phenomenon of spreading or spreading the crisis is known in the literature as the "contagion effect". The term "contagion" comes from the medical field and has recently been introduced in the specialized economic literature. The interest of economists in the phenomenon of contagion of financial crises only grew in the second half of the 1990s, when the effects of crises spread from an emerging country to another emerging country became increasingly visible.

In fact, the first crisis in which the contagion was first observed was the Thailand crisis in July 1997 on the foreign exchange market when the Thai government decided to suspend the dollar anchor and adopt free float for the national currency - baht maintaining for a long time a fixed exchange rate encouraged the loan from foreign sources and attracting foreign investments that had a great deal of exposure to foreign exchange risk). Very rapidly this crisis has spread to all neighboring countries: the Philippines, Malaysia, Singapore, South Korea being among the most affected countries in the region. The crisis then spread over Russia and Brazil. Even developed countries in Europe and North America have experienced the effects of this crisis that has engendered more and more countries as a "domino effect".

Subsequently, contagion was defined by Eichengreen and Rose *as a mechanism by which shocks are transmitted between different countries or a correlation of economic status between two or more countries, beyond any visible macroeconomic link that can be interpreted as common shocks.*

This definition, however, does not allow identification of the specificity of contagion at the level of a single system or a single country. Most economists operate with the strict definition of contagion: *"contagion is a rapid increase in the link between different financial markets in times of crisis."*

A definition derived from the strict approach to contagion is that given by Kaminsky and Reinhart and Eichengreen and Rose (1998): *"the contagion effect is the situation where information about the existence of a crisis in another country increases the likelihood of a crisis on the ground local"*.

A number of authors (Gertsman, 1998; MacMahon and Trichopoulos, 1996; Edwards, 1999, pp.65-84) have further restricted the terminology of the contagion effect: "contagion is the situation where the magnitude and extent of international transmission of shocks exceeds the ex-ante expectations of market operators".

Introducing the concept of contagion in the literature on financial crises was based on the devastating effect they have on the level of income and welfare of a very large number of people and in a very short time (as in the case of a large-scale epidemic). Currently, there are several definitions of the financial crisis contagion effect:

- **The general approach:** contagion is the mechanism by which shocks are transmitted between different countries, generating a domino effect globally. Contagion can occur both in times of economic growth and in moments of crisis. The phenomenon is only taken into account when it comes to an internationally-spread crisis situation (it often forgets that there is also a "positive" contagion whereby growth or economic development is exported to other countries);
- **The restrictive approach:** contagion is the mechanism by which shocks are transmitted between different countries or when there is a correlation between two or more countries beyond any fundamental link between countries and which differs from the

common shocks these countries face. This definition refers to that additional driving effect between two or more countries explained by specific behavioral attitudes at investor or consumer level;

- **Strict approach:** contagion occurs when the correlation between two or more countries increases significantly in times of crisis compared to periods of lull. The definition basically refers to the influence the crisis may have on the intensity of the link between two or more countries.

In defining the concept of contagion, a number of links can be identified that can exist between different countries and explain the existence and extent of this phenomenon:

- ***the approach through financial relations:*** contagion is due to the connection of different economies to the international financial system. When a crisis situation occurs in a country, investment funds face massive capital withdrawals by investors, offsetting the issue of securities in a third country to attract liquidity. In this way, the initial shock is propagated to other countries as well. A similar phenomenon is that of multinational banks targeting excess liquidity to markets that offer high growth potential (emerging markets for example) and then withdraw them quickly when the first signs of crisis appear in the country of origin (this imbalances the debtor countries, the imbalance being further accentuated by the final or partial withdrawal of multinational banks from that market).
- ***approach through economic relations:*** contagion is conditioned by trade relations between different countries. When the exchange rate between two countries deteriorates or when two countries are in a strong competition on international markets, they are often tempted to gain a temporary competitive advantage from the exchange rate depreciation. Foreign direct investment and portfolio investment also contribute to this drive.
- ***approach through political relations:*** contagion is conditioned by diplomatic and political relations between different countries. This type of link is less studied in the literature when considering the effect of contagion. Many countries are part of various economic "clubs" that impose certain rules of conduct (for example, they may impose a particular currency regime). This membership in the different political groups often makes crises a cluster character. A country that is in a crisis and is part of this group is drawing all countries in the group into crisis.

The nature of the relationships, which condition the contagion and the way it manifests its effects, led to the delimitation of specific, well-defined types (Masson, 1998< Forbes and Ribobon, 2002):

- *The "monsoon" effect of contagion:* it is the result of a global imbalance that affects a large number of countries (even all countries affected) connected to the world economy. In this regard, numerous examples of crises that have been propagated in this way: the 1973 and 1979 oil crises, the rise in interest rates in Germany in 1992 in the context of the ERM crisis, the rise in US interest after the Mexican crisis of 1994.
- *"Spillover" effect:* it is due to the existence of a crisis in a particular country that is then propagated in a large number of countries. Kaminsky and Reinhart have called this fundamental-based contagion-based contagion effect. Examples of such contagion effects would be: the pronounced depreciation of the Japanese yen in 1995 against the US dollar that then generated the crisis in Southeast Asia (started in Thailand in 1997), the most affected countries in the region being the countries which had the most developed trade relations with Japan and the USA, the Mexican crisis of 1994, which then spread across several Latin American countries, the turmoil in Turkey in 2000, the dot.com crisis in the US and Europe in 2000, subprime "on the US credit market in 2007.
- *The "residual" type of contagion:* refers to changes in the economic situation in different countries that exceed the expectations of market operators and which are visible in the residual value ("white noise") of models testing the correlations between different

economies (between country and several countries or between a country and the world economy).

- *The volatility contagion effect:* is a type of contagion primarily manifested in the capital markets (Edwards, 1998; Edwards and Susmel, 2000; Engle and Ng, 1993; Ito, Engle and Lin, 1990, 1992; Hamano, Ng and Masulis, 1990; Longin and Solnik, 1995; Ramchand and Susmel, 1998; Bennett and Kelleher, 1988; King and Wadhwani, 1990) and is intended to spread the growing volatility (the associated investment risk is on the rise) from the capital market to other capital markets. This kind of contagion is among the most studied forms in the literature.

The concept of contagion does not only address the impact of crises on the local level but also the channels through which these crises are spread internationally. We are also talking about the contagion effect when it comes to propagating a crisis in certain sectors across the economy. In defining the contagion effect, there is also a direct or indirect contact between countries (or sectors) affected by the crisis.

3. Contagion ways

The financial crisis has highlighted the importance of the interconnections of the financial system. Major disturbances, such as the failure or near failure of certain institutions, are spreading rapidly over the entire financial system. A seemingly solid system can actually be very fragile. This results from the fact that a large number of interconnections within the network serve as an amplifier shock rather than as a shock absorption.

Contagion is the basis for any analysis of financial crises, because it causes the initial shock to become a systematic event. For this reason, in order to understand the risks of the financial sector, it is necessary to penetrate these risks, as well as to the propagation paths. The increased use of complex transfer risk instruments and the speed of market transactions join the complexity and rapidity of potential crises spreading, making these risks difficult to quantify. Based on these ideas, contagion can be considered as a propagation mechanism that causes small systemic or characterized by idiosyncrasies that have systematic consequences.

The risk of contagion between banks is considered as an important element of systemic risk. Contagion in the banking system can be divided into two direct and indirect ways.

The financial dependence of banks on each other generates direct contagion, both through the payment system and through other operations such as direct loans, REPO agreements and other operations. Indirect contagion can occur through two channels. First of all, the market must accept that direct contagion exists, even if it is not the case. Secondly, if a bank faces financial problems, the market must be aware that other banks in the same system may be hit by the same problems, which may lead to the mass withdrawal of deposits from banks.

A bank faces financial problems when the market value of its assets differs from the market value of its liabilities in such a way that the market value of its capital becomes negative. Under these circumstances, the bank can not fulfill all its payment obligations to depositors on time and in full value. The bank needs to solve its payment problems quickly in order not to cause short-term deposits to be withdrawn.

The banking system is more affected by bankruptcy in the system than other enterprises in other areas of activity for the following three reasons:

1. the small size of the ratio between capital and total assets (high leverage effect);

2. the small amount of the ratio of liquid assets to total assets, which may condition the sale of profitable assets in order to deal with the payment obligations of the deposits;
3. Large ratio of sight and short-term deposits to total bonds (high potential for mass withdrawal), which will require rapid asset sales to pay deposits.

Banking in a system is also explained by the fact that banks are in close financial relation to one another by attracting resources from one another or placing resources one at the other. Under these circumstances, banks are more susceptible to systemic risk, and the problems of a bank can be easily passed to another bank and so on to other banks in the system. Cumulative negative effects are exacerbated by the fact that bank deposits are the main source of bank resources.

The bankruptcy of a bank that has financial relations with another bank affects the bank's ability to honor its payment obligations, so problems are transmitted from one bank to another.

It should be noted that the banks are interconnected not only by interbank credits or interbank deposits, but also by making or receiving money transfers in the process of interbank settlement of payments with other banks. Due to the fact that these transfers are very common, in a large amount, almost always are processed immediately and are concentrated among a number of participants, the failure of a settlement system participant can lead to postponement of payments and damage to the settlement system. The insolvency of the clearing process of payments can occur if the transfer and receipt of money means is not simultaneous, so these means are allocated before they are received.

Consequently, the credit is transferred from one participant to another. Inter-bank contagion is conditioned by at least the following three situations:

a. when total liquidity is not sufficient;
b. when market expectations create negative effects;
c. when the failure of a bank has negative effects on the other banks in the system.

Surveys on financial crisis contagion show that all channels of transmission of this effect are equally important. However, there are also views that some channels would have a dominant role (whether financial or non-financial). According to specialists, the main channels of transmission of the contagion effect are: international trade in goods and services (the opening of a country to international markets), the transfer of capital through financial markets (international credits, foreign direct investment, foreign portfolio investment) monetary, membership of certain integrationist groups, dependence of fundamental variables (financial and non-financial) between economies.

4. Conclusions

The recent, so costly, balance of banking system failures is the key to preventing recurrences. Banking crises are typically complex and different from one another due to the specific factors, the mode of manifestation and the effects caused.

Because the causal mechanisms are not fully understood, we can appeal to the classification of the characteristic symptoms, namely the crisis syndrome. In this respect, it is important to distinguish between epidemic (contagious) elements from the macro level to the micro-level and between them and the epidemic failure syndrome, especially associated with government interference and the generalization of the inefficiency in the functioning of the entire banking system. Each of these two manifestations of banking crises shows common symptoms with the other, but the review of the characteristics of a significant number of emerging countries cases suggests that these two syndromes are distinct.

In this respect, the IMF and the World Bank have initiated the "Financial Sector Assessment Program" (FSAP), which favored the implementation of unitary methodologies for macro-prudential analysis at member state level.

The purpose of prudential analysis is to limit systemic risk so that its effects are minimal. Greenspan notes on the EDF's objectives: "The second responsibility for ensuring monetary stability is the central bank's ability to use its own authority and expertise to prevent financial crises (including systemic banking disturbances) and to manage such crises once they appear ".

The global crisis has shown how a shock that comes from a distinct country or financial system can quickly spread to other markets. As with a closed economy, the nature of the balance sheets between institutions and financial markets affects size, external effects and the propagation direction. Globally, financial and propagation channels are much more complex. Many of the data needed to identify and track international links are not available and the institutional risk management system at global level is inadequate or simply non-existent.

Thus, we consider that the study of the contagion effect and its assessment is of major importance for the prevention of financial crises and can provide information to decision-makers on how to stop the contaminated process of the system.

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OPTIMAL MONETARY POLICY: THEORETICAL AND PRACTICAL ASPECTS

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Abstract: *This research approached the defining aspects of an optimal monetary policy framework, able to achieve the objective proposed by the central bank. The ensuring a monetary policy appropriate to the country's economic, financial and legal potential is currently a concern for most central banks that recognize the benefits of optimal monetary policy promotion. The definition of optimal monetary policy was outlined in terms of factors, criteria and associated impacts. The practical aspect of the paper focused on the assessment of the monetary policy framework on the international arena as well as on the one promoted by the National Bank of Moldova. Following the researches carried out, it was concluded that in order to adjust monetary policy to an optimum, the central bank of a particular country should take into account a complex of economic conjuncture, institutional and operational framework. Referring to the best international practices of the central banks in the field of monetary policy, we come with recommendations for the optimization of the monetary policy in the Republic of Moldova.*

Key words: *central bank, inflation, monetary policy, inflation expectations.*
JEL Classification: *E31, E32, E52, E58.*

1. Introduction

The monetary policy plays an indispensable role at the macroeconomic level in terms of ensuring stable and low inflation, able to streamline the resource allocation and income distribution in the economy, thus contributing to economic growth. In the current harsh economic conditions, monetary authorities face the challenge of applying an optimal mix of monetary policy tools and related actions to ensure the objectives of these, contributing to the strengthening of the state general economic policy. It is underlined the benefits of an optimal monetary policy recognized by most central banks, starting from the role of monetary policy within the macroeconomic policy mix and its positive implications for the overall economy, while being properly promoted with the optimal use of the set of tools, actions and strategies. Thus, after the Bank of Canada, "a low, stable and predictable inflation rate [monetary policy] allows [economic agents] to make spending and investment decisions with more confidence, encourages longer-term investment and contributes to sustained job creation and greater productivity: the attributes needed to improve our living standards".

2. Theoretical aspects of an optimal monetary policy

The theoretical and empirical approaches related to optimal monetary policy can be found in Lucas and Stokey (1983) research: the optimal monetary policy in a closed economy with flexible prices and perfect competition consists in setting the nominal interest rate close to zero value, this fact reflects Friedman's rule.

Friedman (1969), conducting a long-term analysis of monetary policy with reference to flexible prices, concluded that the cost of the opportunity to hold money by economic agents should be equal to the social cost of creating additional banknotes, the marginal cost of additional money creation is around zero.

Therefore, the nominal interest rates should be zero. For this purpose, a central bank should look for a deflation rate equal to the real interest rate for government bonds and other safe assets to make the nominal interest rate zero.

Khan and others (2003) studied the issue of optimal monetary policy in models with monopolistic competition against sticky prices and found the need to reduce inflation volatility to zero in the context of price stability, highlighting the objective of monetary policy.

Kydland and Prescott (1977), Barro and Gordon (1983) approached the concept of optimal monetary policy from the perspective of the institutional framework, appreciating the central bank's credibility role on the basis of transparency, accountability and independence. At the same time, they referred to the inconsistency theory, being one of the most important policy issues that resulted from research on rational expectations in macroeconomics. According to this theory, the macroeconomic performance, in the context of dynamic processes, can be improved by a policy change in the future than it is announced today. The lack of credibility implies a lower outcome than the one specific to a situation in which politics would be predictable.

At the same time, the performance of monetary policy is achieved by the independent central banks (Alesina and Summers 1993, Cukierman, 1993, Cukierman, 2006).

The inflation expectations play a crucial role in the monetary policy transmission mechanism as economic agents set prices and wages for fixed periods, and the anchoring of inflation expectations is a primary task for the central bank in order to ensure price stability. Woodford (2001, p. 12) insists that the conditionality of a successful monetary policy is not reflected by the overnight interest rate management, but by the management of inflation expectations, emphasising the role of transparency central bank in the achieving of the monetary policy objective. The theoretical literature on monetary policy outlined the need of communication for the monetary policy efficiency (Blinder, 1998, Woodford, 2001, Bernanke, 2004).

The clarification that price stability is the primary objective of monetary policy in the medium term provides a point for optimal policy decisions and contributes to central bank accountability in achieving this objective. Bernanke and others (1999) and Levin (2014) highlighted the benefits of a clearly defined medium-term objective. The pursuing of multiple monetary policy objectives without identifying the superiority of one of these prejudices the clarity of the central bank's activity and the decision process, and compromises the objective of price stability.

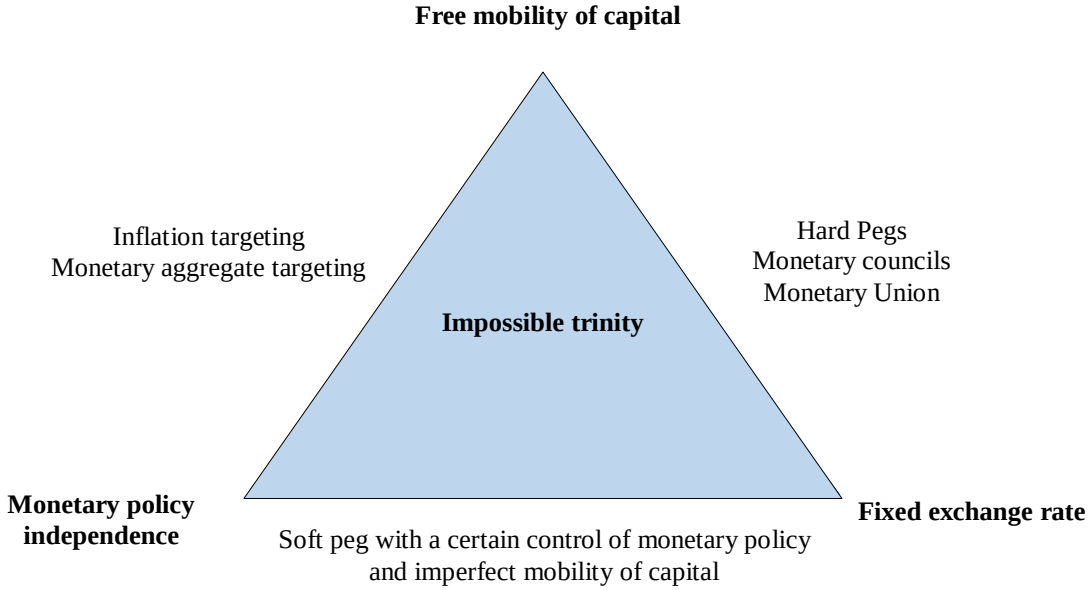
From the above, it is clear that the *optimal monetary policy* has been defined through impact on the background of the institutional framework.

At the same time, an optimal monetary policy must comply with the theoretical criteria, which have been maximized by classical and contemporary economists. In this context, an optimal monetary policy must be based on the *impossible trinity criteria* (Figure 1).

The impossible trinity criteria highlights the problems of monetary policy optimization along with the compromises involved in monetary policy decisions, depending on the monetary policy regimes applied by the central banks. Figure no. 1 shows that the optimal monetary policy is reflected by the impossible simultaneous functionality of the three aspects of monetary policy, expressed by free capital mobility, a fixed exchange rate and an independent monetary policy. In this context, a central bank that implements monetary policy under the inflation targeting and monetary aggregate targeting regime will opt for monetary policy independence and the perfect capital mobility against the fixed exchange rate. The monetary policy regimes related to exchange rate

subcategories, such as hard pegs, monetary councils, monetary unions, will choose the perfect capital mobility and a fixed exchange rate to the detriment of monetary policy independence. In this context, the central bank implements monetary policy according to the adopted regime and its associated framework.

Figure no. 1. The Mundell-Fleming model and the impossible trinity of the monetary policy framework



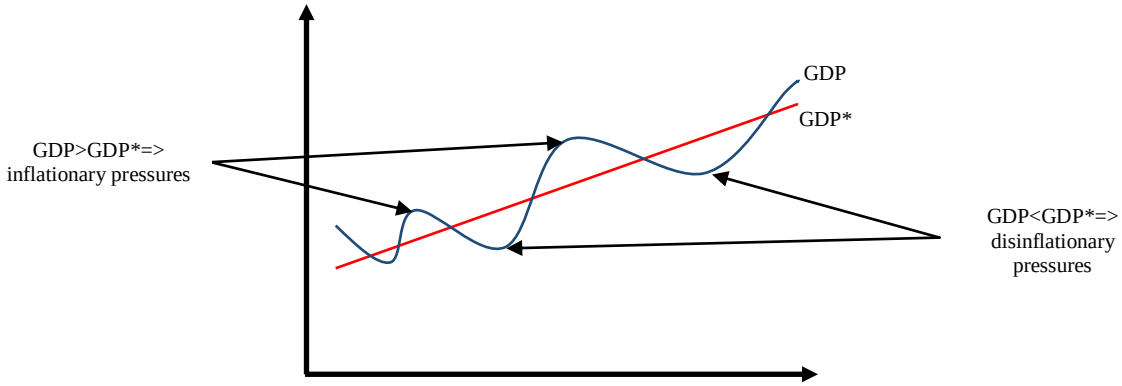
Source: elaborated by authors according to Bearce D., 1967. Monetary Divergence: Domestic Policy Autonomy in the Post-Bretton Woods Era, University of Michigan Press, p. 17.

At the same time, it is necessary to note that the economic conjuncture framework exemplified by the productive and economic potential of the country against the background of economic cycles must be taken into account in finalizing the optimal monetary policy direction. In the context of the deductions associated with the interdependencies between the macroeconomic processes, figure no. 2 shows that in case of the economic boom, the real gross domestic product exceeds its potential level, the inflationary pressures are generated against the background of excess demand, and the productive potential increases in conditions as economic agents operate above their capabilities. In this case, monetary policy intervenes by raising the interest rate, thereby limiting lending and investment. On the other hand, a negative GDP deviation revealed by the recession suggests that the economy is developing at the lower level of the potential, generating disinflationary pressures. Against this backdrop, the monetary policy becomes expansive by lower base rate, stimulating the credit and investment process, and thus helps restore economic equilibrium and economic growth, while pursuing the prevention of falling inflation below the limits imposed by monetary authority. The GDP deviation is often interpreted in the literature as an indicator that quantifies the degree of inflationary pressure in the economy and reflects a correlation between the real economy and inflation.

Another aspect of the economic conjuncture framework is the fiscal policy and other macroeconomic policies of the state. A possible fiscal policy austerity will be reflected in the increased inflationary pressures and, as a consequence, will determine the restrictive nature of monetary policy. Thus, Isărescu (2008) argues, "Without the support

of other economic policies, the monetary policy may face difficulties in achieving a low inflation in a sustainable manner. In other words, price stability can be achieved to the detriment of other macroeconomic balances, which is ultimately a self-reversible process."

Figure no. 2. The optimal orientation of monetary policy according to the evolution of economic activity



Source: elaborated by authors

Another macroeconomic conditionality that would affect the monetary policy is the labour market situation. Friedman (1968) and Phelps (1968) admit that there will be a short-term compromise between inflation and unemployment. However, the Phillips curve in long-term is vertical and monetary policy is incapable to stimulate long-term employment. In order to mitigate the inflationary pressures, the central bank promotes a restrictive monetary policy with implications for real output reduction and with repercussions on employment, contributing to the rise in unemployment. This fact reflected in the Phillips's initial curve. According to Phillips's initial curve, the monetary policy was adopted in line with the character of the curve in order to achieve an economy in the direction required by the general policy of the state. The decrease in inflation was due to the increase in unemployment, and vice versa, an increase in inflation was associated with the reduction of the unemployment rate. This theory has played an important role in monetary policy, but monetary theory has considerably evolved with the introduction of inflation expectations alongside the marginal cost.

$$\pi_t = \beta E_t \pi_{t+1} + \mu(rmc_t) \quad (1)$$

The new Keynesian Phillips curve describes a simple relationship between inflation, companies' expectations of future inflation and real marginal costs. The marginal costs are the actual (adjusted for inflation) resources that companies have to spend for production of marginal additional unit of their good or service. According to that curve, the inflation will tend to increase when real marginal costs increase, as firms transfer higher costs in higher prices and expected a rising inflation, as firms are raising their prices today by anticipating prices bigger tomorrow. Therefore, this economic theory defines the indispensable role of inflation expectations in the context of monetary policy optimality and interdependence between macroeconomic indicators.

The aspects related to the *operational framework* contribute to the defining of a monetary policy through impact, and its optimality depends on the degree of adjustment and development of the transmission mechanism of the monetary policy decisions, the applied monetary policy instruments, used forecast model. At the same time, the character of monetary policy depend on the explicit definition of a nominal anchor, either the

monetary aggregate or the inflation rate or the exchange rate according to the applied monetary policy regime.

From the above, it was concluded that in the literature of speciality is not explicit definition of optimal monetary policy. In this context, it was outlined the defining aspects of an optimal monetary policy through factors, impact and criteria taking as a reference the economic conjuncture, institutional and operational framework at the level of a state (Table no. 1). It should be mentioned that the evolution of inflation and, implicitly, the character of monetary policy also depends on external factors, external economic potential, external monetary conditions, as well as international prices for oil and raw materials, especially for the countries importing them.

Table no. 1. The defining of the optimal monetary policy concept taking as a benchmark the economic conjuncture, institutional and operational framework

	Optimal monetary policy through:		
	Factors	**Impact**	**Criteria**
Economic conjuncture	1. Domestic economic potential; 2. Fiscal policy and other macroeconomic policy; 3. Labor market.		Impossible trinity
Institutional framework – critical for central bank credibility		1. Well-defined the objective of monetary policy; 2. Central bank independence; 3. Transparency and communication of central bank; 4. Central bank responsibility.	
Operational framework		1. Set nominal anchor; 2. Transmission mechanism of monetary policy; 3. Monetary policy instruments; 4. Developed forecast model.	

Source: elaborated by authors

3. The evaluation of the optimal monetary policy framework from the perspective of international experience

In this research, there were proposed the tasks of assessing the institutional framework of monetary policy from the point of view of achieving the objectives of the best performing central banks in the field of monetary policy, being considered the benchmark for the bank credibility and predictability.

The international experience (Table no. 2) has confirmed the possibility of pursuing multiple monetary policy objectives, although the literature of speciality disputes this practice, in the measure that these objectives are in competition. Thus, the objectives of price stability and high level of employment could be complementary rather than competing, so there is not political compromise between the objectives of price stability and the maximum employment, the so-called double mandate operated by the Federal Reserve System (Mishkin, 2007).

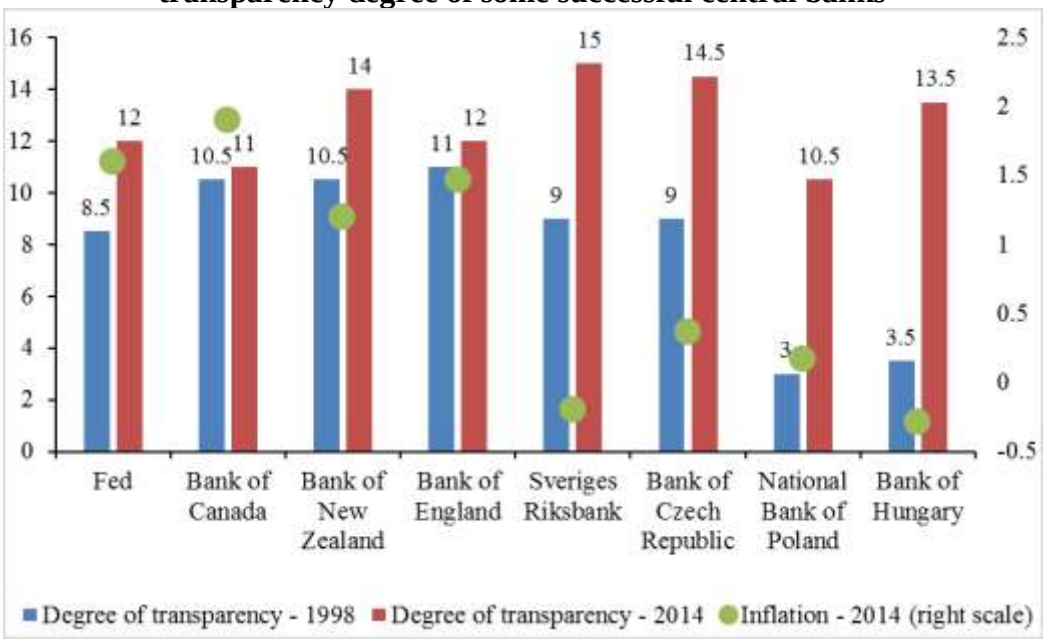
Table no. 2. The monetary policy objectives pursued by the central banks as of March 2018

The monetary authority	Objectives
Federal Reserve System (USA)	Price stability, full employment, moderate long-term interest rates.
Bank of Canada	Preserving the value of money by maintaining low and stable inflation.
Bank of England	Monetary stability due to stable prices and confidence in the currency.
Bundesbank (Germany)	Price stability (the Eurosystem's main objective under the Treaty on the Functioning of the European Union).
Bank of Japan	Price stability, thus contributing to the sustainable development of the national economy.
European Central Bank	1. Maintaining price stability (Art. 127 (1) of the Treaty on the Functioning of the European Union) 2. Without prejudice the objective of price stability, the Eurosystem also supports the general economic policies of the Union. These include full employment and balanced economic growth.
Sveriges Riksbank	Maintaining price stability.
Bank of Czech Republic	1. Maintaining price stability; 2. Maintaining financial stability; 3. Supports the general economic policy of the state and of the European Union.
Bank of Hungary	1. Ensuring and maintaining price stability; 2. Supports the state's economic policy.

Source: Developed by authors based on the legal status of Central Banks published on the official sites of the respective banks.

Table no. 2 outlines the importance of the objective of ensuring and maintaining price stability for most successful states in the field of monetary policy.

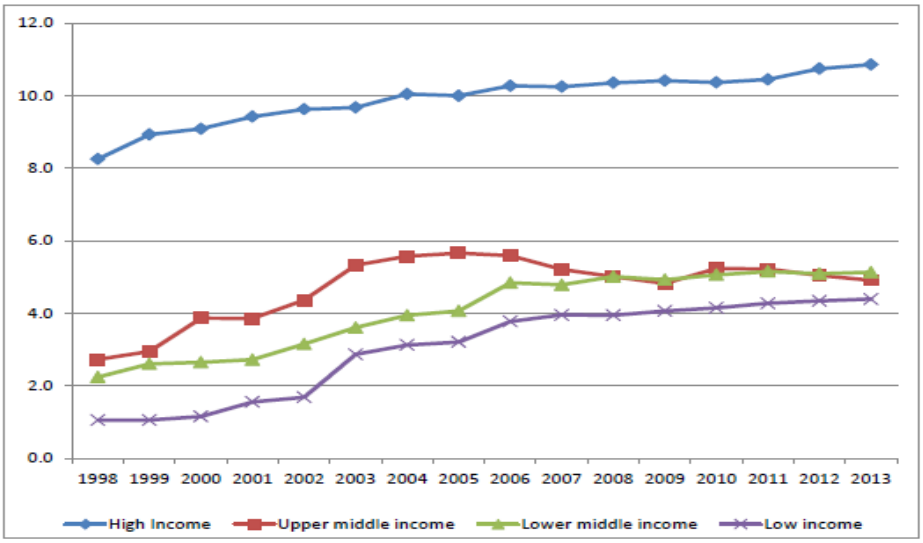
Figure no. 3. The optimality of monetary policy from the perspective of the transparency degree of some successful central banks



Source: elaborated by authors according to Dincer and Eichengreen, 2014. Central Bank Transparency and Independence: Updates and New Measures. International Journal of Central Banking and the official sites of the respective banks.

The level of correlation between the degree of transparency of a bank and the evolution of inflation in the direction of achieving the objective of monetary policy is reflected in figure no. 3. It is necessary to note that the most successful central banks at the start relied on increased transparency of the bank, except for the National Bank of Poland and the Bank of Hungary. However, the degree of transparency has increased considerably between 1998 - 2014, recognizing the importance of transparency and predictability of monetary policy. At the same time, it should be noted that the low annual inflation rates are associated with an increased level of transparency of the central bank.

Figure no. 4. The trend of central bank's transparency according to the degree of development of the countries



Source: Dincer and Eichengreen, 2014. Central Bank Transparency and Independence: Updates and New Measures. International Journal of Central Banking.

Figure no. 4 reflects the conclusions of Dincer and Eichengreen (2014) that institutional transparency contributes to consistent results on the monetary policy objective of achieving and maintaining price stability. At the same time, from this figure it should be mentioned that the degree of transparency has an upward trend, which means that the central banks opt for an opening of their activity, greatly relying on credibility and, as a result, on the inflation expectation anchoring. However, the increased transparency is characteristic for developed economies, and the low-income economies are associated with a low degree of transparency.

The study of international monetary policy experience has outlined and confirmed the researches of the need of central bank transparency in the inflation target achieving. The most successful central banks in the field of monetary policy have relied on institutional credibility, which is ensured by increasing the bank transparency, independence and responsibility.

4. The evaluation of monetary policy framework applied in Republic of Moldova

Referring to the Republic of Moldova, it is necessary to mention that the macroeconomic imbalance on inflation has been a major problem throughout the period since independence. Between 1991 and 2017, Moldova recorded various types of inflation, from hyperinflation to values close to the inflation target. *Hyperinflation* was specific for

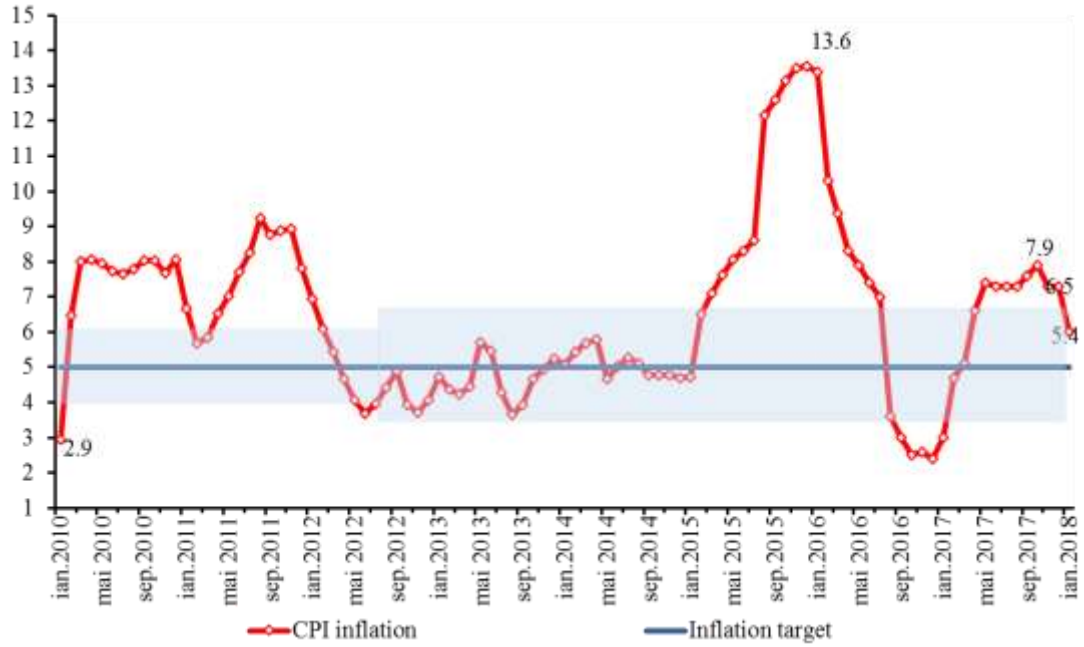
the period of 1990 to 1994, when the annual inflation rate in 1992 recorded 1669.6% and in 1993 it was 2705.7%. The *galloping inflation* (1995-1999) - in 1995 the annual inflation rate constituted 23.7%, and in 1999 - 43.7%; *moderate inflation* (2000-2008) - the annual inflation rate in 2000 was 18.4% and in 2008 - 7.3%; *disinflation* (2009) - the lowest level (0.4%) of inflation was registered for the first time in the economic history of the Republic of Moldova. The disinflation process registered during 2009, based the prerequisites for the implementation of the inflation targeting regime in 2010. The period of 2010 to 2017 is characterized by the general moderation of the inflationary process in the Republic of Moldova, registering the annual level of 7.3% in 2017.

It should be mentioned that since 2006, the NBM has pursued the fundamental objective of ensuring and maintaining price stability. The art.4 (2) from the Law on NBM no. 548-XIII of 21 July 1995 stipulates that without prejudice to its fundamental objective, the National Bank of Moldova promotes and maintains a financial system based on market principles and supports the general economic policy of the state. In 2010, the NBM moves to the inflation targeting regime, and until the inflation target was declared, the NBM managed inflation through the monetary aggregate targeting regime, which contributed to the strengthening of the population's confidence in the national currency.

At the same time, it should be noted that the implementation of the direct inflation targeting strategy imposed a series of challenges in the perimeter of transparency and communication policy of the National Bank of Moldova, given that the success of this strategy is conditioned by the inflation expectation anchoring and therefore the institution credibility, along with the promotion of increased transparency.

During the transition to the inflation targeting regime, the prerequisites for the implementation of the regime were created, in particular, the placement of the annual inflation rate in the corridor of the target range during 2012, maintaining this trend until the beginning of 2015, fact visible in figure no. 5, along with strengthening NBM independence, exchange rate flexibility, and increasing the NBM credibility.

Figure no. 5. The monetary policy performance in line with the objective of ensuring and maintaining price stability



Source: elaborated by authors according to the data published by the National Bureau of Statistics from Moldova and official site of the National Bank of Moldova.

The inflation-targeting regime was implemented de jure in January 2013. It is necessary to note that annual inflation rate is close to the inflation target in the period of January 2013 to January 2015. Thereafter, it recorded values above the upper limit of the target range in December 2015, registering 13.6% against the backdrop of national currency depreciation and pressures from foodstuff products. The beginning of 2018 is characterized by the positioning of annual inflation rate into the variation corridor and near the target, registering values of 6.5 and 5.4% in January and February 2018, respectively.

Therefore, in order to carry out the tasks stipulated in the Monetary Policy Strategy, as a result of the reorientation to the direct inflation targeting regime, the NBM introduced new communication tools, which was confirmed by the publication on the official website of the calendar of meetings of the Executive Board of the NBM on the monetary policy promotion, the calendar of the Inflation Report publication (in 2010 - the Monetary Policy Report) and the one on monetary policy operations.

In order to ensure the transparency of the decision-making process, the NBM publishes press releases after each meeting of the Executive Board and briefings are organized with the participation of the vice-governor, which means informing the public about monetary policy decisions. The NBM, also prepares press releases related to the evolution of inflation, identifying the determinants of the inflationary process. It should be mentioned that the publication of Inflation Reports is preceded by the organization of conferences with the participation of the NBM governor and media representatives. We note that the National Bank of Moldova is reserved in the forecasting indicator area, quantitatively publishing, only inflation and providing reflections on gross domestic product deviation forecast.

At the same time, starting with the Inflation Report no. 3, 2017 the summaries of Executive Board meetings on the monetary policy promotion are missing in the Inflation Reports, this fact jeopardizes the credibility of the institution. There are also gaps in the inclusion of inflation expectations in the Inflation Reports, as well as not publishing them on the official website of the NBM. Nevertheless, we note that the inflation process in the Republic of Moldova has moderated with the implementation of the inflation targeting regime and the association of a specific institutional framework with the enhancement of credibility on the grounds of transparency and independence.

5. Conclusions

The clear and explicit definition of the optimal monetary policy is missing in the literature of speciality. In this context, the study of the optimal monetary policy concept is the subject of this research. The literature of speciality outlined the definition of optimal monetary policy in terms of its factors, criteria and impact.

In order to adjust monetary policy to an optimal level, the central bank of a particular state must take into account a complex set of factors that may affect the monetary policy character, endangering the achievement of the objective proposed by the monetary authority. These include the economic conjuncture, institutional and operational framework of the monetary authority.

The economic conjuncture is attributed to the economic potential of the state by identifying the economic cycle, the labour market situation and the degree of interdependence of monetary policy with fiscal policy and other macroeconomic policies of the state. In this context, it is important that the promotion of monetary and fiscal policy is achieved in a consistent relation in order to overcome possible shocks to monetary policy.

The *institutional framework* associated with an optimal monetary policy is limited to the following aspects: clear definition of the central bank's objective in the context of the

legal framework; transparency of the central bank; increased independence of the central bank; the central bank's responsibility. At the same time, we note that one of the institutional criteria, which confers optimal monetary policy, is the need to prioritize a single central bank objective in order to overcome possible decision compromises in the presence of several objectives. We consider that pursuing macroeconomic stability through production, employment, exchange rates and financial stability (credit growth, asset prices) may conflict with price stability objective.

The operational framework consists in the existence of a well-defined nominal anchor, final (the case of direct inflation targeting regime) or intermediate (the case of the monetary aggregate targeting regime, the exchange rate targeting regime); the well-defined transmission monetary policy mechanism, as well as increased forecasting capacity of the estimation of inflation and macroeconomic indicators.

The study of theories associated with inflation expectations has demonstrated their indispensable role, especially the increased importance of rational expectations in the current modern economy. The international theory and practice have demonstrated that the channel of inflation expectations plays a decisive role in adequate monetary policy promoting, able to achieve the proposed objectives, such as price stability and medium-term sustainable economic growth.

The inflation expectation anchoring and effective management of inflation expectations are based on the process of communication, transparency and accountability of the monetary authority. The central bank communications must be transparent and timely, as clear communication improves the effectiveness of monetary policy. It should focus on explaining past results and actions to align the expected inflation with the policy objective, focusing on the variables that matter to the behaviour of the private sector. The effective communication helps reduce uncertainty; it improves monetary policy transmission mechanism and facilitates the accountability, thereby giving the institution credibility. It is also important to explain the deviations from the objectives and remedial actions. Thus, with increased communication and a transparent monetary policy, the central bank is able to anchor inflation expectations, which can be considered as other criteria of optimal monetary policy.

Referring to the Republic of Moldova, it was concluded that the NBM institutional framework is well defined and the transparency and accountability of the NBM increased with the implementation of the inflation targeting regime in 2013, along with the moderation of the inflationary process. However, the National Bank of Moldova faces with some gaps. We note that the NBM is reserved in the forecasting indicator area, quantitatively publishing only inflation and providing reflections on gross domestic product deviation forecast. At the same time, there are also gaps in the inclusion of inflation expectations in the Inflation Reports as well as the missing of them on the official website of the NBM.

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ANALYSIS OF AWARD CRITERIA USED IN PUBLIC PROCUREMENT PROCEDURES IN ROMANIA

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Abstract: *In public procurement procedures, the choice of award criterion, of the evaluation factors, of weightings and calculation algorithm are particularly important to successfully complete the procurement procedure. Given that after the procurement procedure has started, all these elements can no longer be changed, the correct selection of the award criterion may make the difference between the successful purchase of the products / services / works required by the contracting authority and the cancellation of the procedure. In the research literature, many cases of procurement procedures are described in which, due to the award criteria or the wrongly chosen evaluation factors, either products / services which did not reflect most accurately the need and the advantages desired by the contracting authority (with inferior characteristics of poor quality) have been purchased, or it was decided to cancel the procurement procedure. The article describes an analysis of the award criteria existing in the Romanian legislation, the ways of choosing them, the advantages and disadvantages of the use of each criterion, the risks identified when establishing the award criteria and the measures to deal with these risks.*

Keywords: *public procurement; procurement procedure; award criterion; evaluation factor, weight.*
JEL Classification: *C46, H57, H83.*

1. Introduction

The products, services and works that are the subject of public procurement have become more and more complex. Also, the environment in which contracting authorities fulfil their mission for which they have been set up is dynamic, constantly changing.

The spending of public funds must be made efficiently in order to achieve economic and social efficiency so that products, services and works match the purpose for which they were purchased.

In determining the tender evaluation criteria, several factors need to be taken into account, including the specificities of requirements and needs, the ability of the contracting authority to define requirements / needs in a clear and concise manner and to choose the relevant evaluation factors.

Thai et al. (2009) considers that an evaluation plan should first be established for the performance of the evaluation. The objectives of this plan are to clearly identify the following elements:

- the evaluation criterion;
- the evaluation factors;
- the calculation algorithm of the score or the calculation method;
- the tenderer's selection method.

These authors list a number of evaluation factors used in US procurement, namely: understanding the purpose of the project and the objectives, addressing the risk management proposed by the tenderer, demonstrating expertise in the field, the management team qualifications, company experience in similar project development, the quality assurance approach, the manner of reporting, the warranty and after-sales service, and prior performance records.

Often, the lowest price criterion is not enough to identify the best tender. In fact, there are other relevant aspects (evaluation factors) that can be considered, typically characteristics of the purchased product or services associated with its delivery. As the procurement is more complex, more and more non-price factors become more important in the tender evaluation process. Low cost pricing procedures are appropriate for products /

services where price is the only relevant factor (examples: procurement of electricity, food and office equipment) (Dimitri et al., 2006).

2. Award criteria in public procurement procedures in Romania

The award criterion is the element of an award procedure that is directly related to the content of the procurement object and to the Tender Book or Descriptive Document. The way in which the award criterion is designed, weighted and then evaluated is essential for both potential tenderers and contracting authorities.

Table 1: Number of procedures in Romania in 2017 according to types of award criteria

No.	Award criterion	Number of procedures	Weight
1	Lowest price	18,378	92.25%
2	Lowest cost	8	0.04%
3	Best quality-price ratio	1,512	7.59%
4	Best quality - cost ratio	25	0.13%
TOTAL AWARD PROCEDURES		**19,923**	**100,00%**

Source: National Agency for Public Procurement (ANAP) - Indicators to monitor the effectiveness of procurement procedures completed by contract / framework contract in 2017.

The activity of establishing the award criterion means choosing and substantiating the form that the "most economically advantageous tender" can take, so that a contracting authority can choose a tender according to what it considers to be the best solution from an economic point of view.

Figure 1: Graphic representation of the number of procedures in Romania in 2017 by type of award criteria

Source: Based on the data in Table 1**.**

According to Law no. 98/2016 on public procurement, the forms of award criteria are:

- the lowest price;
- the lowest cost;
- the best quality-price ratio;
- the best quality - cost ratio.

The distribution of the number of procedures in Romania in 2017 according to the award criteria is presented in Table 1.

Figure 1 shows that the highest number of procedures were awarded using the lowest price criterion (weight 92.25%) followed by the best quality-price ratio criterion (weight 7.59%).

The degree of use of each type of award criterion for the types of procedures conducted in Romania in 2017 is presented in Table 2.

Table 2: Degree of use of each type of award criterion by type of award procedures

No.	Procedure type	Award criterion								Total procedures
		Best quality - cost ratio		Best quality-price ratio		Lowest cost		Lowest price		
		No. of procedures	Weight	No. of procedures	Weight	No. of procedures	Weight	No. of procedures	Weight	
1	Open bid	6	24.00%	421	27.84%	2	25.00%	5,903	32.12%	6,332
2	Restricted bid	0	0.00%	4	0.26%	0	0.00%	39	0.21%	43
3	Negotiation	0	0.00%	18	1.19%	0	0.00%	63	0.34%	81
4	Call for tenders / Simplified procedure	19	76.00%	1,069	70.70%	6	75.00%	12,373	67.33%	13,467
TOTAL PROCEDURES		**25**	**0.13%**	**1,512**	**7.59%**	**8**	**0.04%**	**18,378**	**92.25%**	**19,923**

Source: National Agency for Public Procurement (ANAP) - Indicators to monitor the effectiveness of procurement procedures completed by contract / framework contract in 2017.

The graphical representation of the number of procedures by type of award criteria is shown in Figure 2.

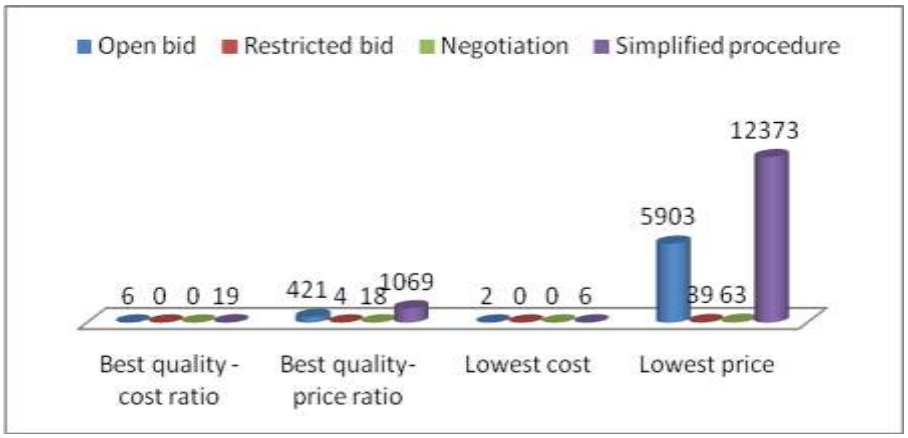

Figure 2: Graphic representation of the number of procedures by type of award criteria

Source: Based on the data in Table 2.

As it can be seen from Figure 2, in 2017, for all four types of award criteria, most of the developed procedures were simplified procedures / calls for tenders and open bids.

3. Choosing the award criterion

The choice of the form of the criterion reflects the manner of understanding of the contracting authority over what constitutes the best solution from an economic point of view. Because there are two fundamental documents at the time of the selection of the criterion (the Tender Book / Descriptive Document and Technical Proposal Form), the choice of criterion should take a relatively short time.

The choice of the award criterion is based on the assumption that the reason of the award criterion is to enable the contracting authority to determine the tender that most faithfully reflects the need and the desired benefits, in terms of obtaining economic and social efficiency.

In defining the award criterion, the interpretations of the Court of Justice of the European Union may also be relevant as regards:

- the wording of the award criterion, namely the content of the evaluation factors and the link to the object of the contract;
- "unlimited freedom of choice", an expression that must be interpreted in terms of observing the principles of transparency and equal treatment.

From the application of the above rules, plus the contracting authority's obligation to publish the award criterion at the initiation of the procedure, the risk of occurrence of arbitrary and subjective decisions in the tender evaluation process should be reduced.

At the end of the activity to determine the award criterion, it must be ensured that:

a. the form of the award criterion contributes to obtaining the benefits anticipated by the contracting authority;

b. it is possible to apply the award criterion during the evaluation of tenders, as mentioned in the Awarding Documentation because:

- there are requirements defined in the Tender Book / Descriptive Document that allow the application of the criterion;
- the technical proposal form and the financial proposal form include requests for information necessary for the correct and complete application of the award criterion.

c. in establishing the award criterion, all legal regulations in force have been observed;

d. the established form of the award criterion, respectively the evaluation factors, their weight and the calculation algorithm, are directly related to the specific characteristics of the object of the contract;

e. the composition of the award criterion is objectively set and allows comparisons to be made between the tenders submitted;

f. the award criterion is determined by considering and observing the principles laid down in Law no. 98/2016 on public procurement (which are equal treatment, non-discrimination, transparency, mutual recognition, accountability and proportionality);

g. the award criterion must provide during the evaluation of the tenders an advantage to the tenderer who included in the technical and financial proposals submitted the information necessary for the application of that criterion and the advantage given may be concretized during the performance of the contract / framework agreement;

h. the decision on the structure and algorithm for the calculation of the award criterion should also be based on a simulation by reference to the content of the technical and financial proposal and the Tender Book / Descriptive Document. Also, there must be

prerequisites for obtaining the most economically advantageous tender by using them in the evaluation.

According to a notification from the National Agency for Public Procurement (ANAP) 2018 on how to set the award criterion for award procedures organized on batches and in case of procedures to be finalized by the conclusion of a framework agreement, when the procedure is organized on batches, the "lowest price" criterion can only be used for batches the estimated value of which is less than 648,288 lei, excluding VAT. For batches the estimated value of which exceeds this value threshold, one of the other three existing criteria must be applied.

The same notification establishes that, in the case of procedures to be concluded by the conclusion of a framework agreement, the "lowest price" criterion may only be used for procedures where the estimated value of the largest subsequent contract is smaller than the threshold value referred to above. If the estimated value of the largest subsequent contract exceeds the value threshold, one of the other three existing criteria must be applied.

There are no predefined recipes / models for a certain set of assessment factors, weights or calculation algorithms that must be included in an award criterion because the benefits that a contracting authority is interested in obtaining cannot be extended and applied to all contracting authorities.

The determination of the award criterion is closely related to the awarding procedure for which the contracting authority opts, as provided for in Law no. 98/2016:

• the award criteria used for competitive dialogue procedures are *the best quality-price ratio or the best quality-cost ratio;*

• the award criteria used for innovation partnership procedures are *the best quality-price ratio or the best quality-cost ratio;*

• the award criteria used for the award of public procurement contracts / framework agreements, having as object social services and other specific services provided by law and the estimated value of which is equal or higher than 3,376,500 lei excluding VAT, are *the best quality-price ratio or the best quality-cost ratio*.

4. The advantages and disadvantages of using the award criteria

The advantages and disadvantages of the use of award criteria in public procurement procedures are presented in Table 3.

Table 3: Advantages and disadvantages of using award criteria in public procurement procedures

	The lowest price	The lowest cost	The best quality-price ratio	The best quality-cost ratio
ADVANTAGES	➢ Convenient, affordable criterion which involves selecting the lowest price tender that meets all the conditions of participation; ➢ Objective and quantifiable criterion; ➢ Allows the contracting authority to obtain the lowest price that the market can offer; ➢ Eliminates the possibility of challenging the outcome of the award procedure; ➢ Reduces verification time by ANAP and the risk of rejecting the award criterion; ➢ The time needed to evaluate the tender is more reduced.	➢ Objective and quantifiable criterion; ➢ Allows the contracting authority to obtain the lowest cost throughout the life cycle of the product; ➢ Provides the contracting authority with a clearer picture of the expenditure involved over a longer period of time; ➢ Allows contracting authority to estimate expenditures by subdivisions of the budget classification; ➢ Provides the contracting authority with the choice of more environmentally friendly products.	➢ Promoting quality, environmental protection and innovation; ➢ Allows the contracting authority to establish both technical and financial evaluation factors for operator selection; ➢ Allows the contracting authority some flexibility during the award procedure; ➢ May lead to the selection of an operator who proposes a tariff that allows for his / her business to run without financial constraints; ➢ Erasing very low prices, so called "dumping"; ➢ Allows the contracting authority to benefit from other advantages besides the low price (delivery terms, warranty terms etc).	➢ Promotion of quality and innovation, environmental protection, creation of new jobs; ➢ Allows the contracting authority some flexibility during the award procedure; ➢ Allows the contracting authority to estimate expenditures by subdivisions of the budget classification.

	The lowest price	The lowest cost	The best quality-price ratio	The best quality-cost ratio
DISADVANTAGES	➢ Providing products and services of poor quality; ➢ Does not allow the contracting authority to show flexibility during the award procedure; ➢ Requires the contracting authority to ensure the fulfilment of the conditions regarding the technical, professional and financial capacity of the tenderers; ➢ Imposes strict financial discipline; ➢ Is less relevant to the "lowest cost" criterion, especially when analysing the operation of purchased products over longer periods of time.	➢ Requires the contracting authority to ensure the technical, professional and financial capacity of the tenderers; ➢ Providing products and services of poor quality; ➢ It creates problems in purchasing consumable products or repetitive services. ➢ Elements used to calculate life-cycle cost may sometimes be quite subjective and therefore easily objectionable (eg resale price in euro at end-of-life, end-of-life exchange rate value, etc.).	➢ Increase in the number of complaints regarding breach of the principle of proportionality, due to the non-justification of the evaluation factors and their inadequacy to the object of the contract; ➢ Technical evaluation factors are in fact useless since the relevant elements related to the technical and professional capacity of the tenderers can be established and imposed beforehand; ➢ Technical evaluation factors are difficult to set up to be objective and quantifiable; ➢ The flexibility during the award procedure and the relative lack of substantiation (lack of connection with the obtained advantages) of the evaluation factors lead to delaying the launching of the award procedure through repeated rejections / clarifications imposed by ANAP/ potential tenderers; ➢ Establishing a winner among higher price tenderers; ➢ Longer time needed to evaluate tenders (occurrence of calculation errors).	➢ Increase in the number of complaints regarding the breach of the principle of proportionality, due to the non-justification of the evaluation factors and their inadequacy to the object of the contract; ➢ Technical evaluation factors are difficult to set up so as to be objective and quantifiable; ➢ The flexibility during the award procedure and the relative lack of substantiation of the evaluation factors lead to the delay of launching the award procedure through repeated rejections / clarifications imposed by ANAP; ➢ Establishing a winner among higher price tenderers; ➢ Longer time needed to evaluate tenders, possibility of calculation errors.

5. Risks identified when establishing award criteria and treatment measures

By using award criteria involving the establishment of evaluation factors in order to designate the winning tender, the contracting authority may give rise to speculation, as these are often not objectively and clearly defined.

In order to avoid such situations, the contracting authority has to use evaluation factors that reflect the real and obvious advantages it can achieve through their use. The evaluation factors and the methodology for their application (the calculation algorithm) must allow an adequate delimitation of tenders and avoid as much as possible the subjective assessments of the evaluation committee.

The calculation algorithm, the evaluation factors and the weights chosen must be as well defined as possible in order to be difficult to challenge. They should also eliminate the possibility of manipulation by tenderers who speculate any nonlinear variations between price and quality or cost and quality in order to obtain scores higher than the benefits aimed by the contracting authority.

For example, one should avoid the use of evaluation factors such as:

- "defects repair time", because this time cannot be estimated at the time of submitting the tenders;
- "understanding the tender book and project objectives" because these two elements cannot be quantified and subjective assessments of the members of the evaluation committee can be reached.

6. Conclusions

When determining the award criterion, the contracting authority, although it is free to determine the evaluation factors and their weighting, must ensure that the established factors and the calculation algorithm will lead to the selection of that tender which ensures the most valuable qualitative advantages with additional costs considered acceptable, subject to compliance with the principles set out in public procurement law.

Before establishing the awarding form in the awarding documentation, the award criterion must be verified by simulations to ensure that the chosen factors and the set scores are the best solution for determining the most advantageous tender in terms of quality-price ratio.

Only the simple application of an award form cannot automatically lead to the expected outcome. This must be correlated with a correct calculation of the estimated value of the contract (in order to avoid overestimation) and by reference to the actual conditions of selection and competitive participation.

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STRESS GENERATED BY THE DIGITAL ENVIRONMENT

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Abstract: *At present, people daily make a compromise between being permanently connected or staying intimate. The more Internet services are used, the more difficult it is to keep confidential personal information. Thus, the digital world has become important, even giving us stress: too many passwords to remember or fear we may be the victims of some cyber attacks. So, we believe that each user needs a special protection that suits their digital lifestyle, because if we do not take protective measures, this lack of action can lead to stress.*

Key words: *digitization, techno-stress, online environment, information security.*
JEL Classification: *M15, O15.*

1. Cyber stress

Dangers and increasing complexity of the digital environment create the phenomenon of cyber-stress, most people making a compromise every day between being permanently connected or keeping their privacy.

The more Internet services are used, the more difficult it is to keep confidential personal information, especially in social media. People start to feel overwhelmed by the amount of information that exists about them in the online environment and wonder whether or not they are adequately protected. If they do not know how to take action to protect them, this lack of action can lead to stress, the attention of specialists.

According to a recent study, 73% of Europe's employees say they are stressed by the number of passwords to remember, especially as 54% admit they were the victim of a cyber attack. In addition, online information users feel they have to be available anytime and anywhere, because to a certain extent, their social connections, well-being and even their emotional balance depend on this.

The digital world has become as important as the physical world, and it gives us even stress reasons, just like the real one: too many passwords to remember or the fear that we may be victims of a data breach and that we will lose our money, personal information or even work.

We believe that each user needs a special protection that suits their digital lifestyle and that this is the future of security solutions.

Research reveals that people tend to have more confidence in those around them (for example, in their life partner) to entrust passwords or answer questions about cyber security. On the one hand, it is understandable to resort to those close to you, trusting for other things in your life.

IT technology experts say the main problem is the avalanche of information that assail us from all sides: news sometimes not even had time to read, but just cross our titles before his eyes, books, television, information work. In this amalgam of information, the online environment is the main source for a large proportion of the population - at the end of 2017, the total number of Internet users was over 4.1 billion.

2. Digital phobia

The Internet, the digital environment and virtual reality have become more and more influential phenomena in everyday life, with the tendency of digital technology users to substitute much of their classical activities with new media, whether it is leisure time, communication and information or professional and commercial activities tailored to the digital age we are in.

However, in recent years, more and more Romanians have come to psychology because of technology and multitasking, being diagnosed with digital phobia or nomophobia, a serious form of stress caused by excessive use of the phone, tablet, computer or other gadgets . So, digital stress is manifested by anxiety and physical discomfort when the phone is out of battery or at times when we can not check for online messaging notifications.

In fact, the effects of extensive use of digital devices and applications induce stress syndrome. This is all the more so as not only in personal life, but also in collectivities, at work, where digital skills are frequently asked.

Another stress factor is the fear of the effects of electromagnetic radiation on mobile digital devices, fears that to some extent are justified because of such a potential health hazard for people who use excessive mobile phones, according to the World Health Organization health.

As the Internet, intelligent devices and instant access to information become more and more integrated into everyday life, the population reluctant to use this type of technology is likely to become disadvantaged.

A study by Kaspersky Lab shows that 62% of Europeans are overwhelmed by the amount of sensitive information that exists in the online environment and 72% say that the large number of passwords they have to manage is stressing them. Romania is ranked 45th in the world as the level of computer attacks.

3. The danger of overusing the digital environment

Digital technology relieves us of mental effort. It provides us with means of dealing with mental affairs. Before, we used our brain, now we use our smartphone. If we have to make calculations, we use the computer. Whenever you transfer mental activity to that, it's like transferring energy to a device that does everything in your stead. You do not use your muscles anymore. It's just like when you go to the gym because we know our muscles are atrophied if we do not use them. The same happens with the brain.

If we do not use it, he's not well trained. more importantly, as the brain develops, it must be trained to use its full potential. So when the evolution of the young brain takes place in the digital environment, its development is strongly affected. And we need to know what future risks exist. I think we need to assess these risks and that is something that has not been done so far.

”On a screen, the information is transient, 85% of students will say they prefer to read books, because they are sure that the authors of the book have made efforts to gather that information, then have been edited, and someone has invested money for printing, while in the case of a monitor, anything can write anything”.

It is proved that we learn more from a book. When you learn from a 'screen', you tend to read on the run. The book provides a profound reading. You read and think about what you read. In the old days, there is something called 'read'. Now people click and stop thinking too much. So a new term, "deep reading, "which means reading and thinking, has emerged. Reading clicks is not as useful as reading. And books are read-only, so they're better".

The secondary effects of digital technology are: decreased learning and attention, but also depression. The smartphone has replaced alcohol as the main cause of traffic accidents. Moreover, false news spreads faster than truth, a recent study has shown. There are all sorts of negative consequences. People get fatter because they move less.

Bill Gates said his daughter does not have access to that. So did the head of Apple, that his nephew does not have a smartphone, because he destroys the school performance. Former head of Facebook said the smartphone is made to induce addiction, especially when using Facebook.

The intense use of digital devices reduces mental capacity. It's not a new thing to watch television on infancy, frequent hours, computer games and violent video games, phone calls, and sending messages on the phone, scraping unwanted feelings, thoughts and personal images on social networks can have a negative influence on users' feelings, thoughts, behavior and social contacts.

The digitization of our world has not only harmful effects on the mind but also on the body. He presents a series of studies showing that insomnia, depression and addiction are the extremely dangerous consequences of using digital devices whose impact on general health development of today's younger generation can hardly be overestimated ".

A physical consequence of addictive behavior - as recent data from brain research has shown - is that young people are overweight.

"Social isolation and anxiety are common side effects," "there is a downward spiral developing at the end of which there is not only depression and social isolation but also many physical diseases that touch the cardiovascular system, the muscular and skeletal system (lack of motion, incorrect position) to dementia".

Since children and adolescents in this country spend most of their time using digital devices, we need to worry about predictable mental and physical injury in the long term. "

From this treatment of the effects of digital devices can not miss the side effects of social networking.

Lack of self-control, loneliness and depression are the main stressors of modern society. They cause the death of nerve cells and in the long term it facilitates the development of dementia. Replacing real contacts with people with online networks can be correlated with a long-term reduction in the social brain of our children.

4. Conclusions

Digital devices are part of our culture, they increase our productivity, simplify our lives and are a great entertainment factor. Therefore, the debate is not about fighting or even abolishing them. But because of the serious impact they have on the young generation in particular, people should reduce the use of digital media to a minimum.

With the world of the internet, social networking founders and gaming creators have been able to offer users the ability to isolate themselves from parenting and gain a distinctive feature compared to adults, a space they shape according to their own rules. Because this space, this world of the Internet is potentially dangerous for the mental, spiritual and physical development of children, parents and educators should understand it for them to be equal with the children in the debate about it.

So, it's recommended that we periodically do a digital detox cure, a week, a day or just a few hours closing the internet and the devices we use frequently. Instead, we can enjoy nature, the relationship with family and friends, communicating face to face in a pleasant and familiar environment.

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RISK ASSESSMENT OF THE INTERNAL MANAGEMENT CONTROL SYSTEM AT THE PLANNING OF THE INTERNAL PUBLIC AUDIT ACTIVITY

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Abstract: *Public internal audit is for providing advice and providing objective assurance on the effectiveness of the internal managerial control system by providing recommendations for improving it. The activity of public internal audit is independent and objective and its activities are planned for long, medium and short periods. Planning the public internal audit activity involves a general strategy based on the entity's major risk analysis that may affect the achievement of the entity's planned objectives over a period of time to achieve performance and optimize resource utilization. The planning of the audit activity ensures the efficient and timely accomplishment of its activities within a well-defined time period, through a detailed approach regarding the nature, duration and coverage of the audit and the workload achieved. The topic addressed in this article refers to the way of planning the activity of the internal public audit and models for the risk assessment of internal managerial control.*

Key words: *public, internal audit, risk, internal control managerial, entity.*
JEL Classification: *H83, G32, M42, C33.*

1. Introduction

Appropriate and well-structured audit work planning guides the audit of the areas / objectives of the entity and the risks identified by the entity's managers in internal control and resource management. Thus, the audit may focus on planning its activities on the size of the entity, the complexity of the audit, the auditor's experience and the knowledge of the entity's field of business, which is a very important part of the audit planning.

Any public entity to achieve performance will plan its activities based on national targets. The public internal audit must understand the field of activity, the internal control environment, the control activities, the resources, which is the starting point for the planning of its activities. The value that the public auditor generates is directly proportional to the contribution of his/her work in achieving the strategic and operational objectives. The assurance and counseling missions aimed at seeing the degree of compliance of the internal managerial control system

Thus, by carrying out the planned activities, management and operational managers provided with the degree of achievement of the objectives and recommendations for improving the internal control processes/activities.

The public internal auditor evaluates the managerial internal control system in terms of the degree of compliance with the National Managerial Internal Control Standards and the associated risks in achieving the objectives planned for a period.

2. System of planning internal audit activities

Activity planning is a systematic and well-structured process that facilitates the achievement of planned objectives with its actions within the foreseeable timeframe and is an instrument for monitoring progress and promoting both the quality and professionalism of the public internal audit activity (Christmas, 2004, p. 102).

a) a description of the required information, where reference will be made to factors such as: policies, strategies, reforms and internal factors on the efficiency and effectiveness

of operations, the reliability of financial reports, compliance with internal laws and regulations, the use of resources;

b) description of sources of information;

c) description of methods of collecting information;

d) the chart of the activities included in the plan.

Activities are planned on three levels-in three documents:

I. Long-term strategic planning envisages planning the activity of the internal audit function of the subordinated structures that have organized subdivisions / internal public audit unit every five years according to the normative framework of the public internal audit. This process is documented through the Internal Public Audit Strategy and / or Strategic Development Plan; The strategic plan is the means by which the vision and mission of the internal audit activity will be pursued through the statement of (Practice Guide, 2012, p. 4):

- ***a vision*** will articulate the concept of internal public audit activity and the way it hopes to bring added value to the entity, and on the basis of the analyzes conducted, issues that will not be included in the strategic plan will be communicated to senior management and operational managers to ensure a total opening;
- ***mission***, which is formed on the basis of the vision statement, outlines the primary purpose of the activity of the public internal audit, which it plans to carry out in the future and how it is part of the strategic plan of the entity. It is the same for all staff involved in public internal audit, as well as for internal and external stakeholders.

Analyzing the degree of realization of the vision and mission through the limited number of elements and critical factors of realization. These critical factors will identify the key elements that major initiatives need to be chosen to ensure the concentration of resources on the most important activities. Three primary questions will be used to identify the FCS (Practice Guide, 2012, p. 5):

• *Positioning* - Is the public internal audit activity positioned and strategically supported?

• *Processes* - Are the processes of internal public audit activity dynamic and allow for the needs of orientation?

• *Individuals* - Does the internal public audit activity have professional staff in the field to enable it to accomplish its mission?

One of the effective ways to analyze vision, mission and critical success factors is SWOT, which will identify sensitive elements and critical factors.

The purpose of a SWOT analysis is to identify the main internal and external factors that are important in achieving the strategy. This analysis groups the information into two main categories:

Internal factors - Unique strengths and weaknesses for internal audit work in the public sector.

External factors - Opportunities and threats that the external environment represents for the internal audit activity of the public entity.

Table 1. Components of SWOT analysis

STRENGTHS	**WEAKNESSES**
Internal characteristics of the internal audit activity that can considered facilitators of the audit strategy.	Internal characteristics of the internal audit activity that, in opposition, can prevent the achievement of the audit strategy, and can place the activity in an unfavorable position.
Opportunities	**Threats**
External items other than internal audit activity that may increase demand for more and audit and audit consulting services	External elements apart from the internal audit activity that, in opposition, can decrease the demand of assurance and consulting services, prevent the achievement of the audit strategy, and place the activity in an unfavorable position.

Source: *Practice Guide, Developing the Internal Audit Strategic Plan, 2012, p. 6*

The initial step in timing planning will assess the human resources within the department, the skills, aptitudes and knowledge required to achieve those set out in the internal audit strategy. It is important to assess the extent to which it will have to be based on the skills and knowledge identified, as this will influence the selection of the resource allocation model type. The assessment of the necessary skills and knowledge could include (Practice Guide, 2012, p. 8):

a) the applicability of internal audit responsibilities defined in the charter;

b) the expected balance of insurance and consultation missions;

c) the expectations and requirements of the entity's management;

d) the results of the risk assessment;

e) level of coordination with other risk management and insurance functions;

f) the long-term strategic plan of the entity, which is a valuable source in identifying things that internal public auditors need to know in order to operate and adding value to its entities.

Additionally, it is necessary to analyze how best to balance technological resources in the context of establishing the most appropriate resource allocation model. These aspects of resource analysis will support the department's priorities defined by the public internal audit.

Another important aspect in the development of the Strategic Plan is the review of the technology and tools that will help to set the boundaries of audit missions, as the use of electronic work documents could be very useful for increasing productivity and facilitating quality control, especially for managing multiple components missions involving more than one person and multiple locations. Balancing workflow tools in such applications to transmit files and consolidate findings can promote effective information dissemination to allow timely control of the quality of working documents and reports. Additionally, these tools may allow the public internal auditor to better monitor the progress of the audit plan to the level of the mission components of each plan. Such applications also provide a central repository of work documents and reduce the risk of multiple versions of documents, allowing for efficient file dissemination. It may be necessary to analyze the profitability to justify the implementation of these instruments. Some applications are first of all for the benefit of internal audit. However, many applications for electronic work papers can provide study and certification models and accompany workflow technology in managing governance / control initiatives.

Revision of the Strategic Plan. The strategic plan for the entity and the internal audit strategic plan should be regularly reviewed and updated accordingly. The frequency of revisions is determined through negotiations between the entity's managers. Factors

influencing the frequency of revisions include (but are not limited to) (Practice Guide, 2012, p. 9):

• The degree of entity growth and the assessment of institutional maturity;

• Changes in entity strategy;

• The level of trust of the organization and senior management in independent assessments of internal audit work or in organizational risk management help;

• Significant change in the availability of resources for internal audit work;

• Considerable changes in legislation or volume of changes in organizational policies and procedures;

• The degree of change in the organization's control environment;

• Essential changes in the management team of the organization and the composition of the board of directors;

• Assessing how internal audit has made its strategic plan from a qualitative or quantitative perspective;

• Results of internal / external evaluations of internal audit work.

STRENGTHS	**WEAKNESSES**
1. Well-defined internal audit vision, mission, values and charter 2. Respect and high trust in the public internal audit department from senior management 3. Defined and validated audit environment 4. The formal planning process based on risk with validation by the management Individual plans for staff training / certification 6. Independent and objective perspective across the organization 7. Personnel adapting to change; positive attitude 8. Skills, environments of provenance and diversified staffing skills, etc	11. Lack of skills and knowledge of fraud, 2. Risk assessment is not mapped to the organization's strategy; limited identification of new risks, 3. Limited involvement in the strategic decision-making process within the entity, 4. Limited concentration on efficiency versus operational effectiveness, 5. Limited use of analysis and data collection, 6. Performance is evaluated only once a year, 7. The audit cycle has a long duration, 8. There is no full alignment with IAI Standards, 9. The audit methodology does not address all types of services.
Opportunities	**Threats**
1. Improving the perception of staff skills, knowledge and capabilities 2. Informing management on recurring / regular issues 3. Co-operation with other risk management / risk management functions during the year and during the risk assessment 4. Introduction of self-assessments of risk and controls.	1. The Council's tendency to focus on financial and compliance risks, without paying due attention to operational risks 2. The rectification of irregularities is limited by budgets, staffing and governance 3. Restriction of management co-operation 4. New and changing risks increase gaps in skills

II. Strategic planning in the medium term takes into account that, according to the law, all activities that have a major risk are audited at least every three years. Depending on the importance of an activity within the entity, the internal control system and the degree of risk. The internal public audit documents this process with a multi-annual plan, which will include the main audit areas, the type of missions and the scope of applicability based on assessed risks. The plan updated through periodic risk assessment and achievement of objectives through Internal Control Standards.

III. Annual planning includes the work to be carried out over a one-year period, taking into account the time available in the plan and the resources allocated annually. It includes both internal public management activities and planned missions (Practice Guide, 2012, p. 22).

The annual planning aims at establishing the volume of auditable activities for one year, and the time and resources limits will focus on audit engagements on how to achieve and on the priorities of management.

In the planning of auditable activities next year it will also take into account the missions planned in the previous year that have not been carried out and based on risk reassessment priority will be given to activities with high added value. The results of which will be relevant to those audited and to the management of the entity will create a favorable impact for internal public auditors. Annual Internal Audit Plans updated during the year when the type of risk within the entity changes and have a reserve for ad hoc missions that do not exceed at least 10% of auditable days during the year and unforeseen events in the life of a public internal auditor.

With the help of the annual plan, the achievement of the objectives set in the internal audit management and the multi-annual planning modeled. The continuous preparation and improvement of the public internal auditor must planned according to the legislation in force. In order to consider a fair and qualitative planning, the manager of the internal audit subdivision should include internal audit missions per person at 60-80% per year.

In cases where a supplementary/unplanned audit mission is required, the manager of the internal audit department before he/she accepts it will consider to what extent it can add value and contribute to improving the risk management in the entity's operation.

The audit plan will delimit audit engagements such as insurance or counseling. This will focus on how to approach and report on the field to audit.

Each audit mission will include the scope, the implementation period with the date of the Audit Report and the personnel responsible for the audit. Audit planning designed to determine the important areas of the audit. Incorrect or incomplete planning leads to the loss of internal control activities/processes or sites that carry major risks.

Internal Auditing Standards recommend that in order to achieve the planned objectives, we must evaluate the risks annually, to define the priorities of the internal audit activity in accordance with the objectives of the public entity, through this process, the views of the public entity manager and the operational managers other stakeholders on internal audit opinions and other conclusions.

In cases where internal audit activity perceived as a source of talent for the entity, it may be beneficial to consider the opportunity of a rotation-based staffing system. This model provides the organization with people who have a deep understanding of governance, risk management and controls. Rotational models provide benefits for internal audit work by introducing staff (other than audit) from other activities and contributing specialized skills and an independent view of audit engagements and procedures. Disadvantages of models include higher training and supervision of rotation staff, lack of continuity in missions, and a "cooling" period from the audit field they have worked in the nearest past.

3. New regulations in risk assessment, in view of planning the annual audit

Considering that the public entity manager tends to assure that the strategic plan and the annual plan address the risks identified by the operational managers, the head of the public internal audit sub-divisions plans the internal audit activity based on the identification and re-evaluation of the risks. This risk assessment shall carried out at least annually.

Thus, in the strategic and annual planning of the internal audit activity, internal public auditors address the risks in the following way (The Law on Public Internal Financial Control no. 229 from 23.09.2010):

a) the analysis of the risks related to the objectives of the public entity;

b) assessment of the inherent risks at each level (strategic risks, financial / performance risks, operational risks and compliance risks);

c) establishing priority areas to be covered by future missions.

A particular emphasis in public entities is on the degree of control risk. In terms of internal control, the degree of achievement of objectives addressed. The control risk is the risk that a material error that may occur in a category of operations, individually or together with errors in other categories of operations, cannot be prevented, detected or corrected in due time by internal controls in function.

Therefore, the risk that some errors cannot detected to correct by the internal control system, but management discovers the deviations of the results from the objectives, analyzes the causes that have determined them and orders the necessary corrective or preventive measures. An entity's internal control system encompasses the control environment and the system of procedures and policies developed and put in place to ensure (Boulescu, Ghiță and Mareș, 2001, p. 103):

- compliance with the regulations under the activity of the audited entity (internal legislation, internal procedures);
- preventing and detecting frauds and errors;
- achieving the managerial objectives in a systematic, economical and efficient manner;
- accomplishment of the attributions at a suitable quality level and the regular implementation of the adopted policies;
- compliance with the legality and management provisions;
- protecting assets;
- protecting information;
- providing timely accurate and complete information to substantiate management decisions.

A favorable control environment implies the imperative need to have an ethics, a policy, an organization that consists of all the concerns of the management of the audited entity about the organization of the internal control system and the importance it attaches to it.

The internal audit of the audited entity designed to ensure rigorous and effective management of the entity's activity, so auditors at the planning and evaluation stage will deepen their understanding of the structure of the internal control system by reviewing and documenting its operation in practice. At the auditor's wishes and reasoning, he can rely on and then it is necessary to test the system and if the auditor decides not to trust the internal control system and the control risk will assessed at a high level, the auditor should test the internal control system, ensure that it exists and operate properly throughout the year (Munteanu, 1998, p. 62).

The assessment of the control risk requires the use of the auditor's professional judgment, which can characterized as a subjective process. The evaluation can expressed either in quantifiable terms (e.g. 80% 50% 20%) or in non-quantifiable terms (e.g. low, medium, and high).

The risk analysis model will documented and attached to the multiannual and annual plan to provide assurance in the planned activities by uniformly analyzing departments based on risk factors.

Improving the risk quantification model remains a permanent priority of the internal audit function.

The objectives of internal auditors are to allocate audit resources in an optimal manner, to the highest risk audits, to heal the entity's activities / sub-activities, and resource saving based on risk analysis to remain a priority.

Preserving a general view of processes and internal resources can only ensure by a broader analysis of risk typologies and risk assessment criteria must be effective.

Because major risks usually focus on the management of the entity and it is therefore more appropriate to start top-down planning activity, it will ensure that only to minimize major risks that will not allow the full realization of the objectives planned for a period.

The public internal audit ensures the assessment of the areas involved in the achievement of the objectives and at least every three years the high risk processes in the following areas (Law on Public Internal Financial Control no. 229 from 23.09.2010):

• Financial Accountant;
• public procurement;
• asset management;
• Information technologies.

Internal audit missions are more complex when they planned on processes, so it will in itself include the assessment of several major risks for achieving the entity's objectives.

Various methods and techniques used in the risk assessment, which is consistent with the specificity and scope of the entity. The identified risk assessment is to optimize the allocation of audit resources through a comprehensive understanding of internal control and the risks associated with each element. A risk assessment model described in the International Good Practice, adopted by IAA, which aims to quantify the level of risk of each entity's department through the system of managerial internal control.

The risk analysis model, recommended by IAA in 2003, is based on 6 risk factors, namely (Ghiţă, Pereş and Bunget, 2005, p. 105):

F1 - Previous audit findings;
F2 - Sensitivity of the system, as perceived;
F3 - Control environment;
F4 - Trust in Operational Management;
F5 - Changes in people or systems;
F6 - Complexity.

Each element in the audit universe will be quantified using these 6 factors using a numeric scale from 1 to 3 where:

1 means "probably no problems";
2 means "possible a problem";
3 means "probably a problem".

The results of these analyzes totalized and then multiplied by an "age factor" of the audit, such as:

- 100% if a similar audit has been done over the last 24 months;
- 125% if the audit was done 25-36 months ago;
- 150% if the audit was done 37/60 months ago;
- 200% if the audit is older than 60 months.

The levels of the results will be spread over a range of 6-36, which after the completion of this scoring process will be grouped into 4 categories, depending on the risk factor presented, as follows:

- the top 40% layer represents the maximum risk level;
- the 30% layer represents the level of sensitive risk;
- the 20% layer represents the moderate risk level;
- the last layer of 10% represents the low risk level.

The framework for the annual internal audit plan then constructed from 4-layer samples using the following coverage targets:

• High-risk audit entities will be audited 100%;

• The sensitive risk layer will audited at a rate of 50%;
• 25% sample will audited from the moderate risk layer;
• The low risk layer will audited by selecting 10% elements.

Please note that the risk weight determined by the importance and weight of the risk factor in the activity, and that the sum of the risk weights should be 100.

Depending on the chosen criteria, we determine the following weights:
- Internal control appreciation 30%;
- Quantitative 25%;
- Quality assessment 20%;
- Legislative changes 15%;
- Staff age 10%.

In the process of identifying the risks associated with the activities / processes, it will take into account the environment and the managerial internal control activities, respectively the existence and the functionality of the procedures. In assessing processes / working procedures, what controls are in place for monitoring and reporting, if it is lacking, the activity poses potentially greater risks than those for which procedures are being developed.

Evaluating the risk register prepared by the entity's departments, taking into account the recommendations of the General Rules for the use of factors regarding: internal control assessment, quantitative assessment and qualitative assessment, to which we may add other activity-specific factors.

Identifying and accurately and timely assessing risks will help to avoid a negative impact on auditable activity.

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THE ROLE OF CREATIVE ACCOUNTING IN "STIMULATING" FINANCIAL PERFORMANCE

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***Abstract**: The financial performance of an economic entity is its business card vis-à-vis its stakeholders, on the basis of which they make their investment, credit or other type of collaboration decisions. Information reflecting the financial performance is most often represented by the level of income and expense, the level of profit, the balance sheet asset and other intermediate and relative indicators deriving from them. The issue we are debating in this paper derives from the fact that the aforementioned figures are easily influenced by creative accounting techniques, and the financial performance assessed on the basis of this information is thus misleading. In this context, this paper aims to present the negative effects of creative accounting, to exemplify some creative accounting techniques, and how these practices impinge on performance indicators, as well as to suggest ways to protect stakeholders against accounting manipulations.*

***Key words:** creative accounting, financial performance, accounting result, accounting options, stakeholders.*
***JEL Classification:** M40, M41.*

1. Introduction

Creative accounting is a current and controversial topic, a subject of interest to both professional accountants and users of financial-accounting information.

In an attempt to decipher this "Pandora's box", as some authors have called creative accounting, opinions are among the most diverse. It is a fact that it distorts the quality of information, results and financial performance, managing to engage in its whirlwind less scrupulous managers, accountants, auditors, who, by doubtful means, seek to gain undue advantages.

Although it differentiates itself from accounting fraud by respecting the letter of the law, but not its spirit, this does not make creative creative accounting less dangerous. On the contrary, it makes it more misleading and harder to detect.

Also difficult is the battle against these practices as long as we cannot bet on the morality of those involved. Because creative accounting is a matter of ethics, of principles. It derives from the subjectivity inherent to the professional reasoning exerted in interpreting economic transactions, in establishing estimates, choosing accounting policies, subjectivity that can transform the fair view into a convenient one. The victims of this phenomenon are existing and potential investors, lenders and other creditors in the decisions they make on the basis of financial information. We draw their attention to the fact that in interpreting performance, they also turn their focus to the explanatory notes, to the cash flow statement, to a more detailed analysis of the published and available information.

2. Research Methodology

In the context in which creative accounting is seen as a problem, the subject should not be circumvented, but commented and deepened to delimit what is moral, what is immoral, the legal from the illegal, what is allowed from what is not allowed.

Approaching the subject in a positive way is far from our intentions, the purpose of the paper is not to provide ideas based on creative accounting practices in achieving the objectives of economic entities to the detriment of the interests of the users but to avert practitioners from the dangers to which they are subjected in such practices, and users of the negative implications of creative accounting on the quality of the information

presented, on the financial performance, all the more so due to the fact that more than half of the professional accountants interviewed by Cernuşca and others (2016) would not shy away from using creative accounting practices as long as they do not violate the law.

The research methodology used for the elaboration of the paper refers only to qualitative methods. The review of the literature is complemented by a critical analysis and inductive and deductive reasoning based on accounting legislation and practice.

We have used relatively recent sources of information, but also older sources. The latter, however, have not lost their validity, being used to support certain ideas. In order to elaborate the paper, we consulted studies conducted by Romanian authors that personalize the phenomenon to our country, as well as an international bibliography to give a complex approach to it.

3. Aims, means and effects of creative accounting

Creative accounting is a highly controversial and debated issue over the past decades. Many authors who have debated the subject of creative accounting have attributed different definitions to highlight its main features. Trotman, quoted by Munteanu and Zuca (2011), defines creative accounting as "a communication technique aimed at improving information provided to investors" through practices that seek to "embellish the image of the financial situation and economic and financial performance". In this context, accounting becomes "the art of selling the economic performance of the enterprise" (Pigé and Paper, 2005).

The factors facilitating the use of creative accounting are related to "the existence of options, subjectivism and gaps in norms" (Tabără & Rusu, 2011).

The motivation for recourse to creative accounting is represented by the objectives envisaged by the economic entities. The attraction of funding, irrespective of its source, the banking market or the capital market, as well as the overcoming of competition are some of the objectives generating creative accounting reasoning.

In order to attract funding, creative accounting is an important tool that helps to embellish the image of financial position and economic and financial performance (Colasse, 1996) and to improve investor information through techniques capable of generating a favorable image and the illusion of financial results that are more attractive but not real (Trotman, 1993). "Improve" here acquires the meaning of "distorting" financial-accounting information. In other words, it is misleading the stakeholders about the company's economic performance and influencing decisions that depend on the numbers reported in accounting (Healey and Wahlen, 1999). All of these statements allude to the negative and perfidious side of creative accounting, about which Jameson (1988) has no doubt.

There are numerous points of view, among the most knowledged, that the profit is an indicator, if not the "main indicator of measuring the financial performance of the entity" (Chirilă, 2004; Tulvinschi, 2013; Petrescu, 2004/2005). Thus, the main direction of action to shape performance presented in the financial statements refers to the "production" of the desired accounting result (Naser, 1993, p.59). Maximizing profits can be an objective for large listed companies and the Anglo-Saxon accounting environment for attracting investors. For the same purpose, maintaining a balance from year to year may be desirable. Suppose, exceptionally, we are in a good year for the firm. Because for the following years there are no predictions comparable results to those of the current year, it is preferable that part of the result be passed over to the following years so that too much gaping from one year to another does not trigger an alarm and not produce a negative impact on the business. This strategy is known in the literature as profit / income / earnings

smoothing. On the other hand, the minimization of the outcome can be considered for the purpose of reducing taxation.

There are also techniques that improve the company's liquidity or reduce costs or indebtedness (Groşanu, Răchişan and Berinde, 2012; Feleagă, 1999).

Last but not least, creative accounting is also manifested through the manipulation of the information presented in the explanatory notes to financial statements. There are parts in the explanatory notes where more or less information can be included. Lack of relevant information can hide poor performance, which can affect external users' decisions.

Among the effects that the use of creative accounting techniques can have on financial statements are (Tabără & Rusu, 2011):

- Changes in the value and structure of expenses and revenues and, implicitly, in the accounting result, and the effect is propagated in chain until the value and structure of the equity and all the calculated rates are changed;
- Changes in the value of current and non-current assets, as well as indicators calculated on the basis thereof.

In other words, creative accounting distorts the results and financial position of the enterprise and leads to the creation of an altered impression of business performance (Mulford and Comiskey, 2009).

4. Creative accounting techniques

Creative accounting makes use of "a mix of practices to the limit of legality" (Colasse, 1996). Romanian auditors who responded to a study by Balaciu and others (2012) asserts that the most common creative accounting practices relate to: recognition and measurement of provisions; amortization and depreciation of fixed assets; valuation of stocks, but the other practices suggested in the questionnaire were identified by Romanian auditors as being the object of creative accounting: development expenditures; revaluation of tangible assets; financial assets; recording revenue / expenses in advance as income / expense of the period. Other practices of maximizing or minimizing profit, as the case may be, from which we mention the registration of construction contracts.

We will show how the depreciation of fixed assets and the recognition of development costs affects the financial performance, explaining the impact that these options have on the accounting result, the treasury, and further on investors and other users.

Amortization of fixed assets

Accounting policies, options and estimates for depreciation of assets refer to:

- estimating residual value;
- depreciation method (linear, accelerated, degressive)
- estimation of the normal use time.

Linear depreciation has the effect of smoothing the results. This is why "listed companies prefer the linear depreciation of fixed assets" (Penno and Simon, 1986). In order to verify whether the claim is currently being verified and if it's verified in our country, we conducted a survey among listed companies on the regulated market of the Bucharest Stock Exchange. Thus, we consulted the financial statements and explanatory notes of 87 companies for the year 2017. Of the 87 companies observed, one does not own tangible assets, leaving 86 in the observed group, of which 78 apply the exclusively the linear method. The remainder of 8 also opt for linear depreciation, and for some of the fixed assets they apply the accelerated, degressive or depreciation method per product unit. This confirms the hypothesis of Penno and Simon.

Degressive depreciation is economically justified by the fact that for some fixed assets depreciation is higher in the first exercises than at the end of their life.

Accelerated depreciation proposes an aggressive approach, by which through aggressive treatment, we understand the treatment that leaves its mark on the variation of the result visible both in the direction of growth and in the sense of its decrease. 'As calculated depreciation has to be correlated with the use of the asset and, as there are rare situations when a corporeal asset is consumed in the first year by up to 50%, it follows that the accelerated depreciation method is less used for accounting purposes '(Man, Dima and Minea, 2011). We can therefore infer what the strategy of an entity that uses this depreciation method is - the reduction of the result, the taxable base, the tax on profit, in fact. Therefore, just as a measure of prevention for this kind of reasoning in the past, 'the use of the accelerated depreciation regime is approved by the Ministry of Finance at the proposal of the General Assembly of the Associates.' (Ristea et al, 1995).

The degressive method, and moreover the accelerated method, allows for tax savings in the early years.

Due to these variations between the effects of depreciation methods and the lifetime and residual value of property, plant and equipment that affect the entity's performance, some indicators that do not take into account depreciation, such as gross operating profit or EBITDA, are calculated.

Research and development expenditures

"The distinction between research spending and development spending creates prerequisites for the manifestation of accounting creativity. Thus, a company that uses a development capitalization policy may increase or decrease the result of an exercise by simply reclassifying the expenses in the research category, in which case the profit or loss account is affected or in the development category, in which case the balance sheet is affected. Additionally, the company may invoke at any time uncertainties about the completion of the project to offset the development expenses on the balance sheet in the profit and loss account. Moreover, some referentors allow a reactivation of these expenditures when the uncertainties disappear." (Feleagă and Malciu, 2002)

The effects of the change in accounting policy on research / development expenditures on the outcome are highlighted by Smith (1992) who cites the example of British company Cray Electronics which in 1989 published a £ 17.03 million benefit. As a result of the review of accounting policies in R & D spending, by their full inclusion in the profit and loss account, the benefit of the exercise diminished to £ 1.33 million (Feleagă and Malciu, 2002).

To highlight the effect that recognition of expenditures as research or development spending has on user judgment and decision, McGee (quoted by Amat and Blake) has prepared financial information for two companies. In fact, the information was identical, with the only difference that one of the companies capitalized development costs and the other put them in the profit and loss account. The information was used in two ways (Feleagă and Malciu, 2002):

a) A sample of bank analysts were divided into two groups: the first group received the financial statements in the capitalization of development expenditures and the second group the financial statements in the case of the recording of the development expenses in the profit and loss account. Among the questions addressed to the two groups were the following: Would you give this company a credit line? If so, at what interest rate? Would you give this company a $ 2 million loan? If so, at what interest rate?

b) Another sample of bank analysts received both sets of financial statements. These analysts were asked to compare the two companies. Among the questions addressed to this group, we mention: Which of the two companies do you prefer? Would you like to give your company a $ 3,000,000 credit? What is the risk that this company will not repay the loan? The answers of the interviewed subjects are summarized in the following table.

Table 1. Banking analyst decisions on policy to capitalize development expenditures or write them down in current expenses

		Capitalized development expenditures	Development expenditures written in current expenses
Group 1	No credit line is provided	25%	57%
	Average interest rate	12,556%	12,974%
	A $ 2 million loan is granted	50%	30%
	Average interest rate for $ 2 million	13,165%	13,474%
Group 2	The preferred company	62,2%	11,1%
	A $ 3 million loan is granted	61,4%	27,3%
	Average default risk	23,5%	46,2%

Source: Feleagă and Malciu, 2002.

From the answers presented, it can be noticed that in the case of the capitalization of the development costs, the entity can get more advantages, its image among the creditors being better. From this example, it is clearly seen how banking analists, pertinent and experienced users, we can say, "are seduced by higher results" (Feleagă and Malciu, 2002), obtained only by choosing a more favorable accounting treatment. We can say that the limit of this study was the lack of explanatory notes, additional information, but the figures convey the first impression and are often the only information read.

The capitalization of development spending policy has effects on cash-flow. Thus, "companies capitalizing on the expenditures of developing software programs will report capitalized amounts as payments related to the investment activity and not to that of exploitation. Therefore, a company that capitalizes on a larger portion of costs will have a higher value of operating cash flow than companies that spend all the costs associated with software development (Ivan, 2015)".

5. Protecting stakeholders' interests

Before finding mediators of the conflict of interest that exists between management and other stakeholders, we draw the attention of the latter to the fact that the accounting result will not be identified with the cash and cash equivalents actually outstanding after the receipts and payments. It can even come to the fact that, despite the fact that the result is extremely attractive, the company can not handle payments, which means that a higher result will not guarantee higher dividends for shareholders, especially as it was forcibly obtained. Therefore, investors' attention should also be directed to the cash flow statement and liquidity ratios, and more importantly, we recommend comparing net cash flows with net profit to trace creative accounting by "non-generating cash expenses and income, as well as items of assets and liabilities that defer receipts and payments" (Ivan, 2015), but we do not have to make hasty conclusions because this difference occurs primarily on account of accrual accounting. However, comparing net cash flows with net profit "highlights the net profitability of generating cash" and determines the difference between "calculated and actual performance" (Achim and Borlea, 2012).

Howard Schilit (2003, p. 203) states in a study that by comparing cash flows with profit, we should get an alarm signal in the event of a large discrepancy. Reporting

negative or small cash flows under a high operating result may generate suspicions about the quality of revenue and expenditure and may be a sign of the use of creative accounting. More specifically, "in order to detect the high incomes that do not bring cash, it is recommended to examine the relationship between cash flows from operating activities over a period and net income: if net income has a positive value, while treasury flows of the exploitation activity are negative, there is a likelihood of manipulation of the results by the leadership" (Ivan, 2015).

Audit has a vital role to play in supporting investors' interests. "The economic role of the audit is to reduce the risk of the investor" (Ionascu, 1997). Financial audit ensures the credibility of the financial statements. Audited information is more credible and more useful in the decision making process for key users - the investors. "An important role of the financial audit is to provide the public with confidence that the information disseminated in the financial statements corresponds to the reality of the reporting entities, in other words, they reflect a fair view of the entity's assets, liabilities, financial position, profit or loss (Toma, 2012)"**.**

Transparency requirements are a concretisation of the accounting information function. Improving this function is a major direction for action in accounting practice. Transparency practices are key elements in gaining investor confidence and have an essential contribution to the success of fundraising operations through the capital market.

6. Conclusions and suggestions

The presented techniques demonstrate the hypothesis that "accounting truth is not an absolute but rather a built one" (Firescu, 2014), especially when talking about the accounting result. The cash flow is a more objective indicator, so it is also recommended to study it in parallel with the operating result. An excessive discrepancy between these values may be a sign of creative accounting.

Creative accounting is, from the point of view of top managers, interested in the reputation of the company, a saving solution in situations where things do not go smoothly and is regarded as a negative aspect by those interested in the real performance of the company that can lose from creativity in accounting, because their decisions are based on attractive but unrealistic financial performance. We noticed in Chapter 2.2. that the bank analysts, informed users, let themselves be seduced by higher results. Creative accounting is therefore a skillful weapon used by managers in the conflict of interest that exists between them and other stakeholders, but the latter can use as a defense a more detailed analysis of performance, a more in-depth study of the explanatory notes, and last but not least, we put our trust in audit, corporate governance and transparency as ways of mediating conflict of interest.

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THE ROLE OF ENTREPRENEURSHIP AND THE BUSINESS ENVIRONMENT IN SUPPORT OF SUSTAINABLE DEVELOPMENT

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Abstract: *Starting from the fact that the economic development model is centered on the small and medium-sized enterprise, the paper aims to present the role of the business environment and the entrepreneurial spirit at national and European level in support of sustainable development of the EU's effort to support entrepreneurship initiatives and the competitiveness of SMEs, the organizational framework of their development in the vision of the EU and Romania, initiatives aimed at facilitating access to finance for SMEs and the development of youth entrepreneurship through universities. It will consider and formulate proposals to increase the contribution of SMEs to promote sustainable development, having as a starting point matters resulted from official sources such as EUROSTAT, The National Institute of Statistics, White Charter of the National Council of Private Small and Medium Enterprises in Romania.*

Keywords: *SME, business environment, entrepreneurship, entrepreneurial university*.
JEL Classification: *A11, A23, B22.*

1. The organizational framework for the development of SMEs in the European Union vision

SMEs have an important place in the EU vision as it supports the small and medium-sized enterprise as a central element of the economic development model due to the following arguments found in the literature:

- the ability of SMEs to stimulate competition and develop entrepreneurship;
- productive flexibility of SMEs. There are studies showing that the flexibility of enterprises by size category varies inversely with the size of the enterprise;
- the significant contribution of SMEs to increasing employment due to the reduced costs associated with job creation.

The EU's approach to business development is marked by several stages. Thus, the support of the SME sector within the EU was based on Article 157 of the Treaty of Establishment of the European Community (1957), which stipulated that the Community and the Member States would aim to ensure "an environment favorable to enterprise and enterprise development throughout the Community and, in particular to small and medium-sized enterprises. A program of priority actions supporting the European business environment was established for the period 1994-1999 and the Lisbon Strategy of 2000 set the key objective of transforming the EU by 2010 into a knowledge-based, competitive, dynamic growth economy, with more jobs and greater social cohesion. Starting from the Lisbon Strategy, in June 2000, the European Council adopted the European Charter for Small Enterprises which facilitated the entry into force in December 2000 of ***The Community Enterprise and Entrepreneurship Program for the period 2001-2005,*** in particular for small and medium-sized enterprises in order to promote entrepreneurship and business development. In the Recommendation of the European Commission 2003/361 / EC the definition of SMEs at EU level is foreseen. In June 2005, the Small Business Act (SBA) was published to recognize the central role of SMEs in the EU economy, namely to contribute to the process of economic and social cohesion and to support innovation. The Small Business Act promoted the "think small" principle in order to support entrepreneurship as an instrument of economic development.

Among the measures adopted in the EU aimed at supporting entrepreneurial initiatives and increasing the competitiveness of SMEs were: the entry into force in 2007 of the Competitiveness and Innovation Framework Program 2007-2013, the development in 2005-2011 of the financial system of the EU member states meant to facilitate the access of small and medium enterprises to financing. The 5 Structural Funds and European Investment Funds have as areas the economic competitiveness increase by the development of the business environment for the 2014-2020 period through Priority Axis 2 improving the competitiveness of small and medium enterprises within the European Regional Development Fund ERDF which addresses several key priority areas, including "support for SMEs".

The main European initiatives for sustainting the financing of business environment are:

- The Communication An action plan to improve access to finance for SMEs recognises that Europe's economic success depends largely on the growth of SMEs but that difficulty in accessing finance is the main obstacle to their growth.
- The 2014-2020 programme for the Competitiveness of Enterprises and Small and Medium-Sized Enterprises (COSME) will make it easier for SMEs to access loans and equity finance.
- The 2007-2013 Competitiveness and Innovation framework Programme (CIP) financial instruments helped SMEs raise equity and debt financing.
- COSME financial instruments will operate in conjunction with those of the Horizon 2020 Framework Programme for Research and Innovation: InnovFin – EU Finance for Innovators
- The SME Instrument of the Horizon 2020 Framework Programme for Research and Innovation offers funding and support for innovation projects that help SMEs grow and expand their activities into other countries.
- ERDF - the European Regional Development Fund aims to strengthen economic and social cohesion within the EU by correcting existing imbalances between its regions. It focuses its investments on key areas, namely innovation and research, digital agenda, support for SMEs, the low-carbon economy.
- The European Social Fund allocates important amounts for the development of human capital with an emphasis on the thematic objectives of cohesion policy: jobs for young people, supporting human resource mobility, promoting social inclusion and combating poverty, investing in education, skills training and lifelong learning and strengthening institutional capacity and the efficiency of public administration.

Under the current conditions, the university has an important mission in terms of developing innovative and entrepreneurial character in the sense that employees and students are encouraged to show entrepreneurial and innovation spirit and creativity in research, teaching. The University can have an entrepreneurial component through the way of building the organizational capacity, through resource management, through the involvement of stakeholders in administrative work, leadership, through the way of supporting the synergy between teaching, research and social involvement, through support for start-ups, through the exchange of experience and information to improve engagement with market firms.

The tool by the European Commission in 2018 through the General Direction for Education and Culture in collaboration with the OECD-LEED Forum and with the support of an independent expert group is called HEInnovate. This tool has been applied to over 450 universities at European level, of which 26 universities in Romania. This instrument aims to innovate and increase the visibility of entrepreneurship education in higher

education. Higher education institutions are assisted in identifying priorities and planning actions in three key areas: entrepreneurial teaching and learning, entrepreneurs training and support and knowledge sharing and collaboration.

Another tool of the European Commission is the Erasmus for Young Entrepreneurs Program aimed at informing the participants about the many opportunities offered by the common market as well as ways to overcome the market / business barriers. This helps aspiring European entrepreneurs to develop the skills needed to start and / or successfully run a small business in Europe. New entrepreneurs meet and exchange knowledge and business ideas with an experienced entrepreneur with whom they do an internship and collaborate for a period of 1 to 6 months. The exchange is partly funded by the European Commission.

2. Characterization of the Romanian business environment

According to the European Commission Country Report (2018), the business environment in Romania has deteriorated. Romania dropped 9 steps in World Bank Doing Business 2018 to 45th place (World Bank, 2017a), and in its Global Competitiveness Report it dropped to 68th place (World Economic Forum, 2017). The economic growth is sustained by domestic demand, by private consumption. Inflation will affect actual disposable income and the private consumption is still the main driver of growth. The contribution of investment to GDP growth has been largely modest in recent years. The unemployment rate is 4.9%, the lowest level for more than 20 years.

Innovation and Entrepreneurship are key pillars of the economic growth strategy, as the study shows that 40% of European employers say they do not find people with the right skills to enable companies to be innovative and develop.

The results are poor in terms of governance, skills, infrastructure, health and education. The time required to start a business varies between 12 days and 25 days. The 3.3-year insolvency case has remained stable since 2008, being one of the longest in the EU (The European Commission, 2017e). Further measures are needed to encourage SME entrepreneurship initiatives through greater capitalization, simplification of the insolvency framework and financing sources supported by EU financial instruments (EIB). SMEs rely heavily on the banking system. The increase in the number of companies is slowed by the lack of clear legislation, the lack of qualified staff and the low level of innovation. Entrepreneurs do not have access to business mentoring and school curricula are not tailored to the needs of future entrepreneurs.

Romania is a modest innovator with results below the EU average. Business investment in R & D is modest although the government has adopted in 2016 measures to stimulate private R & D investment by exempting income tax on certain R & D activities and employees in newly established businesses with main object of activity: software development (CE, 2017a). The degree of digitization of the economy is low, although we have the highest rate of penetration of high-speed broadband in the EU (fixed and 4G). The digital competences of the population as a whole are among the lowest in the EU (29% of Romanians have only basic digital competences - Digital Economy and Social Index, 2018). There is the regional development plan for 2014-2020 and the Scoreboard of the Cluster Observatory for Western Romania that identifies ICT as one of the most relevant generic technologies essential for the Western Region. The Regional Intelligence Specialization Strategy (RIS3) aims to improve the research – development – innovation capacity of SMEs in all aspects and to establish 6 priority sectors where the region has a

competitive advantage (automobiles, ICT, agro-food industry, textiles, construction and tourism). Some interesting business opportunities for SMEs are large data volumes and 3D printing.

Regarding the labor market, the report highlights the fact that labor supply and skills do not keep up with the changing needs of the economy. Aging population, limited internal labor mobility, continuing emigration are obstacles in ensuring economic growth. The labor market participation rate is below that of the EU, especially for women, elderly people, Roma, young people, people in rural areas. There is a lack of middle and high level staff in the engineering, machinery, information technology and services sectors. In 2016, 72% of employees faced difficulties in filling vacant posts. The rate of young people who are not enrolled and who do not have any NEET training or training program is high. NEETs are inactive workers. They could access the Youth Guarantee programs under the EU initiative "Jobs for Young People". Vocational training is not prioritized and is not adapted to the needs of the labor market. Education and training are not sufficiently aligned with the needs of the labor market. Public spending on education is among the lowest in the EU at all levels of learning. The tertiary education graduation rate is one of the smallest in the EU (25,6% in Romania versus 39,1% in UE-28). The graduation rate in rural areas is 8 times lower than in large cities. The quality and relevance of the education and training for the labor market remain largely insufficient. Universities face problems in attracting and retaining students in education systems in the context of diversifying the abroad supply, but also in the interest of students to engage immediately after high school or during the faculty. The employment rate of young graduates has fallen by 7% in the last 3 years. This is why universities should encourage students to get orientated also to entreprenurial domain**.**

According to the conclusions of the White Paper on SMEs in Romania 2017, survey conducted by the National Council of Small and Medium Private Enterprises from Romania – NCSMPE on a representative sample of 826 entrepreneurs, the main difficulties in the activities of SMEs in Romania are: unfair competition, bureaucracy, falling domestic demand, excessive taxation, rising wage costs, excessive controls. Between 2010 and 107, the economic environment was perceived by Romanian entrepreneurs more and more as a favorable business environment. (the perceived environmentally friendly business environment grew from 3.79% in 2010 to 26.63% in 2017).

According to data provided by INS, at the end of 2016, in the industrial sector, small and medium enterprises accounted for 99% of all enterprises. The number of small and medium - sized enterprises has decreased from 176.033 in 2014 to 169.523 in 2016. SMEs held 50.1% of the employed persons and accounted for 36.7% of total turnover, 46.4% of total net investment. The structure of financing sources for SMEs covered 91.9% own sources; 5.6 % domestic credits; 1.2% external credits; 0.1% state budget and local budgets; foreign capital 0.2% and other sources 1.0%. Gross value added at factor cost was obtained in 2016 by 33.4% in small and medium-sized enterprises. Gross value added per employee, *apparent productivity*, during 2014-2016 registered lower levels in small and medium enterprises than in all enterprises. The gross result of the exercise (profit) recorded by 2016 by small and medium-sized enterprises was 24%. At the level of the analyzed period, a relatively linear evolution of all economic and financial indicators is observed.

Table no. 1. Evolution of SME contribution to the main economic and financial indicators for 2014-2016 in industry (%)

Indicators	2014	2015	2016
Number of enterprises	99	99	99
Average number of employees	80	79	78
Turnover	35	36	36
Production of the exercise	34	33	35
Direct exports	17	17	17
Gross value added at cost of factors	32	31	33
Staff costs	34	35	37
Gross operating surplus	29	27	27
The gross result of the exercise	5	17	24
Net investments made	42	39	46

Source: Authors processing after Elena Mihaela Iagăr (coord) - Small and Medium Enterprises in the Romanian Economy, year 2016 INS, 2018, p.13.

In the construction sector, at the end of 2016 there were 49,717 enterprises, of which 99% were small and medium enterprises. Of the total number of staff at the end of 2016, small and medium-sized enterprises accounted for 86.4%. In the small and medium enterprises, 81.8% of the total turnover was achieved. In the total of net investments made in 2016, small and medium-sized enterprises accounted for 79.8%. For SMEs, the funding structure comprises 89.2% of its own sources; 5.8% domestic credits; 0.1% external credits; 4.2% state budget and local budgets; other sources 0.7%. Gross value added per employee, apparent productivity, betwee-n 2015-2016 has seen higher levels in small and medium-sized enterprises than in all enterprises.

Table no. 2. Evolution of the SME contribution to the main economic and financial indicators in the 2014-2016 period in construction (%)

Indicators	2014	2015	2016
Number of enterprises	99	99	99
Average number of employees	85	85	85
Turnover	82	81	81
Production of the exercise	82	81	80
Direct exports	56	68	50
Gross value added at cost of factors	74	86	87
Staff costs	74	75	76
Gross operating surplus	74	102	101
The gross result of the exercise	97	89	96
Net investments made	52	60	79

Source: Editing authors after Elena Mihaela Iagăr (coord)- Small and Medium Enterprises in the Romanian Economy, year 2016 INS, 2018, p.87.

During the analyzed period there is an evolution with important differences in the gross value added indicators at the cost of the factors and the net investments made, the remainder of the indicators having a relatively linear evolution.

In the year 2016 in trade, 99.9% of all enterprises were small and medium enterprises, 78.3% of the personnel work in the SME and 69.5% of the total turnover. In total net investments made in 2016, small and medium-sized enterprises accounted for 70.5%. For SMEs, the structure of funding sources comprises 86.9% of its own sources; 8.0% domestic credits; 0.1% external credits; 0.1% state and local budget; 0.1% foreign capital and 4.8% other sources. Gross value added at factor cost was obtained in the proportion of 70.0% (44581 million lei) in small and medium enterprises. Gross value

added per employee, apparent productivity, was lower for SMEs than for total enterprises over 2014-2016.

Table no. 3. Evolution of SME contribution to the main economic and financial indicators for 2014-2016 in trade (%)

Indicators	2014	2015	2016
Number of enterprises	99	99	99
Average number of employees	80	79	78
Turnover	70	70	69
Production of the exercise	70	69	67
Direct exports	77	79	83
Gross value added at cost of factors	72	70	70
Staff costs	68	69	68
Gross operating surplus	75	71	71
The gross result of the exercise	74	76	72
Net investments made	72	74	70

Source: Editing authors after Elena Mihaela Iagăr (coord)- Small and Medium Enterprises in the Romanian Economy, year 2016 INS, 2018, p.97.

In the service sector, in the year 2016 there were 226729 small and medium-sized enterprises and 530 large enterprises. Of the total of 227259 enterprises, 99.8% were small and medium-sized enterprises, 68.3% of the employed persons were working in SMEs. In the small and medium enterprises, 69.2% of the total turnover was achieved. In the total net investments made in 2016, small and medium-sized enterprises accounted for 73.7%. For SMEs, the funding structure comprises 90.7% of its own sources; 6.0% domestic credits; 0.4% external credits; 0.6% state budget and local budgets; 0.6% foreign capital and other sources 1.7%. Gross value added per employee, apparent productivity, over the period 2014-2016, registered lower levels in SMEs than on total enterprises. The gross result of the exercise in 2016 was achieved in the proportion of 76% in small and medium-sized enterprises.

Table no. 4. Evolution of SME contribution to the main economic and financial indicators for 2014-2016 in trade (%)

Indicators	2014	2015	2016
Number of enterprises	99	99	99
Average number of employees	67	67	67
Turnover	69	69	69
Production of the exercise	69	68	68
Direct exports	42	33	37
Gross value added at cost of factors	60	59	60
Staff costs	53	52	54
Gross operating surplus	67	68	69
The gross result of the exercise	68	77	76
Net investments made	69	69	73

Source: Editing authors after Elena Mihaela Iagăr (coord)- Small and Medium Enterprises in the Romanian Economy, year 2016 INS, 2018, p.107.

Regarding the dynamics of enterprises in the years 2017 and 2018, according to the official data of the National Trade Register Office (ONRC), in the first 6 months of 2018, the number of new start-ups was 9.81% lower than in the same period of 2017.

Among the causes that have led to this situation are the increased instability of tax legislation registered in the first 3 calendar months of 2018, the very large volume of normative acts adopted. According to CNIPMMR, in the first 90 days of 2018, the business environment was forced to implement 217 new regulations amending /

completing Law no. 227/2015 on the Fiscal Code, 97 even from the first day of the year, and another 120 adopted at very short distances, to which were added important amendments to the Fiscal Procedure Code and the Legislation on Compulsory Contributions**.** According to the same source, the negative effects of changes in tax legislation on SMEs are: increased bureaucracy for taxpayers and employers, rising human resource costs, difficulties in implementing legislative changes due to the short time span of implementation, consistent additional financial effort to update computer programs.

Changes to the tax system have significantly influenced predictability, the most important factor in substantiating the investment decision with an impact on the growth of SMEs, jobs, innovation, commercial and financial performance.

3. Measures adopted in Romania for SME financing and proposals on supporting the Romanian business environment

Romania's effort to support the business environment and, in particular, the financing of SMEs has resulted in the implementation of 6 multiannual programs to support economic agents by the Agency for the Implementation of Projects and Programs for SMEs (AIPPSME), the development of the state aid scheme dedicated exclusively to the development of SMEs set up in 2010 by the Ministry of Public Finance, the establishment of the Romanian Guarantee Fund in 2009 the development of the state aid scheme dedicated exclusively to the development of SMEs set up in 2010 by the Ministry of Public Finance, the establishment of the Romanian Guarantee Fund in 2009. In 2017, the Ministry for the Business, Commerce and Entrepreneurship Environment was set up as an institution of the Romanian government implementing the Strategy and Program of Governance in the SME field, the business environment, trade, entrepreneurship and foreign investment in line with market economic requirements and to stimulate the entrepreneurial initiative of economic operators.

The Ministry for the Business, Commerce and Entrepreneurship Environment has developed the Regional Agency for SMEs, has assured the promotion of Romania's business offer at global level, has adopted the law of the public-private partnership. The areas of interest of the Ministry of Business, Commerce and Entrepreneurship in the business and entrepreneurial environment were:

- supporting the development of SMEs and entrepreneurship through the Entrepreneurship and Programs for SMEs http://www.aippimm.ro;
- regulations of the business environment through the Business Environment Directorate (http://www.imm.gov.ro/mediul-de-afaceri);
- attracting FDI through InvestRomania http.//www.imm.gov.ro/investitii-straine

The Ministry for Business, Commerce and Entrepreneurship coordinates the implementation of the following programs that support business and entrepreneurship: Romania Start-Up Nation, Program for the Development of Entrepreneurship among Manager Women in the SME sector, UNCTAD/EMPRETEC Program - Romania to support the development of SMEs, program implemented in 35 countries in Central America, Latin America, Africa and the Middle East. Romania is the first country in Europe involved in this project, which is to provide assistance to a minimum of 100 beneficiaries, individuals, existing or potential entrepreneurs, top management, specialists from public and private organizations who want to develop entrepreneurial or managerial behavior. Other programs include the Microindustrialisation Program, the Trade and Services Program for Craftsmen and Handicrafts, the Internationalization Program.

The operational programs managed by the Ministry of European Funds that support the business environment, human capital development, fast labor market integration and

the share of budget allocations are: Large Infrastructure Operational Program (LIOP) with 21,5%, Human Capital Operational Program (HCOP) with 19,71%, Operational Program Competitiveness (OPC) with 21,65%, Operational Program for Assistance to Disadvantaged Persons (OPADP) with 26,71% and Operational Program Technical Assistance (OPTA) with 38,18%.

Financing of economic growth, innovation and job creation in SMEs is now again brought to the attention of the European Parliament through the rules governing the union of capital markets. These rules will allow SMEs to an easier access to public markets through so-called "growth markets for SMEs", new trading venues for SMEs. Securing a stock exchange will help SMEs reduce their financial dependence on bank financing which is currently the majority in Romania. It is expected to amend two key legislation on financial services, namely the Market Abuse Regulation and the Prospectus Regulation. This review will strike a balance between reducing bureaucracy for small businesses, safeguarding market and investor integrity, and allowing competent national authorities to adapt market practices to local conditions. This will ensure a minimum level of liquidity and will reduce the volatility of SMEs' shares. A new initiative is focused in particular on growth markets for SMEs, by listing SMEs and issuing securities, guaranteeing investor protection and integrating the market.

CNIPMMR, the strongest employers' organization in South-Eastern Europe, based on the provisions of the Government Program 2017-2020, UE Strategy 2020, EU funding program 2014-2020 and Small Business Act has made some proposals regarding the support of the Romanian business environment, namely the establishment of Bucharest Business Agency, the project Capital of Romanian Entrepreneurship, a premiere at European level, a program launched in 2017, an initiative of CNIPMMR together with the Association of Municipalities in Romania and supported by all business organizations in Romania with the aim of encouraging the entrepreneurial spirit at the level of the municipalities in Romania, of establishing support measures for the business environment at the local level, establishing support measures for the business environment at the local level. The selected capital is supported by the organization of events dedicated to the business environment, organizing meetings to promote entrepreneurship among students and known entrepreneurs, mentoring programs among pupils and students, providing know-how by successful entrepreneurs. Other proposals target the concept of "Digital Romania" characterized by free electronic signature, entrepreneurial education with digitization modules, e-schools, e-citizens, digital-SMEs, including support for digitization in future financial programs or neutral legislation and technological intelligence.

Integration of digital technology at the enterprise level must be seen as a necessity for supporting the business environment. Romania is at the end of the European ranking in this respect. According to the country report, in Romania, SMEs only sell 7.7% of online products and services (27th place), the turnover of SMEs in e-commerce is 5.2%, (25th place). Romania does not yet have a clear digitalization strategy, although at the policy level was launched in 2016 the Manifesto for Digital Romania.

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DISCRETIONARY VERSUS AUTOMATIC STABILIZATION IN RELATION TO INDICATORS ASSOCIATED WITH NOMINAL ECONOMIC CONVERGENCE CRITERIA

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Abstract: *About economic convergence has been written a lot, especially about the nominal one. The nominal economic convergence criteria of the Maastricht Treaty as they are known and imposed on countries wishing to join the Eurozone are both controversial in the academic world, with voices calling for either their relaxation or completion, or at least for a better calibration of them. Without starting from redesigning, the article aims to analyse in its current form which is most effective: discretionary stabilization or the design of a mechanism rather automatic in reaching the thresholds imposed by the Maastricht criteria? The arguments formulated in this article and the results obtained can guide us towards the use of an automatic type of stabilization mechanism.*

Keywords: *convergence, macroeconomic stabilization, European integration.*
JEL Classification*: E63, E32.*

1. Introduction

As we know, to become part of the euro area, the EU member states must go through the stage of meeting the nominal convergence criteria imposed by the Maastricht Treaty. Currently, 19 EU Member States are also members of the euro area, and another 9 states have not yet adopted the European currency. Britain and Denmark have notified their non-entry to the third stage of Economic and Monetary Union (EMU), and the UK has also voiced its exit from the European Union via a 2016 referendum. Thus, only 7 states, especially those from Central and Eastern Europe, can run for entry to the euro area.

At the same time, there is the question of constancy or sustainability in respecting the nominal economic criteria, knowing that once the European currency is adopted, euro area member states no longer bear the burden of strict adherence to them, they beeing rather a simple set of "entry" criteria. In addition, the sanctions that could be administered to these countries, amid the over-lapping of the budget deficit and public debt criteria, are often remaining in expectation, especially for the old countries which stood at the base of the formation of the EU and the euro area.

At present, compliance with the nominal economic convergence criteria is made by each Member State individually and under discretionary terms, more exactlly through explicit and indirect policies, mechanisms and measures, when it maybe more appropriate the implicit and indirect, non-discretionary or automatic policies, measures and adjustment mechanisms at both EU and Member State levels. Thus, in a first phase, we can raise the question of the necessity of automatic stabilization or better said of the compliance with the nominal economic convergence criteria and of their maintenance by automatic mechanisms. This is the subject of this article and this has not been done yet.

2. Description of the Problem and Literature Overview

The profile literature is extremely rich both in terms of convergence and automatic stabilization, but the grouping of the two subjects, however intense it seems, has not been achieved so far.

In the exogenous neoclassical growth model of Solow (1956), a steady state towards which an economy converges is due to decrease returns to investment in physical capital, assuming that countries are equal in all issues except their initial point of per capita capital. Thus, poor countries have higher marginal productivity of capital than rich countries,

growing much faster than rich countries, proces ending only when the outputs per capita of the two set of countries is equal (absolute convergence hypothesis or Beta-convergence). But, in reality, in the empirical studies, growth rates per capita show little correlation with the starting levels of GDP per capita (Barro, 1991; Barbone and Zalduendo, 1996). This is because, in reality, a great variety between countries exists with regard to the growth relevant factors and because each country may have its own growth steady level. Taking into consideration in the Solow's model of the integration process, this should accelerate the convergence as capital should go to the poor countries in order to obtain higher returns. But in the long term the model will lead to an unaltered steady growth path.

Another approach, named endogenous growth theory (Romer, 1986; Abramowitz, 1986) sees the economic integration process as a generator of increasing scale effects, having a positive impact on the growth for old and new member countries (Landau, 1995, Henrekson, Torstensson and Torstensson, 1997). Looking to the new accesion countries of EU against those which entered in the EU erlier, led us to the conclusion that the new members have been prepared more adequately for the enlargement and adding the impact of structural funds, it can be said that the new accession countries face an opportunity to achieve a much faster convergence process in order to reach the income level of the EU (Varblane and Vahter, 2005). But in this view, the large-scale effect depends on research and development, knowlege and human capital accumulation, institutional framework, technological and investitional absorbtion capacity, infrastructure and social capability. This is why, not only convergence but also the divergence concept might have sense, especialy for the new countries of European Union.

Linking the aspect of integration with the aspect of stabilisation can be seen fugitive in some particular empirical works, where the macrostabilisation policies (including for achieving the nominal convergence, especially for limiting inflation) was made on the expence of the reduction of the number of employees, on the decrease of the wage bill, on the reduction of the aggregate demand and on the incomes of the population. But the reduction of the income of the population, inequality problem (Caminada, Goudswaard and Wang, 2012) and mitigating the transition and economic crisis effects are the favorite subject of automatic stabilization area. Also, in many studies the production, the degree of openness and the size of public sector are analysed also through the lenses of automatic stabilization (Auerbach and Hassett, 2002). In general, the battlefield between discretionary (Romer and Romer, 1994) and non-disretionary policies (Van der Noord, 2000; Baunsgaard and Symansky, 2009) concerns the fiscal field, but the most interesting might prove the monetary field or, even better, the integrated fiscal and monetary approach.

The appearance of strong negative externalities of convergence indicates the need to understand the convergence process from the knowledge of the criteria, its critical judgment, the understanding of the stabilization concept and the concept of automatic stabilization, as well as the limits of automatic and discretionary stabilization.

3. Data Sources and Methodology

The paper proposes a theoretical, critical and, at the same time, new approach, linking the issue of stabilization and, in particular,of the automatic stabilisation with the aspect of economic convergence, and here we will refer strictly to the criteria of nominal economic convergence imposed by the Maastricht Treaty. Critical analysis is based on the definitions outlined in the Treaty, surprising aspects that can be improved. At the same time, starting from their official definition, we can suggest elements regarding the necessity, possibility and opportunity of stabilization through discretionary or automatic mechanisms.

4. Results Obtained – critical aspects of the nominal economic convergence criteria but also the expression of the necessity, possibility and opportunity of their automatic stabilization

It should be noted that the institutional entity that evaluates and monitors the stage of nominal economic convergence is the European Central Bank through the regular convergence reports on the candidate countries to the euro area. It is interesting to analyze why the euro area Member States are not further assessed at the same level as newcomers or candidate countries. This would reveal whether and to what extent the nominal convergence criteria are solid or not, providing important milestones for convergence or vice versa once they have met, removes or might remove the Member States from the idea of convergence. Another important point that needs to be mentioned is that although convergence is specified in the Treaty is not the ultimate goal - the argument for the establishment of the EU and the euro area – thus, convergence remains a simple way to be followed. This is highlighted by the fact that convergence can not be an end in itself but in the idea of finalizing a stage of integration. Also, integration itself is relevant only in the context of a higher purpose, such as the harmonious sustainable development of all Member States, the achievement of a high degree of prosperity for citizens, or the creation of a major pole of global economic and financial power or allof the above, etc. The absence of the final destination of the European convergence process involves the natural confusion of the metaphor of geting into the subway without knowing the station where you have to get down, pendulating between stations and never reaching the final destination.

But let us first recall the nominal economic convergence criteria to be able to guide us properly in the plea for automatic stabilization.

Nominal economic convergence criteria can be considered to be divided into monetary and fiscal-budgetary criteria. Monetary measures address to the subject inflation, long-term interest rate and exchange rate, and fiscal-budgeting criteria refers to public debt and general government deficit.

The inflation criterion refers to the compliance with the ceiling of the arithmetic mean of inflation of the first three Member States with the lowest inflation rates, analyzed over a one-year period prior to the examination, to which is added 1.5 percentage points (pp).

The long-term nominal interest rate criterion refers to the fitting into the ceiling of the arithmetic mean of the long-term nominal interest rates of the three EU Member States. which have the lowest inflation rates plus 2 percentage points.

The exchange rate according to the criterion should vary around the central nominal exchange rate parity set at the moment of entry into ERM2 in the ± 15% band. At the same time, the exchange rate must not be subject to serious tensions during at least two years before the examination, more precisely during this period, not to devaluate its own currency against the euro on its own initiative.

Fiscal-budgetary criteria change the register of monetary criteria flexibility, more exactly they are fixed and are divided by GDP. Thus, the general government deficit in GDP must fall within the 3% of GDP threshold, and the total government debt-to-GDP ratio should not exceed 60% of GDP.

Along with these indicators, also other relevant factors are further analyzed in the above criteria to outline the convergence and economic integration of the EU countries in the euro area.

From a methodological point of view, the indicators chosen for shaping economic convergence are purely retrospective and are analyzed and interpreted individually based

on actual data. Thus, according to the ECB, the convergence criteria are built on the idea of achieving an integrated, common, transparent, accurate, consistent, simple, coherent framework, lacking a strict hierarchy and requiring cumulative fulfillment. At the same time, the analysis of these criteria over the past 10 years aims to reveal the sustainability of reaching convergence and the extent to which the present achievements are determined by the structural changes in the past.

There is also a somewhat anticipative approach to addressing the nominal economic convergence criteria in order to understand and integrate the role of macroeconomic policy measures (especially fiscal-budgetary policy) in terms of their adequacy to future challenges. The institutional, legal, governmental and financial framework of a country is analyzed from the point of view of its robustness and forecasts are taken into account from a number of sources, both national (eg the most recent convergence program of each Member State under review) (eg the Alert Mechanism Report and the Economic Forecasts of the European Commission).

It should be noted that, according to Article 140 of the Treaty on the Functioning of the European Union, the state-by-state analysis, although aimed at achieving the aforementioned compliance attributes, may still not allow for an integrated, regional vision and to detect potential effects of contagion, which are otherwise difficult to manage individually by each Member State.

Another interesting methodological aspect is that although the European Central Bank (ECB) monitors and analyzes the fulfillment of the nominal economic convergence criteria, the information is provided by the European Commission (EC), less for exchange rate and long-term interest rates, for which cooperates with the ECB. This is somewhat incomplete, in the sense that also for inflation, an element considered as the basis for establishing the long-term interest rate criterion, should also be established by the collaboration between the ECB and the EC. However, this somewhat elusive methodology on inflation may indicate that inflation includes aspects of long-term interest rates and exchange rates.

Also, the time consistency invoked in the analysis of the criteria is "disturbed" by the fact that, for example, data on the evolution of prices and long-term interest rates are presented up to a certain month within one calendar year (eg March), different for example for the exchange rate (eg April) and those completely downward in relation to data on government debt and government deficit that are analyzed by the end of the previous year. Or, simultaneous fulfillment of criteria with different statistical references can no longer provide a correct picture of this methodology, surprising almost two by two criteria in other time windows.

Taking part of each criterion, a number of additional critical elements may can be drawn.

Thus, it is unclear why achieving a high degree of price stability is linked to inflation close to that of at most the three best performing Member States in terms of price stability, why not five or seven countries? A larger number of states would have ensured some degree of homogeneity in the criterion, and maybe over time, let's say at five-year intervals, the number of states should gradually decrease to three and stay that way.

In addition, inflation, or as mentioned in the Treaty of Maastricht and ECB report "inflation rate", refers to the variation recorded by the most recent annual average available of HICP compared to the previous year's average, which is a rhythm which increases the inability of methodological integration between monetary criteria and between them and fiscal-budgetary ones that are expressed as a share of GDP.

The choice of the three states is based on the "best results in price stability" whether or not countries are members of the euro area, suggesting the need for structural

homogeneity between the EU and the euro area. In addition, the expression "no more than three Member States" leaves to the reader's understanding that at one point the three states may actually be two or even one, setting the criterion at a single geographic point in the EU.

It is worth mentioning that, the inflation criterion is one constructed relative to the geographical perspective, with inflation being related to inflation recorded by other Member States, while the exchange rate criterion is reported to the euro and the fiscal-budgetary criteria refer only to the state under review. From this perspective, perhaps the widening and flexibility (eg, band of variation) of the reference to the fiscal-budgetary criteria may be necessary to capture the deviant effects of possible joint shocks from the set targets.

In addition, the inflation criterion defines the concept of "exception" for referential in the sense that: the average annual inflation recorded by a particular Member State is significantly lower than comparable inflation in other Member States and the evolution of prices has been considerably affected by exceptional factors. This aspect of the exception, if it was introduced with the idea of streamlining fiscal-budgetary criteria, could capture possible institutional anomalies in managing government deficit and debt if they were significantly lower than the other countries chosen as reference.

At the same time, inflation is calculated using the consumer price index on a comparable basis, and in the context of sustainable development, in an innovative note, it may be more interesting to analyze the consumer price index of some specific resource categories, possibly rare. From this perspective, the meaning of the phrase "best results in price stability" would revert the criterion of inflation in the sense that for the reference of inflation would count only countries that will keep up and above the price of their rare resources.

For the long-term average nominal interest rate, it is assessed over a period of one year before the examination and may not exceed by more than 2 percentage points that of at most the three best performing Member States in price stability. At the same time, interest rates are calculated on the basis of long-term government bond yields or comparable securities taking into account national specificities.

If we look at the exchange rate criterion, assessing its stability against the euro indicates if the exchange rate is close to, or removed from, the MRS II central rate, irrespective of the fluctuation margins width under MRS II. Of course, this is explained by the fact that the band of ± 15% is sufficiently "generous" to allow a lightweight ranking of all member countries with a relatively stable exchange rate. It is advisable to extend the criterion to the other monetary criteria, but especially to the fiscal-budgetary ones, by fitting into bands of variation. Also, the combination of the idea of the band and the "first three Member States ..." (taken from the inflation criterion) would provide the necessary flexibility and the fiscal-budgetary criteria, the bands being limited by the levels of the indicators of the first three states with the lowest levels plus / minus a certain margin.

It should be noted that interest rates have a non-self-dependent reference, being linked to inflation developments in the EU, or all the criteria should either be all linked from the reference point or completely independent. A total independence of long-term interest rates relative to inflation reference would be desirable in the sense that other criteria also have this autonomy and would reflect a stand-alone image and not one imposed by the influence of inflation. Thus, the criterion developed in this form seems to "punish" those countries whose for example long-term interest rates are more efficient, thus lower than inflation, and have a good capacity to attract investors and to reduce and possibly the impact of the echelon of fiscal-budgetary criteria.

With regard to public finances, the high degree of sustainable convergence refers to their solid character, namely a budgetary situation without excessive public deficit, according to Article 126 (6) of the Treaty. This article states that the deficit above the 3% of GDP threshold can be considered excessively less in the following situations: a) the ratio has steadily diminished and is close to the 3% threshold; b) the overrun of the reference is temporary and exceptional and the public deficit ratio to GDP is maintained around the reference, c) the ratio of government debt to GDP exceeds the 60% of GDP reference value, but it decreases significantly and approaches the benchmark. It should be noted that the soundness of public finances is analyzed on the basis of the data obtained from the national accounts of the Member States according to the European System of Accounts 2010.

It should be noted that, although the ECB is considering whether a country is subject to an excessive deficit procedure, only the European Commission has an institutional role in this procedure. In addition, based on the recommendation of the European Commission, the EU Council, on the basis of Article 126 (6) of the Treaty, after a general assessment, and taking into account the observations of that Member State, decides whether or not there is an excessive deficit in that Member State. The Council Regulations (EC Regulation 1467/97 and EU Regulation 1177/2011) further explain how the fiscal-budgetary criteria for the excessive deficit procedure should be interpreted.

Thus, the criteria are considered on equal terms by the implementation of the first (debt), after a three-year transitional period has been granted for Member States where the excessive deficit procedure, launched before 2011, is complete. At the same time, the criterion is considered to be met if, on the basis of the European Commission's forecasts, the required reduction (at an average rate of one twentieth per annum) of the difference between the debt-to-GDP ratio and the reference is reported, and this will take place over three years. Given that it is taken into account the economic cycle's impact on the debt decline rate, the linking of the government debt ratio to GDP to an automatic maintenance management mechanism, in the reference perimeter, seems desirable.

This is further reinforced by the fact that all EU countries except the UK, Croatia and the Czech Republic have adopted in 2013 the Treaty on Stability, Coordination and Governance within the Economic and Monetary Union (TSSG), which indicates a binding budgetary rule on the annual structural balance which must meet the country-specific medium-term objective with a lower limit of the structural deficit of 0,5% of GDP. If the government debt-to-GDP ratio is below 60%, the medium-term target limit may reach a structural deficit of at most 1% of GDP. In addition, the signatory states have the obligation to introduce into the national constitutions or similar national legislation the budget rules imposed by the TSCG together with ***an automatic correction mechanism in case of deviation from the budgetary objective***.

This is a first aspect of the necessity of imposing an automatic stabilization mechanism, but it also requires the formulation of an equation of the budget deficit (just the structural one) depending on the public debt. Discrimination between cyclical and structural effects (permanent or non-cyclical) on the budget deficit is also difficult due to the inclusion in the structural deficit of specific factors and also of the transient effects of macroeconomic policy measures. It is also worth mentioning that, the budget deficits falls strictly under the responsibility and control of national governments and can be more easily manipulated and manipulated by governments in order to comply with the provisions of the Maastricht Treaty, so it can be a command variable.

At the same time, according to EC Regulation No 1467/97 of the Council and of the Directive 2011/85/EU of the Council impose a rule on expenditure reference values so that, if the EU Member States that have not yet reached their medium-term budgetary objective

(MTO), to ensure the mentainance of annual growth rate of relevant primary expenditures below the medium-term reference rate of potential GDP growth, unless the excess expenditure is covered by discretionary revenue measures. This information element links primary budget expenditure to potential GDP growth. It should be noted that during the global economic and financial crisis and the European sovereign debt crisis, there are important uncertainties about the potential GDP level and growth rate.

The analysis of the sustainability of EU Member States' public finances is analyzed dynamically over the last 10 years as well as on the forecasts of the European Commission for the current and future evaluations, taking into account the medium-term fiscal strategies included in the national programs convergence.

The analysis of the robustness and timeliness of macroeconomic policies used since the adoption of the euro outlines even more the need for an automatic mechanism to quickly and efficiently restore the wanted indicators in the parameters required by the criteria.

As we know, the literature highlights the exchange rate capabilities in automatic stabilization, as well as the budgetary expenditures included in the government-size concept, and the expenditures are a component in the budget deficit. Although revenues are more elastic than spending on economic growth, they can be harder to use in the idea of automatic stabilization, unless they are indeed progressive (especially direct income). So there is the possibility of automatic deficit management to fit into the criterion, and through it and public debt.

Inflation is the preserve of any monetary policy, it is in the center of central bank attention and through central banks numerous and vast instruments the inflation can maneuver, indirectly, within the perimeter of inflation targets. Therefore, it would be interesting and a special opportunity if the criterion could be manipulated indirectly and implicitly than indirectly and explicitly as it is today.

The inflation and long-term interest rates, as they are currently formulated by the criteria, they can be guided in the automatic stabilization perimeter, although naturally they receive and embed information from both the fiscal-budgetary, but also the commercial area, and implicitly more subtle aspects, such as of economic behavior and expectations.

In conclusion, the table below summarizes the information on the necessity, possibility and opportunity of automatic stabilization on nominal economic convergence criteria.

Table no. 1. The necessity, possibility and opportunity of automatic stabilization on nominal economic convergence criteria

	Inflation	**Long-term interest rate**	**Exchange rate**	**Public debt**	**Budget deficit**
Necesitatea					√
Posibilitatea	√	√	√	√	√
Oportunitatea	√				√

Source: author's conception

5. Conclusion

Although there are many papers addressing the issue of convergence and especially at EU level, as well as works aimed at identifying fiscal-budgetary automatic stabilization, there are no theoretical or empirical facts to clarify the possibility of achieving convergence through automatic type mechanisms.

Thus, this paper, although has rather an introductory character, wishes to discern the extent to which this subject is of interest, is necessary, possible and timely. These aspects can be highlighted through in-depth analyzes on each criterion, but also through a pool of information and links between them.

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DUAL LEARNING - A NEW FORM OF ATTRACTION FOR PROFESSIONAL EDUCATION

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Abstract: *Dual vocational education is an innovative form of organizing the professional education that is organized only at the request of economic agents, educational authorities are responsible for ensuring human and financial resources and organizes technical theoretical training in the school (1-2 days per week) and the employer must provide human and financial resources and organize practical training, from work (3-4 days). This paper analyzes the attractiveness of students for dual learning. Quantitative research was carried out on a sample of 100 pupils at the professional level, using the interview technique and the questionnaire as a research tool, with the purpose of validating working hypotheses. The results highlight the importance of adapting vocational and technical education schools to the needs of its direct beneficiaries and social partners, thus enhancing qualification and insertion into the labor market.*

Key-words: *dual professional learning, education, innovation, attractiveness.*
JEL Classification*: I21, I25.*

1. Introduction

In the context of the intensification of the labor force crisis in Romania, implementation of dual education represents a chance offered by the education system for a collaboration between school, companies and pupils. Dual education is a type of vocational and technical education that combines on-the-job learning in a company with education and training in an educational establishment. Thus, young people have a professional qualification, while continuing their studies, and have a much better chance of getting a job at the end of their studies. Aging population, globalization, changes of environment, technological evolution and digitization are the new trends that cause changes in jobs, changes that relate to the skills needed to enter the labor market and evolve in the career.

2. Theoretical approach

Strategic educational management is a form of modern leadership, which focus on anticipating changes and amendments needed in the school organization and in interactions with the environment in which it operates, in order to avoid situations where the services provided by the organization to become outdated or inconsistent with the proposed changes (Ghergut, 2007).

Even though new laws have been adopted, which are centered on the principle of decentralization, the role of managerial structures and the transfer of authority to local factors, changes are not the result of a coherent vision and a profound knowledge of Romanian school realities and requirements of the labor market (Eurydice, 2010).

Human resource management plays an important role in the future of any organization (Jaradat, 2007) especially in school institutions for school policy-making in line with labor force requirements and local and regional development.

The anchoring of schools in Romania to the requirements of the European educational system requires a permanent exchange of information with institutions of the

same profile in the European space where the managerial know-how necessary for the competitiveness is ensured (Nicolescu, 2007).

Educational strategies should be designed to take into account the emergence of new actors, new concentrations of scientific, educational, economic forces on the international scene (Goldbach et al., 2019).

Institutional performance in the new knowledge-based society can be ensured through a new, innovative, accountability and efficiency management capable of overcoming the challenges of the new millennium, challenges that have generated different new processes:

• continuous progress of knowledge, mutual exchange of information and documentation;

• the emergence of democratic mechanisms of school governance;

• increasing the strategic competitiveness between the educational institutes, which negotiate the market segment according to the launched offer (Stegăroiu, 2000).

3. Research methodology

The research objective was to know the students' opinions on the attractiveness of dual learning and the increase of their chances of relevant employment. Research hypotheses are:

H1: The skills and abilities gained in practice at the economic agent influence positively the professional trajectory.

H2: Students' motivation and attitude towards dual learning represent a new form of attraction for professional education.

The research method used is the survey and the research tool is the questionnaire; therefore, we developed a questionnaire structured according to two detailed components and scaled specifications: skills and abilities, motivation and attitude.

For this research, we have used non-randomized sampling. The research was quantitative, using a face to face interview method based on the questionnaire mentioned above. The questionnaire was applied between October and December 2018, to a sample of 100 pupils, enroled in dual learning schools, from the Dambovita county (see appendix 1). The questionnaire administered covered the relevant questions to the two hypotheses, the research questions and purpose of the study. We used Likert's five point method of scaling, where respondents were required to submit their agreement/disagreement with a series of statements in the questionnaire. Processing of the questionnaire was done in a database created in the Excel program.

4. The results of the research

The items in the questionnaire regarding the skills and abilities acquired by the students took into account three directions: the skills and abilities gained during the practice internships, the theoretical knowledge and the degree of initiative and responsibility in solving tasks received. The responses recorded during the investigation are shown in the tables below (Table 1 & Table 3).

Table 1. The skills and abilities acquired by students

To what extent do you agree with the statements below:	**Total agreement**	**Partial agreement**	**Do not know / can not tell**	**Partial disagree-ment**	**Total disagreement**
The skills and abilities gained during the practice internships offer new opportunities on labor market	24	34	6	19	17
The skills and abilities gained in the school (theoretical knowledge) helps you to organize and develop the workplace	19	20	8	34	19
The skills and abilities gained hepls you for taking the initiative and responsibility for the tasks received	25	28	17	19	11

Source: data processed by the author

Table 2. The score of items

The impact of skills and abilities gained during the practice internships on the opportunities in the labor market:	0.29
The impact on theoretical knowledge on organize and develop the workplace	-0.14
The impact of skills and abilities on taking the initiative and responsability for the tasks received	0.37
Overall score	0.1733

Source: data processed by the author

The impact of skills and abilities on taking the initiative and responsability for the tasks received and the impact of skills and abilities gained during the practice internships on the opportunities in the labor market have achieved high scores 0.37 and 0.29, while the impact on theoretical knowledge on organize and develop the workplace obtained a negative score of -0.14 (table 2). The negative score points out that students do not appreciate the true value of the theoretical knowledge in organize and develop the workplace but emphasize the practical knowledge. Students are also aware of the benefits of practice internships made to the trader (workshops, production halls, assembly lines, etc.). The students get a positive attitude towards taking responsibility and taking the initiative at working place.

Table 3. The pupils'motivation and attitude for dual learning form

To what extent do you agree with the statements below:	Total agreement	Partial agreement	Do not know / can not tell	Partial disagreement	Total disagreement
The dual learning education form increase your motivation for lifelong learning	27	20	8	31	14
The dual learning education form increase your motivation for work	43	38	10	9	5
The dual learning education form increase your selfesteem and selftrust	39	44	6	11	2

Source: data processed by the author

Table 4. The score of items

The impact of dual learning education form on motivation for lifelong learning	0.15
The impact of dual learning education form on increasing motivation for work	1.05
The impact of dual learning education form on increasing selfesteem and selftrust	1.07
Overall score	0.75

Source: data processed by the author

The impact of dual learning education form on motivation for lifelong learning obtained the lowest score, 0.15, while the impact of dual learning education form on increasing motivation for work and the impact of dual learning education form on increasing selfesteem and selftrust have achieved high scores 1.05, respectively 1.07 (Table 4). This demonstrates that students are still not sufficiently motivated to continue lifelong learning for various reasons but instead are sufficiently motivated to work in a field that offers them material rewards and recognition of their own abilities, also this fact makes it possible to increase self-confidence and self-esteem.

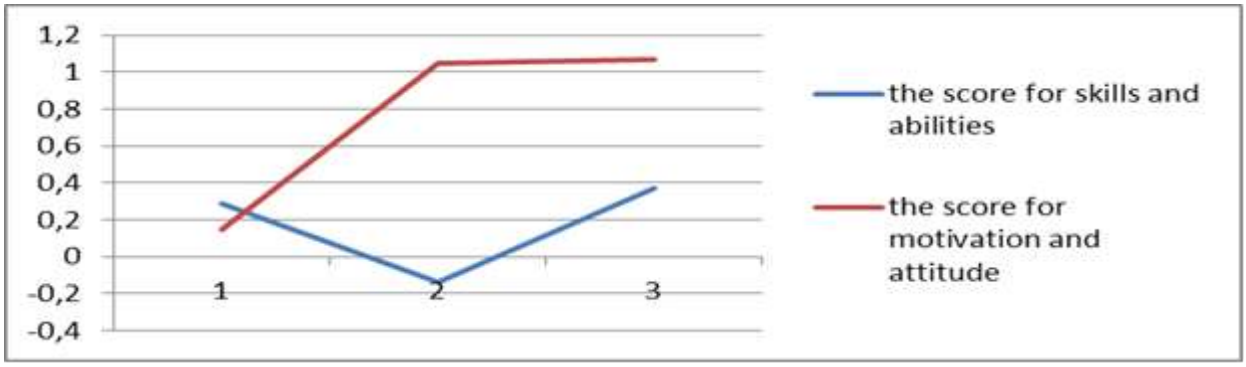

Figure 1. The analysis of the score obtained by skills and abilities and motivation and attitude

Source: data processed by the author

The analysis of the score obtained by skills and abilities and the score obtained for motivation and attitude highlights the attractiveness of dual learning education form for students. Also from the analysis of the scores we can validate both hypotheses of the research (Figure 1).

5. Discussion

The cruel reality of education statistics clearly tells us that, according to PISA in 2012 and 2015, around 40% of 15-year-old Romanian children are functionally illiterate. They account for 58% of upper secondary students enrolled in technology-intensive classes and in vocational schools in Romania (Eurostat data for 2016). It is a recognized thing that admission into the 9th grade, based on the results of the 8th grade national assessment, sends pupils with the lowest academic abilities to vocational grades. Potential and low motivation for pupils to learn, which usually end up in these classes without any connection to their aspirations and skills, is complemented by the quantum lack of linking vocational training with the realities of work - qualifications, laboratories and obsolete content, teachers in the threshold retirement or go beyond technical progress.

Romania has assumed an ambitious target of reducing the phenomenon of early school leaving to 11.3% by 2020 (from 17.4% in 2012). Rather than fall, in 2015 this percentage rose to 19.1%. In parallel, given the worrying extent of the phenomenon of exclusion from the education system (through non-schooling or school drop-out) in upper secondary education, a series of focused intervention policies and measures should be among the priorities of the Ministry of Education, which should to actively and coherently support the fight against school drop-out and functional illiteracy and support for fundamental rights awareness policies. At European level, Vocational Education and Training (VET) has become one of the EU's educational policy priorities. The Europe 2020 Strategy sets the following targets: increase the occupancy rate of the population aged between 20 and 64 to at least 75%, allocation of 3% of GDP for research and development, the proportion of early school leaving in education and training systems should be below 10%.

Companies have invested in Romania because they have skilled workers here, and when this resource disappears, investors will also disappear. There are hundreds of thousands of young people in Romania who are working on low wages in the country and abroad, as unskilled workers, because the professional education in Romania is on the ground. Some examples of success when the private environment has not awaiting the support of the authorities and invested in professional schools, with direct practice in the factory, scholarships and accommodation for students are: in Braşov, the Kronstadt School, which prepares 700 pupils; in Oradea, Eurobusiness with 21 classes, in Ploieşti Concordia School, which offers inclusive training opportunities for 40 young people annually, guaranteeing the access of socially disadvantaged young people to quality education and training, in Galaţi, the ArcelorMittal Apprenticeship School, at its third promotion, trains hundreds of hundreds of apprentices in the workplace for 18 months, giving young people all the facilities for training as well as accommodation, meals, salaries and meal vouchers. In Dambovita county was implemented in the school year 2017-2018 dual education in collaboration with SC Artic SA Gaesti, the famous household appliance manufacturer for mechanical, electronics and automation field (see appendix 1). But it is not enough and few companies allow such an investment. Even worse, the Romanian state did not offer a regulation of this form of education until 2016. It is the duty of the Government to work with the private environment and to invest in vocational schools where young people can learn the jobs requirements, jobs offered by the labor market now and in the coming years.

From the legislative point of view, the emergency ordinance OG 81/2016 was a first step in regulating dual learning and encouraging a firm contract between school, companies, and students. The ordinance encourages companies to invest in training their future employees to become good craftsmen and remain in the country. Another important effect of the ordinance is to reduce school drop-out by revalorising vocational education.

In April 2017, by another legislative act adopting OG 84/2016 amending the Tax Code, it has become possible for employers who support VET to be able to benefit from several types of tax incentives, both in the field of taxation on profit and income tax.

In particular, firms that support vocational education (including dual education) can deduct their associated costs (scholarships and educational materials for pupils, teacher training and wages), and can cushion and recover their investments in equipment and course facilities.

Also by Emergency Ordinance no. 84/2016, the provisions of Law no. 227/2015 on the Fiscal Code were supplemented with measures for the full deduction of the expenses incurred by the economic operators for pupils and for the calculation of the annual net income subject to income tax, measures similar to those envisaged for the tax on profit. In addition, measures were also approved for non-taxation of benefits received by students.

Thus, scholarships, prizes, accommodation, meals, transportation, work equipment / protection and other similar items received by students during vocational and technical education are non-taxable incomes for the person making the income. These tax incentives to deduct expenditure on the training of students in vocational and technical education also benefit authorized individuals, family businesses and individuals who do not pay corporation tax.

In addition to the 200 lei professional scholarship, young people can receive a warm meal, protection equipment, transport and free accommodation. The employer can offer an additional grant(another 200 lei for pupils enroled in dual learning) to attract young people to the jobs required in the labor market, such as electricians, low voltage welders, plastic operators, carpenters, plumbers, etc. and halt their migration to Italy, Spain and other European countries that absorb the Romanian labor force.

6. Conclusion

The dual learning education form represent a new form of attraction for professional education system, where students acquire new knowledge, abilities and skills especially in the workplace, which facilitates their integration into the labor market much easier. This kind of education has to be supported by economic operators, the business environment that convinces that really following a professional qualification route is not a second chance route or a route for those who have obtained low grades during the gymnasium, but it is a route that allows the development of professional careers and even the continuation of studies to the level of higher education. It remains to be seen whether dual education will be a viable and complementary alternative to educational offer. The legislative framework is just a first step that will regulate the relationship of the three actors on the labor market: school, companies and pupils.

Only by extending it in a unitary way and through a national promotion strategy we can say that this alternative to dual vocational education can be viable for both young people and for economic operators and local authorities.

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Appendix no. 1: The number of pupils enroled in dual learning in Dambovita county

Promotia/ promotion 2018-2019	**Domeniul/ field**	**Calificarea profesionala/ professional qualification**	**Nr. Elevi/ no. pupils**	**Agent economic/ Trader**
Liceul Tehnologic "Nicolae Ciorănescu" Târgovişte	Mecanică/ Mechanics	Operator la maşini cu comandă numerică/ Machine operator with numeric control	28	S.C. Arctic S.A. Găești
Liceul Tehnologic "Nicolae Ciorănescu" Târgovişte	Electronică, automatizări/ electronic, automation	Electronist aparate şi echipamente/ Electronist devices and equipments	28	S.C. Arctic S.A. Găești
Liceul Tehnologic "Iordache Golescu" Găeşti	Electromecanică/ electromechanical	Frigotehnist/	28	S.C. Arctic S.A. Găești
Promotia/promotion 2017-2018	**Domeniul/ field**	**Calificarea profesionala/ professional qualification**	**Nr. Elevi/ no. pupils**	**Agent economic/ Trader**
Liceul Tehnologic "Nicolae Ciorănescu" Târgovişte	Mecanică/ mechanical	Operator la maşini cu comandă numerică/ Machine operator with numeric control	28	S.C. Arctic S.A. Găești
Liceul Tehnologic "Nicolae Ciorănescu" Târgovişte	Electronică, automatizări/ electronic, automation	Electronist aparate şi echipamente/ Electronist devices and equipments	28	S.C. Arctic S.A. Găești

Source: data procesed by the author after http://www.alegetidrumul.ro/uploads/01_RO_Total_2017_2018.pdf & http://www.alegetidrumul.ro/uploads/03_Anexa_8_bis_Reg_Sud_Muntenia.pdf visited in 08.04.2019 at 20.05

DIRECT TARGETING OF INFLATION –THE MONETARY POLICY STRATEGY OF THE BNR

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Abstract: *The fundamental objective of the monetary policy of the NBR is to ensure and maintain the price stability. To achieve this goal, the NBR has approached as a monetary policy strategy the direct targeting of inflation, which has had a great influence on the macroeconomic variables of Romania. The paper aims to investigate the macroeconomic forecasting models used by the NBR and to what extent the monetary instruments applied by the NBR are close to the targeting of inflation.*

Keywords: *inflation, monetary policy, GDP, exchange rate.*
JEL Classification: *E52.*

1. Introduction

The monetary policy is the instrument by which the state intervenes in the economy to achieve the objectives of the economic policy: the balance of economic growth; maximizing the employment rates; stabilizing the balance of the external payments; price stability; reducing the budget deficit.

The monetary policy fulfils its essential role of ensuring the price stability and maintaining the inflation within the normal limits by all actions performed by the monetary authority or the central bank of a state.

The central bank exerts its influence on the economy through instruments and means of intervention to implement the specific measures of the monetary policy. Through these instruments, the central bank can increase the volume of money by acquiring securities on the money market, in which case the process is called liquidity injection or it can withdraw money from the economy, the phenomenon called liquidity destruction.

2. The instruments of intervention of NBR

The instruments and means of intervention of the central bank in the economy can be:

a) Instruments and means of *indirect* intervention whereby the central bank controls the money supply and the money intermediaries having limited access to the central bank's deposits. The most important indirect intervention instruments are: official discount rate, open market policy and minimum reserve requirements (RMO).

b) Instruments and means of *direct*intervention whereby the central bank exerts its influence on money by intervening on the value and size of thedeposits held by banks and credit institutions. These instruments and means refer to banking regulations when setting the interest rates and exchange rate.

Depending on the objectives pursued, the monetary policy instruments can also be classified according to their structure as follows:

- Instruments through which the central bank supplies and removes the central currency from the market. These consist of: operations in the open market and providing credits in the money market whose interest rate is variable; rescheduling

operations; advances offered to the State by the central bank; the formation of the mandatory minimum reserves and those applying to the loans and deposits;

- Instruments that exert influence on the patrimonial assets and liabilities of banks, generating an unfavourable influence. This includes total and selection quantitative targets such as the verification of issuance of the financial securities; setting interest rates in debit or credit; the required use ratio based on a minimum volume of financial securities (bonds), treasury bills etc.;
- Instruments for verifying foreign operations include: oversight of currency exchanges (external authorized debts, foreign currency markets, deposits consisting of coins and foreign securities purchased by non-financial economic agents); required reserves applied to the deposits held by non-resident individuals; the involvement of the central bank in the foreign exchange; bank regulations applied to the deposits made by non-residents on the interest paid for this type of deposits.

3. The direct targerting of inflation

In Romania, the fundamental objective of the monetary policy of the NBR is to ensure and maintain the price stability. To achieve this goal, the NBR, since 2005, has approached as monetary policy strategy *the direct targeting of inflation.*

Direct targeting of inflation involves setting a target for the level of inflation over a certain period of time to ensure the price stability.

One of the features of targeting of inflation is that it represents a numerical target, either percentage, with or without the acceptance of an offset interval, either as absolute fixed size, taking into account the index of the consumer price.

The direct targeting of inflation strategy was introduced in 1990 by the Central Bank of New Zealand as an innovative instrument of the monetary policy. By applying this instrument, it is intended to achieve conciliation between the rigid rules on the one hand and the discretionary approach on the other. Besides the indisputable success achieved both by developed and developing countries, the direct targeting of inflation has encountered difficulties and risks that have led to failure to achieve the proposed objective, especially in the early years of implementation.

The direct targeting of inflation has advantages and disadvantages mentioned in the table below.

Table no. 1. The advantages and disadvantages of the direct targeting of inflation

Advantages	Disadvantages
• Simplicity and clarity on the target; • It is not based on the stable relationship of money-inflation • Increased transparency of the central bank • Reducing the effects of the inflationary shocks • The possibility of communicating to the public of the level of inflation to which it has been targeted and which it must ensure in the near future	• Delayed signal on the target achievement; • Imposes rigid rules • It generates a degree of instability in the financial market

The effectiveness of this strategy is conditioned by the cumulative fulfilment of criteria and requirements such as:

- lowering the annual inflation rate below 10%;
- strengthening the credibility of the central bank;

- strengthening de jure and de facto independence of the NBR;
- fiscal consolidation, fiscal policy coordination with the monetary policy;
- flexibility of the exchange rate of the leu
- increasing the transparency and accountability of the central bank;
- strengthening the banking system and increasing the banking intermediation;
- Increasing the efficiency of the money transmission channels.

Inflation targets are expressed as annual variation of the consumer price index within ± 1 percentage point. The nature evolution and the inflation target values set by the NBR, until the present, are characterized by two distinct phases:

- Stage of the downward inflation target (2005-2012);
- Stage of a multi-year stagnant target of inflation (starting in 2013).

The table below presents the evolution of the inflation target from 2005 to the present:

Table no. 2. Evolution of the inflation target

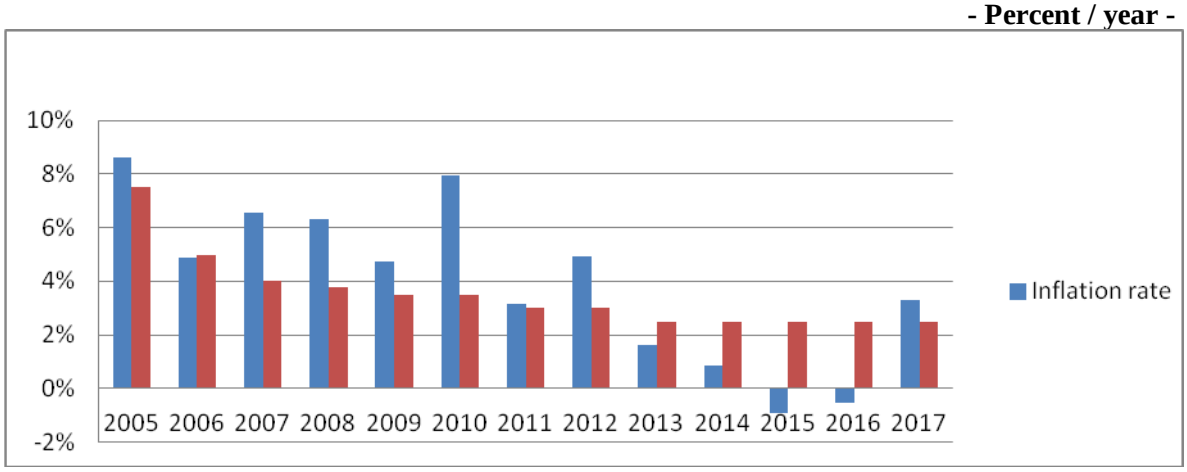
Year	2005	2006	2007	2008	2009	2010	2011	2012	Starting in 2013
Inflation Target	7.5% ± 1p.p.	5% ± 1p.p.	4% ± 1p.p.	3.8% ± 1p.p.	3.5% ± 1p.p.	3.5% ± 1p.p.	3% ± 1p.p.	3% ± 1p.p.	2.5% ± 1p.p.

Source: www.bnr.ro

Compared to the established inflation targets, the annual inflation rates recorded the following evolution:

Chart no. 1. Evolution of inflation and inflation target

- Percent / year -



Source: www.insse.ro, www.bnr.ro

The graph shows that for the first years the inflation rate is higher than the inflation target. In 2013 and 2014, when a fixed target is set to ensure the price stability over the medium term, the inflation rate is lower than the multi-annual inflation target, and for the next two years, 2015 and 2016, it scores negative values than the target, so that in 2017 it will return to a positive value, above the level of the fixed target.

In 2018, the monetary policy measures adopted by the NBRpresented in the periodical reports aim at establishing the trend of increasing the inflation rate. Thus, in the inflation report presented in May this year,it was mentioned the significant increase of the annual inflation rate from one month to the next. The evolution of the annual CPI inflation rate is presented in the following table:

Table no. 3. Evolution of the annual CPI inflation rate

January 2018	February 2018	March 2018	April 2018	May 2018
4.32%	4.72%	4.95%	5.22%	5.41%

Source: www.bnr.ro

The increase confirmed the forecast from previous reports to March, but for April and May it exceeded the expectations.

Analyzing the situation in the first quarter of this year, it resulted that this increase was due to the modification of the indirect taxes and the elimination of non-tax charges, to which were added the increases in prices for electricity and natural gas.

The upward trend of April and May was the consequence of higher than expected increases in fuel and tobacco products.

The annual rate of adjusted CORE 2 inflation, which is different from the annual CPI inflation rate by eliminating the administered prices of the tobacco products and alcoholic beverages, which are not significantly influenced by monetary policy measures, also experienced an ascending evolution towards of the level recorded in December (2.4%), reaching the maximum level in April, followed by a slight decrease in May. The evolution of the adjusted CORE 2 indicator in the first 5 months of 2018 is presented in Table no. 4:

Table no. 4. Evolution of the adjusted CORE 2 indicator

January 2018	February 2018	March 2018	April 2018	May 2018
2.8%	2.9%	3.05%	3.09%	2.95%

Source: www.bnr.ro

The evolution of the first quarter of this inflation indicator was partly due to the dynamics of the leu exchange rate, with an impact on the import consumer goods prices and tariffs for some services as well as increases in international quotations for energy products. On the other hand, this evolution reflects the action of the fundamental factors, respectively the surplus of demand in the economy, which puts pressure on the production costs, thus predicting an increase in the inflation of the economic agents.

The decrease recorded in May is the result of the slowdown in the growth rate of the international prices of the agricultural products and the evolution of the exchange rate of the leu against the euro.

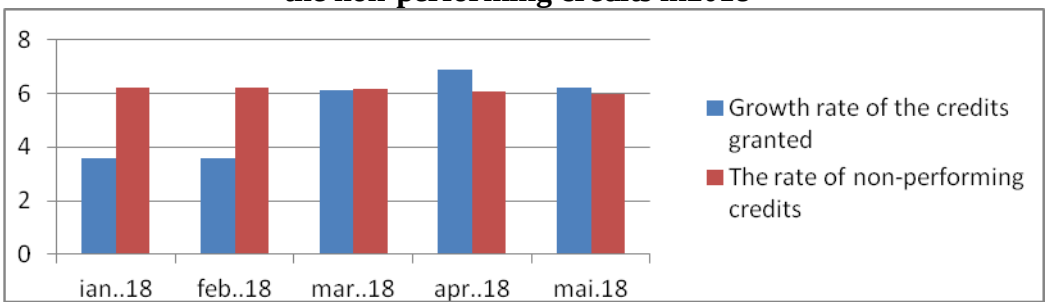
In the first quarter of this year, there was recorded a decline in the annual GDP growth to 4%, down from 6.7% recorded in the last quarter of last year, by lowering the household consumption and ofthe gross fixed capital formation compared to the previous period. By reducing the difference between the annual growth rates of the imports and the exports, the net export contribution has grown to GDP growth, improving sensitively the current account deficit.

At the level of the national economy, there is a slowdown in the growth rate of the industrial production in April compared to the first quarter of the year, an acceleration of the annual dynamics of trade and services activity.

Labour productivity has experienced an increase diminished from the previous period due to the wage increases in industry.

The creditgranted to the private sector maintained its annual growth in the first quarter, being outstripped by the growth rate in April (6.9%) and May (6.2%). The growth rate evolution of the credits granted compared to the non-performing credits rate in the first 5 months of the year is shown in Chart no. 2:

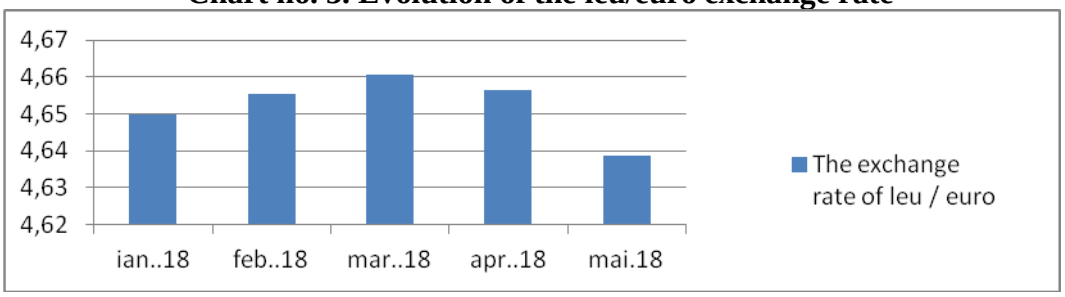
Chart no. 2. Evolution of the growth rate of the creditsgranted against the rate of the non-performing credits in2018



Source: www.bnr.ro

The leu/euro exchange rate continued its upward trend at the end of the last year until the middle of February, in the second half of the first quarter and in the first two months of the second year, recording a relative stability. The evolution of the leu/euro exchange rate in the first 5 months of 2018 is presented in Chart no. 3:

Chart no. 3. Evolution of the leu/euro exchange rate



Source: www.bnr.ro

There was recorded an acceleration of the increase in the liquidities in the economy due to the increase in the volume of the payments of the beneficiaries of European funds, as well as the upward evolution of certain categories of the budgetary expenditures.

Analyzing the trends of evolution of these inflation indicators, the NBR adopted in the meetings of the Board of Directors held this year, the following monetary policy decisions, according to Table no. 5:

Table no. 5. Evolution of the inflation indicators

Decisions of the NBR Board of Directors in 2018	The monetary policy interest rate	Interest rate for the deposit facility	Interest rate for the credit facility	RMO level
Meeting in 07.02.2018	2.25%	1.25%	3.25%	8.00%
Meeting in 08.05.2018	2.50%	1.50%	3.50%	8.00%
Meeting in 04.07.2018	2.50%	1.50%	3.50%	8.00%

Source: www.bnr.ro

It can be noticed that during 2018, the level of minimum reserve requirements (RMO) remained unchanged for the entire period, keeping the level of 8.00%. Also, it can be noticed that after the meeting in July this year did not change the percentages of the interest rates established after the meeting in May.

4. The Macroeconomic forecasting models

In order to outline the quarterly and annual projections of the NBR, it has a *forecasting framework* that includes database management and the use of macroeconomic forecastingmodels that are three categories:

a) *Empirical models* include relationships between dependent macroeconomic variables (inflation rate, interest rates on deposits and credits, growth rates of GDP components, etc.) and determinants thereof, which are independent macroeconomic variables (exchange rate, oil price, turnover, monetary indicators, etc.).

b) *Central model* - medium-term analysis and forecasting model -MAPM - includes relations between important macroeconomic variables (interest rate, aggregate demand, inflation rate, exchange rate), under the assumption of optimal rational behaviour of the central bank, external sector, financial institutions, companies or population.

c) *Satellite models* - with the purpose of detailing and completing the forecasts resulting from the first two categories of models.

The forecasting process is carried out in *three phases*, which are chronologically followed as:

1) Short-term projections and expert projections

1.1)Short-term projections are based on empirical models and have a maximum forecast horizon of two quarters.

1.1.1) the short-term inflation forecast is based on the Armax model that uses monthly data series for the main components of the CPI: food goods (excluding eggs, fruit and vegetables), non-food goods (excluding products with administered prices, fuels and tobacco), and services (except those with administered tariffs).

1.1.2) the short-term GDP forecast uses quarterly data for models with the following structure:

a) Forecasting equations of the private consumption
b) Forecasting equations for the gross fixed capital formation
c) Forecasting equation of the export of goods and services
d) Forecasting equation of the imports of goods and services
e) Forecasting equation of the stock changes
f) Scenario of evolution of the public consumption
g) GDP = a) +b) +c)-d) +e) +f)

1.2) Expert projections include those variables whose evolution cannot be estimated econometrically; the sources of information being the communications of the authorities in the specialized fields or internal and external surveys (e.g.the price adjustments for the excisable products, electricity tariffs, etc.).

The final projection is the arithmetic mean between the aggregate prognosis of the models and the expert forecast.

1) *Establishing the initial conditions and the position within the economic cycle* represents the first stage of integrating the forecasts by which the variables break down into the cyclical component (deviation from the trend) and the trend of evolution (the medium term equilibrium), in order to ensure the compatibility with the MAPM model.

2) *The projection obtained using the MAPM model(model of analysis and the medium-term forecast)* reflects the mechanisms of monetary policy transmission that act to achieve the medium-term equilibrium. The model uses the evolution of macroeconomic variables throughout the economic cycle and has a forecast horizon of 8 quarters. The role of the model is to integrate all the available information that is needed in the analysis and implementation of the monetary policy decisions.

The result of the forecasting process provides a picture of the inflation evolution and the interest rate of the monetary policy and allows the comparison of some alternative scenarios.

It is intended to continuously improve the model, to develop the sector satellite models and to carry out various related analyzes. Thus, a future MAPM model is envisaged to provide the theoretical and empirical support needed to sustainthe monetary policy decisions, involving:

- Formalizing some explained equations for the GDP components and for the labour market (modelling the wage dynamics);
- The analytical approach of the evolution of the fiscal impulse;
- Replacing with a dynamic general equilibrium model.

The annual CPI inflation rate is projected to reach 3.6% at the end of this year and 3.0% at the end of next year, 2019. An oscillation is also expected to be around 5% in the third quarter of 2018.

The annual adjusted CORE2 inflation rate is projected to reach 3.2% at the end of 2018 and 3.4% at the end of 2019.

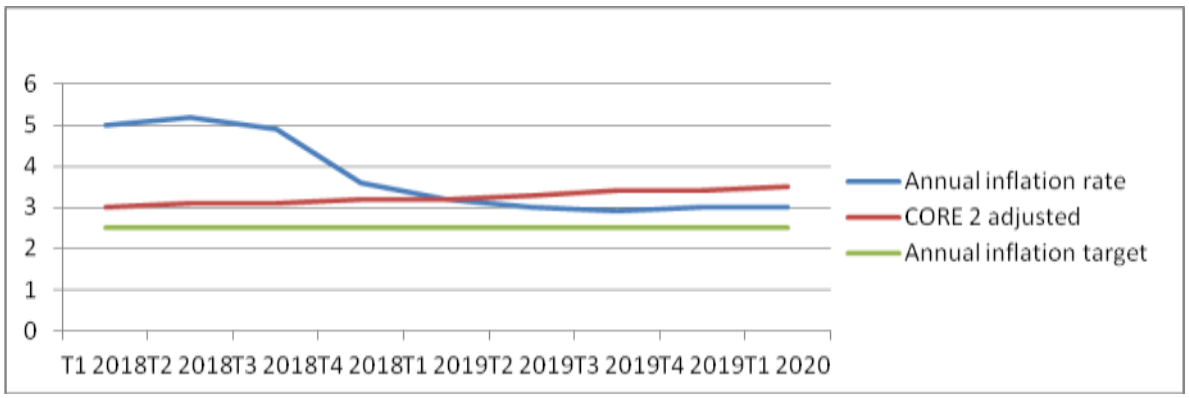
Detailing the quarterly evolution is presented in table no.6:

Table no. 6. Quarterly forecast of inflation target, annual inflation rate and adjusted CORE 2 indicator

	T1 2018	T2 2018	T3 2018	T4 2018	T1 2019	T2 2019	T3 2019	T4 2019	T1 2020
Inflation target				2.5				2.5	
Forecast of the annual inflation rate	5.0	5.2	4.9	3.6	3.2	3.0	2.9	3.0	3.0
The adjusted CORE 2 forecast	3.0	3.1	3.1	3.2	3.2	3.3	3.4	3.4	3.5

Source: www.bnr.ro

Chart no. 4. Projection of the annual inflation of the PCI prices and the adjusted CORE 2 indicator



Source: www.bnr.ro

5. Conclusions

The fundamental objective of the National Bank of Romania is to ensure and maintain the price stability. The most important monetary policy strategy adopted by the NBR since 2005 is the direct targeting of inflation. Thus, since 2005, the NBR has set an inflation target, which has decreased year-on-year from 7.5% to 3%, and this target will remain constant from 2013 to 2.5%.

This NBR's direct targeting of inflation strategy is not based on the sustainable money-inflation relationship and offers high transparency to the central bank, but it is inconvenient to generate some degree of financial market instability.

Regarding the annual CPI inflation rate, it had an upward trend between January and May 2018 as a result of the change in certain indirect taxes and the suppression of the non-fiscal charges. A somewhat similar trend in the same period was also the annual rate of adjusted CORE2 inflation, an increase due to the dynamics of the leu exchange rate and the surplus of demand in the economy, the difference between the two rates being noted in May when the annual rate of the adjusted CORE2 inflation dropped to 2.95% as a result of the reduction in the growth rate of the international prices for certain agricultural products.

As for the decisions of the NBR Board of Directors for 2018, it is estimated that in its meetings it was decided that the monetary policy interest rate, the interest rate on the deposit facility and the credit facility to increase by 0.25% and the RMO level should remain constant at 8%.

The main macroeconomic forecasting models used by the NBR to highlight the quarterly and annual projections related to the monetary policy refer to: empirical models, central model, also called the medium-term analysis and forecasting model, MAPM and satellite models.

The forecasting phenomenon presents a vision of the evolution of inflation, but also of the monetary policy rate, this process having three important phases.

Thus, using these forecasting models, it is estimated that the annual inflation rate will be 3.6% in Q4 2018, and at the end of 2019 it will reach 3%. With regard to the annual rate of adjusted CORE2 inflation, it is projected to be 3.2% in Q4 2018, so with 0.4% lower than the annual inflation rate, so that at the end of Q4 2019 it will increase by 0.2%.

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TRENDS IN THE FOREIGN TRADE EVOLUTION OF THE REPUBLIC OF MOLDOVA

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Abstract: *Foreign trade and economic cooperation have a particular importance for economic development in general as well as for national economies. The Republic of Moldova does not have energy resources and it does not produce many types of goods needed for domestic production and consumption. That is why the Moldovan economy is geared towards promoting foreign economic relations, in particular by boosting exports, by protecting the national economy based on competition and transparency, by regulating and monitoring imports and maintaining balance of trade. The paper aims to analyze the current trends of the trade relations of the Republic of Moldova by analyzing the flow of goods in dynamics with an emphasis on the period of 2000-2017, partly for 2018. For this research paper there were used such research methods as: monographic, analysis and synthesis, statistics, comparison, etc. A particular attention was paid to the preferential trade regime which has contributed to a gradual opening of the Community market for Moldovan exports.*

Key words*: Foreign trade; economic development; production; consumption; export; import.*
JEL Classification*: F1, F13, F14.*

1. Introduction

The foreign trade and economic cooperation are an important part both for economic development in general and for the national economy particularly. The Moldova's trade policy has the aim to promote external trade and economic relations by boosting exports, protecting the national economy in foreign competition conditions, and by regulating and monitoring imports, as well as engaging in international agreements in order to maintain trade balance. The most important field of foreign economic cooperation of Moldova with other countries is actually foreign trade. Therefore, the Moldovan economy is export-oriented (in 2017, exports accounted for 25% of GDP) and depended on imports (imports accounted for 50% of GDP) and the volume of foreign trade is practically equal to the GDP, that tendency was maintained in 2018.

2. Description of the problem

The Moldovan foreign trade tendencies are characterized by a significant excess of imports versus exports. But it is well known that both *import* and *export* are two main activities of a country's international trade. Such, during the 2017 year, the increasing of foreign trade in goods was influenced by a positive evolution of the agricultural sector and constituted around US $ 7 256.5 million, by increasing with 19.6% (US $ 1 191.5 million) in comparison to the similar period of the previous year (Figure 1).

Figure 1. International trends of commodity trade

Source: Elaborated by authors based on data of the National Bureau of Statistics of Moldova

At the same time, the evolution of trade was influenced by the improvement of the external demand, by the increasing of global energy and food products prices, by the re-launch of production in some industrial sectors, as well as positive developments in transport services, the economic situation in the region and of the national currency appreciation. Exports of goods increased by 18.6% compared to the same period of the previous year, while imports increased by 20.2% compared to 2016. The gap in the evolution of exports and imports led to the accumulation of a deficit of trade balance of US $ 2406.3 million, up by US $ 431.3 million d (21.8%) more than in 2016. For 2018 this indicator still has an increasing tendency.

From a geographic point of view, a big part of Moldova's exports and imports are concentrated on two target- groups of EU and CIS countries. Since 2000, in the structure of the total volume of exports and imports, there have been significant structural changes in the share of these groups of countries. The main trend is to continuously reduce the share of CIS countries in favor of countries in other groups, especially the EU, and other countries, which evolution is reflected in the figure (figure 2).

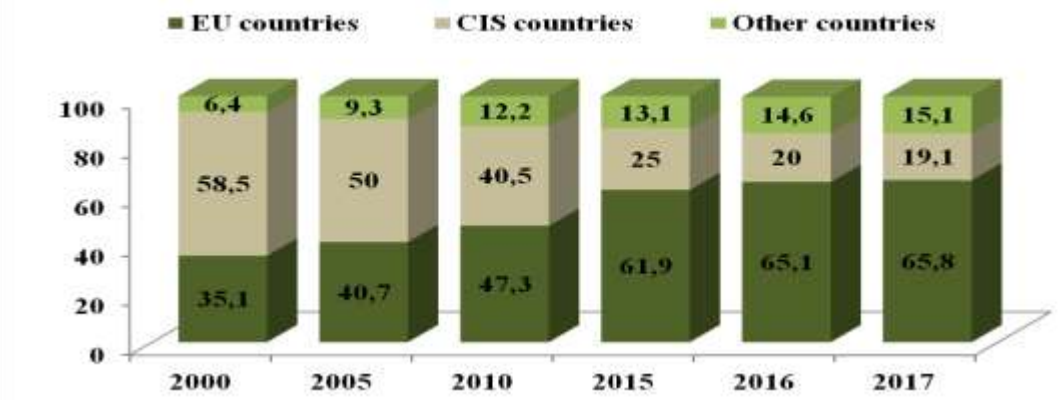

Figure 2. Export structure by groups of countries, %

Source: Elaborated by authors based on Data of the National Bureau of Statistics of Moldova http://www.statistica.md/

In 2000, the main destination for exports was CIS with 58.5%, while the share of EU countries was only 35%. Gradually, the share of CIS countries from total exports decreased and the share of EU countries was increasing. These changes took place due to the EU, which became the main destination for Moldovan goods exports. This situation

was available as well as for 2018 year. Several factors contributed to this evolution, such as increasing of the value and volume of Moldovan exports on the Community market, and the export decreasing to the CIS. In the reviewed period, a gradual liberalization of the EU trade regime, in particular by the EU, was made by the EU providing more facilities for Moldovan exporters.

During the 2017 year, the EU market attracted a big part of Moldovan products. The Exports of goods to EU countries totaled US $ 1596.9 million (with 19.9% more than in 2016), accounting for 65.8% of total exports (65.1% in 2016). The main partners still are Romania (24.8%), Italy (9.7%), Germany (6.9%), Great Britain (5.6%), Poland (4.2%) of total exports. Also, in the total volume of Moldovan exports, the CIS countries hold an important share of 19.1% (20.3% in 2016). The value of the exported volume to these countries amounted to US $ 462.9 million. Exports of goods to these countries increased by 11.8% compared to 2016. The largest share of the Russian Federation was 10.5% from the total export volume, amounting to US $ 254.5 million, Belarus 4.5 % (US $ 110.1 million) and Ukraine 2.7% (US $ 65.5 million). At the same time, deliveries to other countries have the lowest share (15.1%) in total exports, and in 2017 they amounted to US $ 365.3 million, up 22.4% more than in 2016. The greatest influence on growth exports in 2017 had exports of vegetables and fruits increasing by US $ 95.1 million, compared to 2016. In 2018 it was the same situation.

It should be mentioned that the value of imported goods in Moldova in 2017 increased by 20.2%, this increasing was due to an increase in domestic demand, fueled by real wage growth, rising remittances from abroad and appreciation of the national currency (see figure 3). The imports of goods from EU states totaled US $ 4831.4 million, such being increased with US $ 811 million compared to the same period of the previous year. Imports of goods from EU countries have a share of 49.4% and CIS countries - 25% of total imports, others are imported from other countries, including China - 10.5%, Turkey - 6.3%, USA - 1.5% etc. Imports of goods from EU countries constituted US $ 2389.1 million, up 21.1% more than in 2016 0.4p. p. (*percentage point*) more than in 2016). Most of the imports came from Romania totaled US $ 694.5 million, with 25.9% more than in 2016, Germany - US $ 390.6 million (+ 23.4%), Italy - US $ 331.2 million (+ 18%), Poland - US $ 165.7 million (+ 25.4%), France - US $ 112.7 million (+ 25.3%). The imports of goods from the CIS countries compared to 2016 increased by 17.4% to US $ 1206.1 million, which is about 25% of total imports (with 0.6 percentage points more than year 2016). Most of goods were imported from the Russian Federation - about US $ 571.7 million, with 6.8% more than in 2016, from Ukraine - US $ 511.1 million (+ 33.1%) and Belarus - US $ 114.6 million (+ 13.1%). Imports from other countries in 2017 year increased by 21.3% compared to 2016. The volume of these imports amounted to US $ 1236.2 million and accounted for 25.6% of total imports (with 0.2 p.p. more than in 2016). The most significant imports from China amounted to $ 505.4 million (+ 28.4%), Turkey US $ 304.3 million (+ 11.9%), US $ 70.2 million (+31.8%).

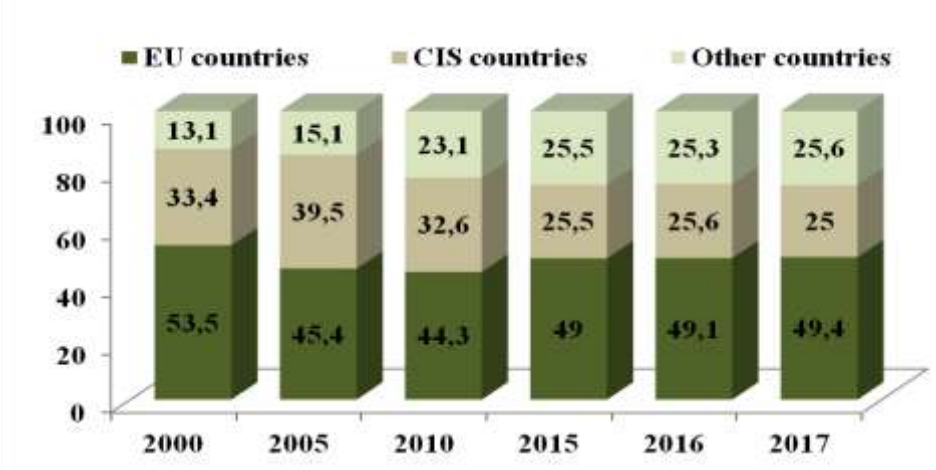

Figure 3. Structure of imports by groups of countries, %

Source: Developed by the authors, according to the National Bureau of Statistics. http://www.statistica.md/

The greatest influence, during the 2017 year, on the imports increasing was the import of petroleum, petroleum products and related products with an increase of 26.9%, electric energy 224.8 times, electrical machinery and apparatus and parts there of 20.4%, 24% road vehicles, and others. At the same time, there were decreases in imports of gas and industrial products obtained from gas by US $ 27.1 million, processed rubber by US $ 0.7 million dollars, live animals by US $ 0.3 million, etc.

3. Exploitation of export tariff quotas in the EU

The signing of the Association Agreement with the EU opened new opportunities for the Moldovan economy. Moldova has certain export limits in the EU for some product categories, these are such products which are exempt from taxes for certain tariff quotas. This category includes tomatoes, garlic, grapes, apples, plums and grape juice. In 2017, both Moldovan table grape and plum producers managed to capitalize 100% of the tariff quotas for the export of table grapes and plums in the EU, the apple export quota was modestly capitalized: 2 191 tons from 40 000 tones (just 5% from total volume). At the same time, no batch of tomatoes, garlic and grape juice was exported (figure 4).

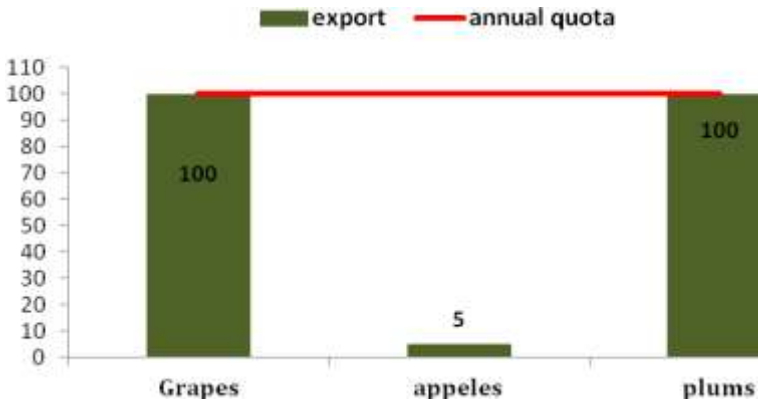

Figure 4. Valorization of tariff quotas of fruit exports to EU, 2017%

Source: Elaborated by the authors, according to data, the Ministry of Economy of the Republic of Moldova, http://date.gov.md/ro/system/files/resources/2018-05/valorificare%20cote%20la%20export%202016-2018.xlsx

The second category of goods where the EU establishes export quotas- the subject to a circumvention mechanism (table 1). Thus, in 2017, the quotas established in the Association Agreement between the Republic of Moldova and European Union, for some product categories were exceeded, namely for wheat quota (75000 tons), and our country exported 348177 tons (464%), barley quota set (70000 tons), were exported 72945 tons or about 104%, processed cereals, where 11021 tons (441%) were exported instead of 2, 500 tons.

Table 1. Valorization of tariff quotas of agri-food products as a subject of the anti-circumvention mechanism, exports to EU, 2017%export to the EU, %

Nr.	Products categories	Volume (tons)	2015, %	2016, %	2017, %
1.	Wheat	**75000,00**	237,98	746,48	464
2.	Barley	**70000,00**	111,94	110,79	104
3.	Corn	**130000,00**	125,19	153,91	72
4.	White sugar	**37400,00**	21,35	176,83	85
5.	Processed grains	**2500,00**	220,20	671,88	441
6.	Processed sugar	**4200,00**	24,07	29,79	24
7.	Sweet corn	**1500,00**	0,00	62,93	27

Source : http://dcfta.md/valorificarea-contingentelor-tarifare-pentru-anul-2017

4. Conclusions

In conclusion, it should be mentioned, that during the analyzed period, are visible many changes as the following: the recovery of exports to the EU market and the acceleration of exports to the CIS market, as well as an insignificant export increasing to other countries. According to our researches of the analyzed period, we have found that the share of Moldova's revenues on the EU market grew from 47.3% in 2010 to 65.8% in 2017, except for 2013, when it decreased compared to the level of 2010 by 1.1%. These changes have taken place due to the Association Agreement with the EU for the Republic of Moldova which opened many new opportunities for our country. In this situation, as an associate member, Moldova has benefited from opportunities, especially for the trade development in relations with the EU. The intensification of bilateral trade relations was possible due to the gradual opening of the EU market for Moldovan exports in 2006 under the Generalized System of Preferences (GSP and GSP plus). By amending Regulation Nr. 980/2005 and Commission Decision Nr. 2005/924 / EC, the Council of the European Union adopted the Regulation Nr. 55/2008 of 21 January 2008 on the introduction of the Autonomous Trade Preferences (PCA) for the Republic of Moldova, this regulation granted the PCA by deleting tariffs for industrial products and improving access to agricultural products on the EU market.

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ISSUES ON CAPITALISATION OF BORROWING COSTS

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Abstract*: IAS 23 Borrowing Costs prescribes the accounting when borrowings are made to acquire or construct an asset. The core principle of the standard is that borrowing costs that are directly attributable to the acquisition or construction of a qualifying asset must be capitalised. Even though in theory this principle seems simple to apply, its practical implementation often raises questions for which IAS 23 doesn't give clear guidance. Challenges in applying this standard are related to specific issues such as identifying the qualifying assets, calculating the total borrowing costs eligible for capitalisation, when to start or to suspend capitalisation, borrowing costs in separate and consolidated financial statements. Some of these practical challenges are discussed in this article.*

Keywords*: IAS 23, borrowing costs, qualifying asset, interest.*
JEL Classification*: M41.*

1. Introduction

Entities borrow funds in order to finance their investment activities that consist in acquiring, constructing and producing different types of assets. In some cases, the construction process for certain assets may be longer and therefore it may take a long period of time before the assets are ready for their intended use or for sale. During this time entities that take loans to finance the completion of the asset incur interest on the amounts borrowed.

IAS 23 Borrowing costs addresses accounting for borrowing costs. Borrowing costs are defined as interest and other costs that an entity incurs when borrow funds. The core principle of the standard is that only those borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset should be capitalised. All other borrowing costs are expensed as incurred (IAS 23, par. 8).

2. Borrowing costs

According to IAS 23, borrowing costs consist in interest and other costs incurred in connection with the borrowing of funds.

Several aspects need to be considered regarding the borrowing costs.

Interest on short term loans or long-term debts, calculated using the effective interest method, should be included as part of borrowing cost. According to *IFRS 9 Financial Instruments*, the effective interest method is the method that is used in the calculation of the amortised cost of a financial asset or a financial liability and in the allocation and recognition of the interest revenue or interest expense in profit or loss over the relevant period.

The effective interest method takes into account all the fees and points paid or received that are an integral part of the effective interest rate, transaction costs and all other premiums or discounts.

The result of applying this method is to allocate interest expense over the relevant periods by producing a periodic interest expense equal to a constant percentage of the carrying amount of the liability. This means that transaction costs and fees are amortised over the life of the loan and are included in the interest expense.

For example, if an entity incurred CU 100 legal fees to raise a CU 10,000 loan that bears interest at the fixed rate of 10% per year, the borrowing costs are the interest on the loan and the amortisation of the legal fees. The entity accounts for the loan at amortised cost and the amortised cost requires the transaction costs of CU 100 to be included in the

initial measurement of the liability and recognised over the life of the loan using the effective interest method.

If an entity has acquired any asset under finance lease or any other similar arrangement, then those finance costs are also a part of borrowing cost.

If an entity has taken any borrowing in foreign currency, then the exchange rate fluctuation is also amortised to the extent this is regarded as an adjustment of interest costs. The gains and losses that are an adjustment to interest costs include the interest rate differential between borrowing costs that would be incurred if the entity borrowed funds in its functional currency and borrowing costs actually incurred on foreign currency borrowings. For determining the borrowing costs, the entity has to determine what portion of foreign exchange differences arises due to the differential between the interest rates in two countries and, thus, represents an adjustment to interest costs (PWC, 2015, pp. 10).

IAS 23 does not contain references about certain types of expenses, not being clear whether they are borrowing costs or not, for example dividends payable on preference shares (or other types of shares classified as liabilities) or gains or losses arising from early repayment of borrowings, etc.

Also, IAS 23 does not deal with the actual or imputed cost of equity, including preferred capital not classified as a liability. Accordingly, where a financial instrument has been classified as equity in accordance with *IAS 32 Financial Instruments: Presentation* the costs of servicing the equity instrument cannot be capitalised.

Because cost of equity is not capitalised, comparability between assets is achieved only for those assets that are financed with loans (not those financed with equity or by a combination of both) (Grant Thornton, 2009, pp. 10). The capital structure of an entity may affect the reported cost of a qualifying asset, the cost of the assets being different depending of the financing structure of the entities. The conclusion is that capitalisation of borrowing costs may result in different costs being attributed to identical assets, depending on whether the asset's acquisition, construction or production was financed by debt or equity or a combination of both (European Commission, 2008, pp. 7).

Additionally, if an entity has no loans and uses its own cash resources to finance the construction of an asset, cash being used for this investment could otherwise have been used to earn interest. The opportunity cost of the cash used for financing the asset's construction cannot be capitalised as a borrowing cost (PWC, 2008, pp. 8).

3. Qualifying assets

A qualifying asset is an asset that necessarily takes a substantial period of time to get ready for its intended use or sale. IAS 23 does not define the term ‘substantial period of time’. Management exercises judgement when determining which assets are qualifying assets, taking into account several factors, such as the nature of the asset or the manufacturing technology. An asset that normally takes more than one year to be ready for use is usually a qualifying asset. Once the criteria are determined, they have to be applied consistently to all types of assets.

For example, inventories are within the scope of IAS 23 when they meet the definition and require a substantial period of time to bring them to a sellable condition (e.g. aircrafts, ships or large items of equipment but also food and drink that take a long time to mature, such as certain types of cheese or alcoholic beverages). Inventories that are manufactured or produced in large quantities on a repetitive basis over a short period of time are not qualifying assets.

IAS 23 states that the assets that are ready for their intended use or sale when acquired are not qualifying assets. Therefore management intention has to be taken into consideration when assessing whether an asset is a qualifying asset. At the date of

acquisition management should assess whether an asset is 'ready for its intended use or sale'. The asset might be a qualifying asset, depending on how management intends to use it. For example, when an acquired asset can be used in combination with a larger group of fixed assets or was acquired specifically for the construction of one qualifying asset, the assessment of whether the acquired asset is a qualifying asset is made on a combined basis.

IAS 23 does not require entities to capitalise the borrowing costs related to assets measured at fair value that would be otherwise qualifying assets. If the assets held under fair value model with all changes going to profit or loss, then capitalisation would not affect measurement in the statement of financial position and would involve only a reallocation between finance costs and the fair value movement in profit or loss. Assets measured at fair value that falls under the revaluation model according to *IAS 16 Property, Plant and Equipment* are also eligible for this scope exemption of IAS 23 even though the revaluation gain or loss goes to other comprehensive income. Still, the revaluation model under IAS 16 is only applied subsequent to initial recognition therefore such assets may be qualifying assets at initial recognition, but subsequently they may be the subject to the scope exemption of IAS 23 (MFI, 2016, pp. 14).

4. Capitalisation of borrowing costs

The amount of borrowing costs that is capitalised is the interest cost of funds borrowed to finance the acquisition or construction of a specific asset, or a proportion of the funds borrowed by the entity for general use, using a weighted average cost of finance, in case that it is not possible to link specific funds borrowed with a specific qualifying asset.

IAS 23 states that expenditure on qualifying assets includes only that expenditure resulting in the payment of cash, the transfer of other assets or the assumption of interest bearing liabilities (IAS 23, par. 18). Therefore, costs of qualifying assets that have only been accrued but have not yet been paid in cash should be excluded from the amount in which interest is capitalised.

Borrowing costs that satisfy the 'directly attributable' criterion are generally those borrowing costs that would have been avoided if the expenditure on the qualifying asset had not been made. In case that an entity borrows funds generally, the borrowing costs are not always readily attributable to a qualifying asset.

IAS 23 does not define the terms 'specific borrowing' and 'general borrowing'.

Generally speaking, en entity takes a specific borrowing only for the purpose of financing the construction, acquisition or production of a qualifying asset, whereas general borrowings are loans for general purposes, like as buying inventory, paying off creditors and other purposes, additionally to the construction, acquisition or production of a qualifying asset.

The particular circumstances should be considered when management decides whether the borrowing is specific or general. For example, a bank overdraft facility is often used as general purpose borrowings, but it is also possible for a bank overdraft facility to be arranged specifically for a qualifying asset.

If an entity borrows funds specifically for the purpose of obtaining a qualifying asset, management determines the amount of borrowing costs eligible for capitalisation as the actual borrowing costs incurred on that borrowing during the period, less any investment income on the temporary investment of those borrowings, according to IAS 23.

The investment income on the temporary investment of the amount borrowed is deducted and only the net amount is capitalised. Such investment in which the funds can be invested must be specific borrowings and must be of a nature that does not expose the principal amount to the risk of not being recovered. The more risky the investment, the

greater is the probability that the borrowing is not specific to the qualifying asset. If the investment returns a loss rather than income, such losses are not added to the borrowing costs to be capitalised (MFI, 2016, pp. 16).

For example, on 1st March 201X, Company AAA took a bank loan of CU 510,000 at the interest rate of 10% per year for financing the construction of a storage facility; the loan is repayable after one year. The construction started on 1st May 201X. The entity invested CU 500,000 from the borrowed amount for one month - May - at the rate of 4% per year.

Although the bank loan was contracted on 1st March, the capitalisation starts on 1st May 201X when all criteria were met. The interest in March and April 201X was expensed in profit or loss, as the capitalisation criteria were not met in that period.

Total borrowing cost that is capitalised in 201X is calculated as follows:

- Interest expense: CU 510,000 x 10% x 8/12 = CU 34,000
- Less investment income: CU 500,000 x 4% x 1/12 = CU 1,667
- Total borrowing cost that is capitalised in 201X: CU 32,333

There are specific situations in which a qualifying asset is financed by a combination of bank loans that are specific to the asset and by general borrowings. In this case, management determines the amount of borrowing costs eligible for capitalisation by applying a capitalisation rate to the expenditures on that asset. IAS 23 requires that this rate to be calculated as the weighted average of the borrowing costs applicable to the borrowings of the entity that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset (IAS 23, par. 14).

For example, entity BBB took out the following loans in 201X: a bank loan of CU 300,000 at 12% per year and another one of CU 400,000 at 10% per year which were taken for no specific purpose and BBB used them to finance general spending and the production of new equipment.

BBB used CU 250,000 for the construction of the equipment on 1st March 201X and CU 300,000 on 1st July 201X.

The capitalisation rate is the calculated as a weighted average of the borrowing costs applicable to the general borrowings that were taken by the entity BBB.

The borrowing cost that is capitalised for the new equipment in 201X is calculated as follows:

- Weighted average rate = *((12% x 300,000) + (10% x 400,000))/(300,000 + 400,000)* = 10.86%
- Borrowing costs to be capitalised for the new equipment in 201X = *CU 250,000 x 10.86% x 10/12 + CU 300,000 x 10.86% x 6/12* = CU 38,915

Measuring the borrowing costs to be capitalised is more complicated when the borrowing is not a loan of a precise amount but a bank overdraft that increases as expenditure is paid for. If the borrowing is a precise amount, the capital sum is used for calculation of the capitalised borrowing costs. If the borrowing is a fluctuating amount (e.g. an overdraft) the calculation is based on the amount of the relevant expenditures and depends when they were incurred.

In assessing whether the expenditures (on which interest is incurred) are incurred evenly or at the beginning or end of a period or at different times during a period, the following matters have to be taken into consideration:

• if the costs are incurred evenly, interest expense should be measured using average borrowing balances; and

• if the costs are incurred at the beginning or end of a period, actual borrowing balances should be used (whether specific or general borrowings) (Kolitz, D.L., Sowden-Service, C.L., 2008, pp. 371-372).

An entity begins to capitalise borrowing costs on the commencement date which is when three conditions are met:

(i) it incurs expenditures for the asset;

(ii) it incurs borrowing costs for the asset; and

(iii) it undertakes activities that are necessary to prepare the asset for its intended use or sale.

Sometimes, necessary activities may start before the commencement of physical construction and include, for example, technical and administrative work such as obtaining permits. In this situation, the borrowing costs can be capitalised only if it is clear that the necessary permits for the construction will be obtained. No cost could be considered directly attributable prior to this point.

An entity suspends capitalisation of borrowing costs during extended periods in which it suspends active development of a qualifying asset.

An entity ceases to capitalise borrowing costs when substantially all the activities necessary to prepare the qualifying asset for its intended use or sale are complete.

5. Conclusions

Some of the arguments in favour of capitalising the borrowing costs are the following:

• a better matching of cost (interest) to benefit (use of asset); the borrowing costs are more accurately matched to future revenues when they are depreciated as part of the cost of the asset. IAS 23 is considered a classic example of the accruals/matching concept;

• in the historical cost basis the capitalisation of borrowing costs and their inclusion in the cost of the assets is a better conceptual approach than the expensing of borrowing costs;

• a better comparison between entities which buy the assets and those which construct, and

• the interest is treated like any other production costs, thus the cost of the asset is more accurately measured by the inclusion of borrowing costs.

One argument against capitalising the borrowing costs is that the capitalisation results in different costs being attributed to assets, that are otherwise identical, depending on whether the asset's acquisition, construction or production was financed by debt, equity or a combination of both. In this case the costs of the assets are different depending of the financing structure of the entities. Comparability is distorted as similar assets are measured at different costs depending on the method of finance.

If the expensing method were applied, the comparability would be increased between assets that are equity financed and those that are debt financed, as no financing cost is included in the cost of the asset.

Additionally, interest is treated differently from period to period, depending on what borrowing is used for, that is why the reported profit is distorted.

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THE ROLE OF COMPETITIVENESS ON THE SUSTAINABILITY OF THE NATIONAL REAL ECONOMY

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Abstract: *The sustainability of the real economy is interdependently influenced by the increase in the productivity and competitiveness of the economic sectors, as well as by the current challenges facing the economic environment not only at national level, but also globally, including: trust (lack of collaboration) between the market actors (firms, institutions, authorities), entrepreneurship (demographics, structure, business environment resilience), the dynamics of the economy, human resources and education (critical mass and quality of workforce), innovation (demand and supply research resources, critical mass of researchers and innovative firms), creativity (entrepreneurial culture, innovation community), resource efficiency and excellence (priority sectors and international competitiveness). Moreover, the influence of digital technologies (especially in the field of finance), i.e. their integration into the economic sectors, leads us to the hypothesis that they can also be introduced in the range of the current challenges, with impact on the competitiveness and the sustainability of the real economy. The objective of the paper is to integrate these challenges into a coherent, medium-term vision, support for the concrete proposals package for the sustainable development of the national economy, in line with the strategic and competitive priority areas based on the economic data resulting from the analysis of the balance sheets of economic agents at national level.*

Key words: *competitiveness, digital technologies, sustainability*
JEL Classification: *O32, P42 and Q01*

1. Introduction

The existence of a stable macroeconomic and financial framework is a prerequisite for creating an environment favorable to the assertion of the competitive potential of the business environment.

Table no.1. Macroeconomic indicators of budget construction

Indicators	2018	2019
GDP - million lei	949.600	1.022.500
Economic growth %	4,5	5,5
Average annual inflation%	4,63	2,8
Unemployed (total number of people at the end of the year)	288.900	287.000
Unemployment rate at the end of the year%	3,31	3,2
Gross average earning - lei	4.502	5.163
Net average earning - lei	2.685	3.085
Average number of employees - thousands of people	6.525	6.655

Source: Ministry of Public Finance (http://discutii.mfinante.ro/static/10/Mfp/ Prezentarebuget2019.pdf)

In 2019, the budget deficit is estimated at 2.55% of GDP according to the Ministry of Public Finance, while the ESA deficit is 2.57% of GDP, with the target of a budget deficit below 3% of GDP, according to the Maastricht Treaty, which could mean creating the appropriate framework for the development of the national economy. Moreover, in 2017 Romania ranks 5th among the EU Member States with the lowest level of indebtedness, with a public debt in GDP of 35.1%, significantly below the level recorded in the euro area (88.9% of GDP) and the European Union (83.2% of GDP).

The estimated level of government gross debt for the end of 2018 is 34.9% of GDP, and in the medium term (2019-2021) it will be below 40% of GDP, a level below the 60% ceiling set by the Maastricht Treaty, according to the Ministry of Public Finance. However, it should be noted that in order to create an environment favorable to the development of economic competitiveness, country risk is also based on other factors that we should take into account, especially in the current context in which some financial institutions have revised this risk, which limits some cases have access to, for example, companies for cheaper financing sources on international markets. For the year 2019, a government gross debt ratio of 35.3% is estimated.

In order to have an adequate picture of the current strategic framework in the real economy and on the basis of national sectoral analyzes, 10 sectors with a competitive potential were identified and correlated with the areas of intelligent specialization identified in the *National Strategy for Research, Development and Innovation 2014-2020* (Table 2). The rationale for selecting these sectors was based on three main reasons: the structural dynamics of the economy, which brought new sectors into competitive positions, the economy's dependence on employment and the added value of traditional sectors with competitive advantages, and the role rising innovation and technological development in integrating global value chains.

Table no.2. Economic sectors with competitive potential

Fields of Intelligent Specialization in the Strategy CDI 2014-2020 Economic sectors with competitive potential	**Bio economy**	**Information and communication technology, space and security**	**Energy, Environment and Climate Change**	**Eco-Nano-technologies and advanced materials**	**Health**
An important economic and employment-related role					
Tourism and ecotourism	✓		✓		✓
Textiles and leather goods				✓	
Wood and furniture				✓	
Creative industries			✓	✓	✓
Competitive dynamics					
Automotive industry and components		✓		✓	
Information and communication technology		✓			
Food and beverage processing	✓			✓	✓
Innovation, technological development and added value					
Health and pharmaceuticals	✓			✓	✓
Energy and environmental management	✓	✓	✓		
Bio-Economy (Agriculture, Forestry, Fisheries and Aquaculture), Biopharmaceuticals and Biotechnologies	✓		✓	✓	✓

Source: National Strategy for Competitiveness 2015-2020

In order to be able to refer directly to the sectors that are competitive in the real economy, we start from the analysis of the balance sheets at the level of the economic agents in Romania and in the paper the relevance element is given by the analysis of these data in the context of the challenges and the definition of the of strategic importance of the priority sectors for the Romanian economy.

2. Methodology of scientific research

In order to underpin the research methodology, the classical observation and examination instruments, research methods based on the basic principles of scientific research, namely: competence, objectivity, truth, methodical, demonstration, correlation, evaluation of results, utility and psychomoral. It will use procedures based on factual analysis, intensive documentation at the level of domestic and international literature, using the databases and the scientific material existing in the endowment of the libraries of specific institutes in Romania and internationally.

The *methodology of the research paper* will have as direct instruments the collection of data and information from the literature and from the existing practice in public and private institutions, but especially scientific articles published on specialized research networks (ResearchGate, Academia.edu, etc.), articles published in different journals, relevant books in the field of reference, legislation, analyses and studies, official documents of various tax bodies, tax documents and interactive database of the National Bank of Romania, other relevant sources identified at the libraries: CCFM, Academia Romanian, INCE, IEN, BNR, National Library, INS, etc. Moreover, in the methodology we will analyses the documents using the comparative, analytical, descriptive method, no participative and participatory observation, and the use of a set of informational sources, the collection of financial data in the established databases. Also, the paper will be based on annual reports, publications, consolidated statistical data provided by the National Bank of Romania, the European Central Bank (ECB), the International Settlement Bank (BRI), the European Commission, OECD, published annually, data to be processed in order to be able to provide a general and analytical picture of the most important changes taking place in the European Union as a whole, but also globally - considered representative for the understanding of the phenomena studied, and especially in Romania.

Information support for research will be provided by monographs, books, scientific papers, materials of scientific conferences, the balance sheets of SMEs in 2007-2017, as well as other materials, which are presented in scientific papers and publications on the official pages of national and international research institutes, international financial institutions (research centers), etc.

3. Research results

In order to be able to state which of the economic sectors at the national level are competitive or not, in our analysis we consider that the main element from which we leave are the real data reflected in the economic accounts of the economic units in each branch. Within the financial microeconomics department within the Center for Financial and Monetary Research - Victor Slavescu, an analysis is made on 57 financial indicators at the level of each economic agent. Thus, for the accuracy of the data it is found in nominal terms, the total assets in the real economy were 95.25% higher in 2017 compared to 2007. As one of the most synthetic indicators for determining the microeconomic activity potential, these results were due to a cumulative positive and negative influence on the structure of this indicator. Synthetically, over the period 2007-2017, the total assets of the real economy broken down by branches are presented in the following table.

Table no. 3. Dynamics of average total assets during 2007-2017 for the companies grouped by branches of the national economy

No crt.	Branches national economy	Dynamic (2007=100%)									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
1	Agriculture, forestry and fishing	160,92	158,77	180,04	172,96	207,93	184,64	203,41	209,09	235,14	243,75
2	Extractive industry	117,98	116,14	133,47	138,48	153,38	160,89	171,96	46,85	170,04	174,62
3	Manufacturing industry	127,94	124,68	144,38	164,67	171,52	171,35	177,53	182,85	186,14	195,79
4	Production and supply of electricity and heat, gas, hot water and air conditioning	209,52	140,10	129,02	129,67	127,60	105,15	91,45	95,88	103,60	103,89
5	Water distribution, sanitation, waste management, decontamination activities	219,38	241,97	271,53	253,82	240,08	252,97	286,78	327,36	320,56	323,32
6	Construction	125,08	125,64	153,27	173,39	221,65	207,97	150,92	207,77	199,04	198,14
7	Wholesale and retail trade, repair of motor vehicles and motorcycles	139,92	125,96	143,23	157,14	162,07	160,14	162,91	174,63	180,16	196,35
8	Transport and storage	115,54	119,19	103,74	99,95	97,27	88,85	95,75	94,75	93,23	93,79
9	Hotels and restaurants	138,15	120,85	130,07	137,18	131,9	131,94	135,91	136,85	141,61	149,04
10	Information and telecommunication	49,90	47,27	53,87	59,61	168,72	50,56	54,90	54,53	160,94	166,92
11	Real estate transactions, rentals and services mainly provided to companies	172,22	210,24	277,22	210,99	159,65	158,3	200,83	155,82	161,46	164,32
12	Professional, scientific and technical activities	129,78	129,55	163,27	182,95	196,53	204,68	218,61	214,41	200,71	916,49
13	Administrative service activities and support service activities	74,55	5,53	6,31	26,93	11,36	19,54	19,64	19,72	15,02	13,42
14	Education	120,24	118,49	165,48	218,07	182,33	128,99	155,72	131,73	101,78	121,79
15	Health and social assistance	150,79	159,34	187,5	207,33	246,11	243,9	250,12	270,83	258,35	260,52
16	Performing, cultural and recreational activities	284,21	226,73	269,55	281,51	111,18	259,83	229,96	272,96	90,70	84,78
17	Other activities of the national economy	111,40	106,70	110,39	119,68	144,29	120,14	117,27	107,70	144,40	145,26
	Total	133,42	121,26	140,42	149,56	148,92	149,40	152,22	150,34	153,48	179,47

Source: calculated on the basis of data provided by the Ministry of Public Finance (the annual financial statements of the active trading companies in the real economy of Romania)

It should be noted that in the production and supply of electric and thermal energy, gas, hot water and air conditioning, commercial companies have, on average, the total assets with the highest value (more than 116.73 million lei) but with an obvious trend (in 2017, the average total asset value was 3.89% higher than in 2007).

Although in the fields of "Professional, scientific and technical activities" and "Water distribution, sanitation, waste management, decontamination activities" the average total assets level is well below the level of "Production and supply of electric and thermal energy, gas, hot water and air conditioning ", the highest growth rates were registered (the average total assets at 31 December 2017 was more than 9.16 times and 3.23 times higher than at the end of 2007).

Of course, an explanation of the presented situation is the technological processes for some branches of the real economy ("Production and supply of electric and thermal energy, gas, hot water and air conditioning") involving large unit investments, but also other exogenous factors that have influenced in the structure of average total assets (the market, the labor market, etc.).

From a territorial point of view, there is a known asymmetry regarding the territorial distribution of economic activity, on average, the companies in the development region Bucharest - Ilfov have the highest total assets, while in the South-West development region the levels are recorded smaller. The highest dynamics were recorded in the Bucharest-Ilfov and South development regions where, over the period 2007-2017, the

total assets increased by more than 75.20%, respectively by over 76.84%. During the same period, the North East region registered the lowest increases, respectively + 51.16%.

Cash availability may be one of the most important elements of microeconomic financial potential and reflects the level of concordance with the supply and sales market as well as the importance given to the total funding sources.[1] Significant increases in average availability were recorded between 2007 and 2017 (at the end of 2017, on average, cash availability was 95.20% higher than at 31 December 2007). Synthetically, over the period 2007-2017, the average availability for real-sector firms, broken down by branch, is shown in the table below.

Table no. 4. The dynamics of average money supply over the period 2007-2017 for the companies grouped by branches of the national economy

No. crt.	Branches national economy	Dynamic (2007=100%)									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
1	Agriculture, forestry and fishing	105,78	110,68	143,97	169,37	184,20	190,40	233,41	242,41	313,75	362,98
2	Extractive industry	60,16	52,18	62,98	34,94	22,16	20,95	25,53	34,93	92,61	165,48
3	Manufacturing industry	121,04	117,45	143,58	151,10	153,90	158,46	172,98	211,05	209,30	207,60
4	Production and supply of electricity and heat, gas, hot water and air conditioning	367,03	203,81	156,32	122,69	130,48	122,05	128,13	161,43	193,97	191,39
5	Water distribution, sanitation, waste management, decontamination activities	373,03	522,26	542,04	468,43	379,70	404,46	470,02	449,17	548,85	601,67
6	Construction	91,91	90,75	112,60	126,88	116,46	123,98	143,64	211,27	169,69	173,37
7	Wholesale and retail trade, repair of motor vehicles and motorcycles	115,98	98,40	109,03	124,47	122,68	129,08	143,65	195,00	202,07	219,85
8	Transport and storage	104,01	89,21	89,05	94,86	82,83	85,99	120,18	148,22	162,55	167,65
9	Hotels and restaurants	111,01	86,81	81,17	92,29	73,92	96,91	113,36	149,96	153,95	197,32
10	Information and telecommunication	58,08	49,43	56,04	68,06	148,94	75,10	99,01	128,67	184,40	205,82
11	Real estate transactions, rentals and services mainly provided to companies	119,83	101,11	99,47	100,92	73,37	78,16	107,92	104,60	113,46	139,58
12	Professional, scientific and technical activities	119,50	111,20	128,49	137,55	138,84	149,60	191,54	194,60	169,21	186,43
13	Administrative service activities and support service activities	96,14	56,63	55,58	92,91	82,03	79,35	90,80	111,26	92,91	103,91
14	Education	103,95	94,99	141,24	130,55	114,45	132,74	147,83	179,12	158,65	171,97
15	Health and social assistance	121,86	128,73	135,11	150,75	174,35	182,68	199,08	302,95	221,48	269,22
16	Performing, cultural and recreational activities	192,86	167,73	205,63	200,85	147,23	193,06	177,47	252,39	149,67	136,36
17	Other activities of the national economy	106,29	95,29	106,07	122,86	181,49	134,32	150,25	172,01	244,62	267,11
Total		120,60	105,97	119,49	126,22	120,63	128,50	147,82	185,24	183,01	195,20

Source: calculated on the basis of data provided by the Ministry of Public Finance (the annual financial statements of the active trading companies in the real economy of Romania)

It should be noted that in the branch "Production and supply of electric and thermal energy, gas, hot water and air conditioning" the commercial companies, on average, have the

[1] On the balance sheet this item is reflected as inventory at the end of the period and used as a potential asset of the activity.

highest available funds (over 9,20 million at the end of 2017) and with significant growth rates (in 2017, average money availability was 91.39% higher than in 2007).

In the branch of "Other activities of the national economy", the companies have on average the lowest money availability (39.18 thousand MDL as at December 31, 2017) and "Water distribution, sanitation, waste management, decontamination activities "The highest growth rates are recorded (average cash availability as of 31 December 2017 was about 6.02 times higher than at the end of 2007).

The average level of cash availability varies greatly from one branch to the next because the technical endowment, the complexity of the technological processes, the supply and sales conditions as well as the financing policy are specific for each domain and economic agent.

In order to compete on a competitive basis, economic agents must resort to the implementation of technological innovations (which is also one of the greatest challenges today) and, in parallel, must attract well-trained workforce to face this new Industrial Revolution V (industry 5.0). Starting from Industry 4.0. with its component digitization of Rüßmann et al. (2015) "will increase productivity in the manufacturing industry, change the economy, increase industrial output and change the profile of the 32 workforce - ultimately changing the competitiveness of companies and regions" (Russmann, et al., 2015, p. 6). 33. Parviainen et al. (2017) considers that "digitization has been identified as one of the major trends changing society and businesses in the near future and in the long run the impact of digitization will be important, compared to the industrial revolution by several authors" (Parviainen et al., 2017, p. 64). E. Stolterman and AC Fors (2004), Parviainen et al. (2017) asserts that the term digitization refers to "the digitization action or process, the conversion of analogue data (images, video and text) into digital form," while digitizing refers to "can be understood as the changes that digital technology causes or influences in all aspects of human life" (Parviainen et al., 2017; Stolterman and Fors, 2004, p. 689). Furthermore, Kagermann (2015) mentions that digitization is "the continuous convergence of the real and virtual world and can be regarded as the main engine of innovation and change in all sectors of our economy". Brennen and Kreiss (2014) states that digitization refers to "adopting or increasing the use of digital technology or computers by an organization, industry, country, etc.". All of these concepts and theories determine us to re-evaluate the competitive sectors both through the analysis of data at the level reported by the companies, but especially through the adaptation and adoption by them of the new (digital) instruments with a direct impact on their business model. According to I-scoop.eu, digitization could be defined as "the transformation from analog to digital or digital of a physical element in order to digitize and automate processes or workflows" (Clerk, 2019).

4. Conclusions

The presentation of the ten strategic sectors included in the national competitiveness strategy as well as the analysis of the data mentioned in *Table no.3* lead us to the direct conclusion that all these strategically selected sectors are dynamic on an ascending trend, confirms that they have been well-selected in national priorities in terms of financial indicators. Therefore, the challenges should not be regarded as urgent needs to be addressed but must be evaluated, correlated and strategically improved to improve the strengths Romania has or can have in the current European context and in the context of globally. As mentioned in the paper, Industry 5.0. will contribute to the rethinking of the elements of sustainability of the national economy, which means that besides the economic, social and environmental element, there is the element "information" that will not only circulate both in real and virtual space, and it will influence us the competitiveness of the national economy as a whole.

In order to rebalance the functional, competitive relationship between the economy, nature and society, it is necessary to identify adequate tools and methods for implementing programs that provide for both financial and institutional measures. At SME level, financial instruments under the above strategy "must aim at increasing investment in equipment and know-how to reduce unit energy consumption, increase non-banking institutions, diversify financial instruments (e.g., the formation of the social bond market) or investments in the reconstruction of vulnerable areas in areas of economic activity (recreational services, cultural and creative industries, amusement parks and artistic theme centers), which predominantly occupy the young labor force. Institutionally, there is a need to implement a system for assessing and monitoring the effects of socio-economic development and coordinating measures to increase bio-capability, including to reduce the ecological footprint of Romania or to implement mobility schemes at the macro-regions level for the transfer of good practices, investment programs for soft cooperation and the development of research partnerships to improve the quality of life" (National Competitiveness Strategy 2015-2020).

Another element determined in increasing the competitiveness of economic agents is given by research and innovation. The level of RDI expenditures was only 0.48% of GDP (2011), of which private sector expenditures represent 0.17% of GDP (2011), placing Romania on the penultimate position of the European Innovation Union Scoreboard 201350. However, we can mention that in certain sectors of activity, such as IT, the elements of innovation and competitiveness are beginning to emerge. The fact that the private environment does not seem to be interested in research is a challenge at the moment, along with the lack of a critical mass of researchers. At the same time, the percentage of SMEs engaged in innovation activities is low, making it a priority for SMEs to be supported in the coming period to launch innovative products or services through venture capital funds, grants, collaborative projects, etc. Romania holds the last position for the categories "links and entrepreneurship" and "intellectual assets" and penultimate for the "quality of research systems". Some additional data explains this performance: Romania registered only two EPO patent applications per million inhabitants in 2010, compared to a European average of 109; the percentage of RDI employees in the active population is 0.5% compared to a European average of 1.5%; only 30%. According to the European Commission (2013), Innovation Union Scoreboard 2013 of the enterprises had innovation activities in the year 2010 compared to 52.9% at EU27 level, according to CIS (Community Innovation Survey) results, the percentage of technological innovators being the lowest among European countries, and so on.

In order to meet the identified challenges, the strategic steps undertaken by Romania aim at promoting innovation and improving the technological transfer through the development of a smart specialization component, based on the industrial sectors, services and regions identified as having a high innovative potential, in order to stimulate their capacity to attract SMEs in the supply chain, to innovate the technological processes and products and to penetrate new markets. In order to strengthen the competitiveness level of SMEs in the Romanian economy, we consider that in addition to national support resources for national strategic development, the economic agents also have additional resources available to the public proposed by the National Plan for RDI can be attracted through the main European financing program R & D & I for 2014-2020, Horizon 2020, whose core objective is to develop key European enabling technologies (KET), including photonics, microelectronics and Nano electronics, nanotechnologies, advanced materials , advanced manufacturing and processing systems, and biotechnology. In addition to the priority industrial areas, Horizon 2020 facilitates cooperation between businesses, higher education institutions and research centers through the so-called Knowledge and

Innovation Communities (KICs) developed within the European Institute of Innovation and Technology (EIT) or through partnership programs public-private open to top research areas. Investments in RDI also have as important sources the Structural and Cohesion Funds 2014-2020, which, unlike Horizon 2020, consider strengthening R & D capacity taking into account the particularities of the level of economic development. The actions covered here range from innovation business activity to supporting competitive business agglomerations to the promotion of business consulting services in R & D & I, including in the field of services, creative centers, cultural and creative industries, and social innovation. Complementary resources come from other European Initiatives such as the European Innovation Partnerships (e.g. the European Innovation Partnership on Active and Healthy Aging or Sustainable Agriculture and Productivity Aging) or the type of cross-border cooperation (e.g. Knowledge Based Alliances with Erasmus +).

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